

UDA 16

UNIFORM DISPERSION ARRAY

WORK PRO® 

WORK



UNIFORM DISPERSION ARRAY

UDA 16 is a smart solution that solves most of the situations where the reflections and distance are issues that need to be solved in order to improve the intelligibility.

Thanks to an elaborated system of filters and 16 wideband transducers placed in array configuration, this new column array concept is designed with an audio beam with a controlled dispersion in the played bandwidth.

MAIN FEATURES

Total control of vertical beam width

UDA 16 has been designed to maintain a total control of vertical beam width (one column: 22° / two columns: 11°) in almost all the reproduction band of the column (see specs). It allows to control the presence of unwanted effects (reverbs and echos) induced by walls and ceiling reflections.

UDA 16's acoustic pressure focuses on the area that has to be covered, minimizing reflection (secondary lobes effects). This is particularly noticeable in reverberant acoustic conditions, like churches, airports or train stations.

Uniform dispersion array (constant frequency response)

Each frequency reproduced by a sound source has its own directivity.

However, thanks to the Uniform Dispersion Control of the beam, it is possible to maintain constant the frequency response in a wide range of the frequency band in the area that has to be covered.

Cylindrical waveform (Line Array effect)

The 16 transducers are placed as a line array system to create a cylindrical dispersion (waveform).

The sound pressure level only decreases around 3 dB (instead of 6 dB) each time the distance doubles (minimum loss).

As a consequence, it is possible to double decoverage for the same acoustic pressure. It also offers a more targeted sound transmission to audience areas.

Music and speech intelligibility

By focusing the sound to the audience area, UDA 16 guarantees excellent results in reverberant acoustic conditions and therefore a perfect speech intelligibility. This system is perfect for location with complex acoustics: it avoids potential reflections from ceilings and walls which makes the sound more pleasant for the audience, with an outstanding reproduction of vocal and instruments. It is also very interesting for musicians on stage, because they are not affected by sound reflections.

Modular system with stacking capability

It is possible to stack two columns together to get a higher SPL and controlled bandwidth. With two UDA 16 units stacked it is possible to double the covered distance and improve the controlled bandwidth (this means a better control of low frequencies).

It is also possible (on-demand) to stack more than two units, being specially useful for large installations.

Elegant and compact design

UDA 16 comes with a professional, elegant and compact design, which easily blends in with the decor of almost any installations. It is also a lightweight column, thanks to its housing made of aluminium.



Why ARRAY COLUMN SYSTEMS are better than conventional PA systems?

Limitations of conventional PA systems can be overcome using array column systems like UDA 16, which provides significant advantages that lead to excellent results in reverberant acoustic conditions and a perfect speech intelligibility.

Conventional PA systems provide high power levels but lack controlled directional coverage. Not all the frequencies reach the audience properly, making music and speech intelligibility very difficult.

With the distance, conventional PA systems easily lose sound pressure level. This insufficient reach leads to lack of clarity for the audience located at the back of the room (whereas levels at the front are too loud). At the same time, low frequencies pressure decreases faster than high frequencies, therefore, people from the au-

diences will hear a different sound depending on their position in the room.

The column system UDA 16 has been designed to provide an efficient solution to these main issues.

The efficient control of vertical beam width provides a more targeted sound transmission to audience areas. It also attenuates potential reflections from walls and ceilings, improving speech intelligibility.

Thanks to the Uniform Dispersion Con-

trol of the beam, it is possible to maintain constant the frequency response in a wide range of the frequency band in all the area that has to be covered.

The cylindrical dispersion generated by the position of the transducers (array effect) has direct consequences on sound pressure level, which only decreases by 3 dB each time the distance doubles. It becomes easier for technicians to adjust sound levels and reach all the audience, without disturbing people at the first rows with very loud listening levels.

Conventional PA system



LINE ARRAY column system



Directional coverage

Thanks to the vertical beam control, UDA 16 concentrates power on the area that has to be covered, minimizing the secondary lobes effects.

