TECHNICAL SPECIFICATIONS

loudspeakers		proteus 215 N	proteus 412 N
Components	High	2" neodymium driver on elliptical waveguide 3" voicecoil	-
	Low	15" neodymium woofer on Waveguide Horn 4.5" voicecoil	4 x 12" neodymium woofers on Ibrid Horn-Reflex (dipole), 2.5" voicecoil
Construction		Cabinet: laminated birch plywood with 8 M10 flying points (PRO215N) Finish: black scratch-resistant paint and metal grill Protection: cover with 4 wheels for transport (optional)	
Dimensions (W x H x D)		605 x 750 x 723 mm / 23.82" x 29.53" x 28.47"	
Weight (without cover)		61 kg / 134,5 lbs	69 kg / 152,1 lbs

processor / amplifier	proteus 215 N	proteus 412 N
Inputs	Sensitivity: +4 dB Impedance: 20 kOhms (bilanciato)	
A/D converter	24 bit	
D/A converter	24 bit Dynamic range: 117 dB Sampling rate: 48 kHz	
Crossover	Type: Bessel, Butterworth or Linkwitz-Riley Frequency: 15.6 Hz to 16 kHz Slope: 6, 12, 18, 24 o 48 dB per octave	
EQ	5 parametric bands on each input and output Type: Peak, 6dB Lo-Shelf, 12dB Lo-Shelf, 6dB Hi-Shelf, 12dB Lo-Shelf, Notch Gain: +/-15dB, variable in 0.5dB steps Bandwidth: 0.05 to 3.00 octaves, variable in 0.05 steps Frequency: 15.6 Hz to 16 kHz	
Max. delay	Input: 600 ms Output: 300 ms	
Limiter	Independent limiter for each output.	
Plug-ins	Hum Cancel, Noise Gate, Dynamic EQ	
Output power	2 x 400 W (EIA - 1kHz, THD 1%)	800 W (EIA - 1kHz, THD 1%)
Distortion	<0.02%	
Controls	Up, Down, Enter and Select buttons, 2-digit display, Signal/Limiter LED	
Connectors	1 XLR-F + 1 XLR-M (signal input + link) 1 XLR-F + 1 XLR-M (RS-485 In & Out) 2 Powercon (mains input & link)	
Power supply	Switching power supply unit 110-250V	
Extra	DX NET - Remote Control Software: PC-based software for the processor's remote control (compatibility: Windows® 98 SE, 2000, NT, XP, Vista)	

system	proteus 215 N	proteus 412 N
Frequency response	55Hz - 18kHz (-3dB)	40Hz - 100Hz (-3dB)
Sensitivity (Max SPL)	Continuous: 136 dB Peak: 140 dB	Continuous: 128 dB Peak: 131 dB
Dispersion	60° x 40°	360°

LEM
PROFESSIONAL SOUND

Digital Integrated Loudspeaker System.

proteus N

GENERALMUSIC

The Proteus N series are advanced professional loudspeakers, specifically designed for permanent installation or mid to large portable amplification systems. They provide many combination possibilities for wide applications in outdoor or indoor venues where excellent quality in audio signal reproduction with high sound pressure levels are required

The Proteus N loudspeaker series comprises of two active models:

proteus 215 N - Satellite loudspeaker that can be used in many applications Ideally matched as full-range unit for acoustic amplification or voice only, or as side-fill unit where high sound level for low frequencies are not required.

Main features
• 2-way amplified loudspeaker system with advanced digital processing
• 2" Eighteen Sound™ neodymium driver on elliptical waveguide
• 15" Celestion™ neodymium woofer on CD horn
• 400 W + 400 W DPPM - Digitally Processed Power Module with VDAT system (Variable Damping Assisted Tuning)
• Integrated digital processor with Xover, EQ, delay, phase and limiter functions and additional plug-ins
• Laminated birch plywood cabinet, with 8 M10 flying points, 6 handles and front metal grill cover with 4 wheels for easy transport (optional)

