

ENGINEERED EVOLUTION - THE NEW MANTAS 28

# MANTAS 28



** Outline**



# MANTAS<sub>28</sub>

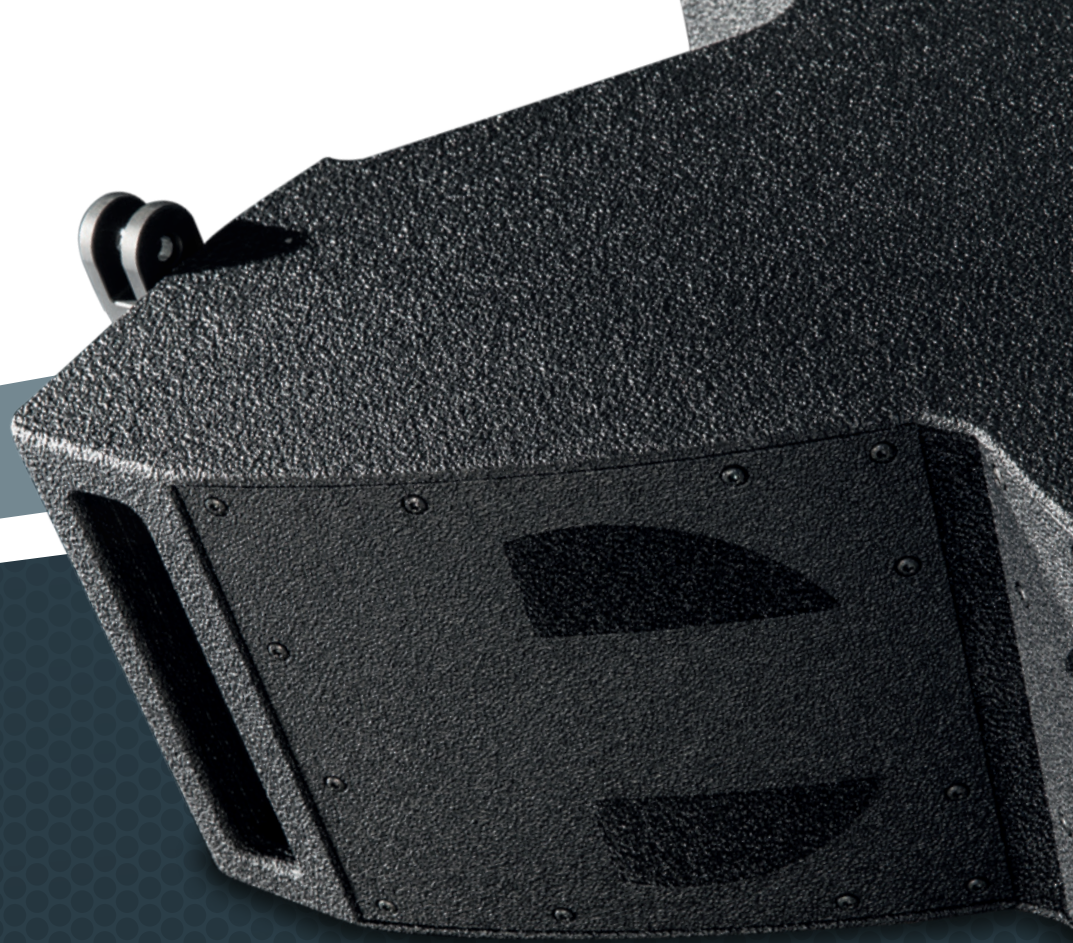
## 28 MANTAS OUTLINEARRAY: SIZE DOESN'T MATTER.

**MANTAS 28** is one of the most recent Vertical Line Array element designed by Outline. Thanks to the great experience accumulated with Butterfly - the Outline system with the same fundamental components and characteristics - **MANTAS 28** offers leading edge performance from a cabinet that is extraordinarily compact and lightweight.

