PRO DG SYSTEMS GTA 2X12 2-way Self Powered Line Array System User Manual

Contents

PRO DG SYSTEMS GTA 2X12 2-way Self Powered Line Array System

Safety Indications

Please read it before use the system and keep for later use PRO DG SYSTEMS® GIVES YOU THANKS FOR ACQUIRE THIS PROFESSIONAL SOUND SYSTEM FULLY DESIGNED. MANUFACTURED AND OPTIMIZED IN SPAIN, EXCLUSIVELY WITH EUROPEAN COMPONENTS AND WE WISH THAT YOU ENJOY WITH ITS HIGH QUALITY AND PERFORMANCE. This system has been designed, fabricated and optimized by Pro DG Systems® in perfect working order. To maintain this condition and ensure the right operation, the user must respect the following indications and advicos of this manual

THE FIABILITY, SAFETY AND EFFICIENCY OF THE SYSTEM ARE ONLY AND EXCLUSIVELY GUARANTEED BY PRO DG SYSTEMS IF:

- Assembly, manipulation, re-adjustment and modifications or repairs are carried out by Pro DG Systems.
- The electrical installation complies with the requirements of IC (ANSI).
- The system is used according to the use indications.

WARNING:

- If protectors are opened or sections of chassis are removed, except where this can be done manually, live parts can become exposed.
- Any adjustment, manipulation, optimization or reparation of the system must be done only and exclusively by Pro DG Systems. PRO DG SYSTEMS IS NOT RESPONSIBLE OF ANY DAMAGE OF THE SYSTEM CAUSED BY A MANIPULATION, ADJUSTMENT, OPTIMIZATION OR REPARATION REALIZED BY NO-AUTHORIZED PERSONAL BY PRO DG SYSTEMS
- High loudspeaker levels can cause hearing damage, it must avoid the direct contact with loudspeakers operating at high levels, otherwise it must use hearing protectors

MAINS CONNECTION:

- The system is designed for continuous operation.
- The set operating voltage must match the local mains supply voltage.
- The units has to be connected to the mains via the supplied power unit or power cable.

- Power unit never use a damaged connection lead. Any type of damage must be fixed.
- Avoid connection to the mains supply in distributor boxes together with several other power consumers.
- The plug socket for the power supply must be positioned near the unit and must be easily accessible.

PLACE OF SITUATION:

- The system should stand only on a clean and totally horizontal surface.
- The system must not be exposed to any type of vibration during its operation.
- Avoid the contact with the water or wet surfaces. Do not place objects containing liquid on the system.
- Procure that the system has sufficient ventilation and do not block or cover any ventilation opening. Obstruct the ventilation may cause overheating in the system.
- Avoid the direct exposition with the sun and proximity with sources of heat or radiation.
- If the system undergoes an extreme change in temperature may affect its operation, before starting the system hope it has reached room temperature

ACCESSORIES:

- Do not place the system on a unsteady base that can be cause of damage to people or to the system, use it only with the trolley, rack, tripod or base recommended or supplied by Pro DG Systems following the installation indications. The system's combination must be moved very carefully. The application of an excessive use of force and uneven floors can cause the combination of system and stand to tip over.
- Additional equipment: don't use additional equipment wich has not be recommended by Pro DG Systems. The use of not recommended equipment can cause accidents and damage to the system.
- To protect the system during bad weather or when left unattended for prolonged periods, the main plug should be disconnected. This prevents the system being damaged by lightning and power surges in the AC mains supply.

IT IS RECOMMENDED TO THE USER READ THESE INSTRUCTIONS BEFORE USING THE SYSTEM AND SAVE FOR LATER USE PRO DG SYSTEMS IS NOT RESPONSIBLE OF AN INADEQUATE USE OF THE SYSTEM BY NO-AUTHORIZED PERSONNEL WITHOUT ENOUGH KNOWLEDGE OF USE THE USE OF THE PRO DG SYSTEMS PRODUCTS IS INDICATED FOR AUTHORIZED PROFESSIONALS THAT MUST TO HAVE ENOUGH KNOWLEDGE OF THE SYSTEM USE AND ALWAYS RESPECTING THE INDICATIONS SHOWED BELOW.

INTRODUCTION

This manual is designed to help GTA 2X12 L.A. system users from Pro DG Systems, to the correct use and to understand the benefits and versatilities of the same. GTA 2X12 L.A. is a line array system totally designed, manufactured and optimized in Europe (Spain), exclusively with the best European components 100% designed-fabricated-optimized in Europe (Spain) only and exclusively with European components.

