

Data sheet

LX-601



Linea-Series

Directional Speakers.



FOHNN®
HYBRID LINE ARRAY TECHNOLOGY





Description

Fohhn® Linea LX-600/601 compact, high performance line array systems enable perfect transmission of speech, even in difficult acoustic conditions. The speakers' tightly controlled sound dispersion characteristics mean that unwanted reflections from the ceiling or floor can be avoided, dramatically improving speech intelligibility. Complex microphone set-ups can also be used without any problems.

Each LX-600/601 passive, two-way line source speaker system has a power handling capability of 1000 W at 8 ohms, housing 6x 6.5-inch speakers and 4x 1-inch compression drivers with Fohhn® Waveguide. A 100° x 20° (H x V) dispersion ensures that sound is transmitted directly to the audience, while reverberations from the floor and ceiling are significantly reduced, thus improving both sound quality and speech intelligibility. Each speaker weighs in at just 29 kg, offering a practical solution for use in a variety of performance situations.

Designed primarily for mobile applications, the LX-600 is fitted with an 8-pin Phoenix terminal. Its sleek design and elegant birch plywood (metal strengthened) housing is suitable to installation in a variety of modern and historic settings. Its mobile counterpart, the LX-601, has two Speakon sockets and includes integrated handles on the top and bottom. The speaker housing has an additional PU coating to help withstand the rigours of touring. Quick to set up, with easy tripod operation, the LX-601 provides an effective system with true line array qualities.

Both the LX-600/601 are fully compatible with the Fohhn system concept. The LX-600/601 can be effectively teamed with the XS-30, XS-4 or PS-9 active subwoofer, forming the essential components of Fohhn's new Linea Live IV system.

The next generation of Hybrid Line Array Systems

The Fohhn® Linea LX-601 passive, two-way line source speaker system has a power handling capability of 1000 W at 8 ohms, housing 6x 6.5-inch speakers and 4x 1-inch compression drivers with waveguide.

Linea LX-601 speakers are superbly manufactured and totally convincing with their elegant design and excellent sound quality. They are exclusively equipped with state-of-the-art neodymium loudspeakers. Their rounded, slim housing is made from top quality birch plywood that has been weatherproofed, strengthened with aluminium. All standard RAL colours are available on request. Accessories for tripod use or flying are also available, enhancing the speakers' professional performance.

Accessories

The optional VLX-600 flying adaptor allows LX-600/601 speakers to be quickly and securely mounted on a traverse, and optimally positioned. An optional ring eye enables rear attachment of a safety wire to comply with international regulations. Used with a tripod, the optional SA-8 enables the line array's sound directionality to be precisely adjusted for optimum audience coverage. 8 x M6 and 2 x M8 threaded inserts are included for attachment to ring eyes and suspension points.

Controlling Linea LX speakers

We always integrate a sophisticated passive crossover with electronic high-frequency protection so you can operate the LX-600/601 with any professional amplifier. For maximum sound performance and operating reliability, we recommend our digital DSP amplifiers (e.g. D-2.1500). Its integrated DSP technology includes a number of factory loudspeaker presets. These guarantee total operating reliability and superb performance at any sound pressure level. Programmable audio tools, such as the 10-band parametric EQ, enable quick adjustments to suit the room acoustic and any related microphone set-ups. All DSP functions can be carried out remotely using a laptop.

DSP technology

Fohhn® DSP processor technology modulates the Linea LX-600/601 and Fohhn subwoofers perfectly. Digital Fohhn signal processors are integral components of active Fohhn subwoofers, Fohhn DSP amplifiers and Fohhn DSP controllers. DSP-controlled Fohhn devices can be controlled remotely from a central location in the room or on the stage via intuitive remote control units. Fohhn therefore offers a perfectly adapted sound system that fulfils all the requirements of a modern speaker system regarding design, sound quality and operating comfort in every respect.

Applications

Live Music Performance, DJ Events, Speech Applications, Rock Concerts, Conferences, Classical Music Events, Musicals, Performances in Tents, e.g. Festivals, Mobile Theatre, Productions, Worship, Church Concerts e.g.

Optional versions

All RAL colours.

Connections

2 Speakon sockets in parallel to loop through another speaker system.



Technical specifications

electro-acoustical features

acoustic design	passive hybrid line source speaker system, 2-way
components [°]	6x 6,5" long excursion, prefixed compression chamber with phase board, 4x 1" compression driver on Fohhn®-Waveguide with self-resetting IPC[*]-HF protection, fully neodymium
power rating (nominal) ^[1]	1000 W
power rating (program) ^[2]	2000 W
power rating (peak) ^[3]	4000 W
sensitivity ^[4]	101 dB
maximum SPL ^[3]	136 dB
frequency range ^[5]	75 Hz – 20 kHz
nominal dispersion (h x v) ^[6]	100° x 20°
nominal impedance	8 ohms

features

enclosure	birch plywood designer cabinet, metal strengthened, aluminium
protection grille	ball impact resistant metal, powder coating
suspension points	10x M6 and 2x M8 thread
connections	2x NL4 Neutrik Speakon
standard colour	scratch-proof plastic coating, black
front design	acoustic foam, same colour as enclosure
handles	2x integrated handles on top and button 1x unscrewable handle on rear side
dimensions (W x H x D)	195 x 1500 x 238 mm
weight ^[7]	29 kg

optional features

optional colours	all RAL-colours
weather resistance	impregnated speaker membranes

CAAD simulation data

EASE

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

^[1] according to IEC-60268-5 long term

^[2] according to IEC-60268-5 short term

^[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

^[*] Intelligent Protection Circuit. Voltage-controlled semiconductor circuit protecting the HF-driver against overload highly effective and with very short attack time.



Fohhn® Hybrid Line Array technology.

Unique! High performance line array technology in a compact box!

We have been developing and researching high-quality line array speakers for many years. Our objective is to incorporate the advantages of modular line array systems into compact systems that are easy to implement. The key to achieving these objectives was the development of a completely new system that reproduces live signals at high levels and combines all the advantages of a modular line array system. Designing the speakers in the shape of a column was the logical consequence. However, achieving maximum sound quality at high volumes with the new design required the use of powerful bassmid speakers combined with horn-loaded compression drivers. The use of a waveguide with directivity adapted specifically to the bass-mid array was an essential factor in achieving coherent dispersion at high frequencies.

Systems from the Fohhn Linea LX series have a hybrid design that is based on a combination of classic two-way speakers and modular line array, and incorporates the functional advantages of both principles. While on larger line arrays the compression driver, waveguide and horn are always arranged in front of one another, this configuration was not possible on the LX series due to the low depth. An extremely complex project with an overall duration of more than a year and a completely new approach to developing the Fohhn HWC (horn-loaded wavefront converter) were required to accommodate all three elements in the housing. In the HWC, a waveguide that produces a vertical, slightly curved cylindrical wave from the wave fronts of four individual 1" drivers was integrated spatially in a horizontal constant directivity horn to maximise the useable sound pressure. The waveguide was the only element that allowed the development of such a narrow system design without requiring modifications that would affect the configuration or dynamics. From a mechanical perspective, the dimensions and the system weight were reduced to a minimum by using appropriate materials for the housing, magnet system and other components.

