

# pêma protea equipped media amplifier

pêma specifications

pêma 4125 | 4250 | 8125 | 8250



Ashly Audio’s promise to “Simplify Integration” continues with **pêma** (Protea Equipped Media Amplifier), a unique powered processor. Pêma sets a new industry benchmark for value-engineered zone sound systems. By seamlessly merging Ashly’s powerful, open-architecture DSP functionality with Ashly’s renowned amplifier performance inside a two-rack space unit, pêma lowers overall system cost, occupies less space, improves energy efficiency, and both speeds and simplifies system installation and programming. Four and eight amplifier channel versions are available at both 125 and 250 Watts per channel. Full 96kHz performance is available on 32-bit SHARC processors for utterly transparent audio.

Pêma changes the way consultants and integrators approach sound system design. With only the addition of input sources and output speakers, pêma is capable of handling everything else for small- to mid-sized sound systems. Pêma is a ‘house-of-worship-in-a-box’ or a ‘restaurant-in-a-box’ or a ‘bar-in-a-box’ or a ‘you-name-it-in-a-box.’ Pêma delivers an elegant solution with less cabling, less rack space, and less installation time, using proven DSP and amplifier technology that will awe clients with its simplicity, sophistication, and reliability.

In addition to DSP algorithms such as ambient noise compensation, advanced automatic feedback suppression, automatic mixer, and a full complement of filters, EQs, delays, and the like, pêma offers DSP control of the amplifier functionality as well: selection of bridge-mode operation, HPF settings for constant voltage system networks, stereo-linking of channel pairs, MIC/LINE/TEL-PAGE functions on channel 1, full control of ducking priorities, and full-range remote-gain control capability.

Pêma’s I/O count and formats are ideal for small- to mid-sized installations. Each variant has eight balanced input channels that are software selectable for mic or line levels. The first channel may also be set for a transformer isolated, TEL-PBX level. Additionally there are eight pairs of summed-mono RCA connectors optimized for consumer line level devices. Eight preamp auxiliary outputs allow integrators to route signals from the matrix mixer to anywhere the system requires. Both CobraNet and EtherSound digital I/Os are fully supported.

As a member of the respected Protea DSP lineage, pêma is remarkably easy to program and deploy. All set up is accomplished using standard 10/100 Ethernet protocol and Ashly’s Protea NE Software on a PC platform. Hot-plug DSP placement allows users to insert any function into any channel block, even when running live audio. Automatic DHCP network IP configuration reduces network set up time. Lockable front panel controls and multi-level software security with password access guarantee a tamperproof audio system.

## Features: Powered Processors

- 4 or 8-channel amplifier - 125 or 250 watts per channel - Low-Z and Constant Voltage Models (70V and 100V)
- 8-in x 8-out sophisticated matrix mixing
- 8 built-in mic pre’s
- Gain sharing automatic microphone mixing (Automixer)
- Automatic feedback suppression
- Ambient noise compensation
- Dedicated telephone/PBX input
- Dual RCA and balanced euroblock inputs
- Post DSP AUX line level outputs
- Stereo summed to mono
- Event scheduling (RTC)
- Adjustable HP/LP filters
- Built-in pink/white noise & sine wave generator
- Extensive signal processing
- Full suite of Ashly NE Series DSP
- Hot-plug DSP placement
- 96kHz or 48kHz sample rate
- 32 Bit SHARC DSP
- 24-bit A/D-D/A audio resolution
- 15V phantom power
- Full control using Ashly software over 10/100 baseT Ethernet
- Easy and intuitive user interface
- Automatic DHCP network IP configuration
- Euroblock connectors for preset recall, DC remote level control and data in/out
- External control via Ashly standard wall remotes or Ashly Ethernet wall remotes
- Level control via variable DC control voltage.
- Stand-By mode activation via contact closure.
- Multi-level Security

## Audio Connections:

- 1 Euro connector balanced input, software selectable for Mic, Line or TEL-PBX
- 7 Euro connector balanced inputs, software selectable for Mic or Line
- 8 pairs of unbalanced, summed-mono RCA connectors optimized for consumer line level (-10dBV) devices
- 8 Euro connector Preamp Aux outputs
- 8 Euro connector amplifier outputs