DESCRIPTION

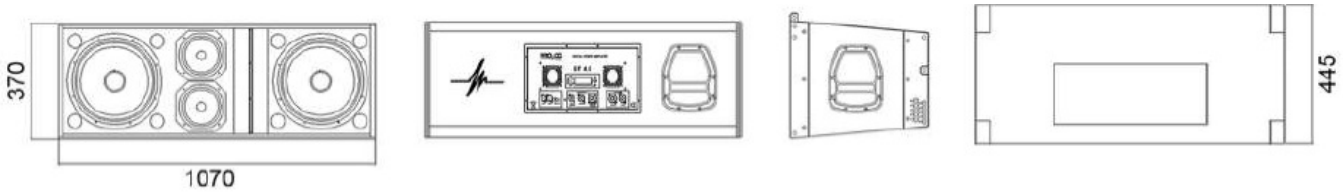
Self-powered line array system of 3-ways, equipped with two (2) speakers of 12″ and two (2) speakers of 6,5″ in a tunning enclosure. The HF section has three (3) compression drivers of 1″ coupled to a wave guide. The transducer configuration generates a symmetric and horizontal dispersion of 80° without secondary lobes over the frequency range. Ideal as main PA, Frontfill, Sidefill and Downfill in outdoor events or permanent installation.

SPECIFICATIONS

- **Power Handling**: 1900 W RMS (EIA 426A standard) 3800 W programme/ 7600 W peak.
- **Nominal Impendence**: Low 8 Ohm/ Mid 8 Ohm/ High 12 Ohm.
- **Average Sensitivity**: 101 dB/ 2.83 V/1 m (average 100 – 18000 Hz wideband).
- **Calculated Maximum SPL**: / 1m 131 dB continuous / 134 dB programme / 137 dB peak (one unit) / 134 dB continuous/ 137 dB programme/ 140 dB peak (four units).
- **Frequency Range**: + / – 3 dB from 50 Hz to 19 KHz.
- **Nominal Directivity:** 80° of horizontal coverage, vertical coverage depending of the length and array configuration.
- **Low Frequency Driver**: two Beyma speakers (12″), 8 Ohm, 600 W, 330,2 mm (3″) with high temperature voice coil on glass fibre former.
- **Subwoofer partner Cut-off**: accompanied with subwoofer system (IT 218 F-2000, GT 218 B or GT 221 B); 25 Hz Butterworth 24 filter – 90 Hz Linkwitz-riley 24 filter.
- **Low Frequency Cut-off**: Without subwoofer: 60 Hz Linkwitz-riley 24 filter – 250 Hz Linkwitz-riley 24 filter. With subwoofer system (IT 218 F-2000, GT 218 B or GT 221 B): 90 Hz Linkwitzriley 24 filter – 250 Hz Linkwitz-riley 24 filter

- **Mid Frequency Driver:** two Beyma speakers (6,5″), 8 Ohm, 250 W, 165 mm (2″) with high temperature voice coil on glass fibre former
- **Mid Frequency Cut-off**: 250 Hz Linkwitz-riley 24 filter – 1200 Hz Linkwitz-riley 24 filter
- **High Frequency Driver:** three (3) Beyma drivers of 1″, 8 Ohm, 60 W, 25mm exit (44.4mm) with diaphragm voice coil
- **High Frequency Cut-off**: 1200 Hz Linkwitz-riley 24 filter – 18000 Linkwitz-riley 24 filter.
- **Recommended Amplifier**: Pro DG Systems GT 4.0 into the Cabinet.
- **Connectors**: 2 X XLR + 1 NL8MP speakon connector. USS-Ethernet + 2 X Powercom
- **Acoustic Box**: CNC model with 15 and 18mm made from birch wood plated on the exterior
- **Finish**: Standard black paint job.
- **Box Dimensions**: (HxWxD); 370x1070x445mm (14,57″x42, 13″x17,52″).
- **Weight**: 67,5 Kg (148,81 lbs) net weight/ 68,6 Kg (151,24 lbs) gross weight with packing.

ARCHITECTURAL SPECIFICATIONS



INSIDE GTA 2X12 L.A.

Inside the GTA 2X12 L.A. is composed by two (2) Beyma speakers of 12 ” **600 W RMS**. Specially designed under our own parameters for the best performance of the system.

KEY FEATURES

- High power handling (600 W RMS).
- 3″ (77 mm) copper voice coil with apical former.
- Optimum winding length for increase linear excursion.
- Extended response in the medium frequency range.
- Designed for high power woofer applications.