Its top-grade components - two 8-inch midwoofers with Neodymium magnets and a 3-inch compression driver loaded with the well-known **D.P.R.W.G.** - ensure absolutely insignificant distortion levels and greater reliability.



**Outline**



## INTRODUCING THE NEW MANTAS 28 'JOINED-UP THINKING' FROM OUTLINE

Originally derived from our famous Butterfly concept, the Outline Mantas series line-source loudspeaker system has achieved global success and recognition since its launch. Its combination of low weight, compact size, ease of handling and pure audio quality has seen it deployed in countless applications all over the world, from concert touring to corporate, theatre and much else.

Like many of our products it was created to be part of a family of products that integrate seamlessly into an unlimited number of system configurations, adaptable to any application. This 'big picture' vision gives our customers the ability to build inventories that deliver maximum flexibility and thus maximum return on investment.

Now we are proud to present the latest results of our restless search for audio perfection. The natural evolution of Mantas and a highly-developed product that embodies and expands all the commercial and operational virtues of its predecessor - the all-new **MANTAS 28**.



# MANTAS<sub>28</sub>

## ONE SYSTEM, ENDLESS USES

In simple operational terms, Mantas 28 can best be described as a 'compact, medium throw' line-source system, delivering exceptional intelligibility, headroom and power up to around 60 metres depending on location and configuration. Many systems can make the same claim in terms of performance, but very few achieve these results from an enclosure which is so small and light in weight.

In recent years the developmental race in line-source systems has been all about output and coverage relative to size. Mantas 28 leads this race by utilising the same key audio technologies as its larger siblings but in a super-compact enclosure whose audio performance seems at first to be simply impossible given the size of the loudspeaker. But it IS possible - with Outline's unique designs, top quality components and world-class audio engineering.

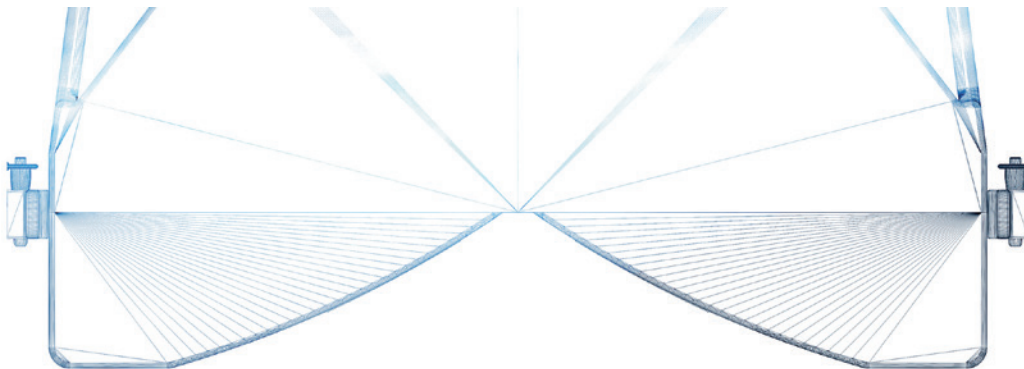
Along with suitable low-frequency elements, Mantas 28 can be the core component of a flexible sound reinforcement system able to handle a huge range of projects with ease. Loud enough for rock 'n' roll, but with the detail and intimacy necessary for theatre, Mantas 28 is the perfect solution not only for busy mobile sound operators but permanent installation in multi-purpose venues. Its design and adaptability also makes it perfect for cross-rental as it is ideal for use as side-fills, delays or side-hangs in much larger Outline (and other) systems.

## ITALIAN DESIGN FLAIR MEETS WORLD-CLASS ACOUSTIC ENGINEERING

Like all Outline products designed for life on the road, Mantas 28 is built tough. Top-quality Baltic birch ply is used throughout the cabinetry, covered with a proprietary scratch and weather-resistant coating, a combination that has proved its ability to withstand the touring life over many years. Thoughtfully-located handles allow easy manipulation of modules, while the overall 'look' is unmistakably 'Outline', providing visual integration with our other loudspeaker products.



