Data sheet

PT-9 WaveLine

WWW.FOHHN.COM

Perform-Series

Line-Array Systems.

PT-9 WaveLine

The Fohhn® WaveLine ist a very high powerful line array System. PT-9 module, twin-coaxial, fully horn-loaded, 2x 10“ neodymium, 1x 2“ neodymium driver with HF phase EQ. Impedance: 8 ohms. Weight: 46 kg

Description

The Fohhn® WaveLine line array is a complete system consisting of perfectly developed speakers and specially adapted amplifiers andcontrol technology. The Perform WaveLine is a completely symmetric line array that is capable of generatingvirtually identical acoustic sound patterns on the right and left and can be alignedaccurately and symmetrically. The PT-9 operates with two of the most powerful 10” speakers (neodymium) currently on offer, which are positioned symmetrically so that the horn produces a dispersion angle of approximately 110° (twin coaxial). There is a diffraction gap between the two 10” speakers that separates the two bass reflex chambers with help from the multi-channel phase EQ. The spherical sound wave dispersed by the 2” tweeters is converted into a coherent wave front by the time delay in the multi channel phase EQ. The wave then exits the diffraction gap to produce a cylindrical wave across the entire frequency range. The 4” voice coils on the 2” high-frequency driver can produce a relatively deep crossover frequency (approx. 650 Hz), whereby the acoustic performance is drastically increased, preventing load dumps from 10” speakers at approx. 900 Hz.

Optimal Planning. Perfect Realisation.

Fohhn recommends EASE Focus Aiming Software by SDA (Software Design Ahnert GmbH) for simulating and measuring acoustic configurations. This two-dimensional acoustic simulation software realistically configures and arranges line arrays.The program, product-specific system file (Fohhn-WaveLine.efo) and the load evaluator (flying calculator) can be downloaded free of charge.

System amplifier

The WaveLine system A-2.100 2-channel DSP amplifier, 2 ohms stable, class H, lightweight (only 14 kg), switch mode power supply, 2U, 2x 2100W / 2 ohms. Remote operation via laptop or remote control devices FR-40.

Subwoofer

We recommend using the Fohhn subwoofer system PS-9 active XS-4 and XS-4 passive to maximise system performance for live music events. Fohhn® DSP processor technology modulates the WaveLine 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

venues, opera, conference halls, theatres, churches, etc.

Connections

2x NL4MP Neutrik Speakon

Accessories

Flying-cradle, Stack-cradle, Touring-Cases, Software

Technical specifications

Type	2-way full-range twincoaxial line-array-system, vented/hornloaded
Frequency response	80 Hz – 18 kHz, +/- 3 dB
Power handling capacity	LMF 500 W, HF 120 W IEC Norm 268-5
Impedance	LMF 8 ohms , HF 8 ohms
Recommended input power	LMF 750 – 1500 W into 8 ohms, HF 200 – 480 W into 8 ohms
Dispersion	horizontal 110° symmetrical, vertical 0°...10° defined by array adjustment
Sensitivity	LMF 100dB (1W / 1m), HF 110 dB (1W / 1m)
Peak SPL (1m)	single enclosure > 130 dB
Components	2x 10" N/Dym, 3" voice coil, water-resistant, 1x 2" N/Dym compression driver on HF-Phase-EQ
Connections	2 x NL4MP Neutrik Speakon (+1/-1 for 10" speakers, +2/-2 for 2" driver)
Rigging/Fittings	PT-9 flyware, completely integrated, 2 recessed side handles, 2 front aluminium handles at the front
Enclosure	multi-layered ply 15 mm enclosure, aluminium cover and 4 mm base plate
Sealing	extremely wear-resistant textured paint, water-based Electro-galvanised powder coating
Colours	standard black, equivalent to RAL 9005, other colours on request
Front protection	stylish frontcover
Weight	46 kg of PT-9 element
Dimensions	Overall dimensions 332/200 x 672 x 647 (mm), H (front/back) x W x D, Housing without handles/flyware 300/200 x 672 x 590 (mm), H x W x D
Subwoofer	Fohhn PS-9 active, XS-4
System amplifier	Fohhn DSP amplifier A-2.2100
Optional accessories	Flying-cradle, Stack-cradle, Touring-Cases, Software

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

1. Fohhn system DSP amplifiers

Fohhn offers a range of specially adapted system DSP amplifiers for controlling 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 overall 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.