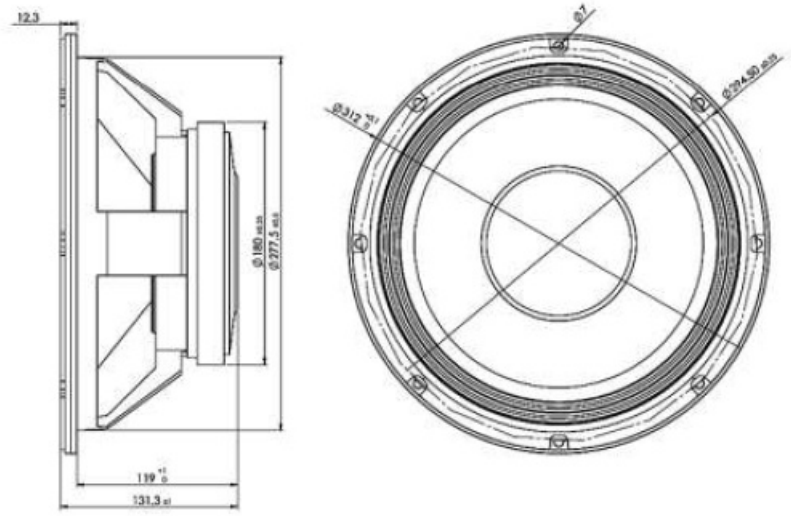
TECHNICAL SPECIF/CATIONS

- Nominal diameter 300 mm 8 in
- Rated impedance 8
- Minimum impedance 7,7
- Power capacity 600W RMS
- Program power 1200W
- Sensitivity 97 dB 2,83v@ 1m@ 2n
- Frequency range 35 – 4.000 Hz
- Recom. enclosure vol. 30/ 100 l 1,06/ 3,53f t3
- Voice coil diameter 77 mm 3 in
- Magnetic assembly weight 4,9 kg 10,8 lb
- Bl factor 15,1 N/A
- Moving mass 0,059 kg
- Voice coil length 17,5 mm
- Air gap height 7mm
- Xdamage (peak to peak) 30mm

THIELE-SMALL PARAMETERS*

- Resonant frequency, f5 43 Hz
- D.C. Voice coil resistance, Re 6,2 n
- Mechanical Quality Factor, Oms 12,43
- Electrical Quality Factor, Q85 0,45
- Total Quality Factor, Ots 0,44
- Equivalent Air Volume to Cms, V 35 94,241
- Mechanical Compliance, Cms 223 lm / N
- Mechanical Resistance, Rms 1,32 kg/ s
- Efficiency, ‘lo 0,055 m2
- Effective Surface Area, Sd 0,055 m2
- Maximum Displacement, Xmax ** 7,25 mm
- Displacement Volume, V d 300 cm3
- Voice Coil Inductance, Le @ 1 kHz 1,7 mH

Specially designed under our own parameters for the best performance of the system



MOUNTING INFORMATION

- Overall diameter 312 mm 12,3 in
- Bolt circle diameter 294,5 mm 11,6 in

Baffle cutout diameter

- Front mount 277,5 mm 10,9 in
- Rear mount 280mm 11 in
- Depth 138 mm 5,43 in
- Volume displaced by driver 4,51 0,16 ft3
- Net weight 5,65 kg 12,45 lb

T-S parameters are measured after an exercise period using a preconditioning power test The measurements are carried out with a velocity.current laser transducer and will reflect the long term parameters (when the loudspeaker has been working a short time). The X max is calculated as; (Lvc-Hag)/ 2 +(Hag/ 3,5), wtiere Lvc, is the voice ccil length and Hag is the air gap eight

Inside the GTA 2X12 L.A. is composed by two Beyma speakers of 6,5″, **250 W RMS**. Specially designed under our own parameters for the best performance of the system.

KEY FEATURES

- 250 W RMS power handling

- Sensitivity: 93dB@ 2.83v
- 2 in Aluminium voice coil.
- Water proof materials
- Forced air convection circuit for low power compression.
- Extended controlled displacement: Xmax ± 5.5 mm
- Real low frequency driver

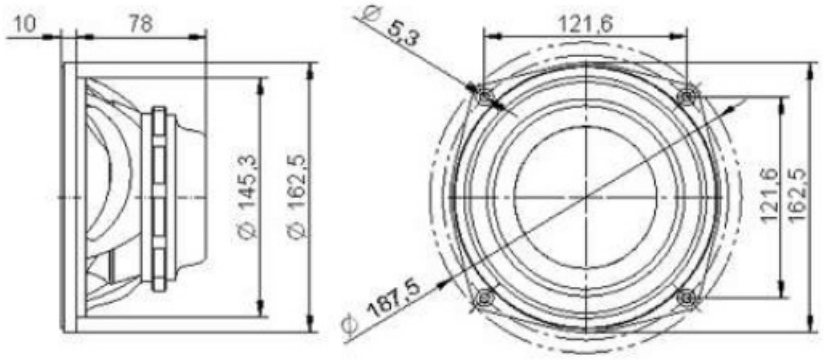
TECHNICAL SPECIFICATIONS

- Nominal diameter 165 mm. 6.5 in.
- Rated impedance 8 ohms
- Minimum impedance 5.8 ohms
- Power capacity 250W RMS
- Program power 500W
- Sensitivity 93 dB 2.83v@ 1m@ 21t
- Frequency range 60- 9000 Hz
- Recom. enclosure vol. 10 / 40 l 0.35 / 1.4 ft.3
- Voice coil diameter 51.7 mm. 2 in.
- Magnetic assembly weight 1.6 kg. 3.52 lb.
- BL factor 10.5N/A
- Moving mass 0.017 kg.
- Voice coil length 14 mm
- Air gap height 7 mm
- X damage (peak to peak) 20 mm