Linea LX: An overview of the main advantages

*** First-class sound with excellent dynamics**

Whether used for full-on live music and DJ events, or for demanding speech applications, Linea LX-600/601 systems guarantee superb sound quality at any loudspeaker level.

*** Even sound distribution with Fohhn Hybrid Line Array Technology**

Compared with conventional systems, sound is distributed much more evenly throughout the room, with a pleasing effect at the front and clear, coherent sound right at the back.

*** Superb speech intelligibility**

Sound can be specifically targeted towards the audience, avoiding unwanted reflections from the ceiling or floor. For the listener, the result is clear and pleasant. Speech intelligibility is considerably improved.

*** Perfect integration into room architecture and stage designs**

The elegant designer speakers integrate extraordinarily well into their surroundings. They won't interfere with either stage designs or camera shots.

*** Disturbance-free listening**

Feedback is rarely an issue, even with complex microphone set-ups.

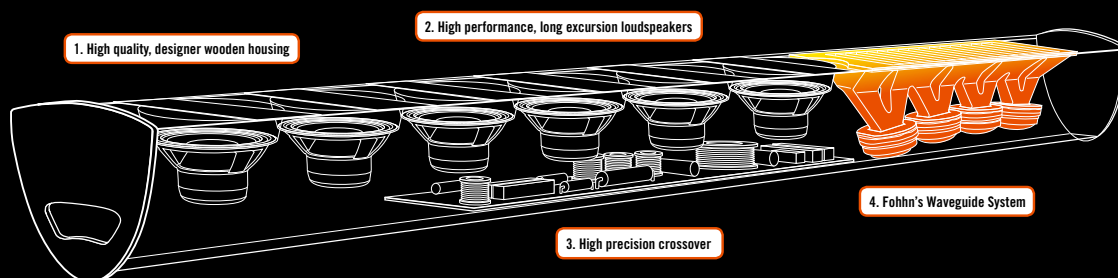
*** Easier transportation and quicker set-up**

LX-600/601 speakers are equipped with state-of-the-art, light-weight neodymium loudspeaker technology. Conveniently positioned handles ensure quick and safe set-up. The speakers' compact dimensions reduce the amount of space needed for storage and transportation.

*** No need for expensive rigging or curving**

Compared with modular line array systems, no expensive flying mechanisms, rigging or curving are necessary. All the line array technology is integrated into a single housing, enabling quick and easy installation.

The difference is the detail.



drawing: LX-601

1. High quality, designer wooden housing for elegant appearance. The speaker housing is made from premium quality birch plywood (Class A, weather resistant and aluminium strengthened), which meets the most demanding requirements. A black polyurethane coating is designed to provide maximum protection for the internal components. All standard RAL colours are available on request. The speaker's slim, rounded form integrates perfectly into both the stage designs and room architecture.

3. High precision crossover for perfect optimization of the loudspeaker system. The speaker's 6.5" chassis and 1" high frequency drivers are effectively linked via a high precision crossover with specially selected components. Fohhn's Intelligent Protection Circuit (IPC) prevents the high frequency drivers from overloading.

2. High performance, long excursion loudspeakers for effective dynamics. Specially produced for Fohhn, the 6.5" long excursion speaker features state-of-the-art neodymium technology, guaranteeing powerful, dynamic reproduction of speech, vocal and instrumental performance. The plastic coated drivers are exceptionally tough and enable distortion-free sound reproduction. Closely positioned in a perfect linear format, the loudspeaker chassis generate a cylindrical wave in low-mid frequency ranges.

4. Perfect high frequency sound reproduction from Fohhn's Waveguide System with four 1" compression drivers. Four high performance 1" compression drivers with Fohhn Waveguide are designed to provide optimum focus in the high frequency range, along with crystal clear sound. The cylindrical wave generated in the mid range continues right up to the top end.

