

2005: OUTLINE INVENTS THE ROBOT-ARRAY...

Outline, following the wishes of founder Guido Noselli, patented the first robotized loudspeaker enclosure of all time. COM.P.A.S.S. - COMpact Polar Adjustable Sound System - yet another product for which the description "unusual" is definitely an understatement. In fact, it received Europe's most coveted acknowledgment: the Award for Product Innovation at London's 2005 Plasa Show.

It is a loudspeaker element intended to form vertical line arrays, but also able to be used as a stand-alone unit, like any other widerange high performance enclosure. Its revolutionary peculiarity consists in the fact that its dispersion can be remote controlled as required via software, with wide variation on both planes, once the enclosure has been positioned alone or in multiples when used for sound reinforcement. As well as this extraordinary possibility offered by each individual enclosure, a further adjustment system is included, which can also be remote controlled and enables to adjust the splay angle between elements when used as a vertical line array. Moreover, to facilitate dispersion adjustment to the utmost, by means of luminous beams, a laser system shows the aiming of the axes of each element's HF section and highlights the limits of the horizontal coverage area. Guido Noselli, simply and naturally states: "...Users will thus have a system at their disposal that can be rapidly adapted to suit any possible situation, according to the audience to be covered...". In 2005, the beginning of a new chapter in professional Sound Reinforcement history was thus celebrated and the ambitious design combining "Mind, PC and Enclosure" in fact became a reality.

TODAY...

From the COM.P.A.S.S., which can be considered a "concept" example, today's **mini-COM.P.A.S.S.**, a very close "relative", takes its form.

A compact, ultra-light (23 kg - 50.7 lb) self-powered element equipped with six loudspeakers: four high- efficiency 5" mid-woofers with twin neodymium magnetic circuit and two compression drivers with a 1.75" diaphragm, fitted with two D.P.R.W.G. waveguides (Outline patent - see specific paragraph).

Mini-COM.P.A.S.S. is the only compact VLA on the world market that ensures a fundamental feature of its futuristic forefather:

The adjustment of the directivity on the horizontal plane from 60° to 150° per side in relation to the axis, even asymmetrically (see diagrams and illustrations).

HNW ?

A simple, practical and reliable mechanical movement is sufficient to move the system's "wings" and aim them as required...

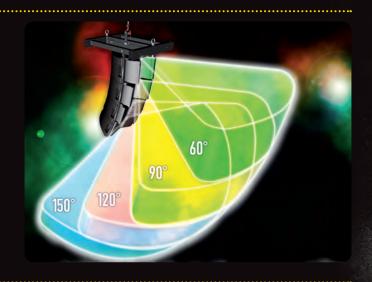
SOUND: ONLY WHERE REQUIRED

There are sixteen possible combinations of horizontal coverage, including asymmetric ones, which can be exploited according to the audience and acoustic properties of the environment in which the sound has to be reinforced. For example, in acoustically difficult venues, it is very useful to avoid reflections from walls.

Because the sound only goes directly where it's needed.

SENSORS + DSP = REAL-TIME CONTROL

Moving the "wings" of the mini-COM.P.A.S.S. in sixteen possible ways means changing the acoustic radiation conditions each time. No problem - at this point an ingenious but simple sensor-based recognition apparatus comes into play, "informing" the DSP of the position of the "wings", and on-axis response is automatically corrected in real time.







POSITION SELECTOR

By means of a practical mechanical selector, it is possible to set mini-COM.P.A.S.S. as follows:

FLAT: Outline default setting.

USER: Control via PC by means of an ETHERNET port: at this point Outline's proprietary AUDIO CONTROL software, which enables numerous setting possibilities, comes into play.

+/- 3 dB HF: High frequency compensation filter (High-Shelving 2nd order at 5 kHz): use depends on the number of VLA elements involved.







1. COMPONENT FLIGHT CASES: for mini-COM.P.A.S.S. transport and protection, dedicated flight cases with sturdy smooth-running wheels have been built. A four-unit case protects the enclosures and provides a perfect trolley for facilitating VLA transport and set-up (no physical strain is required to raise the elements).

