

Digital Audio Mixer

Andante 16 – Datasheet



1. Technical Specifications

Global Audio Performance

| | |
|-------------------------------|--|
| Frequency response | 20 Hz to 20 kHz, ± 0.3 dB, +4 dBu output |
| Dynamic range | ≥ 108 dBA, 20 Hz to 20 kHz, 0 dB gain |
| THD input to output | $\leq 0.01\%$, all gain settings 0 dB |
| Total latency input to output | 2,88 ms |

Analog Input Section

| | |
|--------------------------------------|--|
| Number of balanced inputs | 14 + 2 (XLR type connector) |
| Number of unbalanced inputs | 2 (RCA type connector) |
| ADC Dynamic range | 122 dB ("A" weighted) |
| Analog gain (digitally adjustable) | 0 dB ÷ 60 dB, 0.5 dB steps |
| Nominal sensitivity (balanced input) | -84 dBu (38,8 μV_{rms}) |
| Phantom power (digitally activated) | +48 VDC stabilized max 16 mA / channel |
| Balanced input impedance (XLR) | 8 k Ω @ 1 kHz |
| Unbalanced input impedance (RCA) | 14,7 k Ω @ 1 kHz |
| Maximum balanced input level | 20,2 dBu (7,92 V_{rms}) |
| Input protections | radio frequency interference (RFI) transient voltage spikes external overvoltage |

Analog Output Section

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|---------------------------------|--|
| Number of balanced outputs | 6 + 2 (XLR type connector) |
| Number of unbalanced outputs | 2 (RCA type connector) |
| DAC Dynamic range | 121 dB ("A" weighted) |
| Residual noise of output driver | -101 dBu (20 Hz ÷ 20 kHz) |
| Nominal level (balanced output) | +4 dBu (1,23 V_{rms}) |

| | |
|---------------------------------|--|
| Maximum level (balanced output) | +20.2 dBu (7,92 V _{rms}) |
| Output impedance | 50 Ω typical |
| Output protections | short circuits radio frequency interference (RFI) transient voltage spikes external overvoltage |

Analog to Digital Conversion

| | |
|---------------------------------|---|
| Bit resolution | 24-bit |
| Converter type | sigma delta |
| Sampling frequency (Fs) | 48 kHz |
| Signal to noise ratio (SNR) | 111 dB ("A" weighted @ 48 kHz) |
| Dynamic range | 111 dB (-60 dB _{FS}) |
| Total harmonic distortion (THD) | -102 dB (1 kHz, -0,1 dB _{FS}) |
| Oversampling factor | 128 Fs |

Digital Signal Processor

| | |
|-----|--|
| DSP | 32-bit / 40-bit, Floating-Point 333 MHz – 3,3 ns instruction cycle Super Harvard Architecture 2,4 GFLOPS, 2Mbits SRAM |
|-----|--|

Digital to Analog Conversion

| | |
|---------------------------------|---|
| Bit resolution | 24-bit |
| Converter type | sigma delta |
| Sampling frequency (Fs) | 48 kHz |
| Signal to noise ratio (SNR) | 117 dB ("A" weighted @ 48 kHz) |
| Dynamic range | 117 dB (-60 dB _{FS}) |
| Total harmonic distortion (THD) | -104 dB (1 kHz, -0,1 dB _{FS}) |
| Delay time | 0,66 ms |

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| Oversampling factor | 256 Fs |
|---------------------|--------|

Digital Processing

Inputs Blocks (for each channel)