A-2.2100 system amplifier for WaveLine

A-2.2100

2 channel operation, 2x 2100 W / 2 ohms, 2x 1350 W / 4 ohms,
2x 900 W / 8 ohms, Fohhn Audio DSP, remote control

Dual-channel DSP amplifier, max. 2 ohms operation, Class H, extremely lightweight (only 14 kg), power pack, in 2 U designer housing, operation and remote control via laptop. Integral Fohhn Audio DSP for each amplifier channel with 2x 10 band EQ (fully programmable), delay, variable high/low pass filter and dynamic processor. Presets for all Fohhn speakers. Ideal for both mobile applications and permanent installations. System amplifiers for the WaveLine line array system. Without wearing digital potentiometers for volume control are located on the back. Dimensions are 2U / 19“ 483 mm x 88 mm x 454 mm.
Temperature-controlled fans and noise gate.

Important features for system integration as per EN 60849 / DIN 0828 Regulations on Places of Assembly (alarm sound systems):
Sequential remote activation via control voltage, fault message contact for simultaneous evaluation of the operating status, monitoring and intelligent evaluation of all important device parameters.
Compatible with the Bittner SXL amplifier monitor (programmable control interface) and Bittner AX16 amplifier backup switch.

2. Standard amplifiers combined with Fohhn controllers

Standard amplifiers combined with Fohhn FC-8 DSP system controllers
All of the Fohhn speaker systems can be operated in combination with standard 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.
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.

FC-8 DSP system controller

Advantages of the FC-8 controller:

Perfect adaptation to all standard amplifiers
Automatic amplifier calibration function and integrated amplifier database for perfect adaptation.

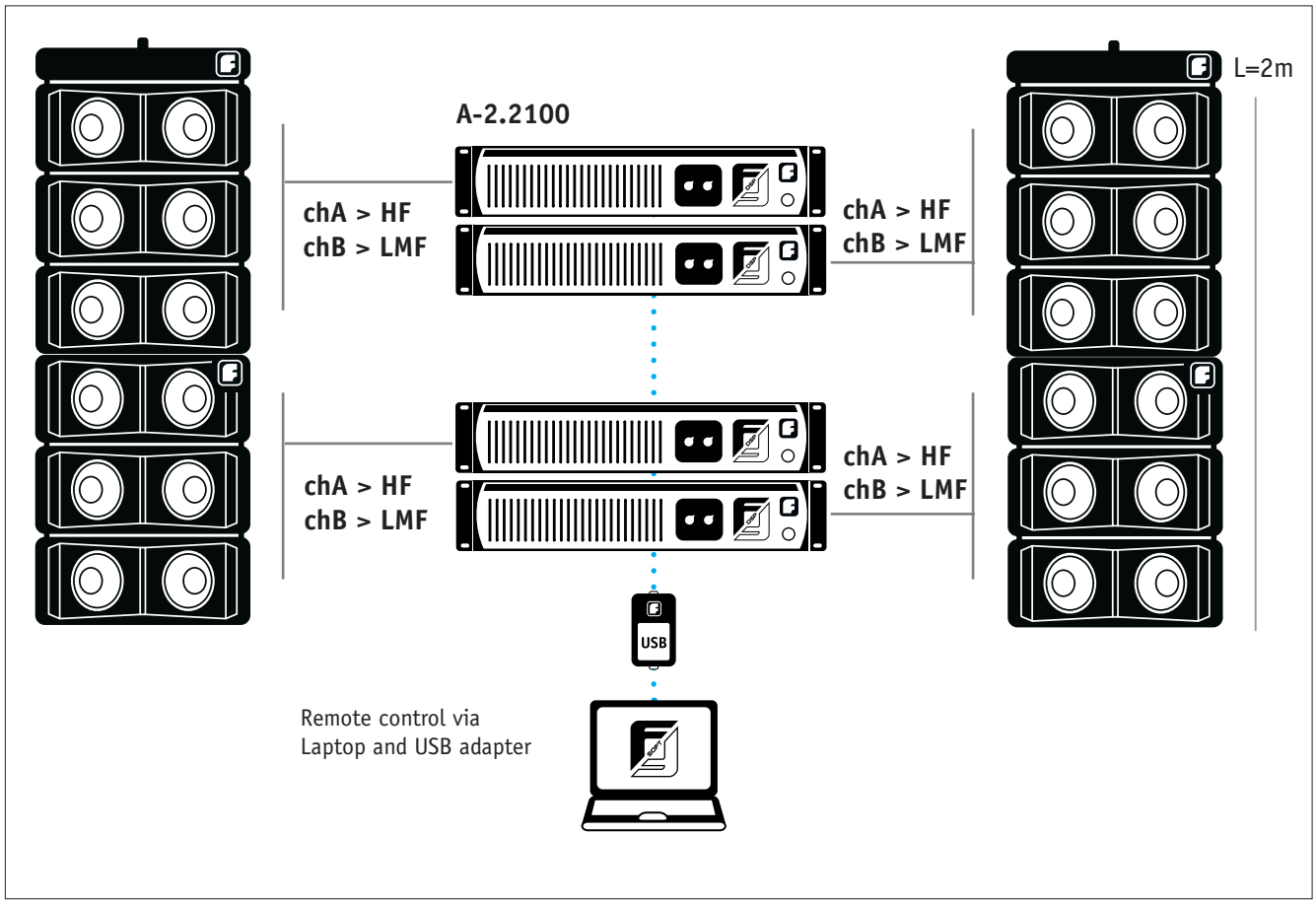
Dual DSP technology
The FC-8 contains 2 separate DSP engines with enormous capacity and processing power for Fohhn specific speaker databases and 5 digital audio devices.