THIELE-SMALL PARAMETERS*

- Resonant frequency, fs 56 Hz
- D.C. Voice coil resistance, Re 5.3 ohms
- Mechanical Quality Factor, Qms 3.69
- Electrical Quality Factor, Qes 0.32
- Total Quality Factor, Qts 0.29
- Equivalent Air Volume to Cms, Vas 11.91
- Mechanical Compliance, Cms 468 µm/ N
- Mechanical Resistance, Rms 1.6 kg/ s
- Efficiency, TIO (%) 0.65
- Effective Surface Area, Sd (m2) 0.0135 m2
- Maximum Displacement, Xmax 5.5 mm
- Displacement Volume, Vd 74.25 cm3
- Voice Coil Inductance, Le@ 1 kH 0.6 mH

Specially designed unoer our own parameters for the best performance of the system



MOUNTING INFORMATION

- Overall diameter 162.5 mm. 6.40 in.
- Bolt circle diameter 121.62 mm. 4.79 in.

Baffle cutout diameter:

- Front mount 145.3 mm. 5.72 in.
- Rear mount 145.3 mm. 5.72 in.
- Depth 78 mm. 3.0 in.
- Volume displaced by driver 0.551 0.02 ft.3
- Net weight 1.9 kg. 4.18 lb.

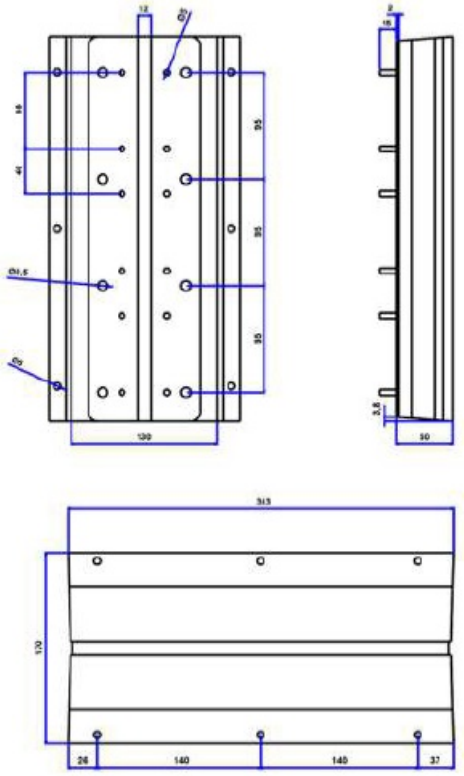
T- S parameters are measured alter an exercise period using a preconditioning power test. The X max Is calculated as; (Lvc-Hag)/2 + (Hag/3,5) where Lvc is the voice coil length and Hag is the air gap eight.

GTA 2X12 L.A. is also composed by one constant directivity horn specially designed to work with three Pro DG Systems compression drivers of **60 W RMS**, coupled to a waveguide. The constant directivity characteristics of this model ensure the ability to cover 80° wide horizontally and 20° wide vertically, at virtually any frequency within its operational range. To ensure freedom of resonance is constructed of wood with flat front finish to facilitate flush mounting.

KEY FEATURES

- Designed to be used with three Pro DG Systems compression drivers of 60 W RMS to a waveguide
- Provides uniform response
- Coverage of 80° in the horizontal plane and 20° in the vertical plane
- Precise directivity control in the pass band
- Wood construction with flat front to facilitate flush mounting

TECHNICAL SPECIFICATIONS



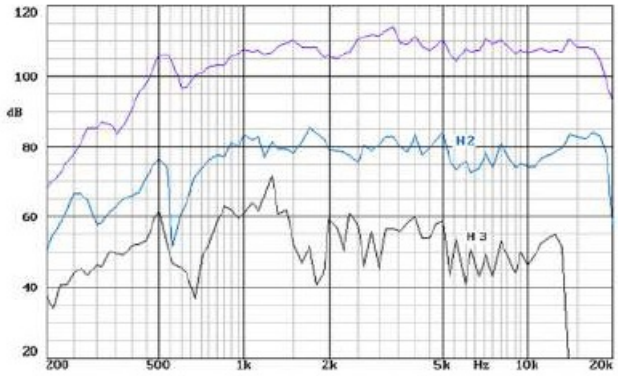
- Horizontal beamwidth 80 (+222, -462) (-6 dB, 1.2 – 16 kHz)
- Vertical beamwidth 20 (+272 I -152) (-6 dB, 2 – 16 kHz)
- Directivity factor (Q} 60 (average 1.2 – 16 kHz)
- Directivity index (DI} 15.5 dB (+7 dB, -8.1 dB)
- Cutoff frequency 800 Hz
- Dimensions (WxHxD} 170x343x50(65)mm. 6.69×13.5×1 .97(2.56) in.
- Net weight 0.75 kg/ 1.65 lb.
- Construction Wood.