## EXCLUSIVE 'V-POWER' BAFFLE CONCEPT FOR PRECISION AND PREDICTABILITY



The secret to Mantas 28's extraordinary acoustic performance is the use of two proven Outline technologies, re-imagined for this new product - the award-winning **DPRWG** waveguide and the '**V-Power**' front baffle concept (*Source: White Paper by Guido Noselli*). With appropriate amplification and processing this combination produces a maximum acoustic output of 139 dB, a simply incredible power-to-size ratio. The enclosure features a symmetrical design with the central HF section (comprising a 3" diaphragm compression driver mounted on our unique **DPRWG** waveguide) flanked by identical 8" LF drivers.

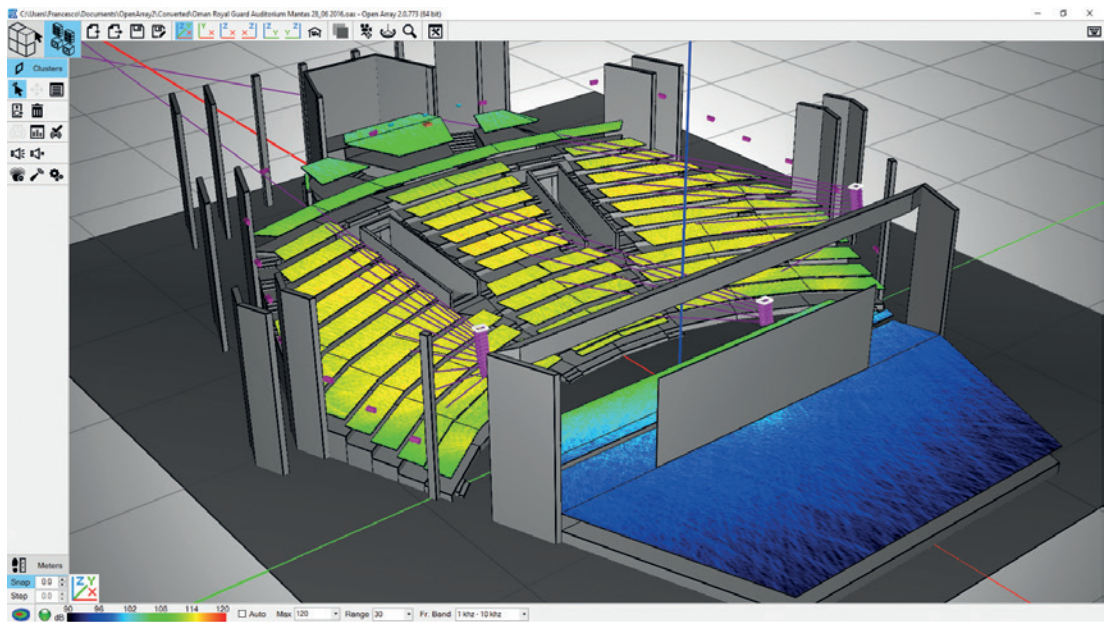
The Mantas 28 is a 'bi-amp' design, requiring two channels of amplification and processing, one each respectively for the dual 8" LF section and one for the 3" HF. This allows very precise adjustment and control over the individual frequency bands reproduced by the cabinet using DSP-based EQ, limiting and our own FIR (Finite Impulse response) crossover algorithms.

## PART OF A PRODUCT FAMILY THAT CONTRIBUTES TO YOUR BUSINESS

Every professional audio system, regardless of application, is a sum of its parts and (like a chain in the classic example) is only as strong as its weakest link. At Outline, part of our 'big picture' view is to consider every key element of the systems we design and thus to ensure that there IS no weak link.

