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).
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

System measurement and tuning

Time-aligned redundant AVB-AES/EBU-Analog signal distribution

Multi-microphone measurement with temperature and humidity acquisition and temperature/humidity probe

Integration of other platforms

P series (self-powered)

AVB-AES/EBU-Analog bridge

Audio playback

USB key (audio files)

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 20 Hz - 20kHz)
### Analog mic/line inputs
- **Number of mic inputs**: 4
- **Input impedance**: 2.4 kΩ balanced
- **Max. input level**: +22 dBu at 0 dB gain
- **A/D conversion**: Operating at 24 bit/96 kHz
- **Frequency response**: ±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

### Headphones
- **Minimum load**: 32 Ω
- **Distortion THD+N ratio**: 0.004%, 1 kHz, -10 dBFS, 20 kHz A-weighted at 600 Ω load

### AES/EBU inputs
- **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

### AES/EBU inputs Sample Rate Converter (SRC)
- **Sample rate conversion**: Operating at 24 bit/96 kHz
- **Dynamic range**: 140 dB
- **Distortion THD+N**: < -120 dBs
- **Bandpass ripple**: ±0.05 dB (20 Hz - 40 kHz, 96 kHz)

### AES/EBU outputs
- **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

### Signal generator
- **Signal types**: Sine wave, sine bursts, 20 Hz - 20 kHz sweep, white noise and pink noise
- **Pack level**: From -75 to 0 dBFS by 0.1 dB steps

### Media player
- **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 ≠ 96 kHz

### GPIO
- **Input/Output**: 1 isolated, floating
- **1 referenced to chassis ground

### Latency
- **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

### Remote control
- **Network connection**: Dual-port Ethernet Gigabit interface
- **L-Acoustics remote control software**: LA Network Manager

### Physical data
- **Height**: 1U
- **Weight**: 3.7 kg / 8.2 lb
- **Protection rating**: IP3x