

PRELIMINARY

# P1 AVB PROCESSOR AND MEASUREMENT PLATFORM



- EQ, delay and dynamics processing
- Multi-mic acoustic measurement platform
- Bridging of AVB, AES/EBU and analog audio
- 4-bus matrix routing and mixing
- Fully integrated in LA Network Manager
- Silent tuning (delay-EQ)
- Time-aligned redundant signal distribution
- 20 in x 16 out architecture
- Integrates new MILAN protocol from Avnu



## I/O & DSP ARCHITECTURE

### 20 Inputs

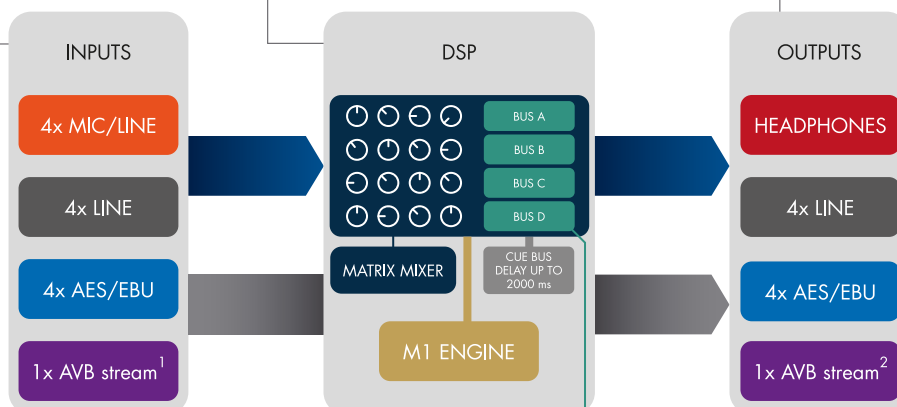
- Four mic/line inputs with switchable +48 V phantom power and high pass filter
- Four analog line inputs with premium A/D conversion
- Four AES/EBU inputs with high-quality Sample Rate Converter (SRC)
- One AVB Listener capable of retrieving eight audio channels from one stream

### DSP

- Dual DSP core
- 32-bit floating point processing @ 96 kHz
- Matrix mixing of 20 inputs to four independent DSP busses with EQ and dynamics signal processing
- Cue bus
- Direct routing to any of the 18 outputs
- Signal generator
- Media Player

### 16 + 2 Outputs

- Four analog line outputs with premium D/A conversion
- Four AES/EBU outputs
- One AVB Talker capable of sending eight audio channels in one stream
- 1 stereo headphone output

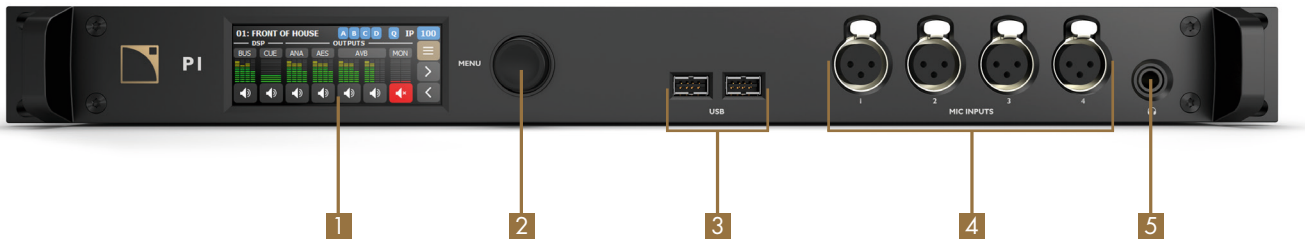


1- One stream of up to 8 channels (6 ch. available when Media Player is enabled).