GTA 2X12 L.A. is also composed by three Beyma compression drivers of **60 W RMS**, coupled to a wave guide. Specially designed under our own parameters for the best performance of the system. A combination of high power neodymium compression driver with waveguide, provides the best junction for the best performance of the system. Solving the hard problem of achieving an optimum coupling between adjacent high frequency transducers. Instead of using expensive and troublesome wave – shaping devices, a simple but effective waveguide transforms the circular aperture of the compression driver into a rectangular surface, without undue angle aperture to provide low curvature to the acoustic wavefront, arriving to fulfil the necessary curvature requirement for the optimal acoustic coupling joint between adjacent sources until 18 KHz. This is achieved, with the minimum possible length for low distortion, but without being excessively short, which would cause strong high frequency interferences.

KEY FEATURES (ONE UNIT)

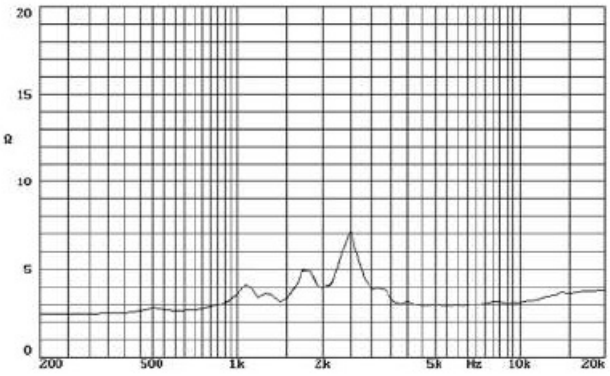
- 4″ x 0.5″ rectangular exit
- Neodymium magnetic circuit for high efficiency.
- Effective acoustical coupling up to 18 kHz.
- True 105 dB sensitivity 1 w@ 1 m (averaged 1-7 kHz).
- Extended frequency range: 0.7 – 20 kHz.
- 1. 75″ voice coil with a power handling of 60 W RMS.

FREQUENCY DRIVERS & DISTORTION CURVES

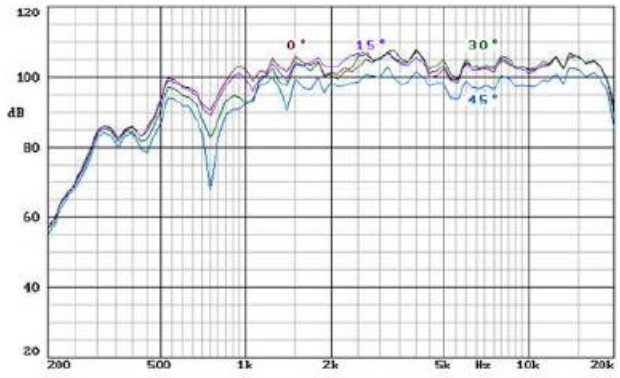


Note: on axis frequency response measured with 2 waveguides coupled to a 80° X 5° horn in an anechoic chamber, 1 w@ 1 m.

FREE AIR IMPEDANCE CURVE



HORIZONTAL DISPERSION



Notes: dispersion measured with two waveguides coupled to a 80° x 5° horn in anechoic chamber, 1w@ 2m.

All angle measurements are from the axis (45° means + 45°).

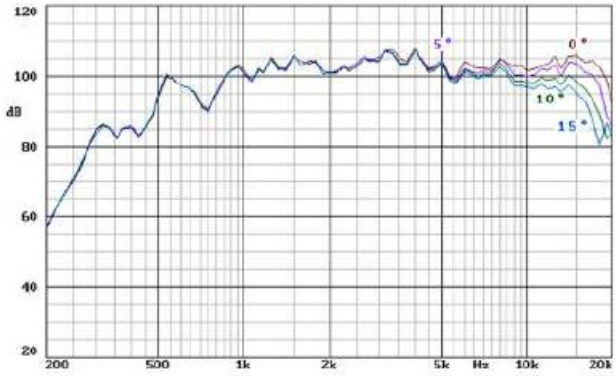
TECHNICAL SPECIFICATIONS

- Throat diameter 20.5 mm. 0.8 in.
- Rated Impedance 8 ohms.
- Minimum impedance 5.5 ohms. @ 4.5 kHz
- D.C. Resistance 5.6 ohms.
- Power capacity 60 W RMS above 1.5 kHz
- Program power 120 W above 1 .5 kHz
- Sensitivity * 105 dB 1 w@ 1m coupled to a 802 x 52 horn
- Frequency range 0.7 – 20 kHz
- Recommended crossover 1500 Hz or higher (12 dB/oct. min.)
- Voice coil diameter 44.4 mm. 1.75 in.
- Magnetic assembly weight 0.6 kg. 1 .32 lb.
- Flux density 1.8 T
- BL factor 8N/A