proteus 412 N - Sub unit specifically developed and matched to the Proteus 215 N to increase and support low frequencies and improve the systems efficiency.
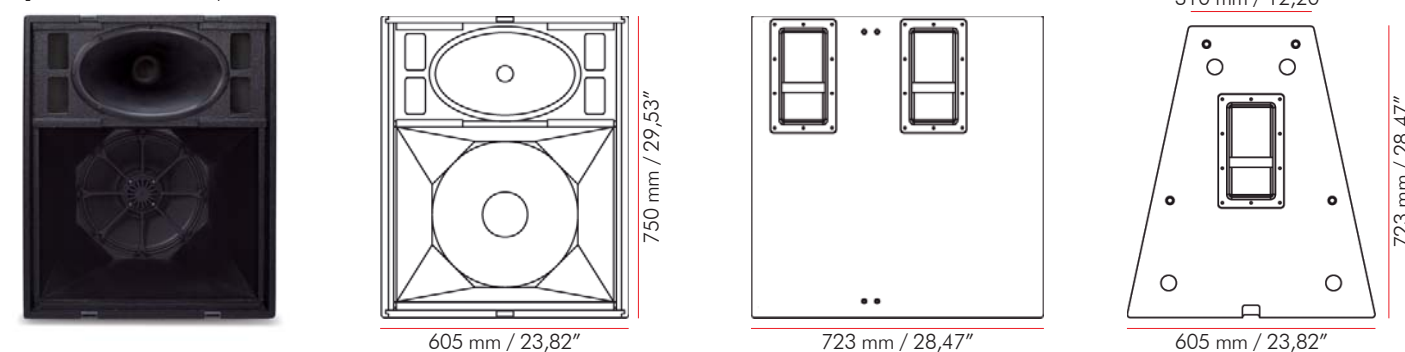
Main features
• Active subwoofer unit with advanced digital processing
• 4 x 12" Sica™ neodymium woofers in bass-reflex
• 800 W DPPM - Digitally Processed Power Module with VDAT system (Variable Damping Assisted Tuning)
• Integrated digital processor with Xover, EQ, delay, phase and limiter functions and additional plug-ins
• Laminated birch plywood cabinet, with 8 M10 flying points, 4 handles and front metal grid; cover with 4 wheels for easy transport (optional)

Proteus N is a professional active loudspeaker system with built-in digital processor, designed for use in mid-to-large outdoor or indoor venues. The system includes a fully horn-loaded two-way satellite and a sub-woofer in a 4x12" configuration. The horn-loaded satellite provides a long-throw and impressive performance in open spaces or large venues, while the compact size and modular design makes transport and installation extremely easy.
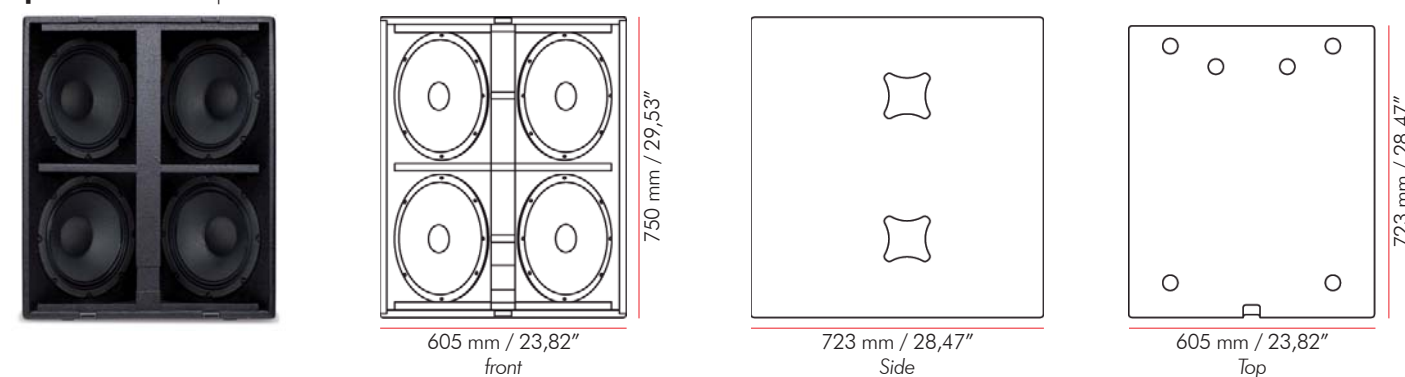
The plywood trapezoidal cabinet of Proteus 215 N features a flying system including 4 + 4 M10 flying points with an internal reinforcing bracket. Stacking the satellite on top of two Proteus 412 N sub-woofers allows you to reach the right performance height for the system, without the need of a lifting systems or taking valuable space on the stage. The new metal grill is coated on the internal side by an advanced fabric, guaranteeing the best protection for the loudspeakers against dust and humidity. A special protection cover with four wheels can be applied to the front of both models providing maximum protection and ease of transport.