Sound pressure levels

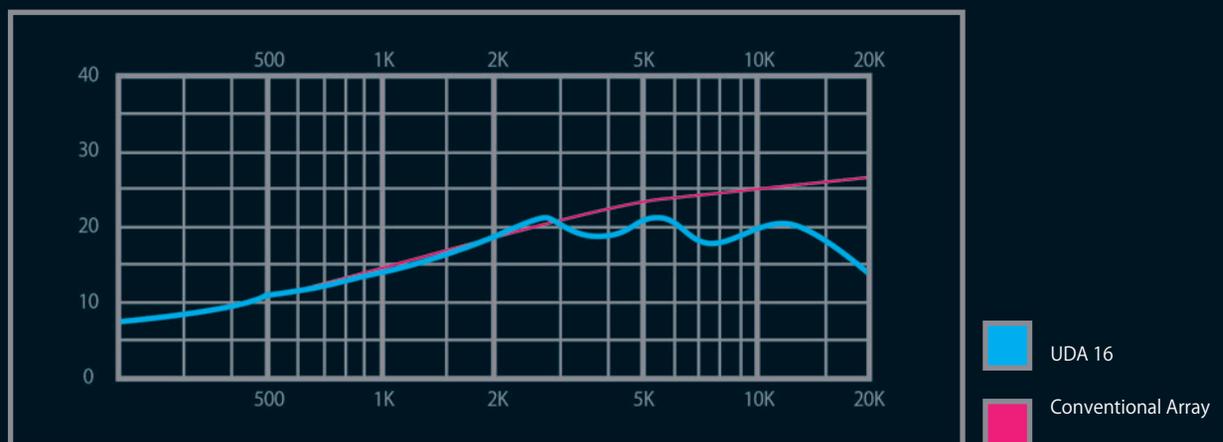
Thanks to the cylindrical dispersion (waveform), sound pressure level only decreases around 3 dB (instead of 6 dB) each time the distance doubles.

Why UNIFORM DISPERSION ARRAY is better than conventional Line Array?

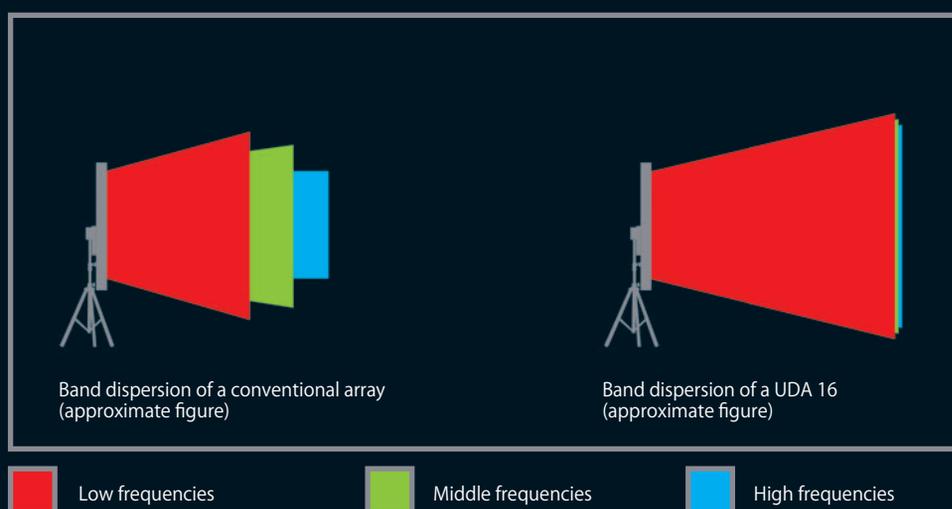
The main advantage of a controlled beam (Uniform dispersion) line array systems is that the audio spectrum that wants to be reproduced has the same dispersion in all the band giving a CONSTANT directivity index (see figure), against the conventional systems which directivity directly depends on the frequency, which means different frequency remains in different dispersion so the energy audio levels received by the audience varies in frequency hearing consequently a different sound that the one reproduced by the system.

In conclusion a Uniform Dispersion Array like UDA 16 ensures that the sound pressure received by the audience is the same in all the band that needs to be reproduced meanwhile with conventional array systems the sound level varies having more pressure in high frequencies and lower in low frequencies (because the low ones are less directive).

Directivity Index



Directivity Index
As seen in figure, UDA 16 has a match constant directivity index than the conventional array.



When using conventional array systems the directivity varies on frequency and therefore the distance to be covered is different. The audience located far from the column receives only high frequencies.

This problem is solved by Uniform Dispersion Arrays where all band to be reproduced has the same dispersion so the audience located long distance receives the same proportional levels that the audience located nearer so no matter how near or far audience is from the source, they will received an uniform audio level.

Ideal for Fixed Installations

UDA 16 is specially adequate for fixed installations, as it provides an outstanding directional sound and a perfect integration thanks to its attractive and slim design.



More targeted sound transmission to audience areas

Control of vertical beam width (one column: 22° / two columns: 11°).