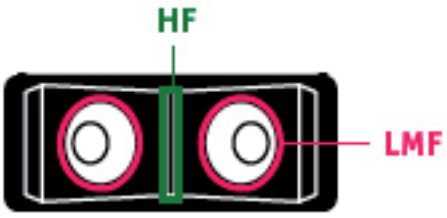
Integrated speaker database
Guarantees excellent sound quality and protection for all Fohhn speaker types.
A sophisticated algorithm developed by Fohhn engineers and adapted to each speaker allows the individual monitoring and adjustment of bass, mid and high ranges.

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

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 sweeptone generator are available at each output, allowing you to conveniently adapt the Fohhn system to the room acoustics or your own personal requirements.

Amping with 12 elements



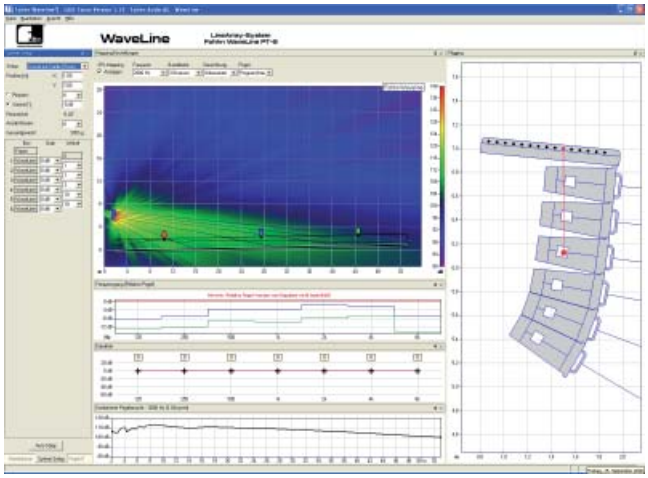


1x PT-9 element

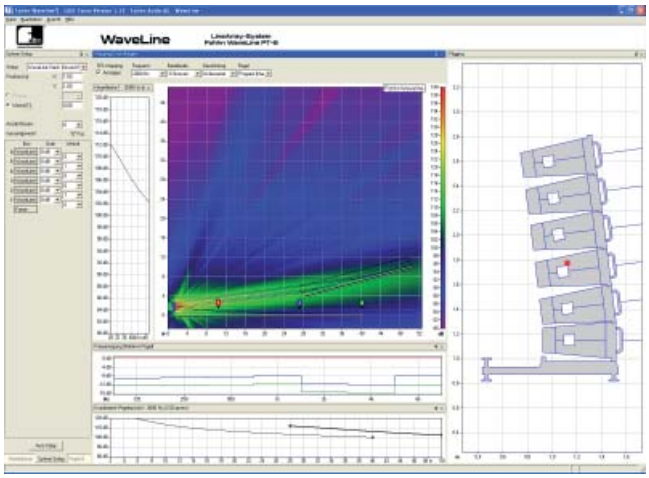
Simulation Software EASE Focus

For simulating and calculating of acoustical configurations Fohhn® provides the **EASE Focus** Aiming Software from SDA (Software Design Ahnert GmbH). The **EASE Focus** Aiming Software is a two-dimensional acoustic simulation software that serves for the configuration and modelling of Line-Arrays close to reality.
Ease Focus and the specific product file (Fohhn-WaveLine.efo) together with Fohhn's Flying Calculator are available as free downloads at www.fohhn.com.