The new Mantas 28 design is supplemented by a range of dedicated amplifiers, cabling and connection panels, all of which contribute to the efficiency of the system. For example, up to 16 Mantas 28 enclosures can be driven to full potential by a single 8-channel Outline X8 DSP-equipped amplifier - alternatively a single X8 (or a pair of X4s) can power 8 x Mantas 28s and 4 x DBS 18-2 subwoofers... this represents REAL 'plug-and-play' efficiency for the busy operator, making significant contributions in terms of power consumption, rack space, transportation, speed of deployment and crew requirements without compromising audio performance.

It's also really easy to integrate Mantas 28 into larger Outline GTO and GTO C-12 systems as we have created dedicated DSP presets for the amplifiers so that the individual elements of a combined system are all driven and controlled correctly. As well providing supplementary reinforcement to larger systems as delays or side-hangs, Mantas 28 can also be used as a down fill cabinet for GTO and GTO C-12 using a special adaptor fitted to the underside of an array of either product.



Our proprietary OpenArray 3D prediction software is also available, which accurately simulates the acoustic performance of Outline systems. We additionally have an archive of GLL and CLF files which are compatible with all the other simulation programs in common use, ideal for situations involving complex spaces where building acoustics have to be taken into account.

Flight cases to fit either two or three Mantas 28 cabinets are available, as are a range of Outline subwoofers with dedicated power and processing to suit your needs and applications. The Outline range also includes a number of front and lip-fill products that integrate perfectly with Mantas 28 systems and in most cases will run off the same amplifiers too - another Outline contribution to the cost-effectiveness of a busy sound provider.

### PERFORMANCE SPECIFICATIONS

|                                     |   |
|-------------------------------------|---|
| Frequency Response -10 dB           | 90 Hz – 18 kHz  |
| Horizontal Dispersion               | 120°  |
| Vertical Dispersion                 | Array design dependent                                      |
| Splay Angles available (Degrees)    | from 0° to 7.5° in 0.5° step with additional 0.25° position |
| Operating configuration             | Bi-amplified  |
| Impedance Midrange (Nom / Min)      | 8 Ω / 6.4 Ω   |
| Impedance High (Nom / Min)          | 8 Ω / 8.4 Ω   |
| Watt AES Midrange (Continuous/Peak) | 400 W / 1600 W  |
| Watt AES High (Continuous/Peak)     | 110 W / 440 W   |
| Maximum SPL Output, one box *       | 139 dB SPL  |
| Maximum SPL Output, four boxes*     | 151 dB SPL  |

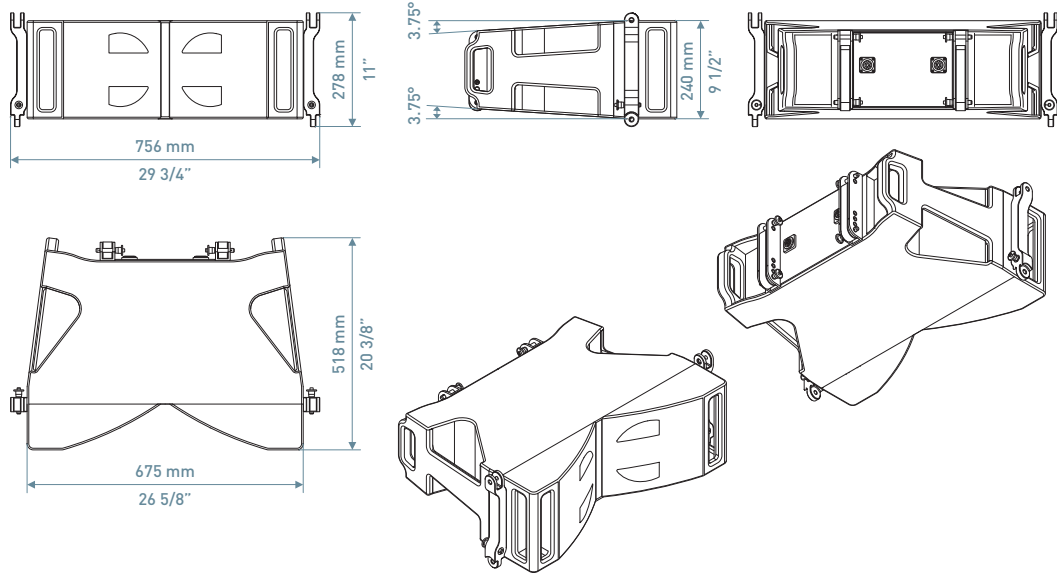
\* calculated using +10 dB Crest Factor signal @ 1 m, free field