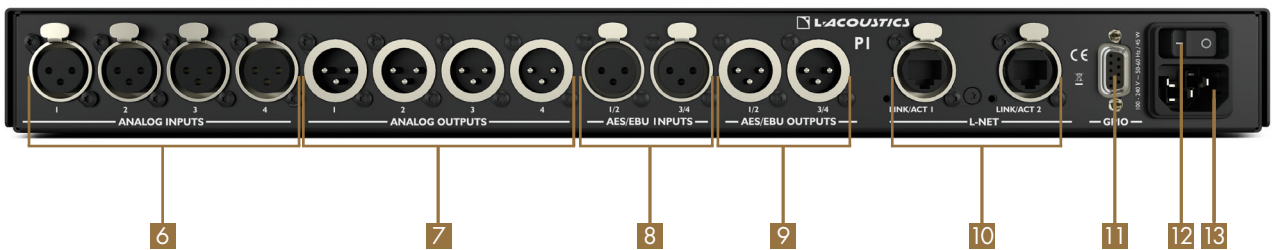
2- One stream of up to 8 channels (restrictions apply in measurement mode).

DSP BUS PROCESSING BLOCK

## USER INTERFACE

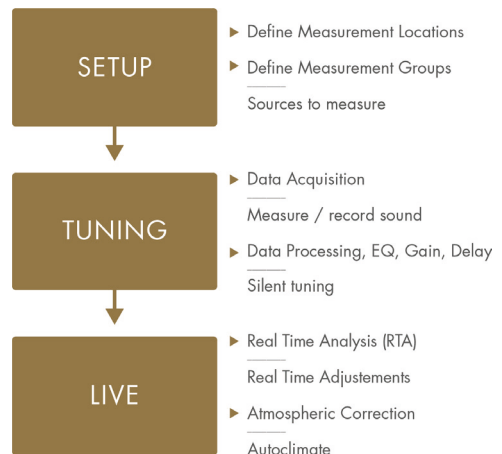
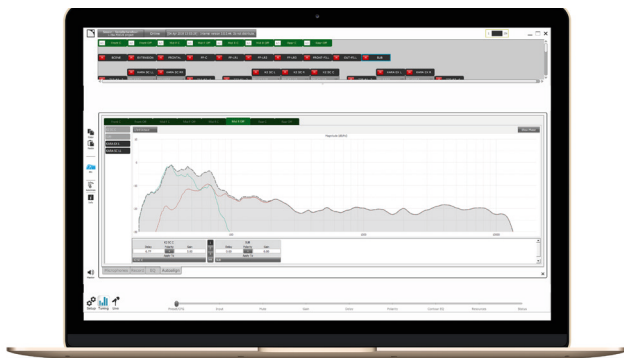


- 1 TFT colour display touch screen (320 x 120 px)
- 2 Encoding wheel with push button
- 3 USB 2.0 host connectors
- 4 XLR3 analog mic input connectors (balanced mono, ESD protected)
- 5 1/4 inch stereo headphone jack