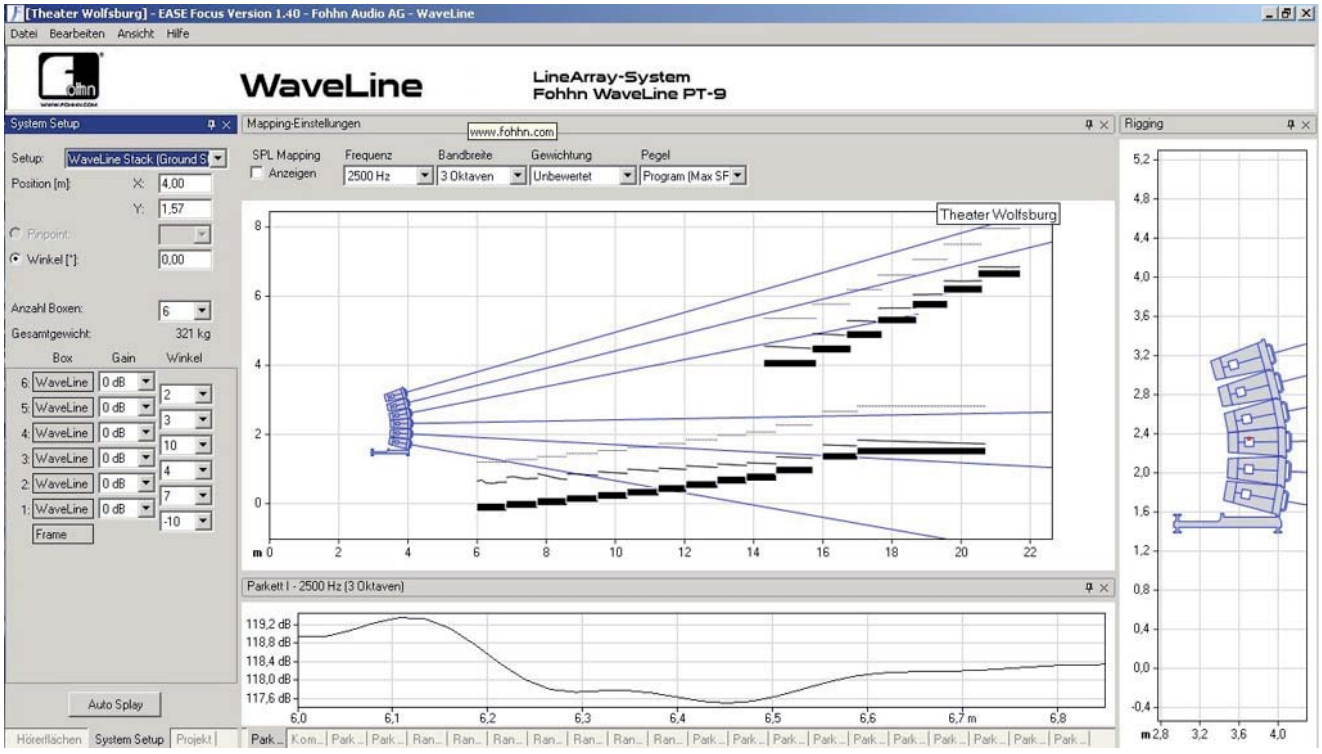
Flying application



Ground stacking application

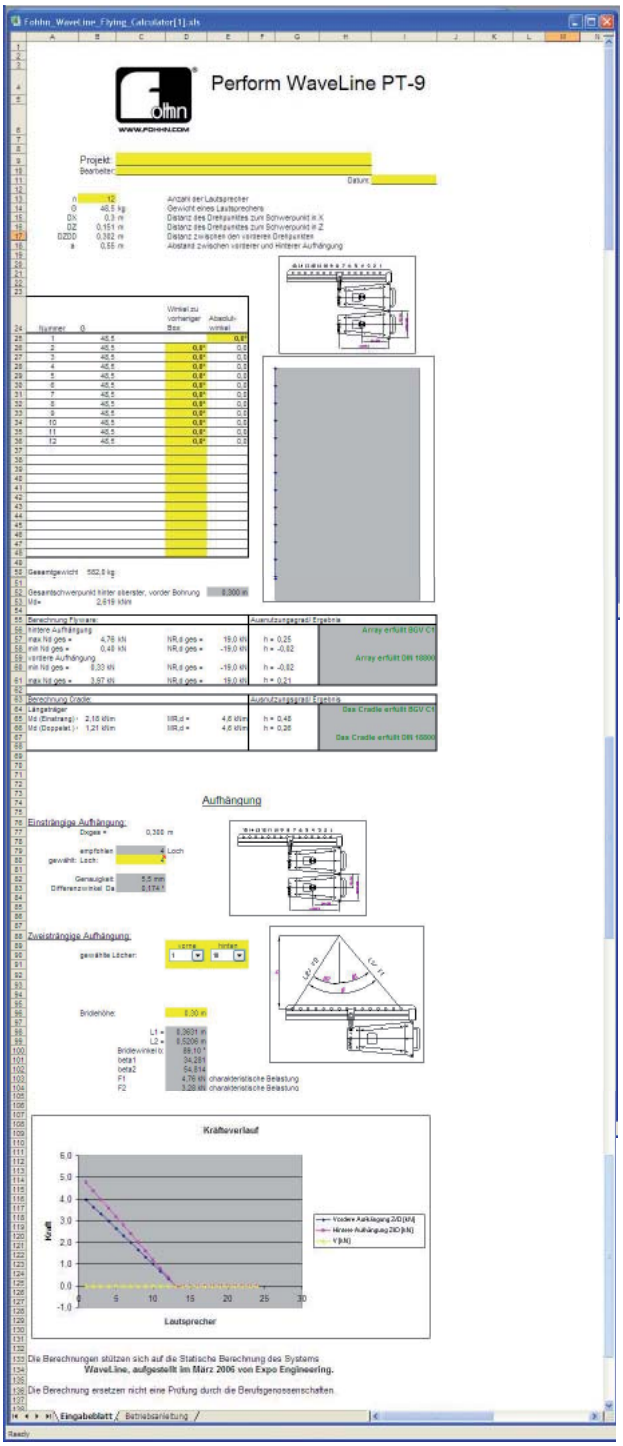


Ground stacking application: Theatre of Wolfsburg



Flying Calculator

Flying Calculator for WaveLine PT-9 elements.



FLYING CRADLE for PT-9

Cradle according to BGV C1 for Perform WaveLine. Fohhn® WaveLine-systems rigging mechanics together with the flying-cradle are certified according to German´s BGV-C1 and DIN 18800. An analysis of strength can be achieved by a free-of-charge software (Fohhn's Flying Calculator) which shows easily the legality of your rigging job.

Figure shows 2 pieces of PT-9 with flying cradle.

STACKING CRADLE for PT-9

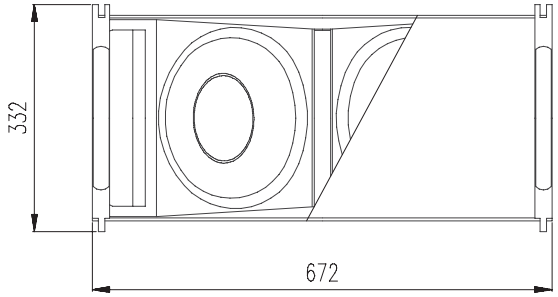
Cradle according to BGV C1 for Perform WaveLine. The stack-cradle together with the attached outriggers enable the mounting of up to 6 WaveLine elements as ground-stacking. The frame of the stack-cradle fits to Fohhn's subs PS-7, RS-4, XS-4, PS-9 and enables a secure mounting of 3 WaveLine PT-9 elements.

