Speaker Management Systems

FIR Series - LPP-480F

LPP-480F is a high end 4-IN/8-OUT digital speaker management system which is MARANI® flagship controller, adding astonishing hardware and software features based on the LPP series. Designed for maximum versatility, it provides all the processing and control necessary for both live and fixed installation use. Proving for any crossover configuration, it offers 4 analog inputs, 8 analog outputs, 2 Stereo AES/EBU inputs, and 4 Dante™ inputs, managed by 3 powerful MARANI® DSP Engines, for a full 96kHz processing, in addition to 24 Bit AD/DA Converters. Each input channel provides 13PEQ with plenty of filter types, Gain control, Noise Gate, RMS Compressor, Internal White/Pink Noise Generator, and configurable Delay. Each output offers 7PEQ, in addition to the IIR crossover filters whose slopes from 6 up to 48dB/Octave. Each output path also features PEAK Limiter, RMS Compressor and configurable

be IIR Hp/Lp filters or a 512 taps FIR filter which can be set as Hp/Lp/Bp. On each Input path, one more 1024 taps FIR is available for Phase Correction purposes, which can be Asymmetrical other than Symmetrical, for adjusting/reducing the FIR latency so allowing therefore the LPP-480F to be used without any problem also for Live performances still having the Phase correction FIR running together with the eventual FIR for the X-Over implementation in cascade.The LPP480F supports a full set of matrix mixing modes. For remote configuration and control the LPP-480F can be connected via USB /TCP-IP Interfaces. Moreover, with front panel dedicated buttons, user can go directly to the editing pages like Xover, channel editing windows, while can monitor the real-time meters and other parameters from the graphic LCD screen.

Features

Top-grade DSP Engine and Processes

13 band parametric equalization per input channel7 band parametric equalization per output channel
Each band can select within a range of 17 different filter types, on output channels, IIR Crossover filters whose slopes from 6 up to 48 dB/ Octave including Butterworth, Bessel, Linkwitz-Riley and Custom, allowing to set independently teach single line order cascaded cell, in alternative to the IIR X-over, FIR X-over Filters with number of Taps from 256 up to 512 are available.
Symmetrical/Asymmetrical 1024 Taps FIR for Phase Correction are on each of the 4 Input paths [FIR coefficients generated internally by the machine or loadable from external third parties applications]
RMS compressors working on Look Up tables for

the Compression coefficient are available on Input and Outputs paths.
On Outputs a further Peak Limiter is available at the end of the paths.
Adjustable Delay time up to 340.998 ms for every input and output channel

Direct PC/Network ConnectionThe

LPP480F can be controlled by Remote Sw via a front panel USB connector for quick direct PC access or via a back panel TCP-IP connection for networking purposes.
The all processes can also be accessed and edited through a powerful dedicated front panel interface based on graphic LCD, buttons and flexible Joystick.
FW update is available by remote control PC SW

Applications

- Auditoriums
- Convention Centers
- Houses of Worship
- Stadiums and Arenas
- Theaters
- Touring Musicians
- Performing Art Centers
- Stage Monitoring System digital

LPP-480F

Audio

Analog Input	4 x XLR electronically balanced
Analog Output	8 x XLR electronically balanced
Digital Input	2 x AES/EBU; Gain 0dBu
Minimun Load	150 ohm
THD+N	0.004%
S/N	>116dBA
Amax Input/Output Level	+21 dB
Min Input/Output Level	-20 dB
Ground Noise	-94dBu
Frequency Response	20Hz - 20kHz; -0.5dBu at 20Hz and 20kHz
AD & DA Converters	24bit - 96kHz

DSP & Processing

DSP Engine	3 x MARANI® DSP
DSP Resolution	24 bit (data) x 96 bit (coeff.), 54bit accumulation registers, 96 bit precision on intermediate processing data
FIR for Phase Correction	From 8 x 1024 Taps up to 2 x 4096 taps if combining 4 Channels for each FIR, with coefficients generated by Pc Sw embedded Wizard tool, allowing also FIR latency Adjustment/reduction.Coefficients can also be imported by external third party applications, so as can be exported to third parties applications
Parametric Equalization	13 PEQ filters per input/7 filters per output, gain: -15dBu ~ +15dBu
Filter Type	Bell, High/Low Shelving 1st/2nd/Qvar, HP/LP 1st/2nd/Qvar, Band Pass, Notch Filter, All Pass and Custom (When Custom IIR filter is selected on the Peq., the Filter's coefficients can be imported)
Input&Output Gain	From -18dBu up to +12dBu by 0.5dBu resolution steps
Center Frequency	From 20Hz up to 20kHz with 1Hz resolution steps
Filter Q/BW	Bell Q: from 0.4 ~ 128;Shelv/Hp/LP Q:0.1 ~ 5.1;BandPass/AllPass/ Notch Q: 4 ~ 104; Steps = 100
IIR Crossover section HP/LP	Butterworth 6/12/18/24/36/48dB per octave Bessel 12/24dB per octave Linkwitz-Riley 12/24/36/48 dB per octave
FIR X-Over Section Hp/Lp/Bp	Hp/Lp/Bp filters, Taps 256 ~ 512, Attenuation up to -120dB, Window type: Rect / Sinc / Keiser / Hanning / Hamming / Blackman / Nuttal / Sine
Internal Noise Generator	White/Pink Noise; Level from -40dBu to 0dBu
Input Noise Gate	Threshold: -80dBu ~ -50dBu; Attack time: 30ms~ 1000ms; Release time: 1ms ~ 1000ms
Input&Output RMS Compressor	Threshold: 21dBu ~ -9dBu Ratio: 2:1~32:1; Knee: 0~100%;Makeup: -12~+12dBu Attack time: 0.1~5000ms; Release time:0.001s ~10s
Output Peak Limiter	Threshold:21dBu ~ -9dBu;Attack time:0.1ms ~ 900ms; Release time :0.04s ~ 6s
Delay	480.998ms per input, 340.998ms per output, min step=10.4us

General

Device Presets	Up to 30 User Presets
Dimensions	19"x 1.75"x 9" (483x44x229mm) 1RU
Weight, Net / Shipping	7.71 lbs (3.5 Kg) / 8.82 lb (4 Kg)

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