

VIRTUALIZER® PRO DSP2024P



Technical Specifications

Version 1.0 December 2001

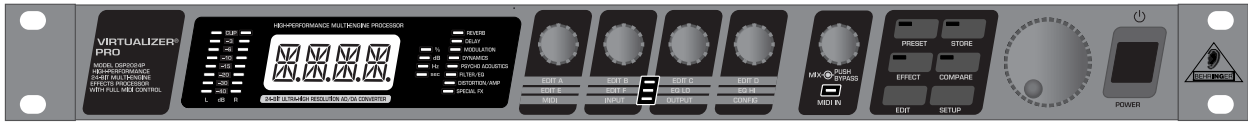
ENGLISH



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VIRTUALIZER® PRO

High-Performance 24-Bit Multi-Engine Effects Processor



- ▲ 71 breathtaking new algorithms, most in true stereo
- ▲ Wave-adaptive VIRTUAL ROOM reverb algorithms for ultra-natural reverb and delay
- ▲ Awesome modulation, dynamic, psychoacoustic and EQ algorithms
- ▲ Innovative amp simulation, distortion and special effects
- ▲ 11 effect combinations with selectable serial/parallel configuration
- ▲ Up to 7 adjustable parameters plus HI and LO EQ per effect
- ▲ High-resolution 24-bit A/D and D/A converters with 64/128-times oversampling
- ▲ True stereo processing for realistic channel separation in stereo image
- ▲ 24-bit internal signal processing, professional 46 kHz sample rate
- ▲ 100 factory presets plus 100 user memory locations
- ▲ Extensive MIDI implementation
- ▲ Precise 8-segment LED level meters
- ▲ Internal power supply for professional applications
- ▲ Servo-balanced XLR and 1/4" TRS inputs and outputs
- ▲ Manufactured under ISO9000 certified management system

DSP2024P

SPECIFICATIONS

ANALOG INPUTS

Connectors	XLR and 1/4" TRS
Type	RF filtered, servo-balanced input stage
Impedance	80 k Ω balanced
Nominal Operating Level	-10 dBV or +4 dBu (selectable)
Max. Input Level	+15 dBu at +4 dBu nominal level, +1 dBV at -10 dBV nominal level

ANALOG OUTPUTS

Connectors	XLR and 1/4" TRS
Type	Electronically servo-balanced output stage
Impedance	80 Ω balanced
Max. Output Level	+15 dBu at +4 dBu nominal level, +1 dBV at -10 dBV nominal level

SYSTEM SPECIFICATIONS

Bandwidth	20 Hz to 20 kHz, +/- 3 dB
SNR	91 dB, unweighted, 20 Hz to 20 kHz
THD	0.018 % typ. @ +4 dBu, 1 kHz, 0 dBu input, gain 1
Crosstalk	< -76 dB

MIDI INTERFACE

Type	5-pin DIN-socket IN / OUT / THRU
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DIGITAL PROCESSING

Converters	24-bit Sigma-Delta, 64/128-times oversampling
Sampling Rate	46.875 kHz

DISPLAY

Type	4-digit 14 segment alpha-numeric LED-Display
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POWER SUPPLY

Mains Voltages	USA/Canada	120 V ~, 60 Hz
	U.K./Australia	240 V ~, 50 Hz
	Europe	230 V ~, 50 Hz
	General Export Model	100 - 120 V ~, 200 - 240 V ~, 50 - 60 Hz
Fuse	100 - 120 V ~: T 200 mA H	
	200 - 240 V ~: T 100 mA H	
Power Consumption	15 Watts max.	
Mains Connection	Standard IEC receptacle	

PHYSICAL

Dimensions (H x W x D)	1 3/4" (44 mm) x 19" (482,6 mm) x 8" (204,4 mm)
Net Weight	approx. 2 kg
Shipping Weight	approx. 3 kg

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Internal Presets (Factory Settings)