TRANSPORT CASES

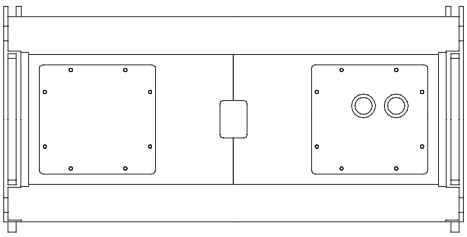
Transport case for 3x **PT-9** WaveLine moduls, wheels
Transport case for PT-9 **Flying Cradle**, wheels

Trasport case for PT-9 **Stack Cradle**, wheels

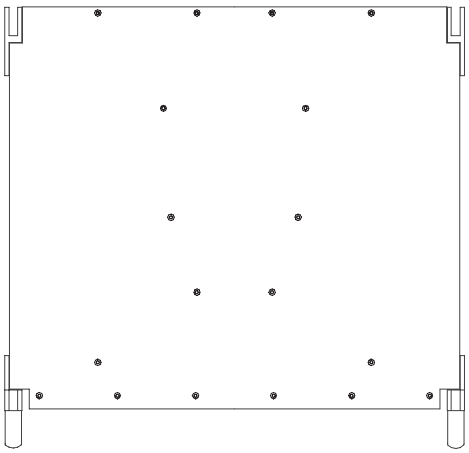
Front view



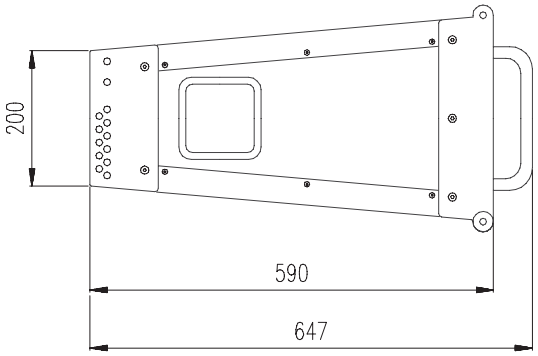
Rear view



Top view



Side view



High Power Line Array Module

High power line Array module, equipped with two 10" low/mid neodymium driver and one 2" high frequency neodymium driver.This compression driver with a 4" voice coil uses a special designed WaveLine HF-Phase-EQ waveguide. Both driver units are connected to separate amplifier channels, avoiding passive crossover components for maximum efficiency. A symmetrical construction guarantees a very smooth and symmetrical horizontal coverage pattern of 110°. One module produces a maximum sound pressure level more than 130 dB in a frequency range of 80 Hz to 18 kHz. Very robust multyply birch plywood housing strengthened with metal brackets for fulfillment of all safety regulations and aluminium top and bottom for a minimum distance between two speaker elements. Highly scratch proof textured black lacquer and black frontal acoustic foam. Optionally all RAL-colours, flying cradle, stacking cradle and touring cases available. Simulation data for simulation program EASE focus available.

electro-acoustical features

acoustic design	2-way fullrange twin-coaxial Line-Array system, bassreflex/hornloaded
system components	2x 10" ND, 3" voice coil, waterprotected membrane; 1x 2" ND compression driver with 4" voice coil, WaveLine HF-Phase-EQ
power rating	LMF 500 W, HF 120 W (IEC standard 268-5)
recommended amplifier power	LMF 750 – 1500 W at 8 ohms, HF 200 – 480 W at 8 ohms
nominal SPL	LMF 100dB (1 W / 1 m), HF 110 dB (1 W / 1 m)
maximum SPL	single module > 130 dB (1m)
frequency range	80 Hz – 18 kHz, +/- 3 dB
nominal dispersion	horizontal 110°; vertical 0°–10° (depends on Array-adjustment – adjustable in 1°-steps)
nominal impedance	LMF 8 ohms, HF 8 ohms

features

enclosure	multiply birch plywood 15mm, aluminium top and bottom 4mm
protection grill	ball impact-resistant protection steel grill, powder-coated
rigging, fittings	flyware integrated in enclosure, 2 handles at side panel section, 2 frontal aluminium handles
connections	2x Neutrik NL4 speakon (+1/-1 LMF-section, +2/-2 HF-section)
standard colours	highly scratch proof textured lacquer, powder coating,
galvanized	metal parts, black (according to RAL9005)
frontal design	acoustic foam, same colour like enclosure
dimensions (H x W x D)	enclosure without handles/flyware: 300/200 x 672 x 590 mm; total dimensions: 332/200 x 672 x 647 mm
weight	46 kg

optional features

optional colours	all RAL-colours
accessories	flying cradle, stacking cradle, touring cases

CAAD simulation data	EASE Focus
Make	**Fohhn Audio AG**
Type	**PT-9 WaveLine**

SOUNDS PERFECT. IS PERFECT.

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