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|---------------------------|--|--|
| Anti-Hum filter | Butterworth filter type with cutting frequency at 160 Hz and slope -12 dB/octave | |
| Lowpass / Highpass filter | Butterworth filter type, slope -12 or -24 dB/octave | |
| 8-PEQs equalizer | Frequency | 20 Hz ÷ 20 kHz |
| | Gain | -15 dB ÷ 15 dB |
| | Bandwidth | 0,014 ÷ 6,672 octave |
| Noise gate | Threshold | -60 dB _{FS} ÷ 0 dB _{FS} |
| | Hold Time | 100 ms ÷ 10 s |
| Dynamic range compressor | Threshold | -90 dB _{FS} ÷ 20 dB _{FS} |
| | Ratio | R=1:1 ÷ R=20:1 |
| | Post Gain | -20 dB ÷ 20 dB |
| | Attack Time | 1 ms ÷ 250 ms |
| | Release Time | 10 ms ÷ 2500 ms |
| Automix function | Adaptive Threshold | |
| | NOM Gain | |
| | Max opened channels | 1 ÷ 16 |
| | Hold Time | 100 ms ÷ 5 s |
| | Attenuation | -60 dB ÷ 0 dB |
| | Priority | 1 (low) ÷ 5 (high) |
| Fader level | -60 dB ÷ 10 dB, step 0,5 dB | |

Input / Output Routing Matrix:

| | |
|------------------------------------|-----------------------------|
| Matrix size | 16 In / 8 Out |
| Matrix cross point level adjusting | -60 dB ÷ 10 dB, step 0,5 dB |

Output Blocks (for each channel)

| | | |
|--|--|--|
| 8-PEQs equalizer | Frequency | 20 Hz ÷ 20 kHz |
| | Gain | -15 dB ÷ 15 dB |
| | Bandwidth | 0,014 ÷ 6,672 octave |
| 31-Bands graphic equalizer | Gain | -12 dB ÷ 12 dB |
| | Step | 0,5 dB |
| Lowpass / Highpass filter | Butterworth filter type, slope -12 or -24 dB/Octave | |
| Noise gate | Threshold | -60 dB _{FS} ÷ 0 dB _{FS} |
| | Hold Time | 100 ms ÷ 10 s |
| Dynamic range compressor | Threshold | -90 dB _{FS} ÷ 20 dB _{FS} |
| | Ratio | R=1:1 ÷ R=20:1 |
| | Post Gain | -20 dB ÷ 20 dB |
| | Attack Time | 1 ms ÷ 250 ms |
| | Release Time | 10 ms ÷ 2500 ms |
| Limiter | Threshold fixed at 0 dB _{FS} | |
| Automatic feedback suppressor (only for first 4 inputs) | Up to 5 ultra-narrow notch filters (Q = 0,1) configurable in fixed/dynamic mode | |
| Delay | 0 m ÷ 233 m, 0 ms ÷ 679 ms | |
| Phase control | 0°, 180° | |
| Output level | -60 dB ÷ 10 dB, step 0,5 dB | |
| Master level | -60 dB ÷ 10 dB, step 0,5 dB | |

Tools

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|-------------------|---|
| Spectrum analyzer | Real time Fast Fourier Transform (FFT) for input/output signal spectrum analysis |
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Data Connections

| | |
|-------------|----------------------|
| Front panel | USB 2.0 |
| Rear panel | RS232 @ 38400 kbit/s |

Display

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|-----|-------------------------|
| LCD | 20 characters x 2 lines |
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PSU Module

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|----------|-------------------------------------|
| AC range | 90 VAC to 264 VAC (Universal Input) |
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|-----------------|----------------|
| Input frequency | 47 Hz to 67 Hz |
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| Power consumption | Stand-by 24 VA, max 33 VA |
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Mechanical

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|-------|--------|
| Width | 483 mm |
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| Height | 88 mm |
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| Depth | 260 mm |
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| Weight | 4,8 kg / 10.58 lbs |
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Temperature Range

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| Indoor | 0°C to 40°C (32°F to 102°F) |
|--------|-----------------------------|

Humidity

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| 0–98%, non-condensing |
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Compliances

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| Electromagnetic compatibility | EN 55022, class B, FCC part 15, level B |
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| Emissions | IEC/EN 61000-3-2 class B |
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| Grounding scheme | AES48-2005 grounding scheme |
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| Marking | CE |
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| RoHS | 2002/95/EC |
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