GEO S8
The ultimate listening experience for the smaller audience
GEO S8 & GEO SUB
Patented technologies for greater system accuracy

NEXO S.A.
NEXO is a world leader in the design and manufacture of loudspeaker systems for sound reinforcement. In its fourth decade, NEXO’s corporate mission remains development of wide-ranging solutions to enhance the science, art and commerce of sound reinforcement. Founded by President Michael Johnson, and NEXO’s Chairman/R&D Director Eric Vincenot, NEXO-S.A became publicly traded in May 2000 and listed on the Marche Libre of the Paris Bourse (SICOVAM 4441).

The added access to capital markets gained by this public offering strengthened NEXO’s ability to pursue aggressively genuine audio innovations. The first of these advanced audio design options is the widely heralded GEO Tangent technology, which incorporates several fundamental wavesource patents. NEXO’s sound reinforcement systems also include the compact, versatile PS Series plus the high performance Alpha System and Alphate Series.

In short, all NEXO loudspeakers, analogue and digital controllers, power amplification, and advanced rigging systems are designed to deliver: Sonic Innovation That Works.

NEXO Geo systems incorporate a number of patented technologies to achieve exceptional accuracy, consistent frequency and SPL coverage throughout the audience, and close correlation between mathematical predictions and real-world results.

To achieve coherency in a line array, multiple cabinets must behave as if they share a single sound source. Geo systems use NEXO’s groundbreaking Hyperboloid Reflective Wavesource (HRW™) technology to ensure that wavesources couple optimally without destructive interference.

The HRW controls acoustic energy with a precision-engineered hyperboloid acoustic mirror, creating a virtual wavesource located outside the cabinet. Because the path lengths from the virtual and real sources to the horn mouths are identical, wavefronts are perfectly in phase at their coupling points.

In permanent installations, Geo D and Geo S systems ship with Configurable Directivity Device Flanges, providing system designers with an unprecedented degree of control over wavesource behaviour. CD D flanges can be easily introduced into the waveguides – for instance on the bottom two cabinets of curved vertical arrays to fill in coverage gaps in the front rows, or in all cabinets where 120 degrees of horizontal coverage is preferred to 80 degrees. In horizontal arrays, CD D flanges can be used to widen vertical coverage from 80 degrees to 120 degrees.

In line arrays, the physical diameter of cone drivers would appear to make it impossible to achieve interference-free, close coupling of wavesources at the frequencies necessary to crossover with HF drivers. NEXO’s revolutionary Directivity Phase Device causes an 8 inch driver, for instance, to behave as twin 4 inch drivers, with two acoustical centres spaced 5 inches apart, cleverly extending the upper frequency limit for line source coupling between adjacent woofers.

Geo rigging systems deliver control over angular splay to an increment of 0.01 degree, making it possible to configure line arrays of exceptional accuracy and coherence.
The GEO S805 is a compact, high-output array module designed for use in vertical tangent arrays. The Hyperboloid Reflective Wavesource allows multiple GEO S805 loudspeakers to radiate tangent wavefronts with coherent output. The 5° wavesource is optimized for the construction of curved vertical arrays that deliver equal power to equal coverage areas for consistent SPL from front to rear of the audience area.

Advanced DSP algorithms, applied by the NXAMP/NX242 TD controller, precisely integrate GEO S systemswith CD12 SubBass cabinets, so they may be flown together, without causing any interference between the GEO S and CD12 wavefronts.

**Specifications**

**GEO S805 PRODUCT FEATURES**
- **Components**
  - LF: 1 x 8" (20cm) Neodymium Hi-Rise 16Ω Driver
  - HF: 1 x 1" Throat Neodymium Driver on a Hyperboloid Reflective Wavesource
- **Height x Width x Depth**
  - 406 x 250 x 219mm (16" x 9 7/8" x 5 5/8")
- **Shape**
  - 5° Trapezoid
- **Weight**
  - 13kg (28.6lbs) net
- **Connectors**
  - 2 x NL4M 4-pole SPEAKON (In & Through)
- **Construction**
  - Baltic Birch Ply finish with structured black coating. Dark grey carpet is optional.
- **Fittings**
  - Grill Perforated Steel
- **Flying**
  - Integral flying system. Intercabinet Angle Adjustments = 17.5° & 30°