### PHYSICAL

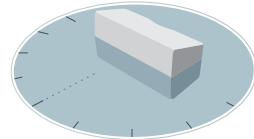
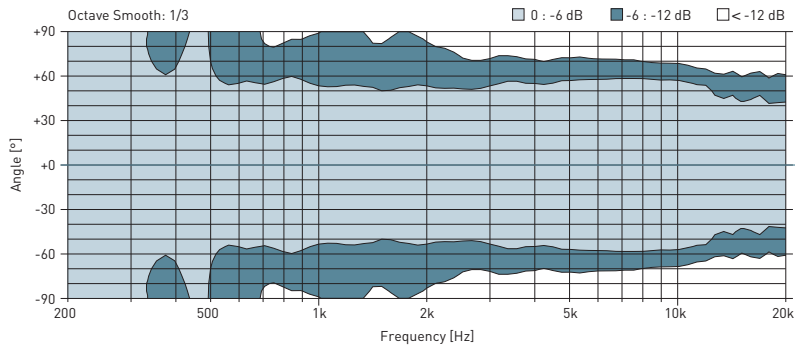
|                    |   |
|--------------------|---|
| Component Midrange | 2 x 8" NdFeB partially horn loaded mid woofer           |
| Component High     | 1 x 3" diaphragm NdFeB compression driver, DPRWG loaded |
| Connectors         | 2 x NL4 in parallel                                     |
| Cabinet Material   | Baltic birch plywood                                    |
| Cabinet Finish     | Black polyurea coating                                  |
| Grill              | Epoxy powder coated                                     |
| Rigging            | Integrated high-load aluminum hardware                  |
| Height             | 278 mm – 11"  |
| Width              | 756 mm – 29 3/4"  |
| Depth              | 518 mm – 20 3/8"  |
| Weight             | 24 kg – 52.9 lb   |



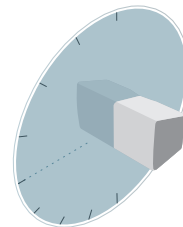
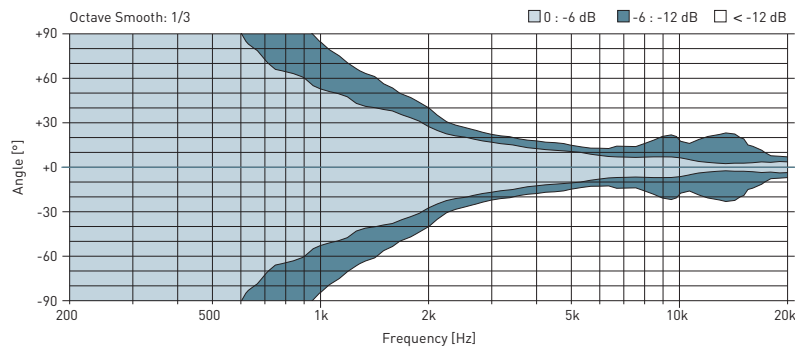
**DIMENSIONS**



