DARVIN 2 x 12 inch AADC FIR line array loudspeaker

Data sheet

YOU ART. WE SOUND.

Overview

DARVIN is the most power full double 12 inch AADC line array loudspeaker you can find in the audio industry today. It is capable to deliver up to 148 dB SPL peak output at 1 m in an extreme compact enclosure housing the a three way full symmetric chassis arrangement. It is the choice for large to extra large venues where full control of the sound and it's dispersion is a requirement. So you will find a very well shaped horizontal coverage even at low frequencies when DARVIN is used in combination with THOR, both have the same width. THOR offers full flying or ground stack integration for DARVIN.
DARVIN offers FIR filter controlled adjustable horizontal dispersion incorporating cadenbach acoustics AADC technology. It is typically used in arrays of 9 or more cabinets and will easily cover up to 100 meters.
The vertical control of the system is due to the used three 4 inch patented rectangular planar wave high frequency driver unit outstanding, full vertical side loop free operation is provided up to 21 kHz. The totally symmetrical dipolar arrangement of the two 12 inch low frequency cone chassis and the four 6.5 inch mid frequency cones around the high frequency unit, allows to reach the nominal horizontal dispersion already at 180 Hz. The used 12 inch chassis with their 4 inch voice coils all ready roll off at 200 Hz from where on the unique mid frequency arrangement made of four 6.5 inch cones start to work offering extra high performance up to 1 kHz. At this point the high frequency unit rolls in with a special two step FIR crossover filter. This enables the system to run as linear phase system down to 180 Hz. On order DARVIN incorporates a very power full three channel frequency modulated FM Class-D floating modulator amplifier module. Due to it's advanced high efficiency power technology it runs at any moment at very low temperature and needs no extra cooling at all.

Operation

The frequency and phase response of DARVIN is absolutely linear with only a minimum of variation at very low THD. DARVIN is designed to run in linear phase mode by using cadenbach acoustics **FIR filter** of the HEIMDALL D1 digital controller. It's horizontal dispersion can be set via **AADC** "**A**dvanced **A**ctive **D**ispersion **C**ontrol" to 85°, 90° or 95°.

Applications

- Arenas, large concert halls, theatres and houses of worship.
- Large Touring and stadium sound reinforcement.
- Large event system.

Features

- Very high impact at high fidelity sound quality, with optional integrated amplifier
- Optimal integration with all cadenbach acoustics line arrays.
- Very flexible and precise horizontal coverage via AADC and cadenbach aoustics FIR filters.
- Easy quick lock system for fast flown or ground stacked configurations

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Technical Specifications

Transducers

- Low frequency: **2 x 12 inches** (320 mm) Neodymium
- Mid frequency: **4 x 6.5 inches** (170 mm)
- High frequency: **3 x 4 inches** (101.6 mm) Neodymium

Voice coil size and impedance
- Low frequency: **4 inches** (101.6 mm) Cu, 8 ohms
- Mid frequency: **2 inches** (52 mm) Cu, 8 ohms
- High frequency: **1.75 inches** (44.4 mm) Al, 16 ohms

Diaphragm size
- High frequency: **1.75 inches** (44.4 mm) Polyester

Exit size
- High frequency: **4 by 1 inches** rectangular (101.6 by 25.4 mm)

Nominal Impedance

- Low frequency: **8 ohms** 2 x 4 ohms / Z = 10 ohms
- Mid frequency: **8 ohms** 4 x 8 ohms Z = 9 ohms
- High frequency: **8 ohms** 3 x 16 ohms Z = 9 ohms

Output at 1m

- **148.3 dB** SPL (3) driven with PAX P16 147 dB driven with internal amps 147.5 dB
- array of 9: 157 dB rms max (1)
- array of 12: 160 dB rms max (1)
- array of 18: 163 dB rms max (1)
- array of 24: 166 dB rms max (1)

Sensitivity (SPL at 1m)

- Low frequency: **98 (100 Hz) dB / 134 dB** cont. at 2000 watts
- Mid frequency: **106 (1 kHz) dB / 136 dB** cont. at 1000 watts
- High frequency: **117 (3 kHz) dB / 144 dB** cont. at 240 watts

Power Handling

- Low frequency: **6000 watts** peak
  2000 watts AES
  4000 watts program
  rec. amp power on 4 ohms
  2800 watts
- Mid frequency: **3000 watts** peak
  1000 watts AES
  2000 watts program
  rec. amp power on 4 ohms
  2800 watts
- High frequency: **1350 watts** peak
  240 watts AES
  720 watts program
  rec. amp power on 4 ohms
  2800 watts