MOUNTING INFORMATION

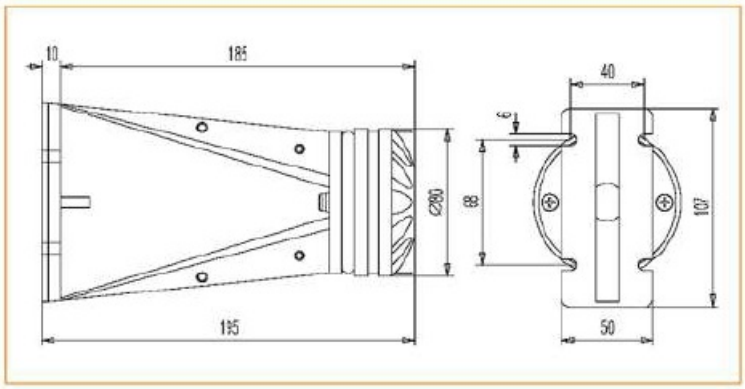
- Overall diameter 80 mm. 3.15 in.
- Depth 195 mm. 7.68 in.
- Mounting Four 6 mm. diameter holes
- Net weight (1 unit) 1.1 kg. 2.42 lb.
- Shipping weight (2 units) 2.6 kg. 5.72 lb.

VERTICAL DISPERSION



Notes: dispersion measured with two waveguides coupled to a 80° x 5° horn in anechoic chamber, 1w@ 2m. All angle measurements are from the axis (45° means + 45°).

DIMENSION DRAWINGS



Note: Sensitivity was measured at 1 m distance, on axis, with 1 w Input, averaged in the range 1-7 KHz

CONSTRUCTION MATERIALS

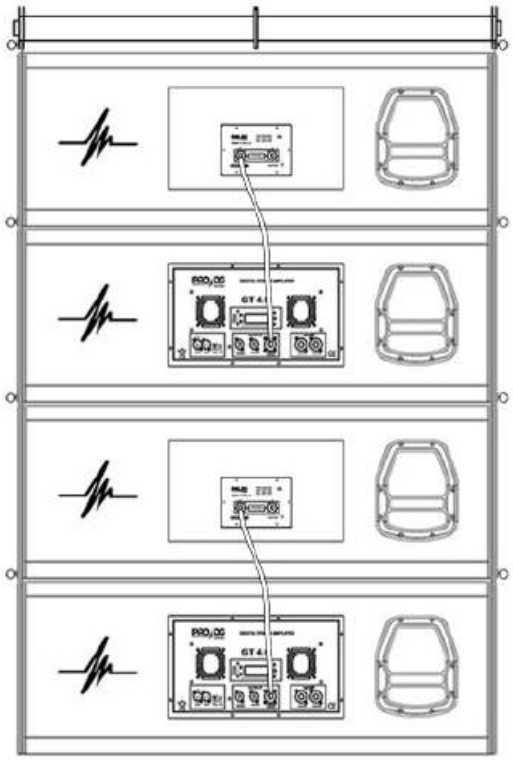
- **Waveguide**: aluminium.
- **Driver diaphragm**: polyester.
- **Driver voice coil**: edgewound aluminium ribbon wire.
- **Driver voice coil former**: kapton.
- **Driver magnet**: neodymium.

GTA 2X12 L.A. AMPLIFICATION

The GT 4.0 is a digital amplifier module last generation class D with 3 channels: one (1) channel of 2500 W / 4 Ohm for low+ one (1) channel of 900 W / 4 Ohm for mid + one (1) channel of 900 W / 4 Ohm for high. Includes digital processor with XLR input and output+ USB connector and Ethernet. Capable of amplify itself and another unit GT 2X12 L.A. passive in slave mode. Offering a great versatility as it allows the realization of different configurations between systems, depending on the necessity type or event