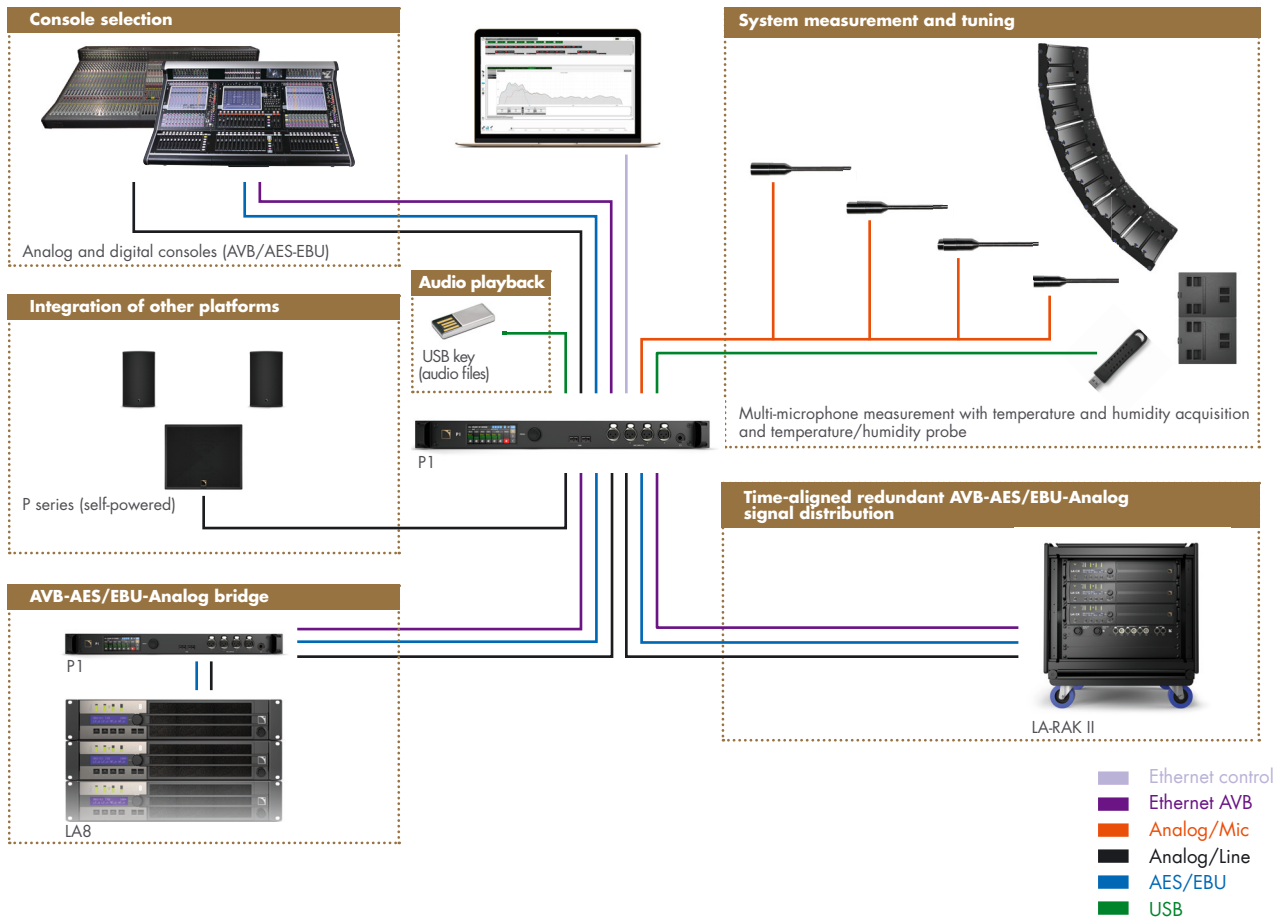
- 6 XLR3 analog line input connectors (balanced mono, ESD protected)
- 7 XLR3 analog line output connectors (balanced mono, ESD protected)
- 8 XLR3 AES/EBU input connectors (ESD protected)
- 9 XLR3 AES/EBU output connectors (ESD protected)
- 10 EtherCON™ I/O 1 Gb/s (L-NET and AVB)
- 11 General Purpose I/O (GPIO) DB9 female connector
- 12 On/Off switch
- 13 IEC C13 V-Lock power connector

## MEASUREMENT WORKFLOW IN LA NETWORK MANAGER\*



\* Requires LA Network Manager 3.X.

