minidsp

4x10 Xover v1

4x10 Xover v1 is a plug-in for the miniDSP 2x8 platforms. It is designed to be used for flexible configurations ranging from a multi-zone audio processor to multi-way crossover. Operating at 96kHz, both analog and digital input (I2S) are being mixed to the matrix mixer for complete freedom of audio routing.

Software features

- Extensive set of audio algorithms
- Live tuning, "hear changes real time"
- Channel linking to synchronize settings of two channels (PEQ/Crossovers)
- Save/Load configurations
- Up to four preset configurations stored
- Extensive plotting capabilities
- Plug & Play setup requires no driver
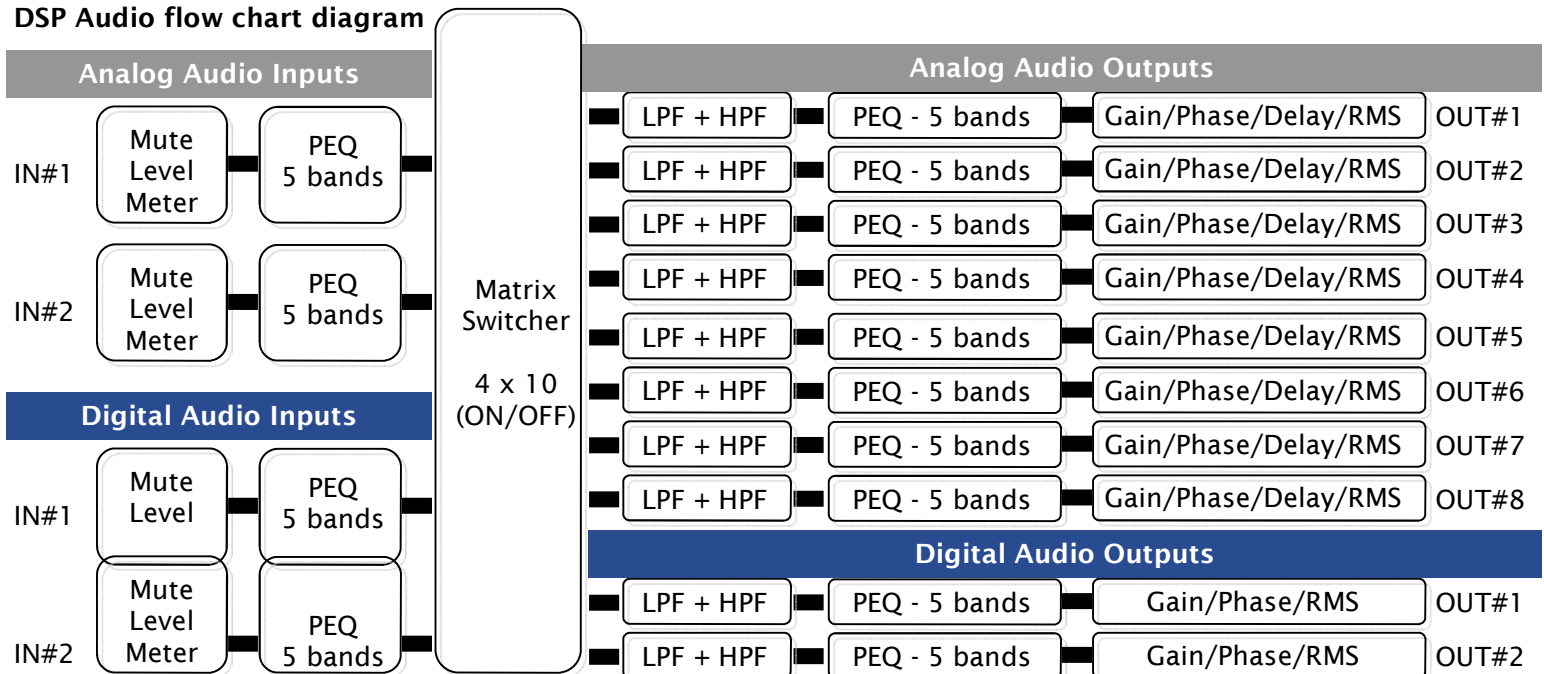- Custom Input/Output labels
- Free Un-limited Upgrades