TECHNICAL SPECIFICATIONS

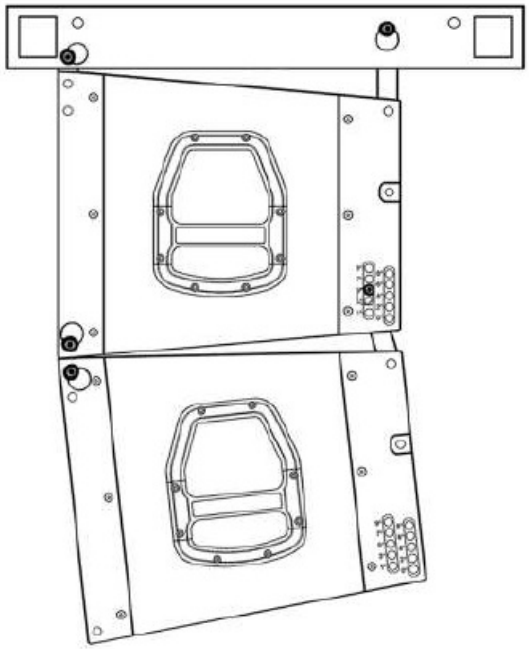
- **Power Ratings:** (RMS@ 1% THO@ 230Vac)
- **Channel 1**: 4 n 25oo W 8 12000 w
- **Channel 2**: 4 n 900 W 8 1600 w
- **Channel 3**: 4 900 W* 8 600 w
- **Output Circuitry**: UMACTM Class D – full bandwith PWM modulator with ultra low distortion
- **Output Voltage**: Channel 1 on GT series: 160 Vp / 320 Vpp unloaded. All other channels: 80 Vp / 160 Vpp unloaded
- **Amplifier Gain:** Channel 1 on GT series: 32 dB All other channels: 26 dB
- **Signal To Noise-Ratio**: 120 dB (A-weighted, 20 Hz – 20 kHz, 8 0 load)
- **THO + N (typical):** 0,05 % (20 Hz – 20 kHz, 8 0 load, 3 dB below rated power)
- **Frequency Response**: 20 Hz – 20 kHz ± 0, 15 dB (8 0 load, 1 dB below rated power)
- **Damping Factor**: 900 (8 0 load, 1 kHz and below)
- **Protection Circuits**: Input limiter, short circuit protection, DC protection of output, under & over voltage protection, intelligent mains fuse protection, power stage overload protection, temperature protection of transformers and heat-sinks
- **Readouts for DSP** / **Network**: Protect/ Disable (mute), Heatsink temperature, Clip (for each channel), Output voltage (for each channel), Output current (for each channel), SMPS Limit (power supply limiter)
- **Power Supply**: URECTM universal & regulated switch mode power supply
- **Operation Voltage**: Universal Mains, 85-268V (dual voltage auto selection) Control Options Sleep Mode (only +7V live), Disable outputs (mute) Temperature reduction ON/ OFF Aux. Power for DSP ±15 V (150 mA), + 7 V (1 A, delivered by standby power supply)
- **Dimensions (HxWxD):** 265 x 483 x 105 mm/ 10.43 x 19.02 x 4,13 in
- **Weight**: 6,9 kg/ 15,21 lbs



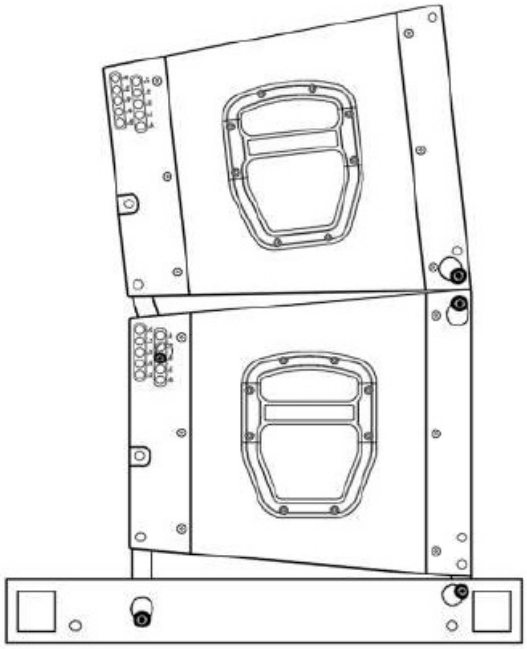
RIGGING HARDWARE

Rigging Hardware frame for GTA 2X12 L.A. composed by: one (1) lightweight steel frame+ four (4) pinlock + one (1) shackle to support a maximum weight of two (2) tons. It can elevate up a total of 16 GTA 2X12 L.A.

Flight Hardware incorporated into the cabinet with different angulation grades.