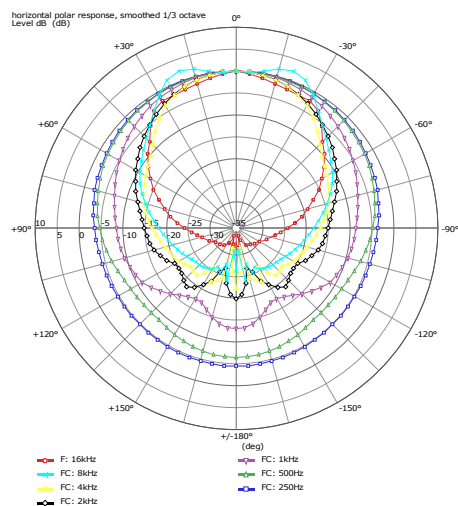


Fig. 1: Horizontal polar pattern

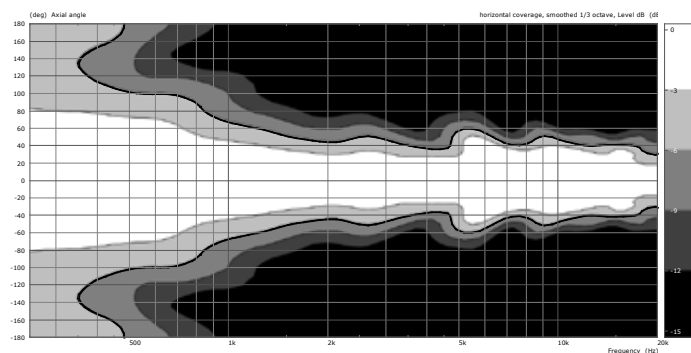


Fig. 2: Horizontal coverage

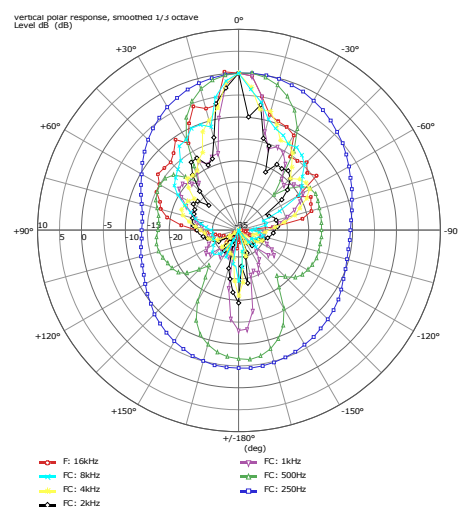


Fig. 3: Vertical polar pattern

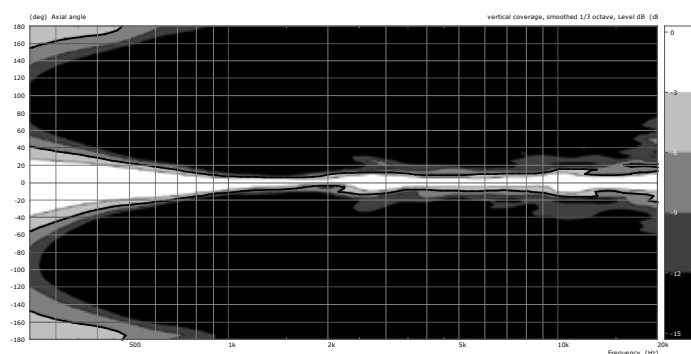


Fig. 4: Vertical coverage

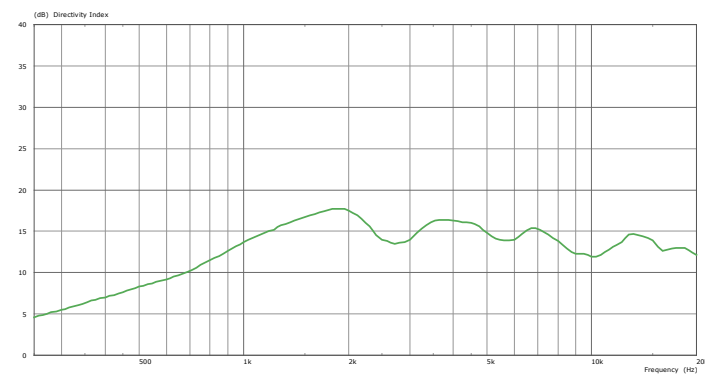


Fig. 5: Directivity index

Fig. 6: Frequency response

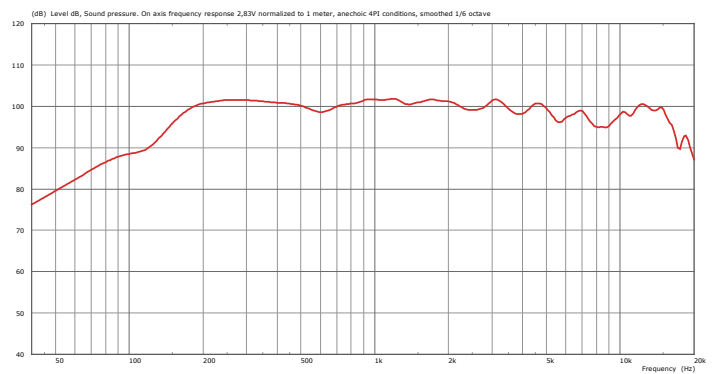


Fig. 7: Impedance

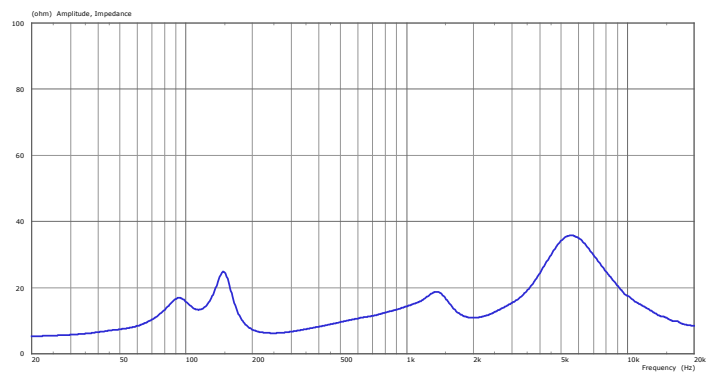
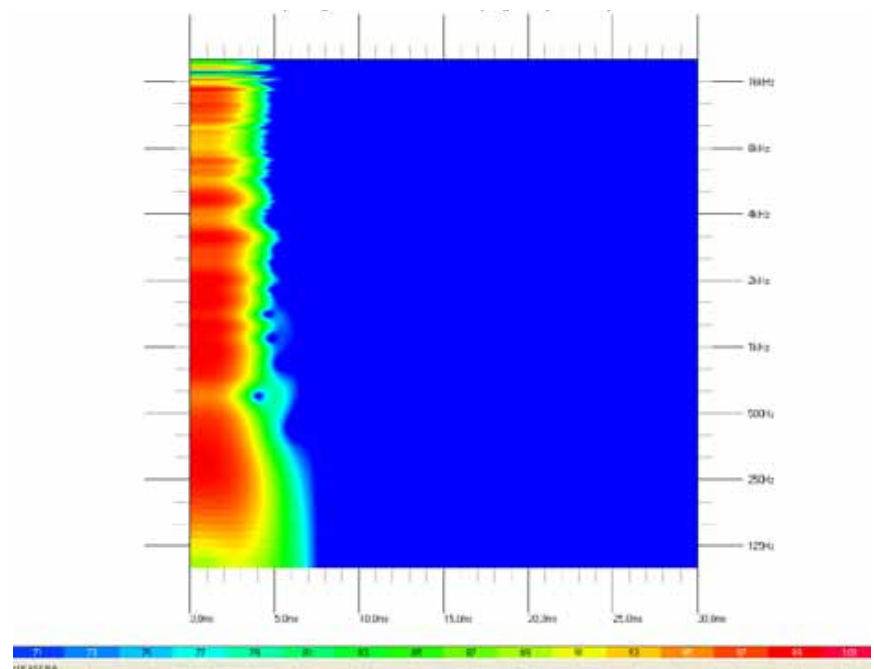


Fig. 8: Spectral decay



Controlling Linea-Series speakers

1. Fohhn system DSP amplifiers

Fohhn offers a range of specially adapted system DSP amplifiers for controlling Arc speaker systems, which guarantee maximum sound performance and operational reliability for your Fohhn products. As manufacturers of speaker, amplifier and DSP technology, we know our systems inside and out right down to the smallest detail and are therefore in a perfect position to provide our users with the best overAL--l system.

Fohhn System DSP amplifier are offering following advantages:

Integrated high-performance DSP technology:

- quick set-up,
- minimal space requirements in electronics cabinet,
- minimal cable requirements,
- fewer cable faults,
- controller and amplifier can be controlled and monitored using the same software.

Dual DSP technology

The DSP amplifiers contain 2 separate DSP engines with enormous capacity and processing power for 5 digital audio devices (DSP-1) and Fohhn specific speaker databases (DSP-2).

Remote monitoring and control

Integrated temperature and operating time monitor, status indicator / protection, remote control capability / network compatibility using a laptop, wall installation modules or media control systems.

Fohhn® dual DSP technology

DSP-1: Integrated digital audio devices

Each amplifier channel has a:

- programmable 10 band parametric EQ,
- compressor/limiter/noise gate,
- delay,
- X-over function,
- top-quality pink noise and sweeptone generator

DSP-2: Speaker management

An integrated speaker database guarantees excellent sound quality and protection for all Fohhn speaker types. A sophisticated algorithm developed by Fohhn engineers and adapted to each speaker allows the individual monitoring and adjustment of bass, mid and high ranges.