2. - 3. VLA SET-UP: it takes just a few minutes and does not require any physical strain. System for setting the systems' splay angle (from 0 to 7.5°)

KEY FEATURES

- Self-powered loudspeaker system (500 + 500 Watts)
- On-board DSP
- · "Plug and play" use
- Outstanding sound quality
- D.P.R.W.G. Wave Guides
- Adjustable directivity from 60° to 150°, making it the only compact VLA at international level to have such a feature.
- Unequalled versatility; the system is adaptable to suit any possible situation, according to the audience to be
- PC-controllable via Outline "AUDIO CONTROL" and "OPEN ARRAY" software.
- 16 different combinations of horizontal dispersion
- Very high SPL (4 modules): 141 dB @ 1 m (peak)
- Very low weight (including flying hardware): 23 kg 50.7 lb

APPLICATIONS

- Both permanent and portable systems
- Mobile and touring applications, medium-sized PA companies
- Corporate AV, Houses of Worship, Performing Arts Centres, Concert Halls, Theatres and other similar applications.

TECH SPECS - DIMENSIONS - WEIGHTS

TRANSDUCERS & LOADING.....

LOW/MID HIGH

4 x 5" NdFeB woofers with vented loading 2 x 1.75" diaphragm NdFeB compression

drivers, D.P.R.W.G. (Double Parabolic Reflective Wave Guide) loaded

ACOUSTICAL "Flat" preset, free-field measurement

FREQUENCY RANGE (-10 dB) MAX PEAK (Short Term) SPL @ 1m

100 Hz ÷ 20 kHz

1 Enclosure 4 Enclosures

131 dB-SPL 141 dB-SPL

COVERAGE ANGLE

Vertical Horizontal

Depends on array length and configuration Depends on geometrical configuration

(16 combinations)

AUDIO INPUT.....

INPUT TYPE **CONNECTORS INPUT IMPEDANCE** INPUT SENSITIVITY Balanced to ground 1 XLR + 1 Link Out 10 kOhms + 3.2 dBu

PRESET KNOB Flat, User (Remote Control) HF +3dB, HF -3dB

POWER AMPLIFIERS.....

RATED DISTORTION (THD, DIM, SMPTE) COOLING

Class D (Digital) 2 x 500 WEIAJ on 4 0hm

< 0.5 %

Two fans controlled via temperature sensor

mini COM.P.A.S.



AC POWER REQUIREMENTS

CONNECTORS VOLTAGE SELECTION CURRENT CONS. (Continuous) Recommended max N°

1 PowerCon + 1 Link Out Manually selectable - two ranges (115 V / 230 V) 1.6 A (230/240 VAC) 2.6 A (115/120 VAC)

of enclosures on the same AC Line: 3

REMOTE CONTROL

CONNECTOR

1 x EtherCon (RJ 45 Socket) Internal DSP settings (Delay, Gain, Filters and EQ) via "AUDIO CONTROL" - proprietary Outline software

RIGGING (Mounting Information)

FLYING SYSTEM MAX ARRAY LENGTH SPLAY ANGLES **BETWEEN ENCLOSURES (°)** Integrated hardware 12 enclosures

0/ 0.5 / 1/ 1.5/ 2/ 2.5/ 3/ 3.5/ 4/ 4.5/ 5/ 6/ 7/ 7.5

FRAME MATERIAL

DIMENSIONS (H x W x D) WEIGHT

Light-weight, high-strength aluminium alloy 10 x 70 x 85 cm (3.9 x 27.6 x 33.5 inches)

12 kg (26.5 lb)

PHYSICAL

DIMENSIONS (H x W x D) WEIGHT

35 x 55 x 41.6 cm (13.8 x 21.7 x 16.4 inches)

23 kg (50.7 lb)

SHIPPING DIMENSIONS AND WEIGHT

DIMENSIONS (H x W x D) WEIGHT

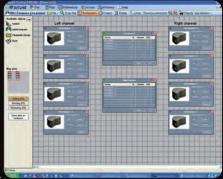
43.5 x 64.5 x 49 cm (17.1 x 25.4 x 19.3 inches) 25.5 kg (56.2 lb)

