



Loudspeaker Management System HD2

You demand crystal clear audio from your loudspeaker system? Four Audio provides a loudspeaker management system with yet unheard audio performance, freely combinable IIR and FIR equalization and separate precision peak and RMS limiters in each output.

Signal Processing

- IIR-Filters: up to 96 fully parametric high precision filters freely configurable
- IIR crossover filters: 6-60 dB/oct,
- FIR-Filters: 1 provided for each output channel
- Mixed linear and minimum phase equalization possible
- Max. frequency resolution 3 Hz
- Separate limiter thresholds for amps (peak and RMS) and loudspeakers (peak and temp.)
- Interface to Monkey Forest for FIR-filter and limiter calculation

HD2-Audio Performance

Max. input level	+28, +21, or +15 dBu (selectable)
Max. output level	+18 dBu
Frequency response (-0,5dB)	4 Hz up to 45 kHz
Dynamic ranges	
ADC	> 130 dB (dual range mode) 118 dB (single range mode)
DAC	121 dB
Overall	121 dB (dual range mode)
THD (1 kHz)	
ADC	-113 dB (+4 dBu) -105 dB (0 dBFS)
DAC	-110 dB (+4 dBu) -102 dB (+18 dBu)

All values ref. 20 Hz - 20 kHz, linear weighting

Technical details subject to modification

Also available as module to be mounted inside loudspeaker cabinets.

Available options:

- 1 in 2 out
- 1 in 4 out
- 2 in 4 out
- 2 in 8 out
- 3 in 8 out

For detailed information visit:

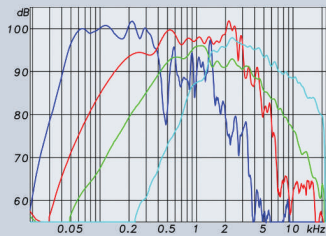
www.four-audio.com

HD2-Features

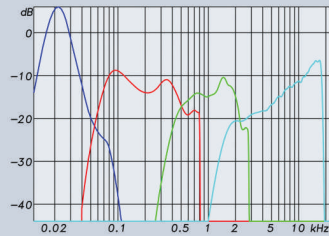
- 96 kHz / 48 bit processing
- ADC inputs configurable to provide 4 normal or 2 dual range inputs with extended dynamic range
- 1 AES/EBU digital input
- 1 I²S I/O provides an interface to Cobranet, Ethersound, ADAT etc.
- Sample rate converter for input rates <> 96 kHz
- 8 analog outputs
- 1 AES/EBU digital output
- Configurable and programmable via Ethernet and RS232 interface
- Windows remote software provided

Optional hardware extensions

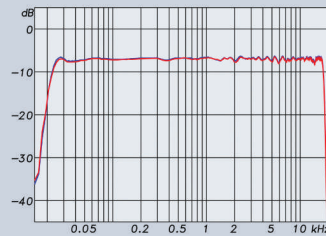
- AES/EBU extension for additional 8 channel digital I/O
- ADAT extension for 8 channel digital I/O



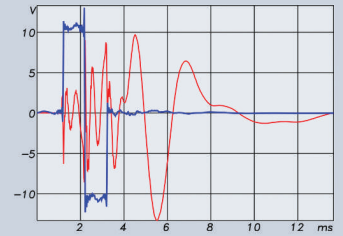
Loudspeaker responses



HD2 FIR filter responses



Resulting magnitude response



Min/in phase rect response

Measure your loudspeakers with our measurement system Monkey Forest. Set the desired crossover frequencies and slopes and let Monkey Forest do the equalization for you. It uses FIR filters which allow to set the filter phase independent from the amplitude. The two figures on the right illustrate the effect of phase equalization: The magnitude frequency responses of the overall system with and without phase equalization show almost no difference.

However, in the time domain there is a clear difference between the reproduction of one period of a rectangular wave (500 Hz) with (blue curve) and without phase equalization (red curve). With IIR filters, it is not possible to select phase independently of amplitude.



Measurement System Monkey Forest

- All purpose DOS measurement system for audio and acoustics
- RME Multiface with 24-Bit/96kHz 8-ch. analog in/out, 8-ch. ADAT und 2-ch. AES/EBU.
- 2 ch. signal conditioner frontend with phantom power, adj. gain in 20 dB steps, 2x 20W power amp, and shunt resistors for impedance measurements
- Remote controllable from PC
- Customizable excitation signals (impulses, MLS, noise, sweeps) with arbitrary spectral distribution
- Extremely fast processing and rendering
- Room acoustic analysis
- FIR and IIR filter calculations
- Measurement of polar diagrams
- Post-processing tools for generating Ease balloons incl. phase, angular resolution 1°, frequency resolution 0.7 Hz
- Compatible to Speaker-Lab GLLs



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