Music and speech intelligibility

UDA 16 avoids potential reflections from walls and ceilings.

Easy adjustments of sound levels

Thanks to the cylindrical dispersion, sound pressure level only decreases by 3 dB each time the distance doubles.



Suitable for open areas (65 IP range)

Its high quality housing made of aluminium allows using it in open areas like train stations and airports.

Visual integration and attractive design

UDA 16 elegant and slim design (only 10,5 cm) easily blends in with the decor and goes unnoticed in almost any installations. It is available in two colours (black and white).

Control UDA 16 with WPE 26N and WorkCAD Designer.

The use of the 2-in/6-out WORK's WPE 26N digital system controller is highly advised. UDA 16 presets make use of extensive crossover, EQ, delay and limiting functionality to provide plug-and-play optimization and hence guarantee the best possible audio quality and reliability. An Ethernet connection allows to manage the operation from WORK's (WorkCAD) Designer PC-based editor with auxiliary devices like WNC-1 or mobile (devices tablets or smartphones), it is possible to activate different presets in order to adjust the processing for different situations (speech, music,...).



Ideal for Mobile Applications

UDA 16 array system provides many advantages for mobile applications. Thanks to the cylindrical dispersion, it is possible to double coverage for the same acoustic pressure.

Great coverage over large distances

Possibility to stack up to two columns (total: 2,3 m length) maintaining vertical beam control and sound pressure levels.

Lightweight Line Array columns

Only 10.1 kg, being very easy to handle in mobile applications.

Quick set-up (easy installation)

There are available many accessories for a quick and safe installation (no flying points required).

Interesting for musicians on stage

Thanks to the vertical beam control, musicians are not affected by sound reflections.

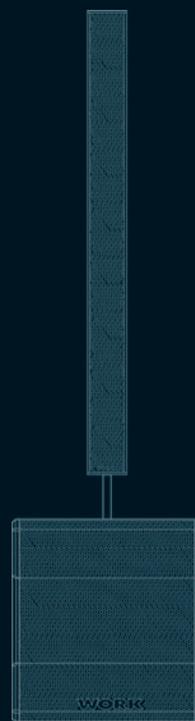
UDA 16 and Z 15A

The perfect set for music applications.

Z 15A is an active subwoofer with built-in DSP.

It associates portability and elevated power, as it delivers up to 1.000 W (class D).

UDA 16 and Z 15A together provide outstanding performances in mobile applications, with excellent response and dynamics.



Examples of Configuration

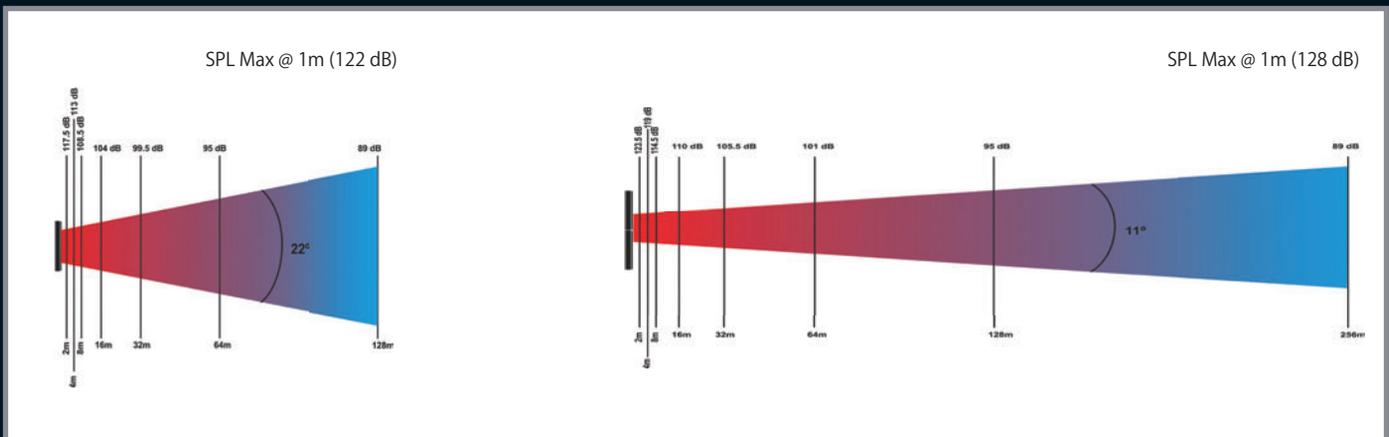
Fixed Installations

With one column, audio designers ensure to cover a wide distance thanks to the Line array design which guarantees a loss around 3 dB every time the distance is doubled.