**SYSTEM SPECIFICATIONS GEO S805 WITH NXAMP/NX242 TD CONTROLLER**
- **Frequency Response [a]**
  - 67Hz – 19kHz ± 3dB
- **Usable Range @ -6dB [a]**
  - 60Hz – 20kHz
- **Sensitivity 1 W @ 1 m [b]**
  - 99dB SPL Nominal -97dB SPL Wideband
- **Peak SPL @ 1 m [b]**
  - Configuration dependent [d]
- **Dispersion [c]**
  - Configuration dependent [d]
- **Non-Coupling Plane**
  - 120° (configurable to 80°).
- **Directivity Index [c]**
  - Not usable as a single cabinet. Configuration dependent [d]
- **Crossover Frequency**
  - 1.6kHz Passive
- **Nominal Impedance**
  - 16Ω
- **Recommended Amplifiers**
  - 1500 to 3000 Watts into 4Ω / 4 x cabinets per channel. Up to 6x cabinets per channel may be connected to large amplifiers capable of operating into low impedance loads.

**SYSTEM OPERATION**
- **Electronic Controller**
  - The NX TD controller presets are precisely matched to the GEO S8 Series cabinets and include sophisticated protection systems. Using GEO S8 Series cabinets without a properly-connected NX TD controller will result in poor sound quality and can damage components. The GEO S805 & S830 can be used without the optional CD12 Hypercardioid Sub. In this case the NX TD controller can be used in stereo. With the CD12 Hypercardioid Sub, each Sub channel requires two NX TD controller outputs and the NX TD will operate in mono.
  - After release of the front grill from its fittings, the HF Waveguide can be configured for 80° or 120° dispersion in the non-coupling plane.
- **Array Design**
  - S805 and S830 cabinets, having tangent waveguides, can be mixed in the same array. Minimum configuration for Vertical Tangent Arrays is 1x S805 & 1x S830 to S830 for proper subbass output.
- **Speaker Cables**
  - The GEO S805 and S830 are wired 1 - & 1 + on both Speakon connectors, 2 - & 2 + are not connected.

**SHIPPING & ORDERING**
- **Packaging**
  - S830s are packaged in single units.
- **Shipping Weight & Volume**
  - 2 x S830s: 29.2kg (64.2lbs) 0.135 cu m (4.8 cu ft)

The compact GEO S830 is a high-output array module intended for horizontal tangent arrays or as a downfill element in curved (tangent) vertical arrays to establish consistent SPL in all coverage areas. The HRW™ allows the 30° S830 and 5° S805 to be coherently arrayed together.

### Specifications

**GEO S830 Product Features**

**Components**
- LF: 1 x 8” (20cm) Neodymium Hi-Ria 16Ω Driver
- HF: 1 x 1” Throat Neodymium Driver on a Hyperbolic Reflective Waveguide

**Height x Width x Depth**
- 428 x 276 x 303mm (16 7/8” x 10 7/8” x 11 7/8”)

**Shape**
- 30° Trapezoid

**Weight**
- 13kg (28.6lbs) net

**Connectors**
- 2x NL4MP 4-pole SPEAKON (In & Through)

**Construction**
- Baltic Birch Ply finish with structured black coating. Dark grey carpet is optional.

**Flying**
- Integral flying system. Inter-cabinet Angle Adjustments = .31° to 5° (logarithmic steps), 17.5° & 30°.

**System Specifications** GEO S830 with NXA/PNX242 TD Controller

- **Frequency Response [a]**
  - 67Hz – 19kHz ± 3dB
- **Usable Range @ -6dB [a]**
  - 60Hz – 20kHz
- **Sensitivity 1W @ 1m [b]**
  - 99dB SPL Nominal -97dB SPL Wideband
- **Peak SPL @ 1m [b]**
  - Configuration dependent [d]
- **Dispersion [c]**
  - Coupling Plane: Not usable as a single cabinet. Configuration dependent [d].
- **Crossover Frequency**
  - 1.6kHz Passive
- **Nominal Impedance**
  - 16Ω
- **Recommended Amplifiers**
  - 1500 to 3000Watts into 4Ω / 4 x cabinets per channel. Up to 6x cabinets per channel may be connected to large amplifiers capable of operating into low impedance loads.

