PRO DG SYSTEMS GTA 2X8 2-Way Self Powered Line Array System User Manual

Contents

PRO DG SYSTEMS GTA 2X8 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 advices 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 IEC (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 2X8 L.A. system users from Pro DG Systems, to the correct use and for the understanding of the benefits and versatilities of the same. GTA 2X8 L.A. is a line array system completely designed, manufactured and optimized in Europe (Spain}, exclusively with European components.

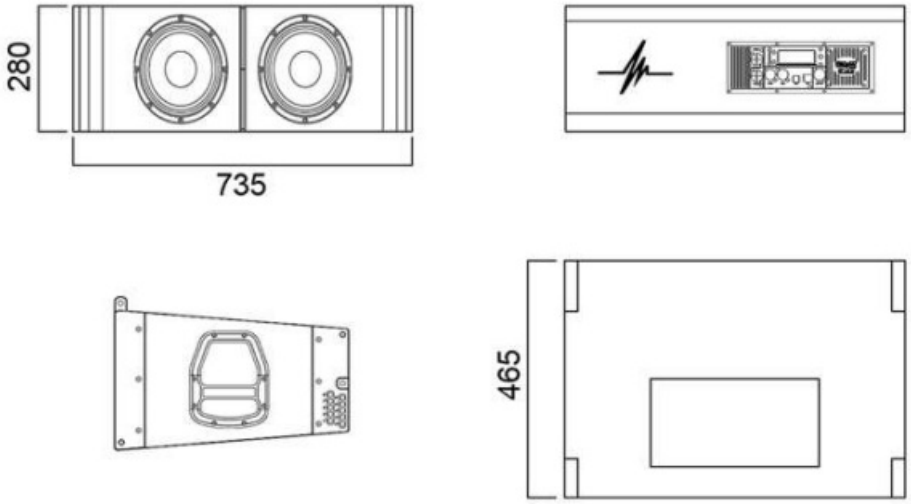
GTA 2X8 L.A.
100% designed-fabricated-optimized in Europe (Spain) only and exclusively with European components.

DESCRIPTION
Self-powered line array system of 2-ways, equipped with two (2) speakers of 8″ in a tunning enclosure. The HF section has two (2) compression drivers of 1″ coupled to a wave guide. The transducer configuration generates a symmetric and horizontal dispersion of 120 degrees without secondary lobes over the entire frequency range. Ideal for main P.A. Frontfill, Sidefill and Downfill both in outdoor events as well in permanent installation.

SPECIFICATIONS

Power Handling:	700 W RMS (EIA 426A standard) 1400 W programme / 2800 W peak.
Nominal Impendence:	4 Ohm
Average Sensitivity:	100 dB / 2.83 V / 1m (average 100 - 18000 Hz wideband).
Calculated Maximum SPL:	/ 1m 127 dB continuous / 130 dB programme / 133 dB peak.
Operative Frequency Range:	+ /- 3 dB from 80 to 20000 Hz
Nominal Directivity:	120º degrees horizontal, vertical dispersion depends on longitude or personalized configuration.
Low / Mid Frequency Driver:	2 Beyma speakers (8"), 8 Ohm, 300 W, 200 mm (2") with high temperature voice coil on glass fibre former.
Mid Frequency Cut-off:	90 Hz Linkwitz-riley 24 filter - 1200 Hz Linkwitz-riley 24 filter.
High Frequency Driver:	Two (2) Beyma drivers of 1", 8 Ohm, 50 W, 25 mm exit (44.4mm) with diaphragm voice coil meilar diaphragm.
High Frequency Cut-off:	1200 Hz Linkwitz-riley 24 filter - 18000 Hz Linkwitz-riley 24 filter.
Recommended Amplifier:	Pro DG Systems GT 1.2 H into the Cabinet.
Connectors:	2 X XLR + 1 NL4MP speakon connectors. USB-Ethernet + 2 X Powercom.
Acoustic Box:	CNC model, 15mm made from birch wood plated on the exterior.
Finish:	Standard black paint job.
Box Dimensions:	(HxWxD) 280x735x465mm (11,02"x28,94"x18,31").
Weight:	34,9 Kg (76,94 lbs) net / 36,1 Kg (79,59 lbs) gross weight with packing.

ARCHITECTURAL SPECIFICATIONS



Inside the GTA 2X8 L.A. is composed by two (2) Beyma speakers of 8″, 300 W RMS. Specially designed under our own parameters for the best performance of the system.

