Introduction

DSP_PowerPack is the integral solution given by RAM Audio to the needs of many acoustic enclosures' manufacturers regarding self-powering their products.

After many years developing, designing and manufacturing external audio power amplifiers, we have put into this new project all our knowledge, experience and technology background that we have acquired during our career.

The result has been much more than a group of DSP, power modules and switching power supplies; we have developed a whole, integral and totally flexible and adaptable solution to meet any need on the market could show for adapting internal amplifiers to acoustic enclosures which are already developed and manufactured or in developing process.

With DSP_PowerPack by RAM Audio we offer personalized solutions to each client and customized to each acoustic enclosure or system, because we think that amplification of an acoustic system must never reduce the sound quality of the original system, it should even improve it, if possible.

Nowadays, acoustics manufacturers demand high power amplification solutions for the current big subwoofers and there is a lack of it on the market. In order to satisfy this demand, our R+D department have developed the DSP_PowerPack SUB Series, able to feed very powerful loudspeakers used in very demanding subs and obtaining an exceptional quality of sound and dynamics.

## DSP_PowerPack: ASYM & SUB Series

RAM Audio has developed two different series for the DSP_PowerPack project: **ASYM** and **SUB** series. Each one has been designed taking into account the implementation in different enclosure types:

ASYM Series are ready to work in 2-ways medium power systems which require different power values for each way. So, you can maximise the available power for the low/mid frequencies, and use a lower power in the high way. Also, this power can be optimised for different impedance, so you can choose between 8 ohm or 4 ohm models.

SUB Series are designed mainly to use in low frequency ways, where the power requirements are a lot higher. You can choose between two different models: the SB 3K which contains a single 3000W @4ohm channel, or the more powerfull SB 6K which includes two 3000W @4ohm channels, where you have the possibility to send the 2nd channel to an external speaker through the provided Speakon connector.

Both series include a high performances FIR DSP, designed specifically for this project. This DSP can be programmed directly by the manufacturer and it has the possibility to limit the access to the specific speaker process. The user has the option to recall predefined presets quickly, through the push buttons of the front panel. Also, it includes USB and a 2-ports Ethernet switch for an easy daisy chain connection, which permits if needed the control and monitoring of all the speakers through the RAM_OCS application.

This DSP_PowerPack contains an optimised ventilation system, inputs and thru XLR connectors, powerCon mains inlet-outlet connector, and optionally an aluminium back enclosure to install the modules in any box although it has not been designed as a self-amplified speaker.
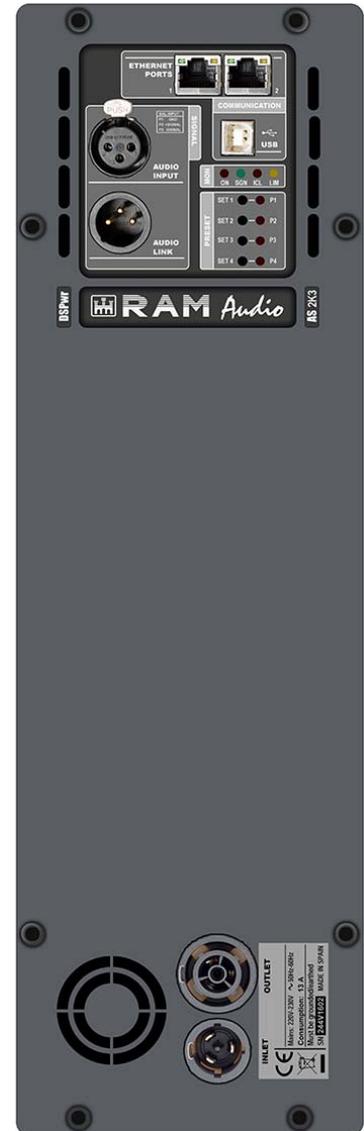
DSP Characteristics

- High performance 96kHz 120dB 32 bits AD/DA converters
- 56 bit double-precision floating-point DSP process
- 0.6ms process latency time

Input Section:
- Gain, Mute and Phase inversion per input
- Input Delay: 0 to 60 meters (175ms)
- Input EQ: 31 EQs per input (Parametric, Shelving, LP, HP, BP, SB, AP)

Output Section:
- Crossover Filters: FIR (linear-phase and custom) and IIR (up to 48dB/oct, Butterworth/Linkwitz-Riley/Bessel)
- Output Delay: 0 to 18 meters (52ms) per channel
- Output EQ: 15 filters per channel (Parametric, Shelving, LP, HP, BP, SB, AP)
- Gain, Mute and Phase inversion per channel
- RMS and Peak power variable knee limiter per channel

Amplifier Control/Monitor:
- Real time impedance monitor
- ICL, Temp and Prot monitor
- Input, Output, Current and Temperature meter.

RAM_OCS Communications:
- 2 ports Ethernet switch for daisy chain connection
- USB 2.0 Type B port
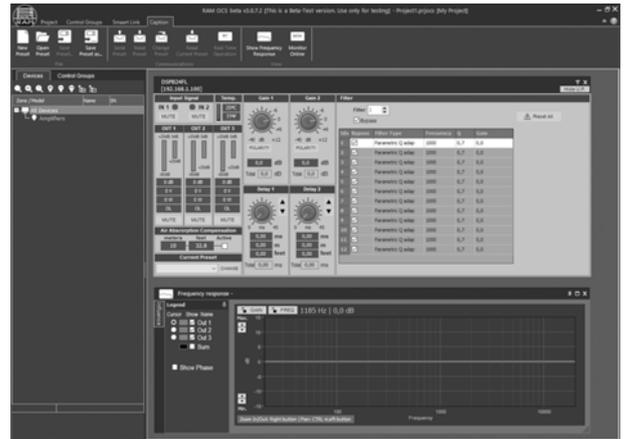
Technical Specifications:

	ASYM Series			SUB Series	
	AS 2K3 /8	AS 2K3 /4	AS 1K5 /4	SB 3K	SB 6K
Max. Output Power	1500W @8Ω + 750W @4Ω	1500W @4Ω + 750W @2Ω	2x750W @4Ω	3000W @4Ω	2x 3000W @4Ω
Total Harmonic Distortion	<0.05%	<0.05%	<0.05%	<0.05%	<0.05%
Efficiency	>90%	>90%	>90%	>90%	>90%
Damping Factor (20-500Hz @8W)	>400	>400	>400	>400	>400
Voltage Gain	32dB	32dB	32dB	32dB	32dB
Operational Mains voltage	85-265V AC	85-265V AC	85-265V AC	85-265V AC	85-265V AC
Power Factor	>0.95	>0.95	>0.95	>0.95	>0.95
Efficiency	>90%	>90%	>90%	>90%	>90%
Dimensions					
External Plate WxH (mm)	127x453	127x453	127x453	180x480	180x590
Internal Enclosure WxDxH (mm)	97x423x50	97x423x50	97x423x50	150x450x60	150x560x60
Occupied Volume (liters)	1.9	1.9	1.9	4	5
Weight Net (kg-Lbs)	1.5-33	1.5-33	1.4-30.9	2.5-55.1	3.1-68.3
Connections:	XLR Input, XLR Link, powerCON True 1 in-out, USB, 2x RJ45				
Protections:	Turn-on transients, Over-heating, DC, RF, Short-circuit, mismatched loads, ICL™, PMS™				

RAM Audio®