**System Operation**

- **Electronic Controller**
  - The NX TD controller presets are precisely matched to the GEO S8 Series cabinets and include sophisticated protection systems. Using GEO S8 Series cabinets without a properly-connected NX TD controller will result in poor sound quality and can damage components. The GEO S805 & S830 can be used without the optional CD12 Hypercardioid Sub. In this case the NX TD controller can be used in stereo. With the CD12 Hypercardioid Sub, each Sub channel requires two NX TD controller outputs and the NX TD will operate in stereo. With the CD12 Hypercardioid Sub, each Sub channel requires two NX TD controller outputs and the NX TD will operate in stereo.

- **HF Dispersion Configuration**
  - After release of the front grill from its fittings, the HF Waveguide can be configured for 80° or 120° dispersion in the non-coupling plane.

- **Array Design**
  - S805 and S830 cabinets, having tangent waveguides, can be mixed in the same array. Minimum configuration or Vertical Tangent Arrays is 5x S805 & 1x S830 (4x S805 for paging applications only). CD12s are optional. A ratio of 1 x CD12 per 3x full-range GEO modules is required for proper subbass output.

- **Speaker Cables**
  - The GEO S805 and S830 are wired 1- & 1+ on both Speakon connectors, 2- & 2+ are not connected.

**Rigging System**

- Please refer to the GEO User Manual before any operation.

**Shipping & Ordering**

- **Packaging**
  - S805s are packaged in single units.
- **Shipment Weight & Volume**
  - 2x S805s: 29.2kg (64.2 lbs) 0.135 cu m (4.8 cu ft)

As part of a policy of continual improvement, NEXO reserves the right to change specifications without notice. [a] Response Curves and Data: Anechoic Far Field above 300Hz, Half-space below 300Hz. [b] Reference Data: Frequency Response Capability with TD crossover slopes removed. [c] Directivity Curves and Data: 1/3 octave smoothed frequency response, normalized to On-Axis response. Data obtained by computer processing of off-axis response surveys. [d] Please refer to the GEO User Manual.
The GEO S Array System is a professional rigging system, and should be handled with extreme care. GEO S850 and S830 loudspeakers are shipped from the factory with identical array assembly hardware. The GEO Array Assembly has three attachment points on each side. The points in the front connect each GEO cabinet to the adjacent enclosures above and below.

The angle between cabinets is set by attaching one end of the angle-setting bar to the proper hole on the angle-setting plate which extends beyond the rear of the cabinet. The GEO S Bumper is symmetrical, enabling you to use GEO loudspeakers in a left/right stereo configuration. The connection between the top GEO S enclosure and the bumper determines the left/right orientation for the entire array.

**GEO Technology in Horizontal Arrays**

Do not think of GEO as only a vertical array system. Horizontal arrays of GEO loudspeakers have relatively high power (because of the narrow 30° horizontal array element) and wide front to back coverage of 80° to 120°. Horizontal arrays deliver equal power to equal angles, with SPL decreasing as you move further back in the audience. Because they are limited to a single row (for a coherent wavefront without interference in the vertical plane), horizontal arrays deliver “equal power to equal angles” and suited for a special set of audience geometries such as stadium bowls, arena “exploded clusters”, opera-style theatres with multiple balcony levels and often as the centre cluster in a L-C-R system.

Horizontal arrays of GEO S830 cabinets provide exceptional control of horizontal coverage and, where the geometry is suitable, GEO S or GEO T horizontal arrays will deliver a coherent wavefront in the midrange and high frequencies. GEO S830 allows users to provide 30º increments of horizontal coverage as needed. Where the geometry is suitable, GEO arrays will deliver a coherent wavefront consisting of 30° tangent arcs that is more intelligible and reveals more musical detail than the incoherent sound produced by arrays using multiple conventional horns, which must be separated in space and time.

The GEO S830 is designed to array tangentially with adjacent S830 cabinets to provide a much more coherent wave front from an array of multiple cabinets than conventional arrayable cabinets. Where the best fit to the geometry of the listening area is a single row of horizontally-arrayed speakers, GEO technology provides a coherent source of midrange and high frequency energy. This is because GEO wave sources produce a curved wavefront using hyperboloid acoustic mirrors instead of angled sidewalls.

A hyperboloid, a GEO wavsource exhibits dual sources: a real source and a virtual source. The GEO design process puts the virtual source behind the enclosure, and these virtual sources can be perfectly aligned.
The compact CD12 exhibits innovative control of long wavelength LF energy. The CD12 applies microphone design techniques “in reverse” to produce a hyper-cardioid pattern from twin 12-inch horizontally-opposed woofers.