Crossover type and frequency

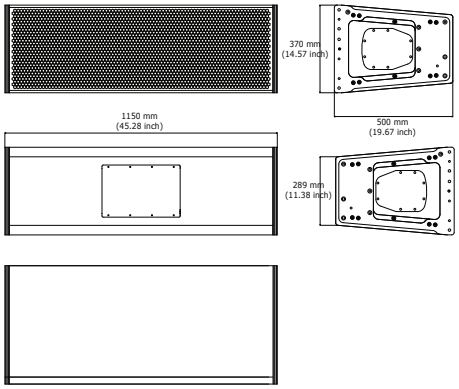
- Filter type: **FIR zero phase**
- Sub to Low: **60 Hz - 80 Hz**
- Low to Mid: **220 Hz**
- Mid to High: **1200 Hz**

Frequency and Phase response

- Usable frequency range: **40 Hz - 21 kHz** (4)
- Free field frequency response: 65 Hz - 19.4 kHz (-5 dB) linearity (+/- 0.5 dB)
- Phase response: **0° +/- 2°** from 200 Hz to 19.4 kHz

Size and weight

- Height: **14.57 inches** (370 mm)
- Width: **45.28 inches** (1150 mm)
- Depth: **19.67 inches** (500 mm)
- Weight:
  160.9 lbs (73 kg) internal powered model
  156.5 lbs (71 kg) external powered model



Coverage

- Horizontal coverage symmetrical:
  85° - 95° adjustable in 5° steps via AADC presets
- Vertical coverage:
  depending on array length and curving
- Vertical splay angle:
  adjustable from 0 - 10° (0,5° - 1,5° Steps)

Speakers per PAX P16 channel

- For external powered model:
  2 / 3 (2) all ways parallel via link connector

Connection

- For external powered model
  2 x NL8
  (1+/1- LF, 2+/2- Sense, 3+/3- MF, 4+/4- HF)

(1) at 10% THD at 1m with sine burst signal 100 Hz - 5 kHz (array of 4, 0° splay measurement) calculated

(2) possible only with short length cables.

(3) SPL max peak, test signal: pink noise with crest factor 6 dB.

(4) Full-range mode, providing 119dB @ 40 Hz

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Technical Specifications

Internal Amp module

- Type of output stage: free floating modulator FM out put power stage
- Total output Power and Volts:
  into 6 ohms
  Music: **3 x 3300 watts** at **150 V_{pk}**
  RMS: **3 x 1670 watts** at **106 V**
- Low frequency:
  2800 watts peak / 1400 watts rms
- Mid frequency:
  2800 watts peak / 1400 watts rms
- High frequency:
  2800 watts peak / 1400 watts rms

Audio specifications

- IM: **0,05%** (SMPTE)
- DIM: **0,005%** (DIM 100)
- THD: **0,02%** (+N 20 Hz – 20 kHz)

Audio input Connection

- XLR 5 pin and XLR 3 pin
  female in and male link out
  5pin: 1g, 2 MF+, 3 MF-, 4 HF+, 5 HF-,
  3pin: 1g, 2 LF+, 3 LF-

Audio input Impedance

- 20 kOhms symmetric (between + and -),
- 10 kOhms non symmetric (- grounded).

Ac Power connection

- Powercon 25 A blue in and white link
  (max 12,6 A link)