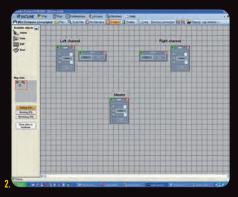
D.P.R.W.G. WAVEGUIDE: FUNDAMENTAL HF SECTION

The section for reproducing the high frequencies on the mini-COM.P.A.S.S. is entrusted to two compression drivers with a 1.75" diaphragm loaded with a D.P.R.W.G. (Double Parabolic Reflective Wave Guide), a well-known Outline international patent, already used successfully on the Butterfly system. The result of three years' research and trials, the D.P.R.W.G. is a truly original device,

whose design is based solely on mathematical calculations. It has the task of transforming the circular plane waves emitted by the source at its entrance into rectangular plane waves at its output, keeping identical paths from all emission points of the source. Further information can be found in the White Paper by Guido Noselli (www.outline.it).

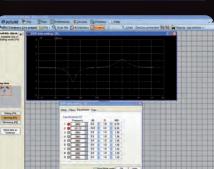
CONTROLLABLE WITH A PC, VIA ETHERNET

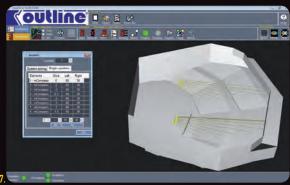












- 1. View of the project's architecture.
- 2. View of the project's control panel.
- 3. Assignment of enclosures to groups.
- 4. Setting each enclosure's Ethernet address.
- 5. Assignment of gain control to enclosure groups.
- 6. Example of adjustment of enclosures' on-board DSP.

7. OPEN ARRAY 3D Software: Window showing a sound reinforcement system, designed using "Open Array", Outline's (proprietary) new 3D prediction and aiming software: a very powerful tool representing the current state of the art at world level.

The new mini-COM.P.A.S.S. fears no comparison from the point of view of IT either.

Thanks to its new network card (designed entirely in Outline's in-house labs), the on-board DSP can be controlled in such a way as to exploit its capacity to the utmost. Thanks to an RJ 45 connector, the latter can be controlled via TCP/IP protocol. It is thus possible to control the system by means of a PC: in this case, the only limit really depends on users' fantasy. In fact, the work is completed by Outline "AUDIO CONTROL" and Outline "OPEN ARRAY", respectively the control and aiming software (see the specific section).

PRECISION MECHANISM

The flying system's mechanism offers the necessary precision for the foreseen adjustments with a resolution of just 0.5° per step between the elements, in spite of the capacity being over-sized compared to the load (see illustration and data in the table).

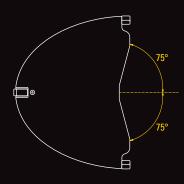


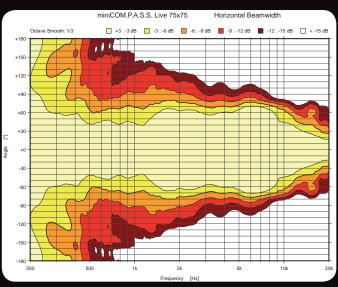
Moreover, the intelligent design of the mechanism itself facilitates the positioning of individual elements; mounting the VLA is a job that takes just a few minutes and does not require any physical strain.

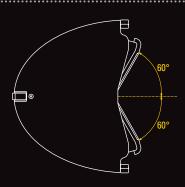


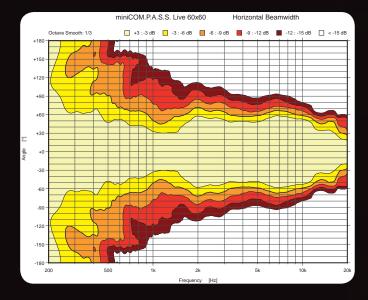
Outline uses top-grade mechanisms: the result of a skilful combination of top quality material and treatment used, in order to ensure the structure superlative hardness (500 HV) and for extremely high resistance to corrosion and abrasion, as well as high resistance to stress. All with a really low weight.