1.1 Amplifier recommendations for the Linea-Series

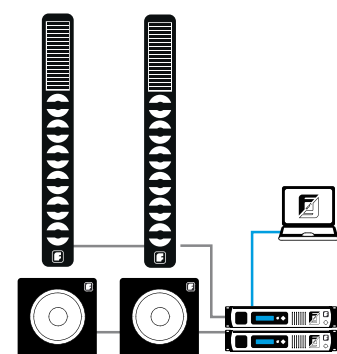


D-2.1500

2 channel operation, 2x 1500 W / 4 ohms, 2x 900 W / 8 ohms

Fohhn Audio DSP, display, remote control

	Arc-Tops										Linea		Arc-Subs										
	AT-05	AT-06	AT-07	AT-08	AT-09	AT-10	AT-20	AT-21w	AT-30	AT-35	AT-40	AT-50	AT-66	LX-100/150	LX-600/601	AS-10	ASP-10	AS-20	ASP-20	AS-30	ASP-30	AS-40	ASP-40
D-2.750	x	x	x	x	x	x	x	x	x					x		x	x	x	x				
D-4.750	x	x	x	x	x	x	x	x	x					x		x	x	x	x				
D-2.1500									x	x	x	x	x	x	x					x	x	x	x
K-3															x								



2x Sub passive / 2x Top passive
2x DSP amplifier

Controlling Linea-Series speakers

2. Standard amplifiers combined with Fohhn controllers

Standard amplifiers / 100V amplifiers / multichannel amplifiers combined with Fohhn FC-8 DSP system controllers

All of the Fohhn speaker systems can be operated in combination with standard amplifiers (e.g. Bittner amplifiers). Each Fohhn speaker model has a linear design, neutral sound adaptation function and is fitted with an integrated crossover with electronic tweeter protection.

We recommend integrating the FC-8 Fohhn DSP system controller for applications involving standard multichannel amplifiers, 100V amplifiers or monitored amplifiers according to EN 60849.

The FC-8 guarantees maximum sound quality, operational reliability and performance features that no other standard controller can offer in combination with our Fohhn speakers.

Advantages of the FC-8 controller:

Perfect adaptation to all standard amplifiers

Automatic amplifier calibration function and integrated amplifier database for perfect adaptation.

Dual DSP technology

The FC-8 contains 2 separate DSP engines with enormous capacity and processing power for Fohhn specific speaker databases and 5 digital audio devices.

Integrated speaker database

Guarantees excellent sound quality and protection for all Fohhn speaker types.

A sophisticated algorithm developed by Fohhn engineers and adapted to each speaker allows the individual monitoring and adjustment of bass, mid and high ranges.

Remote monitoring and control

Remote control capability / network compatibility using a laptop, wall installation modules or media control systems.

FC-8 DSP system controller



DIN EN 60849 (VDE 0828)

Bittner amplifiers

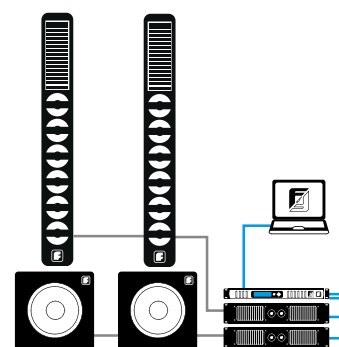


BITTNER
AUDIO

In addition to our special Fohhn® DSP amplifiers, we also offer the complete range of **amplifiers manufactured by Bittner Audio** for low-ohm or 100 volt applications. Bittner Audio offers solutions such as multichannel amplifiers with eight standard channels and **important features for integration in electroacoustic emergency warning systems according to DIN EN 60849 (VDE 0828)**. Contact us for more information!

4 inputs / 6 outputs (24 nodes)

A programmable 10-band parametric EQ, compressor/ limiter/noise gate, delay, X-over function, top-quality pink noise and sweep tone generator are available at each output, allowing you to conveniently adapt the Fohhn system to the room acoustics or your own personal requirements.



2x Sub passive / 2x Top passive
2x standard amplifiers
1x DSP system controller FC-8

Controlling Linea-Series speakers



Plug & Play PA Systems with active Fohhn® subs

Linea Live systems consist of DSP-controlled active subwoofers that powers Linea Tops. The systems are built using state-of-the-art DSP technology and can be operated remotely.

3. Linea Live Systems

Linea Live Active PA systems combine first-class sound with an elegant design and defined dispersion characteristics. Linea LX-601/601 speakers enable perfect transmission of speech, even in difficult acoustic conditions. The speakers' tightly controlled sound dispersion characteristics mean that unwanted reflections from the ceiling or floor can be avoided, dramatically improving speech intelligibility. Complex microphone set-ups can also be used without any problems.

Linea Live systems consist of DSP-controlled active subwoofer that powers Linea Tops. The systems are built using state-of-the-art DSP technology and can be operated remotely.

Fohhn's active subwoofers are equipped with the state-of-the-art CLASS D amplifiers, DSPs, operating display and network connectors. They offer sufficient power for use with LX-501/601 systems, which can be hooked up in a straightforward Plug & Play. Fohhn's integrated DSP technology enables sub and tops to be perfectly adapted, ensuring a balanced image at any loudspeaker level.

Using the integrated audio tools (EQ, compressor etc), individual sound settings can be created and saved as presets. All DSP functions can either be implemented via the 4-line display, or remotely using a laptop. Up to 256 devices can be securely networked together.

Linea Live IV:

2x Linea **LX-600/601** + 2-4x X-Sub **XS-4**

Linea Live V:

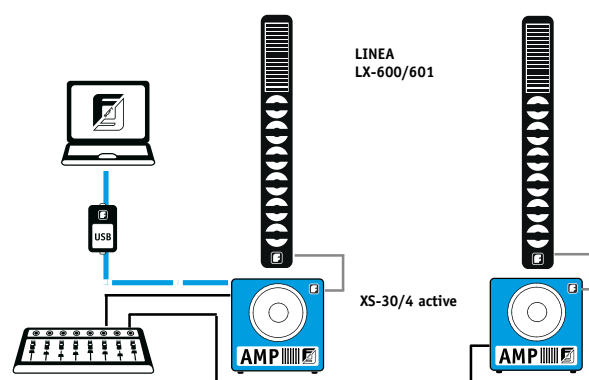
2x Linea **LX-600/601** + D-2.1500

1x X-Sub **PS-9**



- ☒ Speech
- ☒ Playback*
- ☒ Live music*

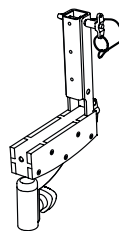
**with passive or active Sub*



Accessories for LX-601

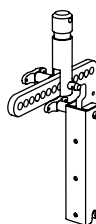
SA-8

pivot reducing flange, 36mm dia for Linea LX-500/501/600/601, tilting angle continuously adjustable of $+3^{\circ}/-10^{\circ}$, black, quickmount system with quick release pin.



VLX-600

flying adapter for LX-500/501/600/601 incl. TV spigot (without clamp!), tilting angle adjustable of $+3^{\circ}/-10^{\circ}$, black, quickmount system with quick release pin.



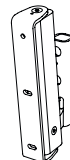
Clamp LC-50

clamp LC-50 with 50 mm diameter (TV-spigot needed).



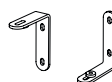
WLX-600

wall bracket for LX-500/501/600/601.



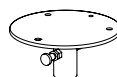
WAL-1

pair of L-brackets for Linea LX-500/501/600/601.



DH-1

ceiling adapter for TV spigot.



