

# UDA 16

## Uniform Dispersion Array



WORK



WORK

# UNIFORM DISPERSION ARRAY

UDA 16 is the new modular column with Line array shape designed by WORK.

It is composed of an elaborate system of filters and 16 high performance transducers with a wide frequency range placed as a line array system. This design provides many advantages for audio installations.



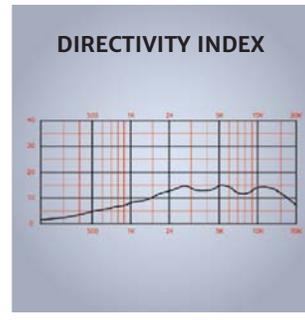
# UDA 16

# MAIN FEATURES



## TOTAL CONTROL OF VERTICAL BEAM WIDTH

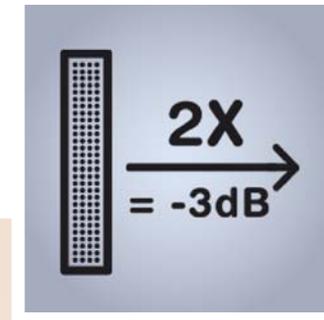
UDA 16 has been designed to maintain a total control of vertical beam width (one column: 22° / two columns: 11°) in almost all the reproduction band of the column (see specs). It allows controlling the presence of undesirable effects (reverbs and echos) induced by walls and ceiling reflections. UDA 16's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



## UNIFORM DISPERSION ARRAY (CONSTANT FREQUENCY RESPONSE)

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

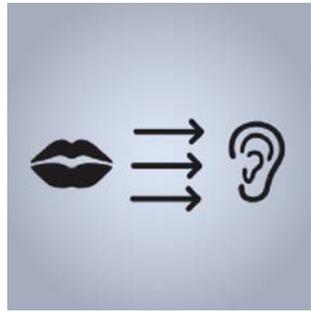
However, thanks to the Uniform Dispersion Control of the beam, it is possible to maintain constant the frequency response in a wide range of the frequency band in the area that has to be covered.



## 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 by 3 dB (instead of 6 dB) each time the distance doubles (minimum loss).

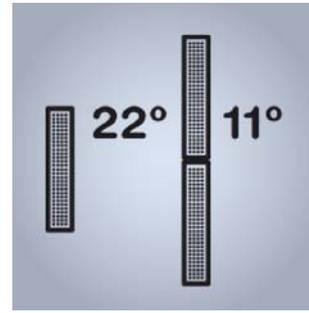
As a consequence, it is possible to double coverage for the same acoustic pressure. It also gives a more targeted sound transmission to audience areas.



### MUSIC AND SPEECH INTELLIGIBILITY

By focussing the speaker sound to the audience, UDA 16 guarantees excellent results in reverberant acoustic conditions and so a perfect speech intelligibility.

This system is perfect for location with complex acoustics: it avoids potential reflections from ceilings and walls to make 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. Thus, stacking two UDA 16 units allows 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.