No.	EFFECT	No.	EFFECT	No.	EFFECT	No.	EFFECT
I.001	CATHEDRAL OF COLOGNE	I.026	MEDIUM DELAY	I.051	PANNING	I.076	HEAVY METAL
I.002	CONCERT CATHEDRAL	I.027	OLD TAPE	I.052	COMPRESSOR	I.077	FUZZ BOX
I.003	BIG PLATE	I.028	BIG TAPE	I.053	EXPANDER	I.078	RADIO SPEAKER
I.004	DARK PLATE	I.029	PING PONG	I.054	GATE	I.079	BAD SPEAKER
I.005	SMALL CHAMBER	I.030	CHAOS	I.055	ANALOG COMPR./LIMITER	I.080	ROBOTIZER
I.006	DRUM CLOSET	I.031	STEREO CHORUS	I.056	ULTRAMIZER	I.081	AM-RADIO
I.007	BRIGHT ROOM	I.032	ANALOG CHORUS	I.057	DENOISER	I.082	OLD RECORD PLAYER
I.008	AMBIENT ROOM	I.033	VINTAGE CHORUS	I.058	DE-ESSER	I.083	VINTAGE TAPE
I.009	LARGE HALL	I.034	ULTRA CHORUS	I.059	WAVE DESIGNER	I.084	SAMPLER
I.010	CONCERT HALL	I.035	STEREO FLANGER	I.060	EXCITER	I.085	VOCODER
I.011	LIVE STUDIO	I.036	VINTAGE FLANGER	I.061	ULTRAFEX	I.086	VOICE CANCELER
I.012	DRY STUDIO	I.037	JET STREAM FLANGER	I.062	ULTRABASS	I.087	RESONATOR
I.013	ARENA	I.038	STEREO PHASER	I.063	SUBBASS	I.088	CHORUS & REVERB 1
I.014	GARAGE	I.039	RETRO PHASER	I.064	STEREO IMAGER	I.089	CHORUS & REVERB 2
I.015	GUITAR AMP SPRING	I.040	WILD PHASER	I.065	ULTRA WIDE	I.090	FLANGER & REVERB 1
I.016	STUDIO SPRING	I.041	VINTAGE PHASER	I.066	HEADPHONE EXTENDER	I.091	FLANGER & REVERB 2
I.017	BIG DRUMS	I.042	DUAL PHASER	I.067	SPEAKER EXTENDER	I.092	LESLIE & REVERB
I.018	NICE AMBIENCE	I.043	ROTARY SPEAKER	I.068	AUTO FILTER	I.093	PITCH & REVERB
I.019	REFLECTING ROOM	I.044	B3 LESLIE	I.069	LFO FILTER	I.094	DELAY & REVERB
I.020	VOICE WIDENER	I.045	STEREO PITCH SHIFTER	I.070	PARAMETRIC EQ	I.095	TREMOLO & REVERB
I.021	BASS DRUM EXTENDER	I.046	MAJOR 7	I.071	GRAPHIC EQ	I.096	PHASER & REVERB
I.022	PHIL'S DRUMS	I.047	IT'S JAZZ	I.072	VOCAL SPEAKER	I.097	CHORUS & DELAY
I.023	SHORT REVERSE	I.048	REAL CHORUS	I.073	TUBE AMP	I.098	FLANGER & DELAY
I.024	MEDIUM REVERSE	I.049	VIBRATO	I.074	CRUNCH	I.099	PITCH & DELAY
I.025	SHORT DELAY	I.050	TREMOLO	I.075	BLUES	I.100	TREMOLO & DELAY

User Presets (Factory Settings)

No.	EFFECT	No.	EFFECT	No.	EFFECT	No.	EFFECT
U.001	DYNA CHORUS	U.026	UNDER THE BRIDGE	U.051	SOFT WAH WAH	U.076	DISTORTION
U.002	METALLIC FLANGER	U.027	BASS EQ	U.052	SOFT CHORUS REVERSE	U.077	ROBOT
U.003	GATED AMBIENCE	U.028	BLUE'S GROOVE	U.053	FAT GUITAR	U.078	ULTRAMAXXX
U.004	CHORUS ROOM	U.029	SPACE FLANGER	U.054	4 SPACE FX	U.079	PHIL'S SNARE
U.005	TAPE ECHO & ROOM	U.030	GOLD VERB	U.055	FATTY	U.080	WIDE
U.006	QUART ROOM	U.031	80S DIGITAL	U.056	SPACER	U.081	AMBIENCE
U.007	CRAZY MUSIC BOX	U.032	ARPEGGIATOR VCF	U.057	SYNTH HEAVEN	U.082	PLATEAU
U.008	OLD GRAMOPHONE	U.033	VALVE PREAMP	U.058	JEAN GLITTER	U.083	EMPTY LIVING ROOM
U.009	CRUNCH BOX	U.034	NEAR FIELD WIDE	U.059	SOFT TUBE	U.084	ECHO PLAY
U.010	AUTO WAH	U.035	PING PONG PAN	U.060	DRUMZZZ	U.085	STAGE
U.011	FILTER GROOVE	U.036	SUBWOOFER ROOM	U.061	PERC COMPRESSION	U.086	BIG CATHEDRAL
U.012	SPACE RADIO	U.037	MODULIZZ	U.062	INDUSTRIALIZER	U.087	ETERNITY
U.013	BUBBLE DRUMS	U.038	RECORDING STUDIO	U.063	STRANGE GLIDE 140	U.088	NICE HALL
U.014	BRICK WALL	U.039	FLANGERUS	U.064	SQUARE AT 140	U.089	REVERSE TREMOLO
U.015	ARPEGGIATOR	U.040	CHEAP SPRING	U.065	SQUARE BREATH 140	U.090	REVERSE
U.016	STACCATO	U.041	BRITISH SOLO	U.066	PITCH CHORUS	U.091	VOCAL CHORUS
U.017	THE VOICE	U.042	JAZZ CLUB	U.067	CHORUS 2	U.092	SMOOTH VOCAL FX
U.018	PSEUDO STEREO	U.043	SMALL SPEAKER	U.068	SOFT METALLIZER	U.093	FATTY VOICE CHORUS
U.019	ROOM PHASER	U.044	AUDIOTORIUM	U.069	PHASER	U.094	VOICE EQ
U.020	COMPUTER GAME	U.045	DE-NOIZ	U.070	FLANGER IN BACKGROUND	U.095	PHONE VOICE
U.021	THE FINAL MIX	U.046	MINOR 7	U.071	HARD FLANGER	U.096	VOICE COMPRESSOR
U.022	BASS CHORUS	U.047	BALLAD TREMOLO	U.072	SOFT FLANGER	U.097	EMPTY ARENA (VOICE)
U.023	LIVE ROOM	U.048	TRANCE	U.073	DELAY 137 16TH	U.098	PANOMOLO
U.024	IN THE CLOSET	U.049	DISCO SOUND	U.074	VINTAGE PICKING	U.099	DISTORTED VOCAL
U.025	SYMPHONIC	U.050	DUO REVERBRO	U.075	DELAY STEREO 137	U.100	MOUNTAIN ECHOES