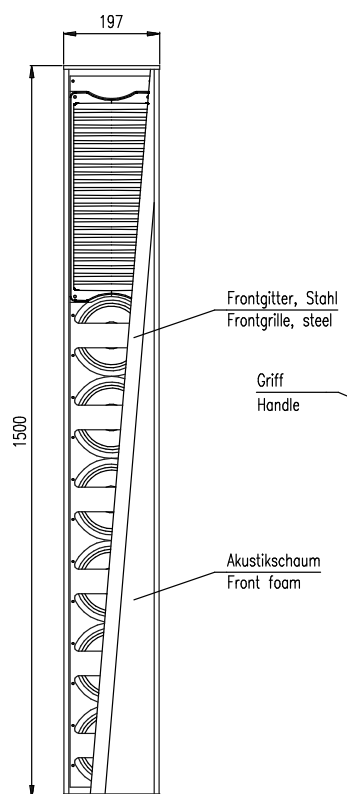
Carrying bag

carrying bag for Linea LX-600/601, padded, 2 edge wheels

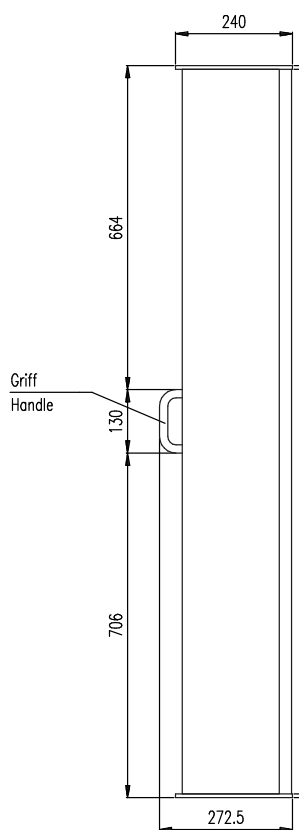


Views of LX-601

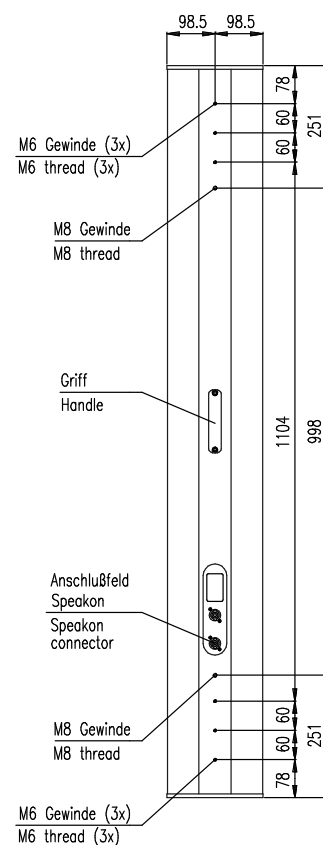
Front view



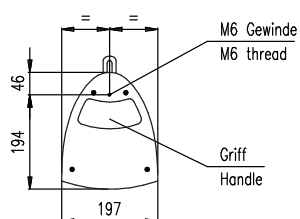
Side view



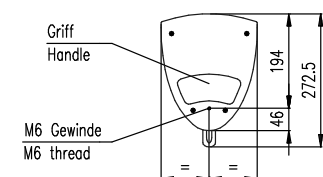
Rear view



Top view

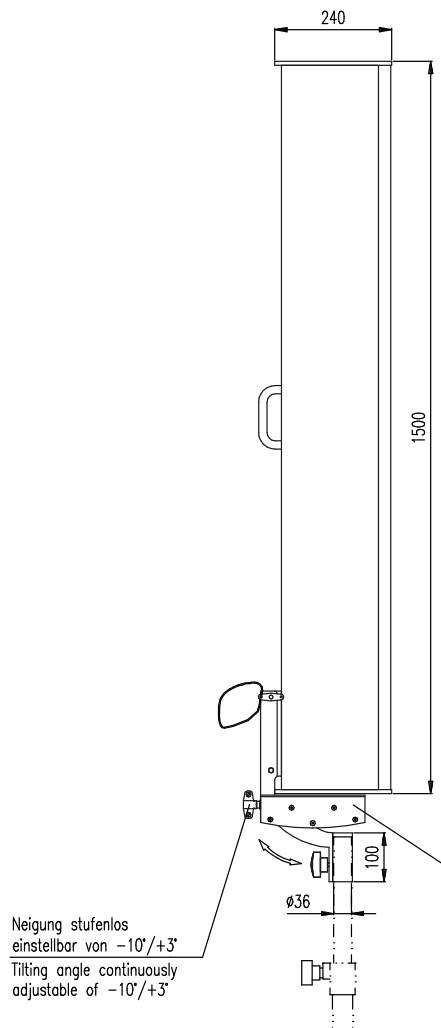


Bottom view

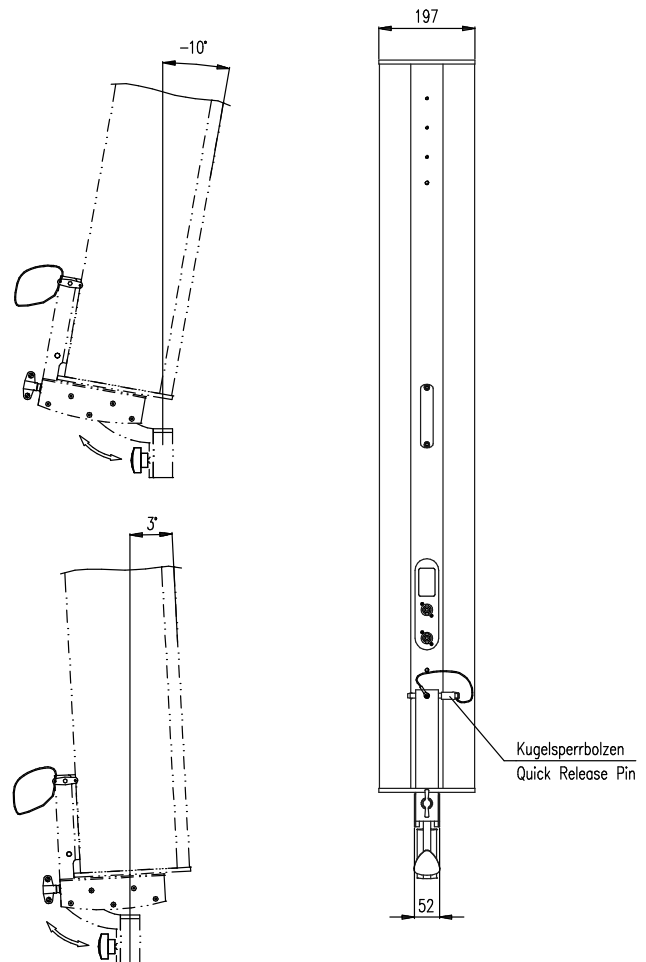


Wall mount

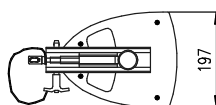
Side view



Rear view

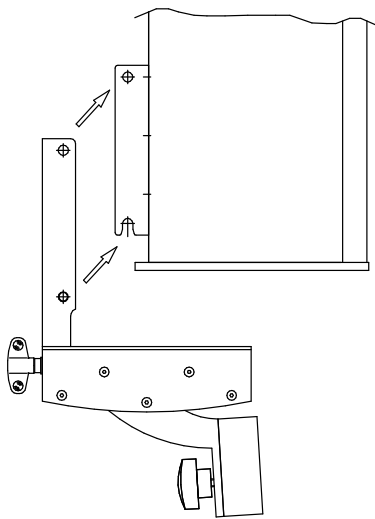


Top view

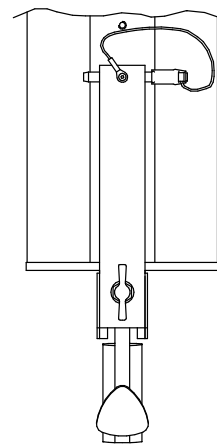


Detail views of the quick mount system

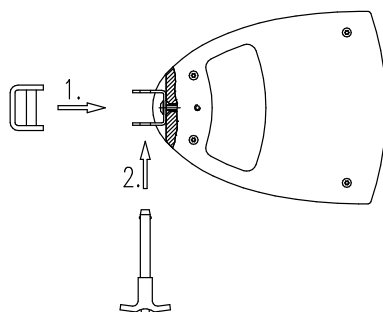
Side view



Rear view



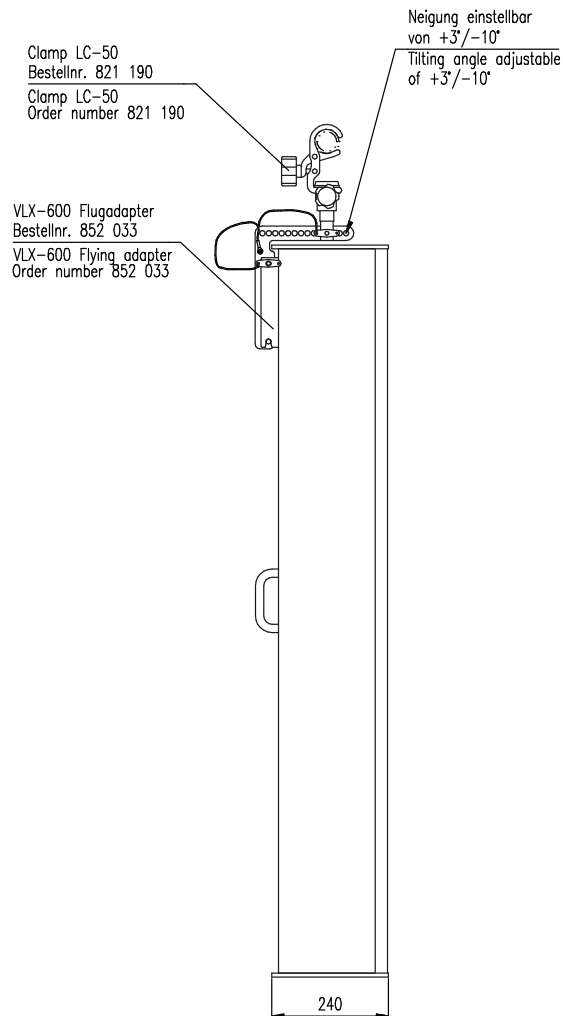
Top view



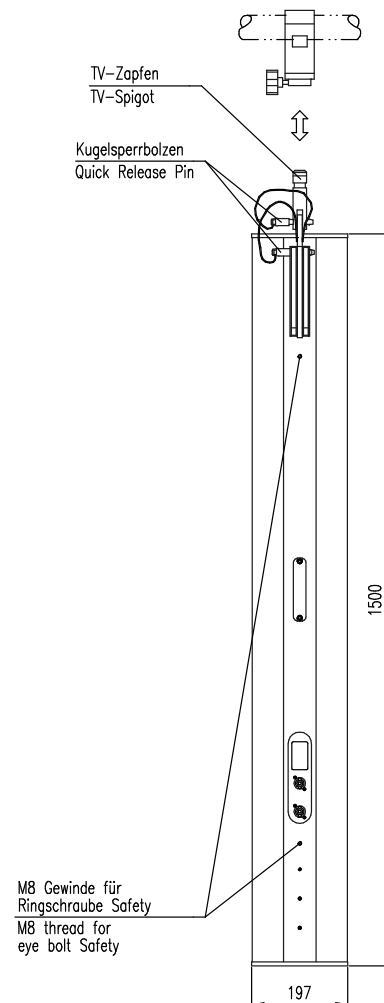
1. SA-8 mittels Tragbolzen einhängen /
Via suspension bolt connect SA-8
2. mit Kugelsperrbolzen verriegeln /
Lock with Quick Release Pin