# CONVENTIONAL PA SYSTEMS VS. ARRAY COLUMN SYSTEMS

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

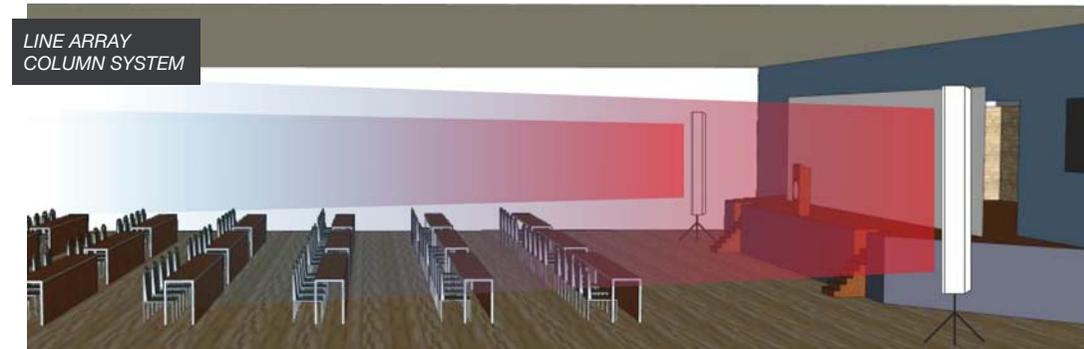
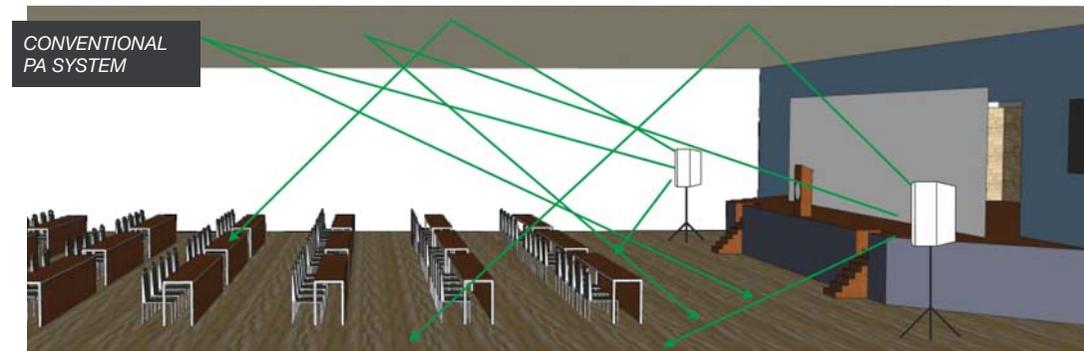
Conventional PA systems provide high power levels but lack directional coverage. Not all the frequencies reach the audience properly, making music and speech intelligibility very difficult.

With the distance, conventional PA systems easily lose sound pressure level. This insufficient reach involves 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 decrease faster than high frequencies, so people of the audience will hear a different sound according to their position in the room.

The array 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 Control 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 (line 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 having to disturb people at the front with very loud listening levels.



#### **Directional coverage**

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

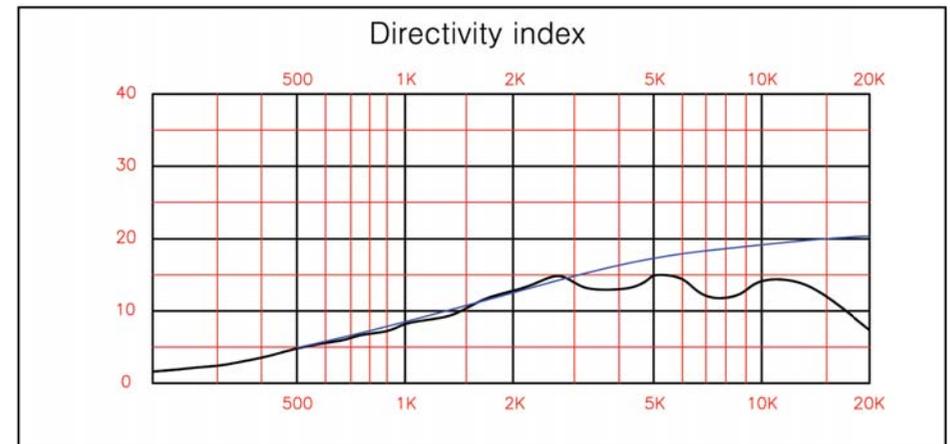
#### **Sound pressure levels**

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

# CONVENTIONAL LINE ARRAY SYSTEMS VS. UNIFORM DISPERSION 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 array systems which the directivity are directly depending of 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.