Applications

- Active loudspeaker processor
- Custom amplifiers
- Car audio processor
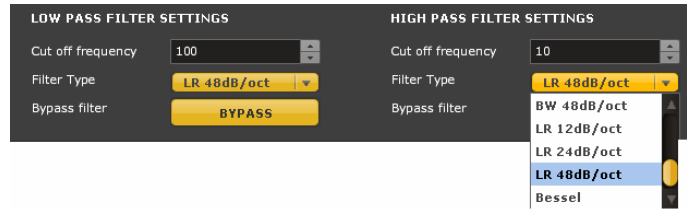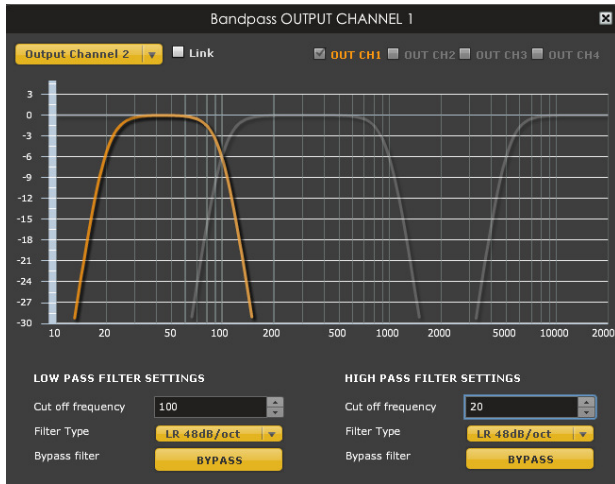- Small PA processor
- Custom Pro Audio boards

Algorithm and plug-in configuration

Item	Description
Sampling frequency	96kHz
Inputs/Outputs	Inputs: Up to 2 analog inputs, up to 2 digital inputs (I2S) Outputs: Up to 8 analog outputs, up to 2 digital outputs
Algorithm resolution	Double precision filters (56bits resolution)
Input mute/select	Click-less input mute per channel and input selection
Digital gain	Fader gain control from –80 to 0dB
Input/ Output meters	Monitoring signal from –80dBFS to 0dBFS - High refresh rate
Low & High Pass filter types	Butterworth up to 8th order (6 to 48dB/oct) Linkwitz-Riley up to 8th order (12 to 48dB/oct) Bessel - 2nd order - Bypass per filter Frequency: 10Hz to 20kHz in 1Hz increments
Parametric Equalizers (Peak/Low&High shelve)	5 PEQ bands per input, 5 PEQ bands per output Frequency: 10Hz to 20kHz, 1Hz increments Gain: 0 to 16dB, 0.1dB increments Q: 0.5 to 50, 0.1digit increment Type: Peak of Shelf (low/high) & Per-band bypass feature
Mixer	Central mixer for 4 x 10 cross-point configuration (ON/OFF)
Delay (time alignment)	Up to 9ms per channel (3m) in 0.02ms increments Analog Outputs only
Polarity	Invert polarity 180degree per channel
Output mute	Individual output mute
Master output gain	Analog potentiometer control master output digital gain fader from –80 to 0dB. Disabled if no pot connected.

DSP Audio flow chart diagram

Analog Audio Inputs

IN#1 — Mute Level Meter — PEQ 5 bands

IN#2 — Mute Level Meter — PEQ 5 bands

Digital Audio Inputs

IN#1 — Mute Level — PEQ 5 bands

IN#2 — Mute Level Meter — PEQ 5 bands

Matrix Switcher 4 x 10 (ON/OFF)

Analog Audio Outputs

LPF + HPF	PEQ - 5 bands	Gain/Phase/Delay/RMS	OUT#1
LPF + HPF	PEQ - 5 bands	Gain/Phase/Delay/RMS	OUT#2
LPF + HPF	PEQ - 5 bands	Gain/Phase/Delay/RMS	OUT#3
LPF + HPF	PEQ - 5 bands	Gain/Phase/Delay/RMS	OUT#4
LPF + HPF	PEQ - 5 bands	Gain/Phase/Delay/RMS	OUT#5
LPF + HPF	PEQ - 5 bands	Gain/Phase/Delay/RMS	OUT#6
LPF + HPF	PEQ - 5 bands	Gain/Phase/Delay/RMS	OUT#7
LPF + HPF	PEQ - 5 bands	Gain/Phase/Delay/RMS	OUT#8

Digital Audio Outputs

| LPF + HPF | PEQ - 5 bands | Gain/Phase/RMS | OUT#1 |
| LPF + HPF | PEQ - 5 bands | Gain/Phase/RMS | OUT#2 |

Low Pass and High Pass filter per output channel

Bandpass OUTPUT CHANNEL 1 ☒

Output Channel 2 ▾ ☐ Link   ☑ OUT CH1 ☐ OUT CH2 ☐ OUT CH3 ☐ OUT CH4

LOW PASS FILTER SETTINGS
Cut off frequency   100
Filter Type   LR 48dB/oct ▾
Bypass filter   **BYPASS**