Flying application

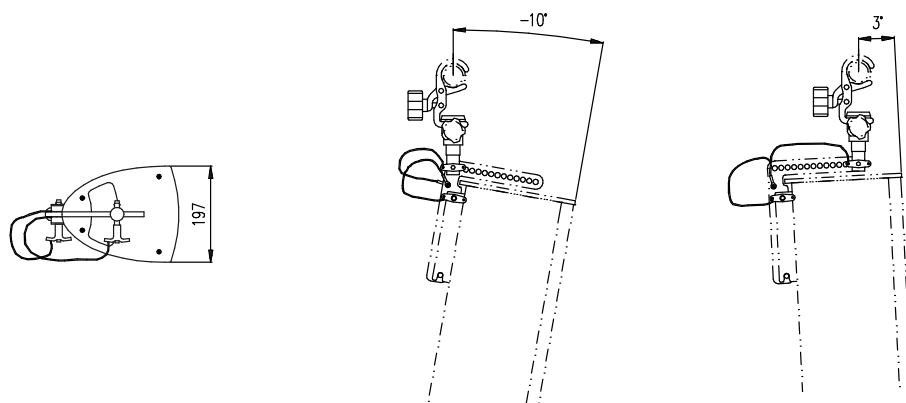
Side view



Rear view

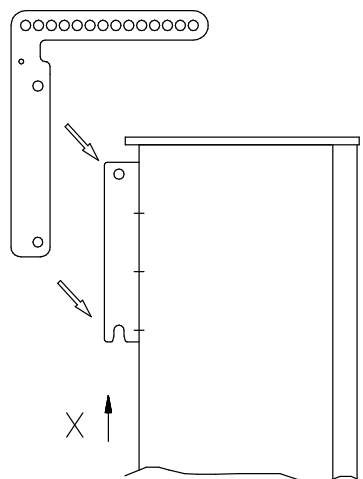


Top view

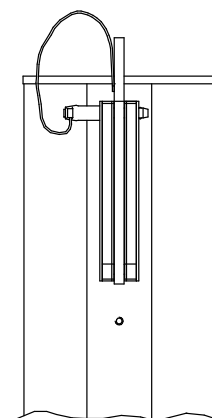


Detail views of the quick mount system

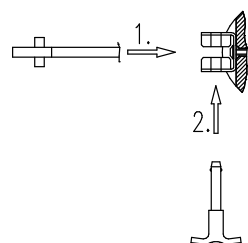
Side view



Rear view

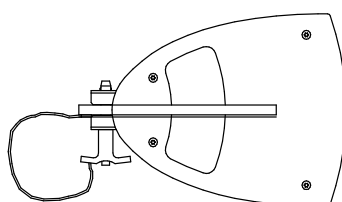


View X



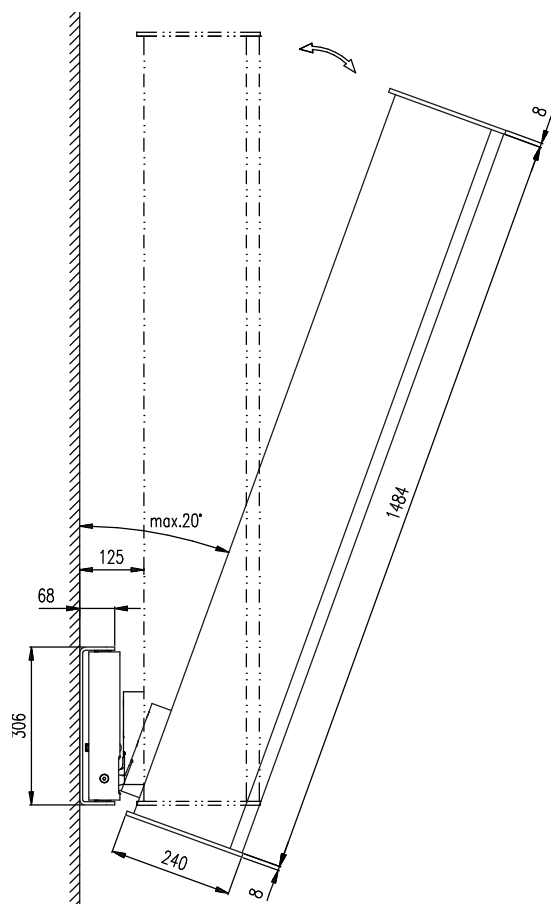
1. Insert VLX-600 flying adapter into suspension rail
2. Lock with Quick Release Pin