## Digital I/O Options:

- CobraNet
- Ethersound

Amplifier Specifications	4125/8125	4250/8250
<b>Continuous Average Power Output Per Channel</b>		
<i>Low Z models, Stereo Mode, all channels driven</i>		
8Ω 20Hz-20kHz 1%THD 75W	75W	150W
4Ω 20Hz-20kHz 1%THD	125W	250W
<i>Low Z models, Bridge Mode, all channels driven</i>		
8Ω 20Hz-20kHz 1%THD	250W	500W
<i>70V, 100V distributed output models</i>		
20Hz-20kHz 1%THD, per channel	125W	250W
<b>Line Current Draw (120V, all channels driven)</b>		
Line Current, Standby mode	190ma/290ma	190ma/290ma
Line Current, Idle (no signal)	540ma/565ma	540ma/565ma
Line Current, Typical (1/8 power pink noise)	1.70A/2.78A	2.85A/5.00A
Line Current, Maximum (1/3 power sine wave)	3.72A/5.78A	3.00A/5.50A
<b>Thermal Dissipation (all channels driven)</b>		
BTU/hr, Standby mode	46.7/63.8	46.7/63.8
BTU/hr, Idle (no signal)	123/187	123/187
BTU/hr, Typ (1/8 power pink noise)	232/444	341/700
BTU/hr, Max (1/3 power sine wave)	251/481	378/775
<b>General Specifications</b>		
Input Sensitivity (low Z models 4..)	3.2Bbu	6.2dBu
Input Sensitivity (70V and 100V models)	7.2dBu	7.2dBu
Voltage Gain (low Z models)	26dB	26dB
Voltage Gain (70V models)	32dB	32dB
Voltage Gain (100V models)	35dB	35dB
Damping Factor (8 ohm load, <1kHz)	>250	>250
Distortion (SMPTE, typical)	<0.5%	<0.5%
Distortion (THD-N, typical) 8Ω 10dB below rated power, 20Hz-20kHz	<0.5%	<0.5%
Channel Separation (dB from full output, 1kHz)	-80dB	-80dB
Signal to Noise (20Hz-20kHz, unweighted)	>102dB	>105dB
Frequency Response	20Hz-20kHz, +/-1dB	
Mic/Line Input Impedance	4.8K	4.8K
Mic/Line Maximum Input Level	+21dBu	+21dBu
Mic/Line Preamp Gain	0, +20dB, +40dB, +60dB	
Mic/Line Phantom Power	+15V, channel	+15V, channel
Summed Mono Input Impedance	3.16K	3.16K
Summed Mono Maximum Input Level	+11dBu	+11dBu
TEL-PBX Input Impedance	3.9K	3.9K
TEL-PBX Maximum Input Level	+21dBu	+21dBu
Preamp Output Maximum Level	+8dBu	+8dBu
AUX Output Maximum Level	+20dBu	+20dBu
Balanced Mic/Line Input Connector	Euroblock 3.5mm	
Unbalanced Summed Mono Input Connector	Dual RCA	
Channel 1 TEL-PBX Input Connector	Euroblock 3.5mm	
Preamp/AUX Output Connector	Euroblock 3.5mm	
Speaker Output Connector	Euroblock 7.62mm	
<b>Processors</b>		
Input A/D: 24 bit		
Output D/A: 24 bit		
DSP Processors: 32-bit floating point		
Sample Rates: 48kHz, 96kHz		
Propagation Delay @ 48kHz: 1.42 ms		
Propagation Delay @ 96kHz: 0.71 ms		