**BEAMWIDTH**



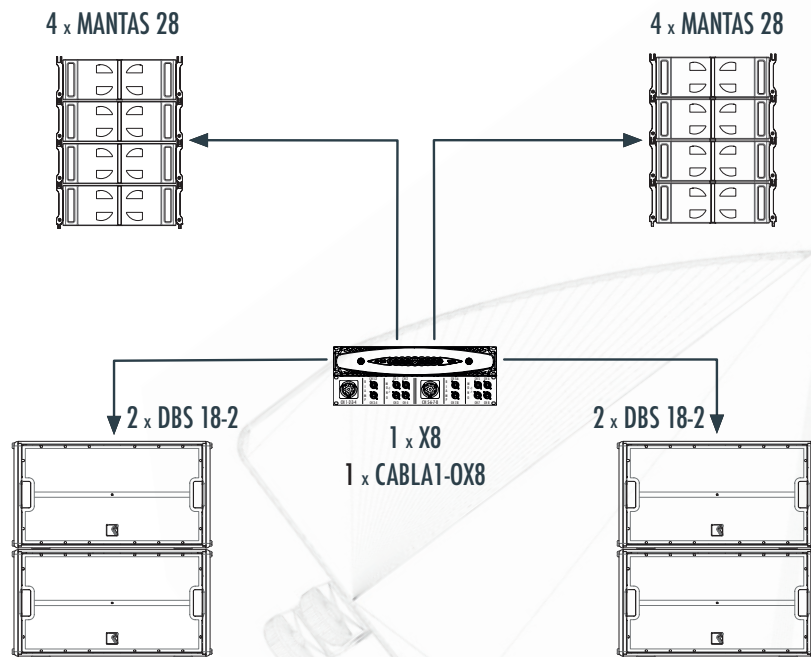
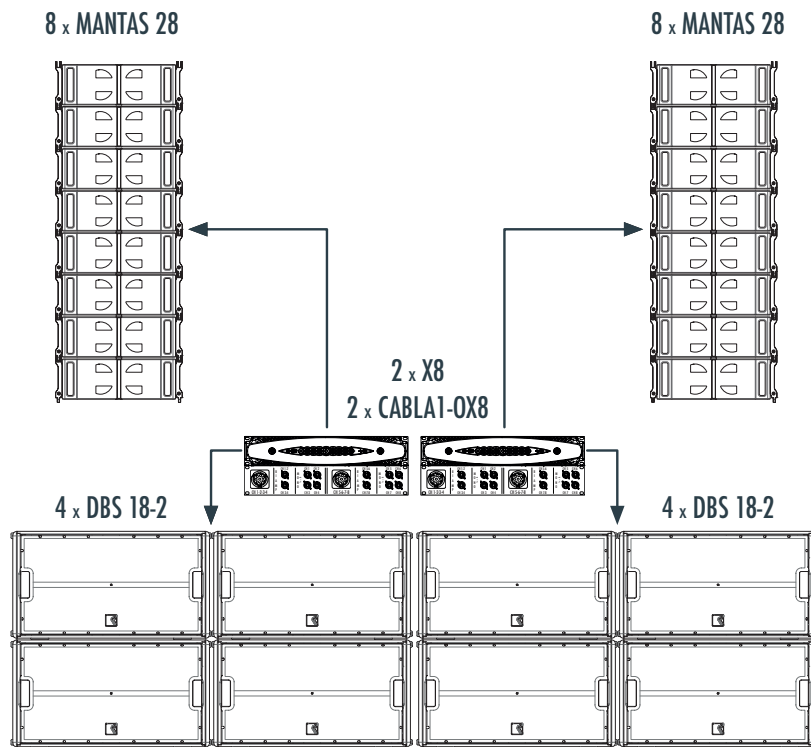
**HORIZONTAL**



**VERTICAL**



SYSTEM CONFIGURATIONS



**RIGGING STRUCTURE AND ACCESSORIES**

**THE THING ALL VLAs RELY ON FINALLY, NO COMPROMISE**

All line-source systems rely totally on their rigging systems since the enclosures are almost always deployed in multiples. Time is money on the road so the easier and faster the rigging systems are, the better and more efficient the overall system becomes. One of the key developments from the original Mantas is the new rigging on all Mantas 28 cabinets, which is made from aircraft-grade aluminium to keep weight down while ensuring material integrity and is completely integrated into every cabinet.