Proteus 215 N is fitted with a 15" Celestion™ neodymium woofer with a 4" voice-coil and front-placed cooling system, mounted in a hybrid horn/reflex configuration. Because of this design it can be used also without the sub-woofer in particular situations where a complete extension at the low frequencies is not required. For high frequency reproduction a new 2" Eighteen Sound™ neodymium driver with a 3" voice coil is used, providing outstanding SPL values and a surprisingly flat frequency response. Thanks to the use of four 12" Sica™ neodymium woofers, Proteus 412 N is able to provide an extremely high SPL, guaranteeing a uniform coverage of the low frequencies, even in extremely large venues.

proteus 215 N | dimensions

750 mm / 29,53"
605 mm / 23,82"
723 mm / 28,47"
310 mm / 12,20"
723 mm / 28,47"
605 mm / 23,82"

proteus 412 N | dimensions

750 mm / 29,53"
605 mm / 23,82"
front
723 mm / 28,47"
Side
723 mm / 28,47"
605 mm / 23,82"
Top

DPPM module
Utilizing an advanced switching power supply system with power factor correction, the new Proteus N amplification module is now 5kg lighter than a similar module with traditional power supply. In addition to this, the switching power supply features greater stability and an extremely high and constant efficiency independently from the mains voltage. The traditional power switch has been removed and replaced by a circuit breaker, as requested by many professional users.
A new version of LEM's custom DPS

RED208 along with new generation 24bit converters, the accuracy and definition of the internal processing is now at the highest quality level in this product range.

Digital control
The integrated digital processor features 40bit internal processing and high resolution, low noise 24bit converters for a superb audio quality and dynamic range, suitable for the most demanding applications.
The available features provide a total control of all the system parameters:

• HPF and LPF crossover filters with the choice between Butterworth, Bessel or Linkwitz/Riley response and up to 48 dB/oct. slope
• 5 EQ filters for the input and 10 EQ filters for each output can be individually set as full parametric, Hi and Lo shelving (6 or 12 dB slope) or notch filter
• Delay lines on each input and output for master delay compensation and individual loudspeakers alignment
• Phase adjustment with 5° step through a full 360°
• High precision limiters on each output for the system's loudspeaker protection

Three additional plug-ins are also available, which allows the system performances to be further increased:
Noise Gate
- a dynamic filter for the cutting any background noise
Hum Cancel
- a dynamic notch filter that can be used to eliminate hum typically from mains power supply
Dynamic EQ
- 4-band dynamic equalizer
Each plug-in can be enabled or disabled by the user and set according to any requirement. The DPPM module

DX NET
Remote Control Software
The PC-based software for the processor's remote control has been

includes factory presets suitable for the use of the system in different typical configurations. These can be easily recalled directly from the control panel. A complete serial interface (RS232 + RS485) allows the remote control of all the input parameters (EQ, master delay, level) and the plug-ins from a PC using the DX Editor software. Personal setups can be saved in a series of user presets.

designed in order to make both connections and operation the easiest possible. This remote control is performed thru a serial network based on the RS485 standard, which guarantees the maximum speed along with unsurpassed stability.

Thanks to the advanced new processing algorithms, it's also been possible to obtain the finest sound quality along with introducing new important features such as a powerful dynamic EQ, the real time display of the status of several units and their grouping.