KEY FEATURES

- Excellent power and performance
- Extended controlled displacement: Xmax ± 6 mm
- Extended mechanical displacement capability
- Designed with MMSS technology for high control, symmetry and linearity with ferrite magnet
- Demodulating ring for low harmonic distortion
- CONEX spider for higher resistance and consistency
- Waterproof carbon fiber loaded paper cone with Santoprene™ surround

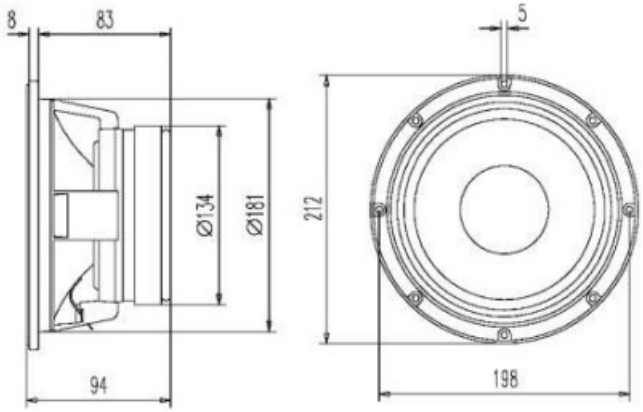
TECHNICAL SPECIF/CATIONS

Nominal diameter	200 mm 8 in
Rated impedance	8 Ω
Minimum impedance	7,6 Ω
Power capacity	300 W RMS
Program power	600 W
Sensitivity	95,4 dB 2.83v @ 1m @ 2π
Frequency range	65 - 6000 Hz
Recom. enclosure vol.	10 / 30 l 0,35 / 1,06 ft^3
Voice coil diameter	51.7 mm. 2 in
Magnetic assembly weight	2.8 kg. 6.17 lb
BL factor	13 N / A
Moving mass	0.024 kg
Voice coil length	15 mm
Air gap height	7 mm
X_{damage} (peak to peak)	24 mm

THIELE-SMALL PARAMETERS*

Resonant frequency, f_s	65 Hz
D.C. Voice coil resistance, R_e	5,2 Ω
Mechanical Quality Factor, Q_{ms}	9,54
Electrical Quality Factor, Q_{es}	0,34
Total Quality Factor, Q_{ts}	0,33
Equivalent Air Volume to C_{ms}, V_{as}	21,49 l
Mechanical Compliance, C_{ms}	318 μm / N
Mechanical Resistance, R_{ms}	0,85 kg / s
Efficiency, η_0	1,39 %
Effective Surface Area, S_d	0.022 m^2
Maximum Displacement, X_{max} * **	6 mm
Displacement Volume, V_d	100 m^3
Voice Coil Inductance, L_e @ 1 kHz	0,8 mH

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



MOUNTING INFORMATION

Overall diameter	212 mm. 8.35 in
Bolt circle diameter	198 mm. 7.8 in
Baffle cutout diameter:	
- Front mount	181 mm. 7.12 in
- Rear mount	183 mm. 7.2 in
Depth	94 mm. 3.7 in
Volume displaced by driver	1.5 l 0.056 ft^3
Net weight	3.1 kg. 6.83 lb

The X max is calculated as; (Lvc-Ha)/ 2 +(Hag/ 3,5), where Lvc, is the voice coil length and Hag is the air gap eight.

INSIDE THE GTA 2XB L.A.

GTA 2X8 L.A. is also composed by one block which together with two (2) compression drivers, constitute the constant directivity horn, specifically designed to work with two (2) Pro DG Systems compression drivers of 50W RMS coupled to a waveguide.