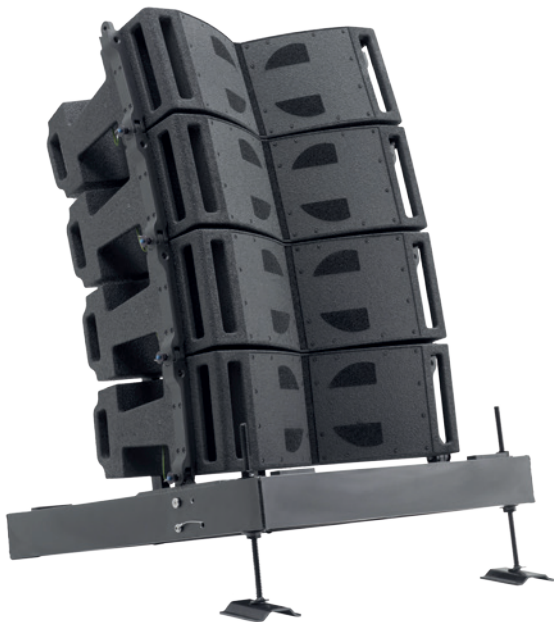
Its high-precision design allows inter-cabinet adjustment from 0° to 7.5° in 0.5° steps, with the addition of a 0.25° position intended to allow the uppermost cabinets in an array to deliver optimum far-field performance. The splay angle between line-source elements is absolutely critical to their overall acoustic performance because it determines the physical distance between drive units. Control over this angle is therefore vital and a splay angle indicator, integral to the cabinet flying hardware, allows the necessary degree of precision.

Mantas 28 also benefits from our super-lightweight top rigging frame which weighs only 21 kg but which will easily handle the weight of twenty-four Mantas 28 enclosures, 630 kg in total.



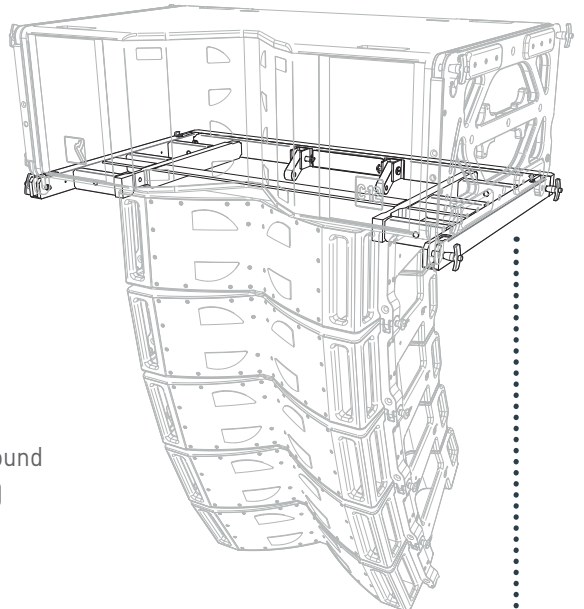
**FRM1-AL630**

MANTAS-28 aluminium main frame with integrated rigging hardware, to rig up to 24 MANTAS-28



**FOOT 01**

Pair of adjustable feet for ground stacking FRM1-AL630 (2 pcs)



**DWNFLT2-GTO**

GTO & C-12 down-fill adaptor for MANTAS-28 (max 5 elements)