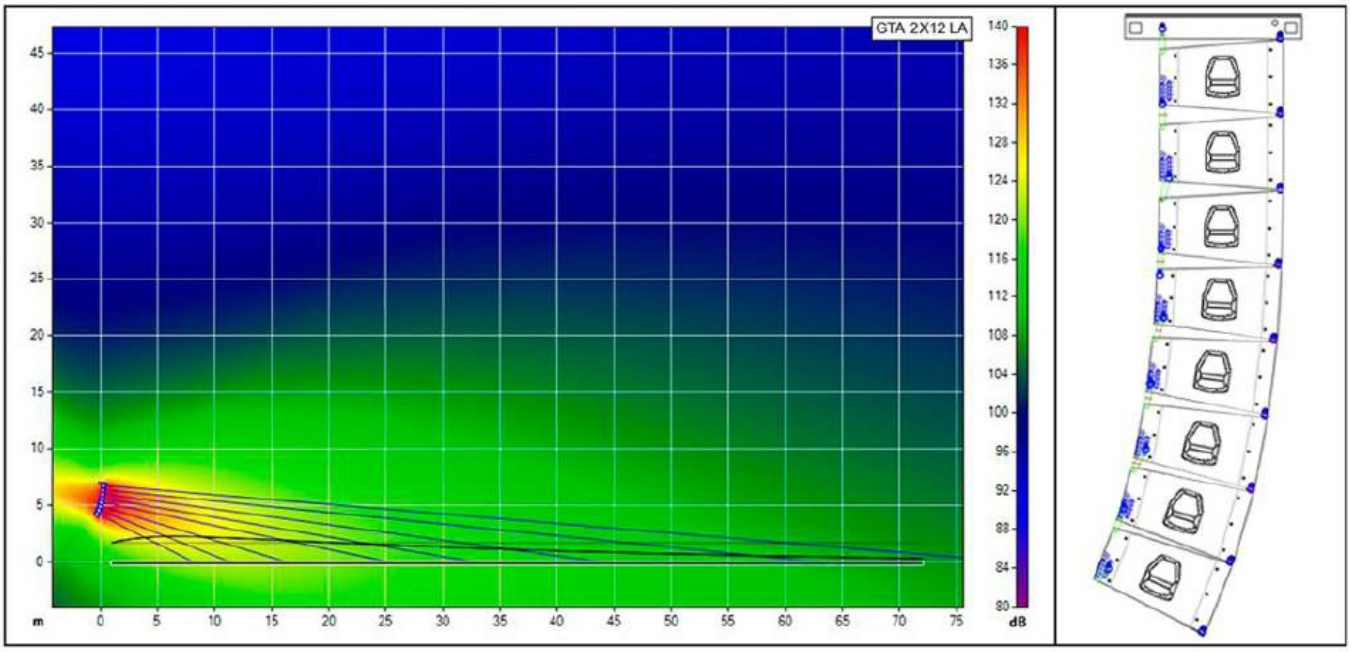


Stack mode for offer the maximum versatility and coverage.



IMPORTANT: a misuse of the frame and components can be motive of cracking that could compromise the safety of an array. Using a damaged frame and components could result in serious mishaps.

PREDICTION SOFTWARE AND INTEGRATION TOOLS

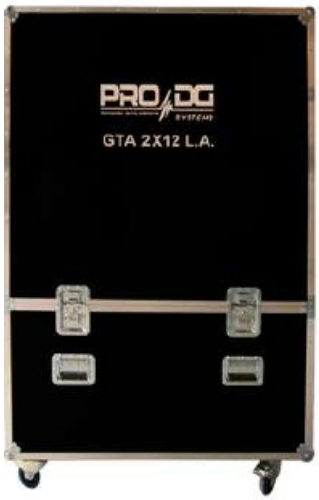


In Pro OG Systems we know that making good quality speakers is an important part of our job. Then, there is the other part that it is also fundamental in our job which is offering the warranty of using the speakers properly. Good tools make the difference to an optimal use of the system. With GTA 2X12 L.A. Prediction Software Ease Focus we can design different configurations between systems and simulate their behavior in different places and circumstances, like watching coverage, frequency, SPL and general systems behavior in an easy and comfortable way. It is easy to handle and we offer training courses for Pro OG Systems customers. For more information consult with our technical service at: **info@prodgsystems.com**

ACCESSORIES

Pro DG Systems offers to their customers all type of accessories for their systems. GTA 2X12 L.A. has F/Case for transport or Dolly Board and Covers for transport, plus complete cabling for the system ready to use.

Flight Case to transport 4 units of GTA 2X12 L.A. Fully dimensioned for an hermetic packaging and ready for the road.



Dolly board and covers for transport four units of GTA 2X12 L.A. Perfectly constructed to transport in any type of truck.

Entire cabling for the system available and ready for operation.

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Documents / Resources

	PRO DG SYSTEMS GTA 2X12 2-way Self Powered Line Array System [pdf] User Manual GTA 2X12, GTA 2X12 2-way Self Powered Line Array System, 2-way Self Powered Line Array System, Self Powered Line Array System, Powered Line Array System, Line Array System, Arr ay System, System