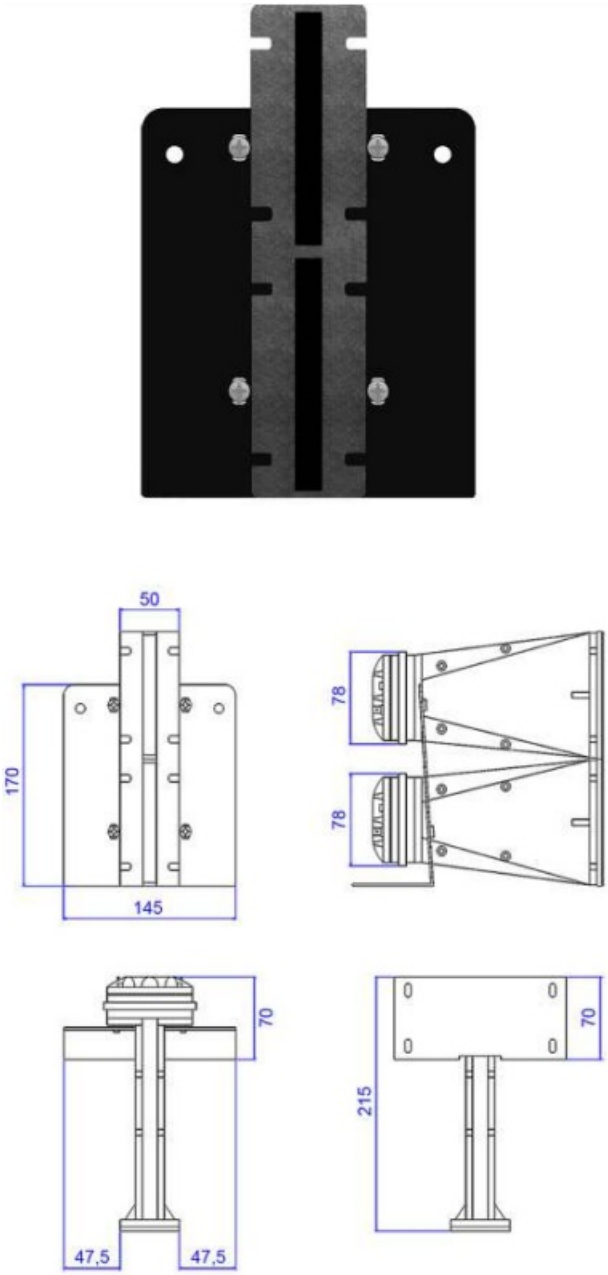
The constant directivity characteristics of this model ensure the ability to cover 120° wide horizontally and 20° wide vertically at virtually any frequency within its operational range. To ensure freedom of resonance is constructed of aluminium with flat front finish to facilitate flush mounting.

KEY FEATURES

- Designed to be used with two Pro DG Systems compression drivers of 50 W RMS to a waveguide
- Provides uniform response
- Coverage of 120° in the horizontal plane and 20° in the vertical plane
- Precise directivity control in the pass band
- Aluminium construction with flat front to facilitate flush mounting

TECHNICAL SPECIFICATIONS

- **Horizontal beamwidth** 120º (+22º, -46º) (-6 dB, 1.2 - 16 kHz)
- **Vertical beamwidth** 20º (+27º , -15º) (-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)** 215x145x215mm. 8.46x5.71x8.46 in.
- **Net weight** 1 kg / 2.20 lb (total block weight).
- **Construction:** Aluminium.



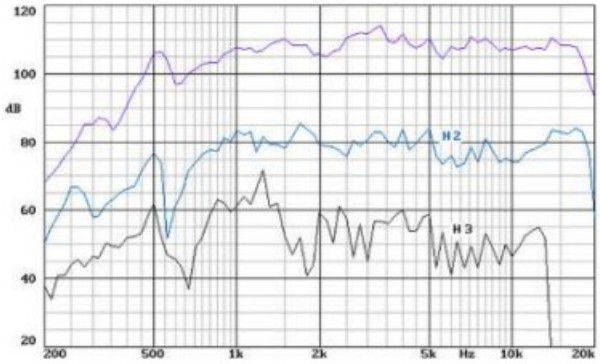
GTA 2X8 L.A. is also composed by two (2) Beyma compression drivers of 50 W RMS, coupled to a waveguide. Specially designed under our own parameters for the best performance of the system.
A combination of high-power neodymium compression driver with waveguide provides the best junction for the best efficiency of GTA 2X8 L.A. 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 (ONEUNIT)

- 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.

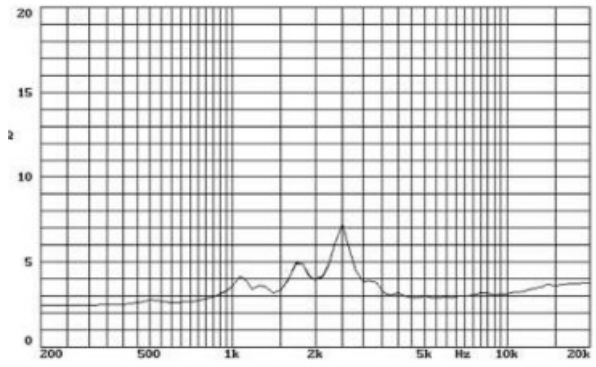
- 1. 75″ voice coil with a power handling of 50 W RMS.