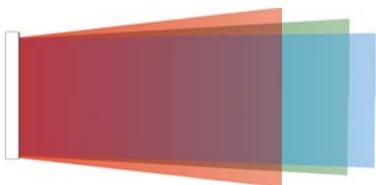
Resuming, a Uniform Dispersion Array like UDA 16 ensures that the sound pressure received by the audience are the same in all the band that needs to be reproduced meanwhile with conventional array systems the sound level varies having more pressure in high frequencies and lower in low frequencies (because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



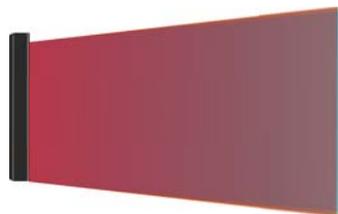
### Directivity Index

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

■ UDA 16      ■ Conventional Array



Band dispersion of a conventional array (approximate figure)



Band dispersion of a UDA 16 (approximate figure)

■ Low frequencies      ■ Middle frequencies      ■ High frequencies

In conventional array systems, because of the directivity varies on frequency also the distance to be covered are different, where audience located long distance 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 are from the source, they will listen to the same sound.

# 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 (55 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).



# PERFECT FOR MOBILE APPLICATIONS

There are many advantages to using UDA 16 array system 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 10.2 kg, being very easy to handle in mobile applications.

## Quick set-up (easy installation)

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

## Interesting for musicians on stage

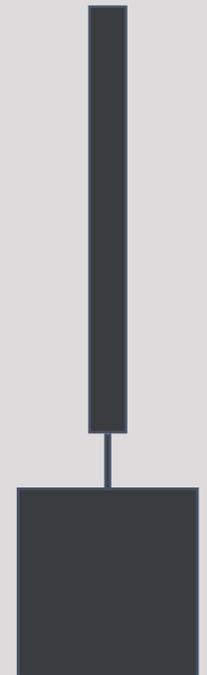
Thanks to the vertical beam control, musicians are not affected by sound reflections.

## 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.



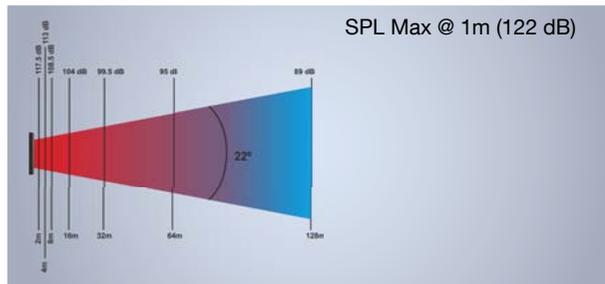
# EXAMPLES OF CONFIGURATIONS

## FIXED INSTALLATIONS

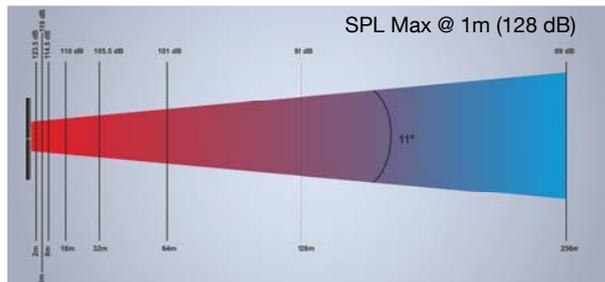
With 1 column, audio designers ensures to cover a wide distance thanks to the Line array design which guarantees a loss of only 3 dB every time the distance is doubled.

With a configuration of 2 columns stacked in vertical array shape, the sound pressure increases 6 dB which means that the distance to cover can be increased 4 times with just double equipment.

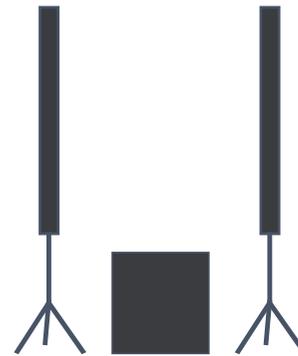
Configuration	1 column	2 columns
Vertical beam width:	22°	11°