SYSTEM AMPLIFICATION AND ACCESSORIES



AMP-RACK20X4



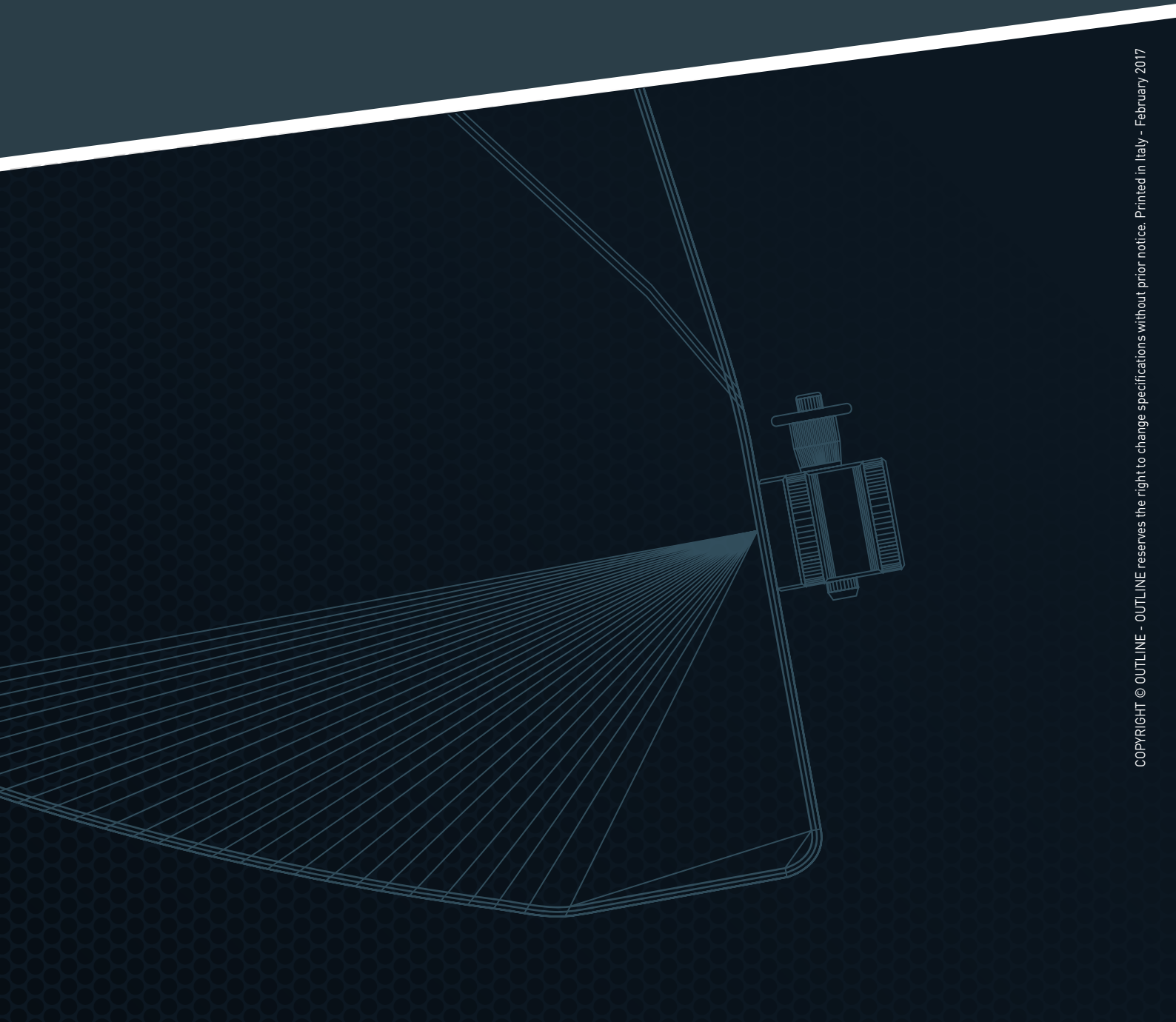
CABLA1-0X8



**FCASE-M28-3P**  
Flight case for three MANTAS 28 enclosures



**FCASE-M28-2P**  
Flight case for two MANTAS 28 enclosures



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**OUTLINE S.R.L.**  
Via Leonardo da Vinci, 56  
25020 Flero (Brescia) Italy

Tel.: +39 030.3581341  
Fax +39 030.3580431  
info@outline.it

[www.outline.it](http://www.outline.it)