Effect Algorithms and Parameters

Nr.	Effect	True Stereo	Edit A	Edit B	Edit C	Edit D	Edit E	Edit F	Mix
Reverb									
1	Cathedral		Pre Delay	Decay	Hi Dec. Damp.	Bass Mil.	Shv. Damp.	Rev. Mod.	Mix
2	Gold Plate		Pre Delay	Decay	Hi Dec. Damp.	Size	Shv. Damp.	Diffuson	Mix
3	Small Hall		Pre Delay	Decay	Hi Dec. Damp.	Size	Shv. Damp.	Low Cut	Mix
4	Room		Pre Delay	Decay	Hi Dec. Damp.	Size	Shv. Damp.	Diffuson	Mix
5	Concert		Pre Delay	Decay	Hi Dec. Damp.	Bass Mil.	Shv. Damp.	Reverb Mod.	Mix
6	Studio		Pre Delay	Decay	Hi Dec. Damp.	Low Cut	Shv. Damp.	Shv. Freq.	Mix
7	Slate		Pre Delay	Decay	Hi Dec. Damp.	Size	Shv. Freq.	ER/Rev.	Mix
8	Spring Reverb		Pre Delay	Decay	Hi Dec. Damp.	Metal Res.	High Cut	Diffuson	Mix
9	Ambience		Pre Delay	Decay	Hi Dec. Damp.	Size	Shv. Damp.	Shv. Freq.	Mix
10	Early Reflections	x	Pre Delay	Size	Wall Damp.	Reflections	Stereo Width	..	Mix
11	Gated Reverb		Pre Delay	Decay	Hi Dec. Damp.	Shv. Damp.	Gate Threshold	Gate Hold	Mix
12	Reverse Reverb		Pre Delay	Decay	Hi Dec. Damp.	Shv. Damp.	Threshold	Hold Time	Mix
Delay									
13	Stereo Delay	x	Del. L. Co.	Del. L. Fine	Del. R. Co.	Del. R. Fine	Feedback L.	Feedback R.	Mix
14	Tape Echo	x	Delay Left	Delay Right	Feedback L.	Bandlimit	Feedback HP	Feedback LP	Mix
15	Ping Pong	x	Delay Left	Delay Right	Feedback L.	Feedback R.	Feedb. Del. L.	Feedb. Del. R.	Mix
Modulation									
16	Stereo Chorus	x	Speed	Depth	Delay	Stereo Phase	LFO Wave	Bandlimit	Mix
17	Analog Chorus	x	Speed	Depth	Delay	Spread	..	..	Mix
18	Vintage Chorus	x	Speed	Depth	Delay	Bandlimit	..	..	Mix
19	Ultra Chorus	x	Speed	Depth	Delay	Widthness	Stereo Spread	Bandlimit	Mix
20	Stereo Flanger	x	Speed	Depth	Feedback	Delay	Stereo Phase	Feedback LP	Mix
21	Vintage Flanger	x	Speed	Depth	Feedback	Delay	..	..	Mix
22	Jet Stream Flanger	x	Speed	Depth	Feedback	Delay	..	..	Mix
23	Stereo Phaser	x	Speed	Depth	Feedback	Stereo Phase	Mode	LFO Wave	Mix
24	Vintage Phaser	x	Speed	Depth	Feedback	Intensiv	Stereo Phase	..	Mix
25	Dual Phaser	x	Speed	Depth	Feedback	Base	..	..	Mix
26	Rotary	x	Speed	Depth	Feedback	Drive	Balance	Split Frequency	Mix
27	Pitch Shifter	x	Semitones 1	Drum Depth	Horn Depth	Cents 2	Semitones 3	Cents 3	Mix
28	Vibrato	x	Speed	Depth	Wave	Auto Modul.	..	..	Mix
29	Tremolo	x	Speed	Depth	Wave	Auto Modul.	..	..	Mix
30	Auto Panning	x	Speed	Depth	Wave	Auto Modul.	..	..	Mix
Dynamics									
31	Compressor	x	Ratio	Threshold	M-Gain	Soft knee	Attack	Release	On/Off
32	Expander	x	Ratio	Threshold	M-Gain	Soft knee	Attack	Release	On/Off
33	Gated Reverb	x	Hold	Threshold	Attack	Release	Range	..	On/Off
34	Ana. Komp/Lim.	x	Ratio	Threshold	M-Gain	Limiter Thresh.	Attack	..	On/Off
35	Ultramizer	x	Densitv	Range	Speed	Split Frequency	Stereo FX	Enhancer Freq.	Lo/Hi/Wide
36	Denaiser	x	LP Freq.	LP Depth	LP Speed	Gate Threshold	Gate Hold	Gate Response	On/Off
37	De-Esser	x	Ratio	Threshold	M-Gain	Frequency	Attack	Release	Lo/Hi/Wide
38	Wave Designer	x	Attack L.	Release L.	Attack R.	Release R.	Gain L.	Gain R.	On/Off