Top view

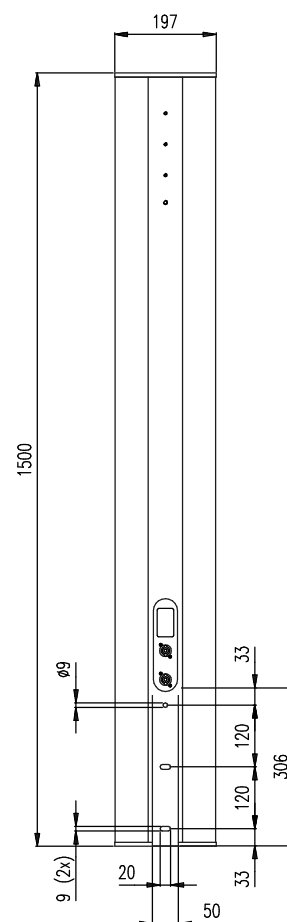


Wall mount

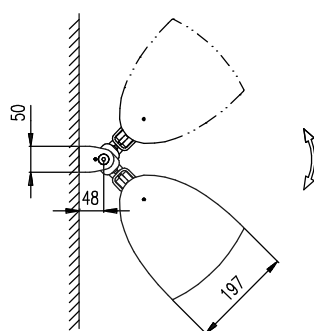
Side view



Rear view



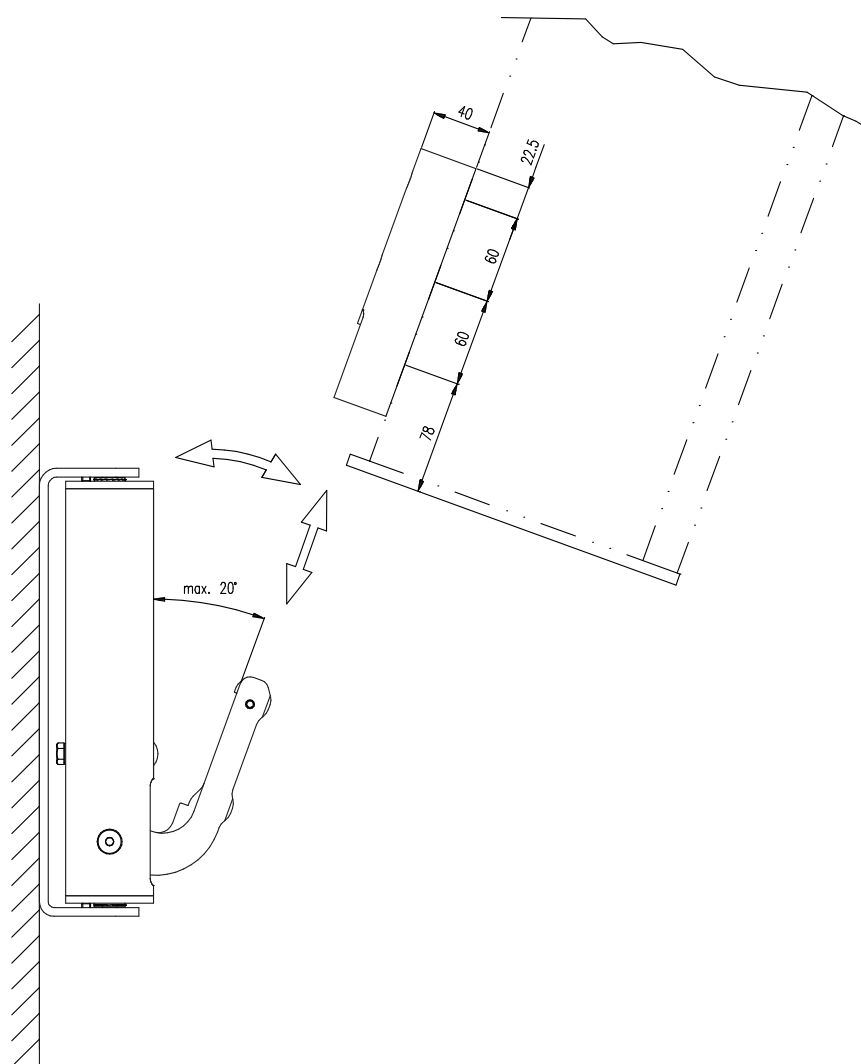
Top view



WLX-600

Detail view wall mount of WLX-600

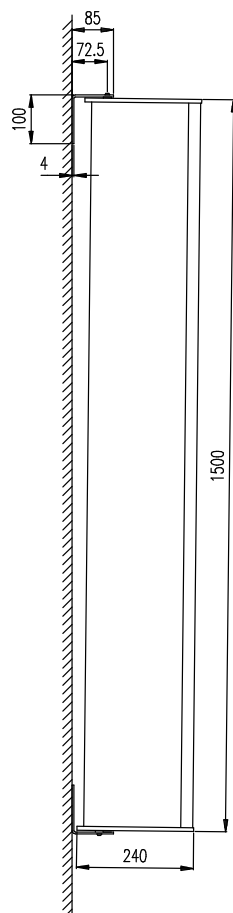
Side view



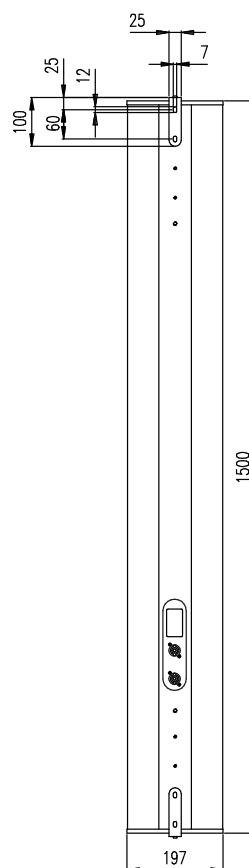
WAL-1 with LX-601

Wall mount

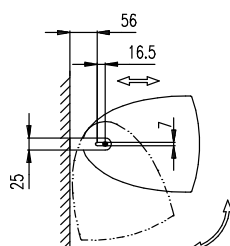
Side view



Rear view



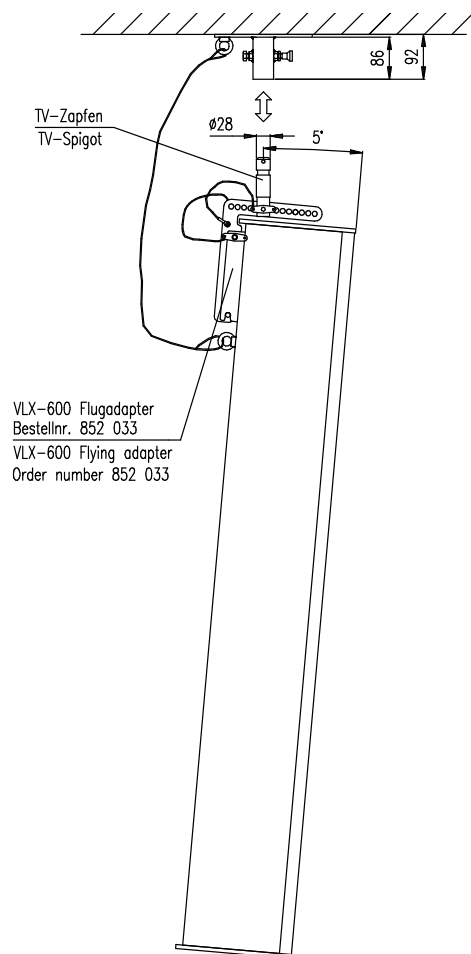
Top view = Bottom view



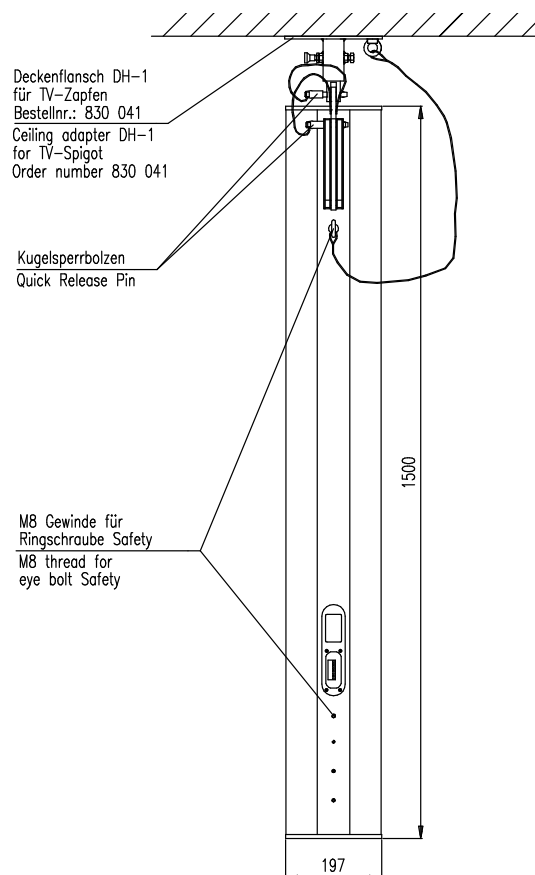
DH-1 for VLX-600

Ceiling adapter for TV spigot

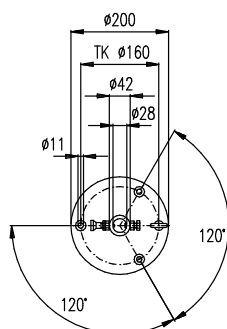
Side view



Rear view



Bottom view



Tender specifications

High power line source speaker in passive 2-way design

High power line source speaker in passive 2-way construction (layout, design) in resonance-optimized multiplex housing, equipped with 6 premium long-stroke 6,5"-drivers and four 1"-drivers on one special cylindrical wave – Waveguide with horn function. Because of the application of neodymium chassis and an aluminium enclosure, the speaker remains light with only 29 kg. Perfectly suited for dynamic speech- and music transmissions in rooms with demanding acoustics, long reverberation times and challenging architecture. Especially optimized for mobile applications with three handholds for an easy transport. The speaker is temporary able to work under 4000 W and generates acoustic pressure of maximal 136 dB. In a frequency range of 75 Hz to 20 kHz, the speaker has a precise and minimal-phase dispersion of 100° x 20° (h x v). Slim and inconspicuous design enclosure with less resonance in black scratch-proof polyurethane coating. Optional available in all RAL-colours. For the protection of the speaker chassis and the electronics, the enclosure is equipped with a ball impact resistant, extremely sound-permeable front grille, which is made of powder-coated