Sophisticated DSP algorithms, from the NX242 TDcontroller are applied individually to both specialised ports, and DSP control of the GEO42/TDcontroller. To maximize CD12 performance:

- Maintain at least one meter (3ft+) of free space around ground-stacked CD12(s). Objects or barriers within this space may interfere with the CD12 wavefronts.
- Drive the front and rear drivers with identical amplifier channels set to the same gain. CD12 operation is based on the assumption that front and rear sub-systems are identical in terms of the amplifier’s electrical performance.

When hanging or stacking multiple CD12 cabinets, confirm that they are oriented correctly with fronts forward and tops up. Do not hang one CD12 upside down relative to the others.

When flying the CD12(s), use the linking bar to connect the CD12 bumper to the GEO Bumper and keep at least 50cm (20in) of space between the back of the GEO cabinets and the front of the CD12(s). It provides enough distance so that the GEO cabinets will not interfere with the CD12 wavefronts.

Avoid objects within the space of 2x CD12s. The NEXO GEO S8 cabinets can be used without the optional CD12 Hypercardioid Sub. GEO S8 05 & S8 30 can be used without the optional CD12 Hypercardioid Sub. GEO S8 05 & S8 30 can be used without the optional CD12 Hypercardioid Sub. GEO S8 05 & S8 30 can be used without the optional CD12 Hypercardioid Sub.

The CD12 with NXAMP/NX242 TDcontroller:

- Frequency Response: 42Hz – 130Hz ± 3dB
- Usable Range @ -6dB: 39Hz – 150Hz
- Sensitivity @ 1m: 96dB ± 3dB
- Peak SPL: 131dB @ 120W RMS (At 1m)
- Dispersion: Hypercardioid pattern 120° x 120° over the entire usable bandwidth.
- Directivity Index: Q = 3.77, DI = 5.7dB over the entire usable bandwidth.
- Nominal Impedance: 2 x 6Ω
- Recommended Amplifiers: 2x amplifier channels are required for Hypercardioid operation, each rated at 1500 to 3000Watts into 4Ω per channel. Up to 2x complete CD12s per channel may be connected to a two-channel amplifier.

NEXO GEO S8

Specifications

**CD12 PRODUCT FEATURES**

| Components | 2x 12" (30cm) Long-Excursion Neodymium Driver |
| Shape | Rectangular |
| Weight | 354kg (780lbs) |
| Connectors | 2x NL4MP 4-pole SPEAKON (In & Through) |
| Construction | Baltic Birch Ply finish with structural black coating. Dark grey carpet is optional. |
| Flying points | Integral flying system. |

**SYSTEM SPECIFICATIONS CD12 WITH NXAMP/NX242 TDcontroller**

| Frequency Response | 42Hz – 130Hz ± 3dB |
| Sensitivity @ 1m | 96dB ± 3dB |
| Peak SPL | 131dB @ 120W RMS (At 1m) |
| Dispersion | Hypercardioid pattern 120° x 120° over the entire usable bandwidth. |
| Directivity Index | Q = 3.77, DI = 5.7dB over the entire usable bandwidth. |
| Nominal Impedance | 2 x 6Ω |

**SYSTEM OPERATION**

- Electronic Controller: The NX controller presets are precisely matched to the GEO S8 Series cabinets and include sophisticated protection systems. Using GEO S8 Series cabinets without a properly connected NX TDcontroller will result in poor sound quality and can damage components.
- Subbass: GEO S8 05 & S8 30 can be used without the optional CD12 Hypercardioid Sub. In this case the NX TDcontroller must be used in stereo. With the CD12 Hypercardioid Sub, each sub channel requires two NX TDcontroller outputs, and the sub will operate in mono.
- Speaker Cables: The front loudspeaker of the CD12 is wired 2- & 2+, while the rear loudspeaker is wired -1 & -1. The CD12 must use separate cables to the GEO S8/S805/S830. Please refer to the GEO User Manual before any operation.

**SHIPPING & ORDERING**

Packaging: CD12s are packaged individually. Minimum configuration for GEO Vertical Subwoofer is 1x CD12 per 3x GEO S8 05/S8 30. Optional CD12 Hypercardioid Sub, each Sub channel requires two NX TDcontroller outputs, and the GEO S8 05/S8 30 must be connected to a GEO S8 05/S8 30. Please refer to the GEO User Manual before any operation.

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