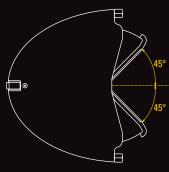
MINI-COM.P.A.S.S. LIVE - HORIZONTAL DISPERSIONS

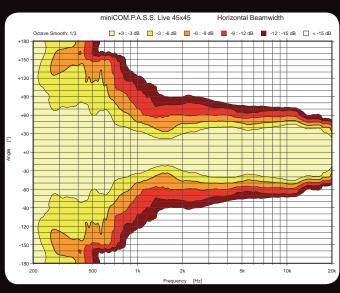


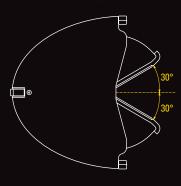


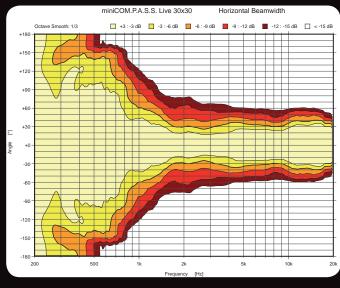


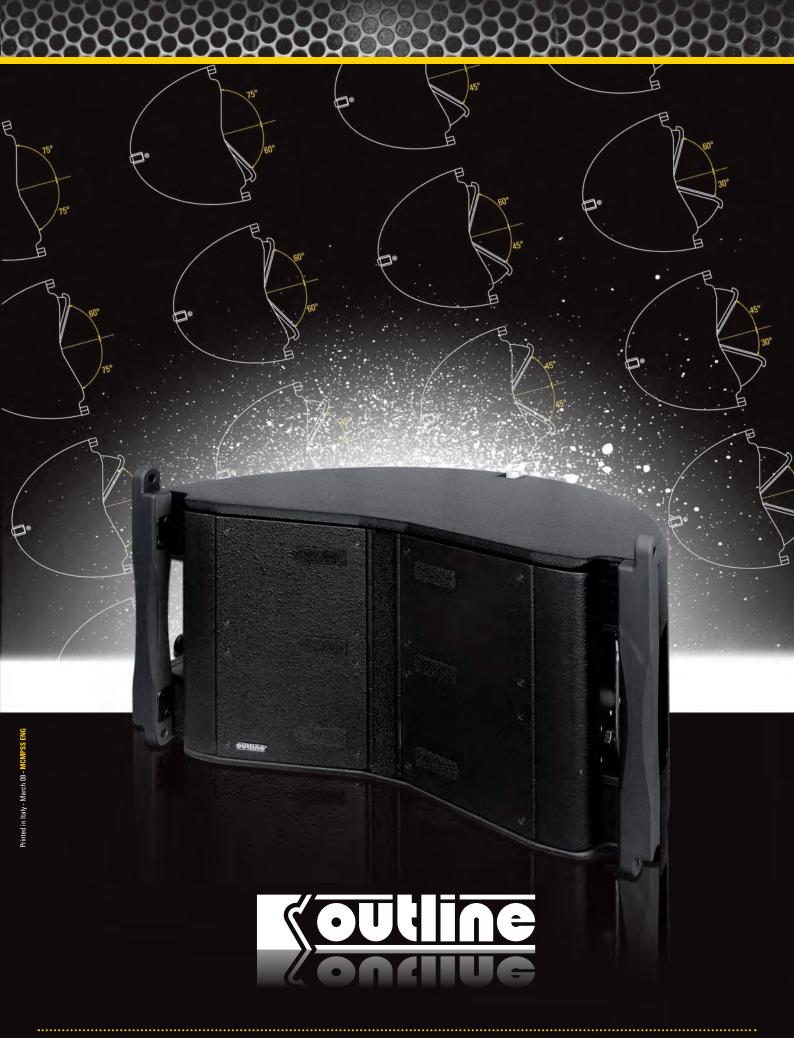












OUTLINE ITALY
Tel.: ++39 030 35.81.341 - Fax ++39 030 35.80.431
mail to: info@outline.it
www.outline.it

OUTLINE UKTel.: ++44 (0) 1778 42.03.30
Mob.: ++44 (0) 7770 336044
mail to: pab@outlineuk.fsnet.co.uk

OUTLINE NORTH AMERICA LLC Tel.: 516 249 0013 - Fax: 516 249 8870 Mob.: 1 917 873 3602 mail to: na_sales@outline.it

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