FREQUENCY DRIVERS & DISTORTION CURVES

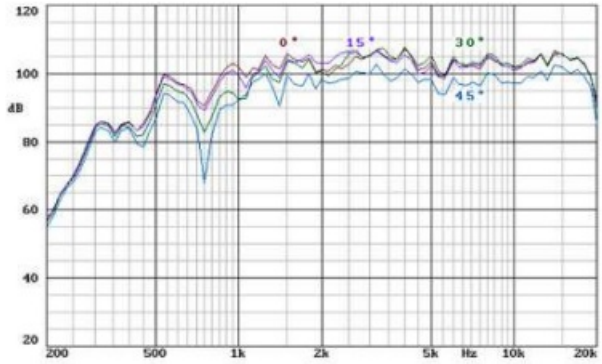


Note: on axis frequency response measured with 2 waveguides coupled to a 90° X 5° horn in an anechoic chamber, 1 w@ 1 m.

FREE AIR IMPEDANCE CURVE

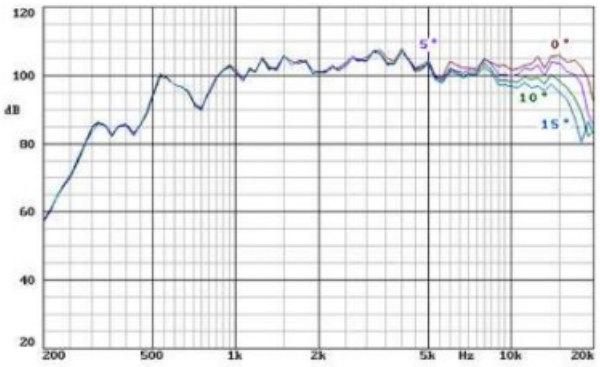


HORIZONTAL DISPERSION



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

VERTICAL DISPERSION



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

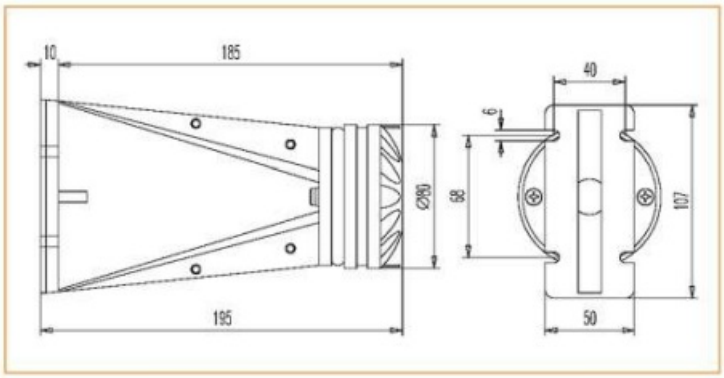
TECHNICAL SPECIFICATIONS

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	50 W RMS above 1.5 kHz
Program power	100 W above 1.5 kHz
Sensitivity *	105 dB 1 w @ 1m coupled to a 90º x 5º 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	8 N/A

MOUNTING INFORMATION

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

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: aluminum.
- Driver diaphragm: polyester.
- Driver voice coil: edge wound aluminum ribbon wire. Driver voice coil former: neodymium.

GT 1.2 H is a Class-D digital amplifier of last generation with 1400 W. It includes digital processing with XLR input and output + USB and Ethernet connectors.
Ideal for different configurations between systems and multiple applications.