DSP Specifications	
<b>Brick Wall Limiter</b>	<b>2, 4, 6, or 10 Band Parametric Equalizers</b>
Threshold: -20dBu to +20dBu	Parametric:
Ratio: infinite	Frequency: 20-20kHz
Attack:	Level: -30dB to +15dB
Release: 5ms/dB to 1000ms/dB	Q: 0.016oct to 4oct
<b>Compressor</b>	<b>Hi/Low Shelf 6/12 dB</b>
Threshold: -20dBu to +20dBu	Frequency: 20Hz-20kHz
Ratio: 1.2:1 to infinite	Level: -15dB to +15dB
Attack: 0.2 to 50ms	<b>All Pass</b>
Release: 5ms/dB to 1000ms/dB	Frequency: 20Hz-20kHz
Detector: Peak/Average	Variable Q HP/LP
<b>Autoleveler</b>	Frequency: 20Hz-20kHz
Target Level: -40dBu to +20dBu	Q: 3.047 to 0.267
Action: gentle, normal, aggressive,	<b>Notch/Bandpass</b>
Maximum Gain: 0dB to +22dB	Frequency: 20Hz-20kHz
Advanced Autoleveler Controls	Q: 92.436 to 0.267
Ratio: 1.2:1 to 10:1	Feedback Suppressor
Threshold Below Target: -30dB to 0dB	Filters: 12
Gain Increase Rate: 5ms/dB to 1000ms/dB	Modes: Float, Restricted, Manual
Gain Decrease Rate: 5ms/dB to 1000ms/dB	<b>Type: Notch, Parametric</b>
Hold Time: 0-6 sec	Frequency Range: 20Hz to 20kHz
Ambient Noise Compensation	Notch Filter: -infinity
Max Gain: -20dB to +20dB	Parametric Filter: +15dB to -30dB
Min/Base Gain: -40dB to +20dB	Filter Bandwidth: 0.016 to 3.995 Octave
Gain Change Rate: 0.2s/dB to 20s/dB	Detector Sensitivity: five levels
Noise Threshold: -40dBu to +20dBu	Float Time: 5 minutes to 24 hours
Program/Ambient Gain Ratio: 0.3:1 to 3:1	<b>Crossover</b>
<b>Ducker</b>	2 Way, 3 Way, 4 Way Crossover
Trigger Threshold: -80dBu to +20 dBu	Filter Types:
Release: 5ms/dB to 1000ms/dB	Bessel: 12/18/24/48 dB/oct
Depth: 0dB to -30dB, - ‡	Butterworth: 12/18/24/48 dB/oct
<b>Gate</b>	Linkwitz-Riley: 12/24/48 dB/oct
Threshold: -80dBu to +20dBu	Frequency: off, 20Hz-20KHz
Range: off, 100dB to 0dB	<b>Delay</b>
Attack: 0.2ms/dB to 50 ms/dB	@ 48kHz Sampling Rate
Release: 5ms/dB to 1000ms/dB	Speaker Delay: 0-21ms
<b>Advanced Gate</b>	Delay: 0-682 ms
Key Engage Enable: Yes	@ 96kHz Sampling Rate
Key Frequency: 20Hz to 20kHz	Speaker Delay: 0-10.6ms
Key Bandwidth: 0.016 to 3.995 Octave	Delay: 0-341 ms
<b>31 Band Graphic</b>	<b>Signal Generator</b>
Filter Type: constant Q or proportional	pink noise, white noise, sine wave
Bandwidth: 0.499/oct to 0.25/oct	
<b>Dimensions</b>	19"W x 3.5"H x 15.5"D (483 x 89 x 394mm)
<b>Weight</b>	21 lbs (9.53kg)
<b>Environmental</b>	40-120 deg. F, (4-49 deg. C) noncondensing
<b>Power Cable Connector</b>	15A Edison

Notes:

- 0dBu = 0.775 VRMS
- 1) Measured 20 Hz – 20 kHz unweighted using AES17 LPF at 48 kHz sample rate.
- 3) Analog in to analog out measured using internal master clock.
- 4) Zero noise or signal amplitude variation introduced in digital domain.
- 5) Latency of network audio link is additional to latency of digital audio processor.
- 6) All features, specifications and graphical representations are subject to change or improvement without notice.

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## The World's First Powered Processors

8 x 8 DSP Matrix Mixer with Four Channel Power Amplifier.