Ac Power specifications

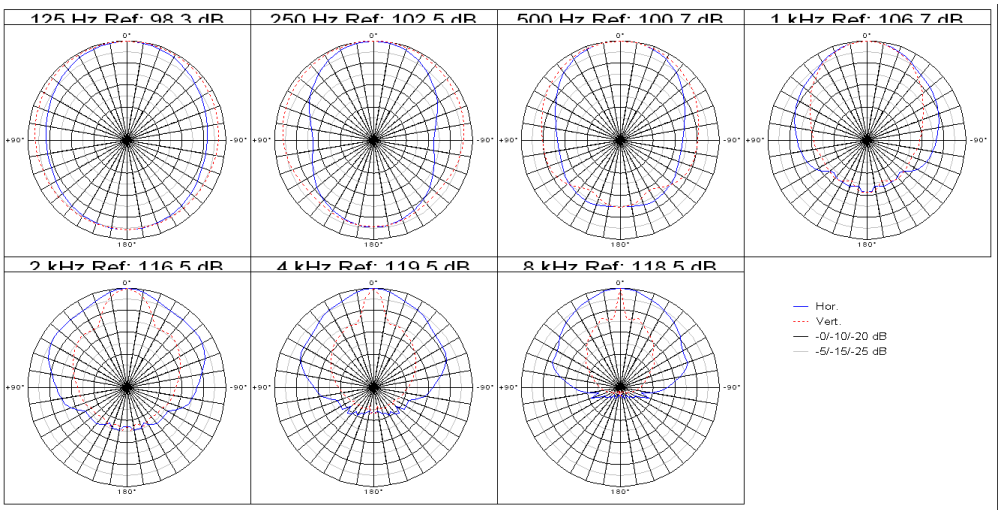
- 180 – 265 V AC 50 Hz / 2200 VA

Mechanical specifications

- Mounting: **2 Steal side plates**
  with 4 point quick lock
- Working load: 144 x Speaker-weight
- Construction: **18 - 27 mm Plywood**
  hex stamped steal grill, steal side plates with integrated angle adjustment plates all powder coated, inside acoustic carpet, foam and glue damping.
  Internal amp module mounted on 7 mm aluminum back plate with total passive fan free cooling.
- Flying frame: **Multi frame** CTG-2.12
- Wheel board: Wooden dolly CRB-2.12 for attaching up to 4 ready mounted DARVIN.
  CPC-2.12 Cloth transport protection cover for 4 DARVIN mounted on CRB-2.12

Measurements

polar plots



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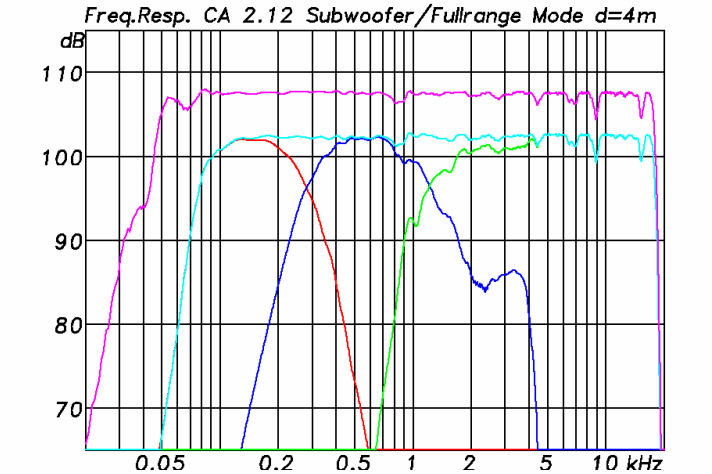
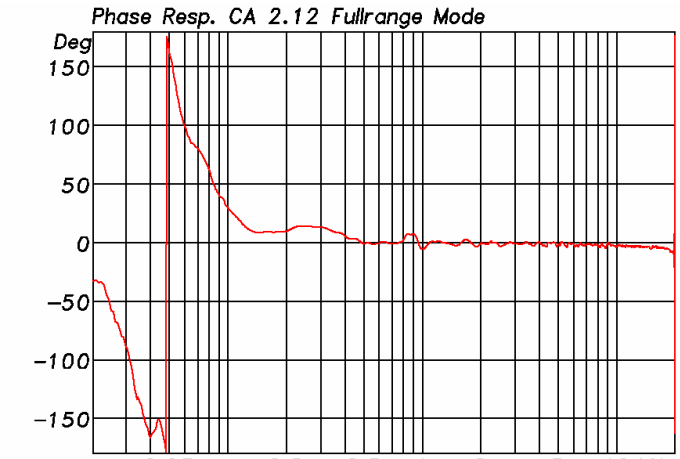
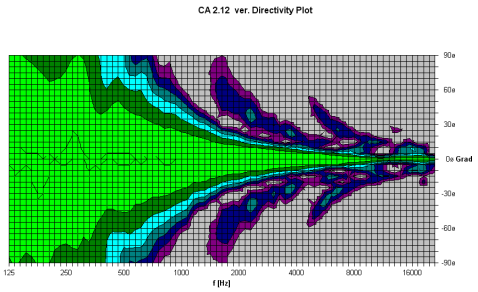
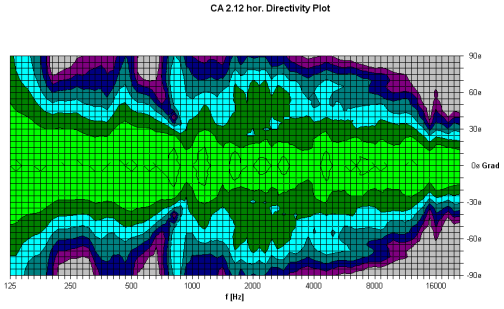


Frequency response with FIR Filter of TAMARIS, DARVIN LOW, MID and HIGH summation curve, scale 20 Hz to 48 kHz



Phase response summation with cadenbach acoustics zero Phase FIR Filter of TAMARIS, DARVIN LOW, MID and HIGH, scale 20 Hz to 42 kHz