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

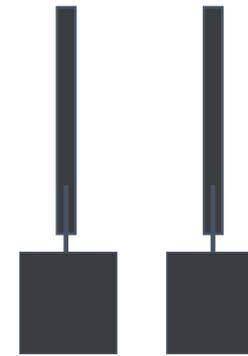


## MOBILE APPLICATIONS



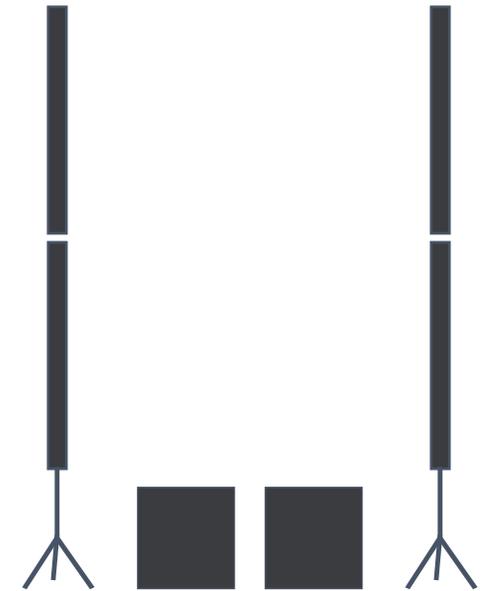
1.000 W

System with 2 UDA 16 connected to one Z15A 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 2 UDA 16 connected to 2 Z15A providing a configuration of 2000W. Each Z15A has a built-in 100W 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.

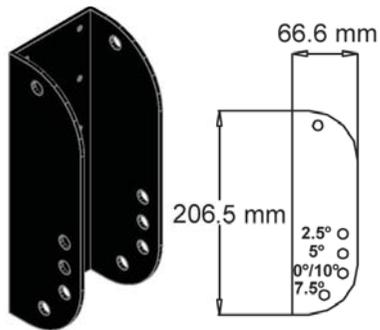


3.000 W

System with 4 UDA 16 connected to 2 Z15A 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 2 LW415 lifters. With this simple configuration, an audience of approximately 1000 persons is able to be covered.

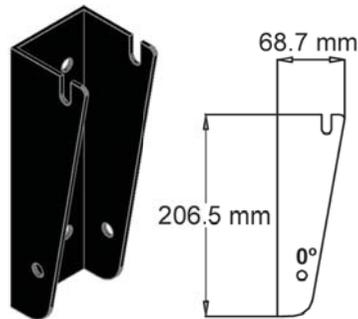
Calculations of audience is based taking in account a minimum pressure of 100dB and assuming a loose 4,5dB for the music spectrum

# AVAILABLE ACCESSORIES



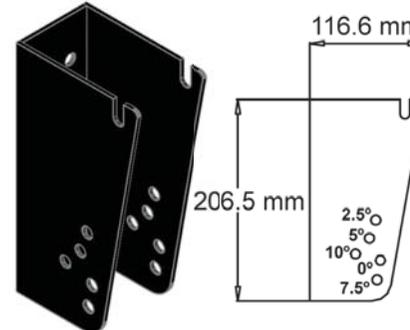
#1

- Included accessory.
- Allows linking two columns together.
- Compatible with other accessories to adapt vertical angle.
- Width: 75.45 mm.
- Depth (top): 66.6 mm.
- Height: 206.5 mm.



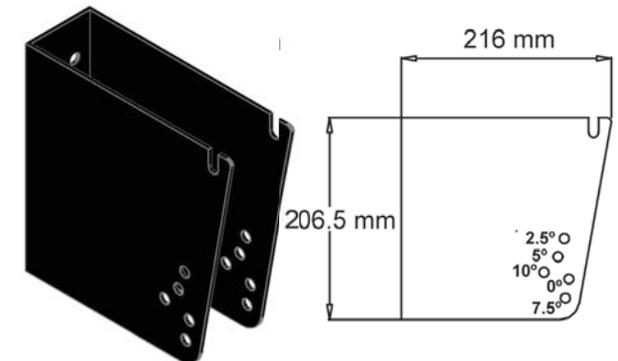
#2

- Wallmount bracket.
- Designed to be used with a single column.
- Vertical angle: 0°.
- Width: 67.45 mm.
- Depth (top): 68.7 mm.
- Height: 206.5 mm.



#3

- Wallmount bracket.
- Designed to be used with a single column.
- Vertical angles: 0° / 2.5° / 5° / 7.5° / 10°.
- Width: 67.45 mm.
- Depth (top): 116.6 mm.
- Height: 206.5 mm.