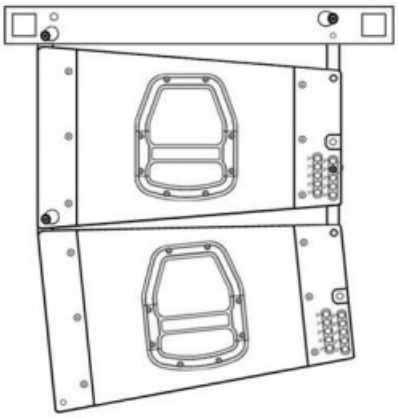
TECHNICAL SPECIF/CATIONS

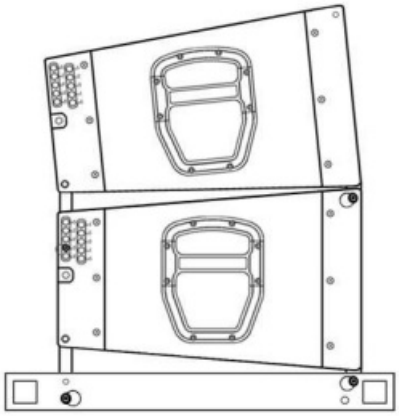
Output power per channel:	1 x 1000 W @ 4 Ohm - 1 x 400 W @ 4 Ohm
Output Circuitry:	UMACTM Class D - full bandwith PWM modulator with ultra low distortion
Output Voltage:	70 Vp / 140 Vpp (unloaded) / Bridged 140 Vp / 280 Vpp (unloaded)
Amplifier Gain:	26 dB
Signal To Noise-Ratio:	> 119 dB (A-weighted, 20 Hz - 20 kHz, 8 Ω load)
THD + N (typical):	< 0,05 % (20 Hz - 20 kHz, 8 Ω load, 3 dB below rated power)
Frequency Response:	20 Hz - 20 kHz ± 0.15 dB (8 Ω load, 1 dB below rated power)
Damping Factor:	> 900 (8 Ω load, 1 kHz and below)
Protection Circuits:	Short circuit protection, DC protection, under voltage protection, temperature protection, overload protection
Readouts for DSP / Network:	Protect/Disable (mute) Heatsink temperature Clip (each channel)
Power Supply:	UREC™ universal mains switch mode power supply with Power Factor Correction (PFC) and integral standby converter
Operation Voltage:	Universal Mains, 85 - 265 V Aux. Power for DSP ±15 V (100 mA), + 7.5 V (500 mA)
Standby Consumption:	< 1 W (Green Energy Star compliant)
Dimensions (HxWxD):	106 x 296 x 105 mm / 4.17 x 11.65 x 4,13 in
Weight:	1,28 kg / 2,82 lbs

RIGGING HARDWARE

Rigging Hardware frame for GTA 2X8 L.A. composed by: one lightweight steel frame + 4 pinlock + one shackle to support a maximum weight of one ton and a half. Can elevate up a total number of 16 GTA 2X8 L.A.

Flight Hardware incorporated into the cabinet with different angulation grades.
Stack mode for offer the maximum versatility and coverage.



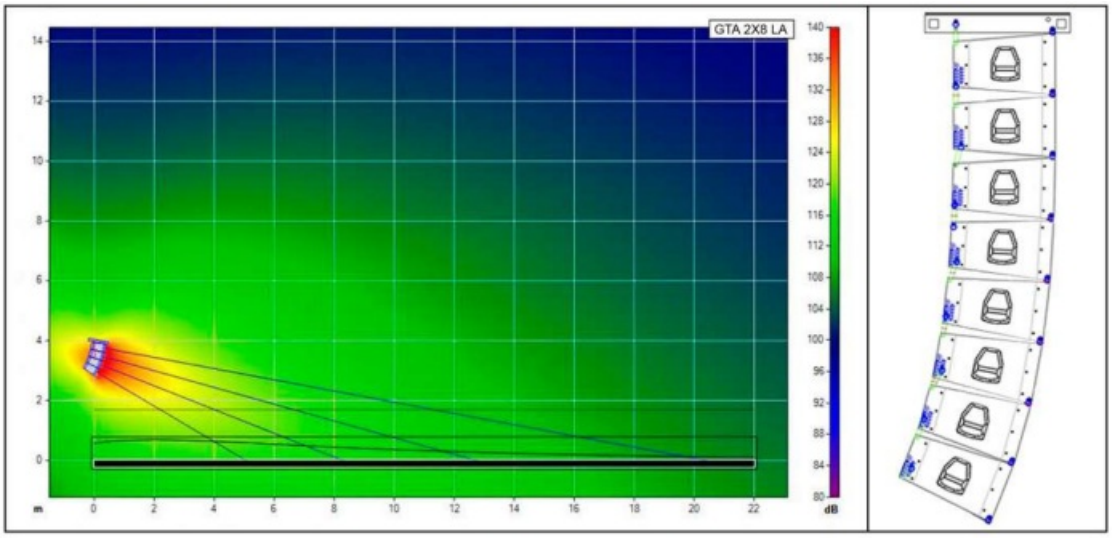


IMPORTANT: a misuse of the frame and components can be motive of cracking that could compromise the safety of an array. Using a damaged frame and components could result in serious mishaps.

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 the GTA 2X8 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 2X8 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 four units of GTA 2X8 L.A. Fully dimensioned for an hermetic packaging and ready for the road.
Dolly board and covers for transport four units of GTA 2X8 L.A. Perfectly dimensioned to transport in any type of truck.

Entire cabling for the system available and ready for operation.

PRO DG SYSTEMS INTERNATIONAL

P.I. Santa Bárbara. C/ Aceituneros n°7 41580 Casariche (Sevilla). Spain

Phone:34 954 011 095
E-mail: info@prodgsystems.com , export@prodgsystems.com
Web: www.prodgsystems.com

An updated pdf version of this manual is always available at www.prodgsystems.com

Documents / Resources

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