## Architect & Engineering Specs

### **pêma4125**

The powered digital signal processor shall consist of eight inputs and four power amplifier outputs with the ability to assign any input to any output. Each input channel shall include a summed stereo (RCA, +11dB maximum) and mic/line gain stage (3-pin Euroblock, +21dB maximum) capable of 0, +20dB, +40dB, and +60dB of gain with +15V phantom power when selected. Summed stereo input impedance shall be 3.16k Ohms unbalanced and mic/line input impedance shall be 4.8k Ohms active balanced. Channel One shall include a transformer-isolated TEL-PBX select. Each input and output shall have individual mute capability. Each input and output shall have six processing blocks configurable for Dynamics (ambient noise compensation, compressor/limiter, auto-leveler, ducker, gate), Gain (including Group VCA and remote gain), Equalization (31-band graphic, parametric x 10, feedback suppressor), Crossover, Delay, Metering, and Signal Generator (sine wave, pink noise, white noise). The routing stage shall allow the user to assign an input to any or a combination of outputs and separately adjust how much signal level goes to each output (matrix mixer). The matrix mixer shall also have selectable gain-sharing automatic mixing capability. Each input stage shall have an additional preamp output (post DSP) on the back panel (3-pin Euroblock). Four powered outputs shall deliver 75W @ 8 Ohms, 125W @ 4 Ohms (7.62mm Euroblock), and channel pairs can be bridged for 250W @ 8 Ohms. Frequency response shall be  $\pm 1$ dB 20Hz to 20kHz. Signal-to-Noise shall be greater than 102dB, 20Hz – 20kHz unweighted. LED indicators shall show signal level (-18, -12, -6), clip/mute, bridge, over temperature and over current conditions. Output levels shall be adjusted by front panel volume controls when enabled. Full programming and control of the unit shall be from the rear panel RJ-45 jack connected to a 10/100BASE-T Ethernet LAN connected to a PC running Ashly's Protea NE Software. Thirty internal presets (scenes) shall be standard and four scenes shall be accessible via contact closure. The powered digital processor shall have Cobranet and Ethersound factory options. A back panel contact closure shall place the unit in "Standby" reducing power consumption when idle. The power switch shall be enabled or disabled as needed. Five password user names and eight levels of security shall be available. A temperature dependent speed-controlled axial fan shall maintain the correct operating temperature. The unit shall weigh 21.0 lbs net and mount in a standard 19" rack using 2 spaces (3.5" high).

The powered digital processor shall be an Ashly PEMA Protea Equipped Media Amplifier model **pêma4125**

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# PEMA Series Protea Equipped Media Amplifier



July 2010

## The World's First Powered Processors

8 x 8 DSP Matrix Mixer with Four Channel Power Amplifier.



## Architect & Engineering Specs

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# PEMA Series Protea Equipped Media Amplifier

July 2010

## The World's First Powered Processors

8 x 8 DSP Matrix Mixer with Eight Channel Power Amplifier.



## Architect & Engineering Specs

### **pêma8125**

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The powered digital processor shall be an Ashly PEMA Protea Equipped Media Amplifier model **pêma8125.70**

#### **pêma8250.70**

The powered digital signal processor shall consist of eight inputs and eight power amplifier outputs with the ability to assign any input to any output. Each input channel shall include a summed stereo (RCA, +11dB maximum) and mic/line gain stage (3-pin Euroblock, +21dB maximum) capable of 0, +20dB, +40dB, and +60dB of gain with +15V phantom power when selected. Summed stereo input impedance shall be 3.16k Ohms unbalanced and mic/line input impedance shall be 4.8k Ohms active balanced. Channel One shall include a transformer-isolated TEL-PBX select. Each input and output shall have individual mute capability. Each input and output shall have six processing blocks configurable for Dynamics (ambient noise compensation, compressor/limiter, auto-leveler, ducker, gate), Gain (including Group VCA and remote gain), Equalization (31-band graphic, parametric x 10, feedback suppressor), Crossover, Delay, Metering, and Signal Generator (sine wave, pink noise, white noise). The routing stage shall allow the user to assign an input to any or a combination of outputs and separately adjust how much signal level goes to each output (matrix mixer). The matrix mixer shall also have selectable gain-sharing automatic mixing capability. Each input stage shall have an additional preamp output (post DSP) on the back panel (3-pin Euroblock). Eight powered outputs shall deliver 250W @ 70V (7.62mm Euroblock), and channel pairs can be bridged for 500W @ 70V. Frequency response shall be  $\pm 1$ dB 20Hz to 20kHz. Signal-to-Noise shall be greater than 102dB, 20Hz – 20kHz unweighted. LED indicators shall show signal level (-18, -12, -6), clip/mute, bridge, over temperature and over current conditions. Output levels shall be adjusted by front panel volume controls when enabled. Full programming and control of the unit shall be from the rear panel RJ-45 jack connected to a 10/100BASE-T Ethernet LAN connected to a PC running Ashly's Protea NE Software. Thirty internal presets (scenes) shall be standard and four scenes shall be accessible via contact closure. The powered digital processor shall have Cobranet and Ethersound factory options. A back panel contact closure shall place the unit in "Standby" reducing power consumption when idle. The power switch shall be enabled or disabled as needed. Five password user names and eight levels of security shall be available. A temperature dependent speed-controlled axial fan shall maintain the correct operating temperature. The unit shall weigh 21 lbs net and mount in a standard 19" rack using 2 spaces (3.5" high).

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