#4

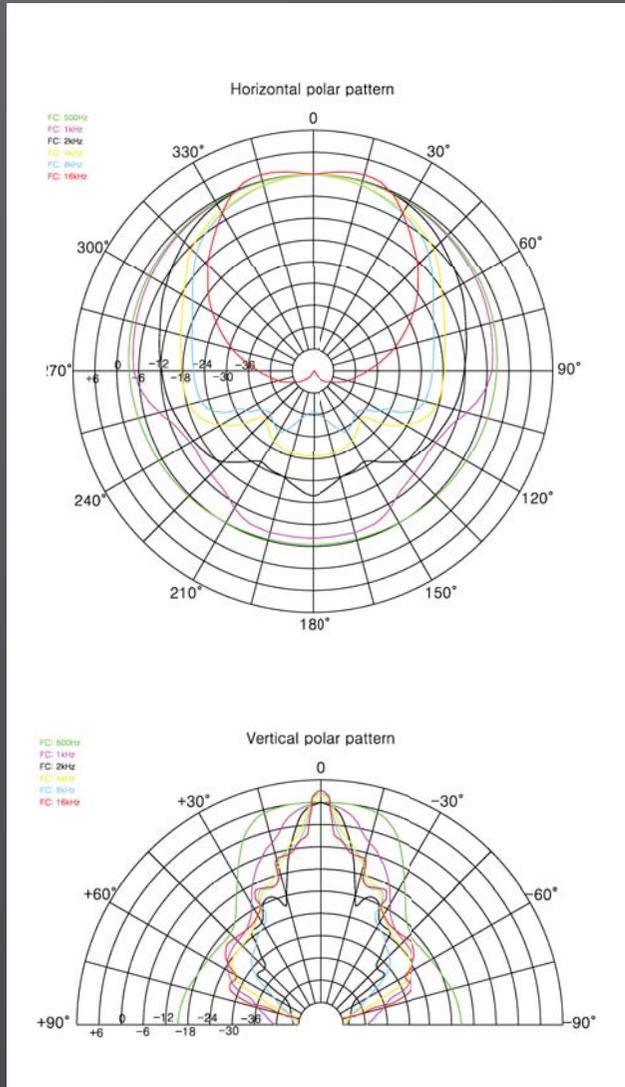
- Wallmount bracket.
- Designed to be used with two columns.
- Vertical angles: 0° / 2.5° / 5° / 7.5° / 10°.
- Width: 75.45 mm.
- Depth (top): 216 mm.
- Height: 206.5 mm.

## 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 auxilliary 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,...).



# TECHNICAL DATA



<b>ELEMENTS</b>	<b>16 X 2.75" SPEAKERS</b>
<b>FREQ. RESPONSE (-10 dB)</b>	<b>80 Hz - 20 kHz</b>
<b>SENSITIVITY ( SPL@1M)</b>	<b>96 dB</b>
<b>MAX SPL</b>	<b>122 dB (1 UD), 128 dB (2 UDS)</b>
<b>H DISPERSION</b>	<b>140°</b>
<b>V DISPERSION (1 UD)</b>	<b>22° +/-4°</b>
<b>V DISPERSION (2 UDS)</b>	<b>11° +/-2°</b>
<b>INPUT IMPEDANCE</b>	<b>8 Ω</b>
<b>POWER HANDLING (8 Ω)</b>	<b>430 W</b>
<b>70/100V TRANSFORMER</b>	<b>70/140 W</b>
<b>DSP CONTROLLER</b>	<b>REQUIRED</b>
<b>CONNECTORS</b>	<b>TERMINALS AND SPEAKON</b>
<b>COLOUR</b>	<b>BLACK OR WHITE</b>
<b>MOUNTING</b>	<b>6 NUTS (M4) AT EACH END (WALL BRACKET INCLUDED)</b>
<b>DIMENSIONS</b>	<b>105 X 1143 X 112 MM</b>
<b>WEIGHT</b>	<b>10.2 KG</b>