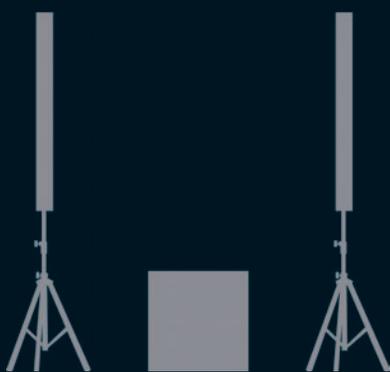
With a configuration of two columns stacked in vertical array shape, the sound pressure increases 6 dB which means that the distance to cover can be increased more than four times.

Configuration	1 column	2 columns
Vertical beam width	22°	11°

SPL Max (Open Source)
Speech Range (800 Hz-8 kHz)

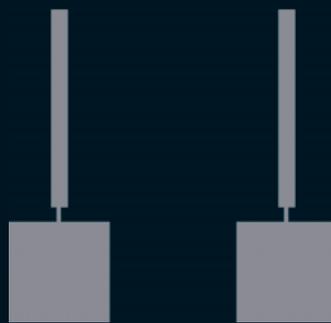


Mobile Applications



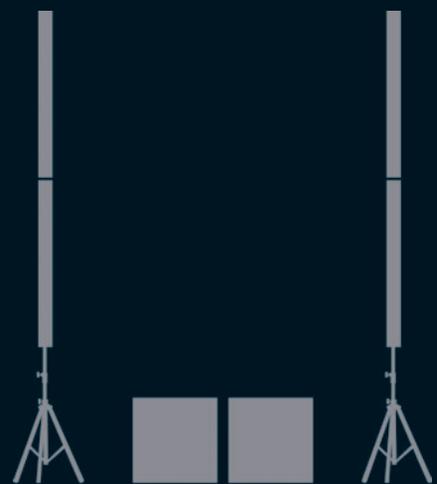
1.000 W

System with two UDA 16 connected to one Z 15A providing a configuration of 1000W (500W+500W) with preconfigured Digital processing control thanks to the Built-in DSP. This configuration is ideal to cover an audience of 450 persons approximately.



2.000 W

System with two UDA 16 connected to two Z 15A providing a configuration of 2000W. Each Z 15A has a built-in 1000W class D amp (500W+500W) with preconfigured Digital processing control thanks to the Built-in DSP. This configuration is perfect to cover an audience of 750 persons approximately.



3.000 W

System with four UDA 16 connected to two Z 15A providing a configuration of 2000W (1000W+1000W) with preconfigured Digital processing control thanks to the Built-in DSP. This system is highly recommended to be combined with two LW415 lifters. With this simple configuration, an audience of approximately 1000 persons is able to be covered.

Available Accessories

Wall 16



Accessory to attach UDA 16 to the rail and also to join two UDA 16. (Included)

SPK 16/2



Accessory to incorporate an insertion tube. It has several vertical tilt position.

Sub 16/2



Accessory with insertion tube for configurations with subwoofers.

UDA 16 Rear view



UDA 16 incorporates rail for fixation purposes. Connection with protection cover for high IP range (IP 65).

UDA 16 TL (optional device)



Transformer to convert low into high impedance. It allows to connect UDA 16 to an 100 V line amplifier. Designed to integrate itself perfectly with UDA 16 installations taking advantage of the rail. Connection by terminals.

Power output: 120 W.
Dimensions (WxHxD): 105 x 195 x 112 mm.

Technical Data

DRIVERS	16 X 2.75" speakers.
FREQ. RESPONSE (-10 dB)	145 Hz - 18.3 kHz.
SENSITIVITY (SPL@1m)	96 dB.
Max. SPL	122 dB (1 unit), 128 dB (2 units).
H DISPERSION	140°.
V DISPERSION (1 unit)	22° +/- 4°.
V DISPERSION (2 units)	11° +/- 2°.
INPUT IMPEDANCE	8 Ω.
POWER HANDLING (8 Ω)	430 W (AES).
100 V TRANSFORMER	120 W.
DSP CONTROLLER	Required.
CONNECTORS	Terminals and XLN4.
IP RATING	IP 65.
COLOUR	Black (RAL 9011) or white (RAL 9016).
MOUNTING	Rear rail.
DIMENSIONS	105 x 1143 x112 mm.
WEIGHT	10.1 Kg.

Vertical polar pattern