# APPLICATIONS



# SPECIFICATIONS

General	
Mains rating	100 V - 240 V ( ±10%), 50-60 Hz
Operating temperature	0 °C / 32 °F to 50 °C / 122 °F
Network audio I/O	
Standards	AVB, IEEE 1722, IEEE 1722.1
Number of input/output streams	1/1
Supported stream formats	IEC 61883-6 AM824, AAF PCM32
Supported sampling frequencies	48 or 96 kHz
Supported channel counts (input stream or output stream)	1 to 8
Channel selection	Up to 8 channels
Analog line inputs	
Number of line inputs	4
Input impedance	22 kΩ balanced
Max. input level	+22 dBu
Frequency response	±0.1 dB (10 Hz - 20 kHz)
A/D conversion	Operating at 32-bit/96 kHz
Input dynamic range	125 dB (-60 dBFS, A-weighted 20 kHz bandwidth)
Distortion THD+N ratio	0.0005%, 1 kHz, 12 dBu (10 dB below max), 20 kHz bandwidth
Channel separation	> 120 dB (at 1 kHz)
Analog line outputs	
Line output impedance	100 Ω balanced
Max. output level	+22 dBu
Frequency response	±0.1 dB (10 Hz - 20 kHz, load > 600 Ω)
Output dynamic range	125 dB (-60 dBFS, A-weighted, 20 kHz bandwidth)
Distortion THD+N ratio	0.0005%, 1 kHz, 0 dBFS, 20 kHz bandwidth
Channel separation	>120 dB (at 20Hz - 20kHz)

<b>Analog mic/line inputs</b>	
Number of mic inputs	4
Input impedance	2.4 k $\Omega$ balanced
Max. input level	+22 dBu at 0 dB gain
A/D conversion	Operating at 24-bit/96 kHz
Frequency response	$\pm 0.15$ dB (20 Hz - 20 kHz, at 0 dB gain)
Input dynamic range	118 dB (-60 dBFS, A-weighted, 20 KHz bandwidth, @ 0 dB preamp gain)
Gain range	0 dB to +60 dB by steps of 3 dB
Highpass filter	40 Hz, 12 dB octave (2nd order)
Phantom power	+48 V (10 mA max per channel)
Distortion THD+N ratio	0.0007%, 1 kHz, 12 dBu (10 dB below max), 20 kHz bandwidth, at 0 dB gain
<b>Headphones</b>	
Minimum load	32 $\Omega$
Distortion THD+N ratio	0.004%, 1 kHz, -10 dBFS, 20 kHz A-weighted at 600 $\Omega$ load
<b>AES/EBU inputs</b>	
Number of inputs	2 (4 audio channels)
Standard	AES/EBU (AES3) or electrical S/PDIF (IEC 60958 Type II)
Supported sampling frequencies (Fs) and word length	44.1, 48, 88.2, 96, 176.4 or 192 kHz at 16, 18, 20 or 24 bits
<b>AES/EBU inputs Sample Rate Converter (SRC)</b>	
Sample rate conversion	Operating at 24-bit/96 kHz
Dynamic range	140 dB
Distortion THD+N	< -120 dBfs
Bandpass ripple	$\pm 0.05$ dB (20 Hz - 40 kHz, 96 kHz)
<b>AES/EBU outputs</b>	
Number of outputs	2 (4 audio channels)
Standard	AES/EBU (AES3) or electrical S/PDIF (IEC 60958 Type II)
Sampling frequency (Fs) and word length	96 kHz at 24 bits
<b>Signal generator</b>	
Signal types	Sine wave, sine bursts, 20 Hz - 20 kHz sweep, white noise and pink noise
Peak level	From -75 to 0 dBFS by 0.1 dB steps
<b>Media player</b>	
Supported file formats	.wav, .flac, .m4a, .caf, .aif, .aiff
Supported audio formats	PCM, FLAC, ALAC, from 44.1 kHz to 192 kHz, from 16 bits to 24 bits, mono or stereo
Stereo output	Operating at 24-bit/96 kHz, with automatic high quality SRC if Fs $\neq$ 96 kHz
<b>GPIO</b>	
Input/Output	1 isolated, floating 1 referenced to chassis ground
<b>Latency</b>	
Input to output pass thru propagation delay	0.5 ms from analog or AES/EBU input to any analog or AES/EBU output
DSP propagation delay	0.37 ms
Time-aligned redundant audio distribution to LA4X/LA12X/P1	Always enabled for AES/EBU and analog chains, and time-aligned to AVB upon user selection
<b>Remote control</b>	
Network connection	Dual-port Ethernet Gigabit interface
L-Acoustics remote control software	LA Network Manager
<b>Physical data</b>	
Height	1U
Weight	3.7 kg / 8.2 lb
Protection rating	IP3x