HIGH PASS FILTER SETTINGS
Cut off frequency   20
Filter Type   LR 48dB/oct ▾
Bypass filter   **BYPASS**

LOW PASS FILTER SETTINGS
Cut off frequency   100
Filter Type   LR 48dB/oct ▾
Bypass filter   **BYPASS**

HIGH PASS FILTER SETTINGS
Cut off frequency   10
Filter Type   LR 48dB/oct ▾
Bypass filter

BW 48dB/oct
LR 12dB/oct
LR 24dB/oct
LR 48dB/oct
Bessel

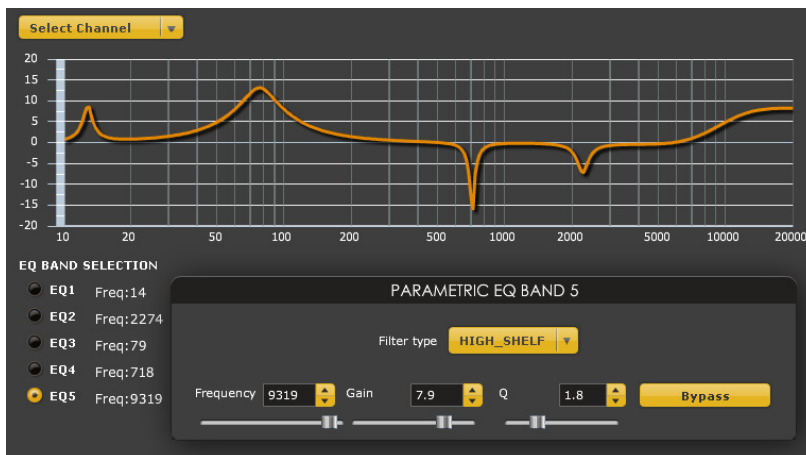**Double precision algorithms** (56bits) for greater resolution

Wide range of filter choices Up to 8th order (48dB/oct) with

Channel linking feature to link up settings to Left & Right channels

Complex plotting displays the combined effect of low/High pass

Bypass feature to listen to the effect of filter settings

Parametric Equalizer (Peak/Shelf)

Select Channel ▾

EQ BAND SELECTION
EQ1   Freq:14
EQ2   Freq:2274
EQ3   Freq:79
EQ4   Freq:718
EQ5   Freq:9319

PARAMETRIC EQ BAND 5
Filter type   HIGH_SHELF ▾
Frequency 9319   Gain 7.9   Q 1.8   **Bypass**

Double precision algorithms (56bits) for greater resolution in low frequency range.

Up to 5 Bands of parametric equalization with complete freedom on Frequency, Gain and Q settings
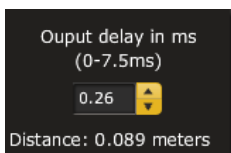
Peak/Low Shelf/High Shelf selectable per band

Per Band Bypass allows to quickly listen to the effect of your equalizer settings.

Real time channel linking to keep PEQ settings of two channels synchronized

Output Channel 1 ▾   ☑ **Link Enabled**

Delay, Polarity, Input/output metering

Ouput delay in ms
(0-7.5ms)
0.26
Distance: 0.089 meters

Output Delay per channel to better time align each channel.

To simplify your calculations, the equivalent distance is also provided.

Central Matrix Switcher toggles ON/OFF routing

		Analog Out								Digital Out	
Analog In		Output 1	Output 2	Output 3	Output 4	Output 5	Output 6	Output 7	Output 8	I2S	I2S
	Input 1	On	On	On	On	Off	Off	Off	Off	On	Off
	Input 2	Off	Off	Off	Off	On	On	On	On	Off	On
Digital In		Output 1	Output 2	Output 3	Output 4	Output 5	Output 6	Output 7	Output 8	I2S	I2S
	I2S	On	On	On	On	Off	Off	Off	Off	Off	Off
	I2S	Off	Off	Off	Off	On	On	On	On	Off	Off
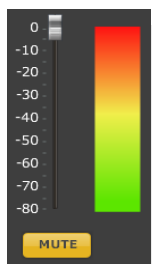
RMS meter displays for input and output channels. Resolution from –80 to 0dBFs (Full scale)

0
-10
-20
-30
-40
-50
-60
-70
-80

MUTE

Software & Hardware requirements

PC Hardware requirements
- 1GHz CPU
- 512MB RAM
- USB V2.0

Software requirements
- Windows XP/Vista/7
- Adobe Air environment
- Net 3.5 environment

Mac Hardware requirements
- Intel Core Duo or faster
- 512MB RAM
- USB V2.0

Software requirements
- Mac OS X v10.4, 10.5, 10.6
- Adobe Air environment

Mac