steel and equipped with a moisture- and dust repellent acoustic foam. The premium and complex crossover with an integrated electronic tweeter protection guarantees highest quality and operational reliability. Ten pieces M6 and two pieces M8 thread applications in ground, upper and rear side are integrated to the admission of system brackets. Connections: 2x Neutrik NL4 Speakon to connect very easy and safe to the next speaker. Specific brackets to assemble the system on ceilings, walls and traverses are optionally available. Simulation data CAAD for EASE are available.

electro-acoustical features

acoustic design	passive, hybrid 2-way line source speaker
components	6x 6,5" long stroke chassis, advanced compression chamber with phase board, 4x 1" compression driver on horn loaded Fohhn® - Waveguide, with self-resetting Polyswitch-HF protection, fully neodymium
power rating (nominal)	1000 W
power rating (program)	2000 W
power rating (peak)	4000 W
nominal SPL	101 dB
maximum SPL	136 dB
frequency range	75 Hz - 20 kHz
nominal dispersion (h x v)	110° x 20°
nominal impedance	8 ohms

features

enclosure	multiplex birch wood, aluminium
protection grille	ball impact resistant metal, powder coated
suspension points	10x M6 and 2x M8 thread
connections	2x NL4 Neutrik Speakon
standard colours	black polyurethane coating
front design	powder coated metal grille, acoustic foam in enclosure colour
handles	on ground, upper side and rear side
dimensions (W x H x D)	195 x 1500 x 238 mm
weight	29 kg

optional features

optional colours	all RAL-colours
weather resistance	membrane impregnation and polyurethane coating

CAAD simulation data

EASE

Make

Fohhn Audio AG

Type

LX-601



SOUNDS PERFECT. is PERFECT.

Fohhn audio systems. The ultimate all-round audio experience.



■ German quality
■ engineered and made
■ by Fohhn®

Fohhn Audio AG

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