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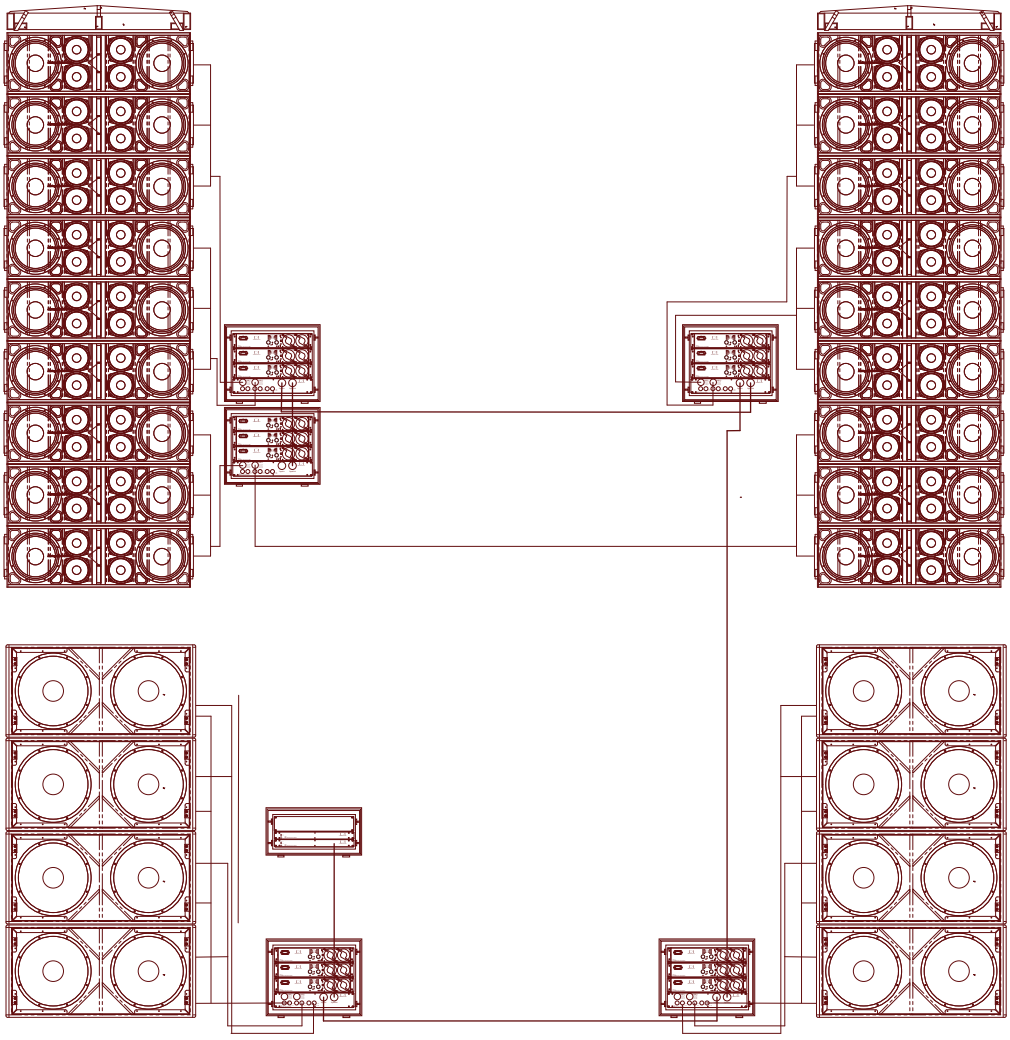
System setup

Start setup external powered:
18 x DARVIN-2.12A, 8 x THOR-3CDA, 2 x CTG-2.12 cradle, 9 x PAX-P16 for left right MAIN hang of each 9 X DARVIN, 6 x PAX-P16: 3 x PAX-16 per side use for each 4 THOR, Amping use able for up to 16 THOR-3CDA. 1 x HEIMDALL-D1 as system controller. CASES: 5 x pro user system case for 3 x PAX-P16 with pro user system patch bay, 1 x pro user master case with master patch bay for one or two HEIMDALL-D1, 5 x CPC-2.12 Cloth transport protection cover, 5 x CRB-2.12 dolly for up to 4 x DARVIN, 3 x CRB-3CD dolly for up to 3 THOR-3CDA. Cables: 6 x NL8X15 15m 8 x 4qmm, 12 x NL8X05 patch 0,5m 6 x 4qmm, 4 x NL4X10 10m 4 x 4qmm, 6 x NL4XCR cross 0,5m 4 x 4qmm, 2 x NL4X05 patch 0,5m 4 x 4qmm , 1 x LK37-25m, 4 x LK37-3m.



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