Nr.	Effect	True Stereo	Edit A	Edit B	Edit C	Edit D	Edit E	Edit F	Mix
Psycho Acoustics									
39	Exciter	x	Frequency	Filler Q	Harmonics	Timbre	Harmon. Kick	..	Mix
40	Enhancer	x	Frequency	Filler Q	Process	Bass Gain	Bass Freq.	Bass Q	Mix
41	Ultrabass	x	Subbass Freq.	Subbass Level	Split Freq.	Harmon. Lev.	Bass Level	..	On/Off
42	Stereo Imager	x	Spread	MS Balance	Spread Mode	Gain	Stereo Balance	Mono Balance	On/Off
43	Ultra Wide	x	Center	Spread	Xover Freq.	Gain	..	..	On/Off
44	Binauralizer	x	Center	Space	Spk/Head	Gain	Spk. Distance	Speaker Compens.	On/Off
Filter/EQ									
45	Auto Filter	x	Base Freq.	Depth	Type	Resonance	Attack	Release	Mix
46	LFO Filter	x	LFO Freq.	Depth	Type	Resonance	Speed	Wave	Mix
47	Param. EQ	x	Gain 1	Freq. 1	Q 1	Gain 2	Freq. 2	Q 2	Mix
48	Graph. EQ	x	200 Hz	400 Hz	800 Hz	1.6 kHz	3.2 kHz	6.4 kHz	Gain
Distortion/Amp Simulation									
49	Vocal Distortion	x	Distortion	Delay Level	Delay	Flanger Level	Type	Flanger Speed	Mix
50	Tube Distortion	x	Drive	Pre LP	Pre LP	Bandlimit	Tube Selection	Mid EQ	Mix
51	Guitar Amp	x	In Gain	Drive	Presence	Gain	Cabinet Type	Mid EQ	Mix
52	Til Fuzz	x	In Gain	Low Fuzz	Mid Fuzz	Hi Fuzz	Drive	Hi Damp	Mix
53	Speaker Simulation	x	Type	Peak Gain	Peak Freq.	Peak Q	..	..	Mix
54	Room Modulator	x	Speed	Depth	Carrier Freq.	Bandlimit	..	..	Mix
55	LoFi	x	Bit Resolution	Bandlimit	Buzz Level	Noise Level	Noise HP	Noise LP	Mix
Special FX									
56	Vynilizer	x	Speed	Clicks Level	Scratch Level	Noise Level	Bandlimit	Noise Freq.	Mix
57	Simuldr	x	Record / Stop	Play / Stop	Speed	Noise	Start Point	Stop Point	Mix
58	Vozeader	x	Sensitivity	Noise	Attack	Release	..	..	Mix
59	Voice Canceller	x	Bass Freq.	MS Balance	Treble Pan.	Gain	..	..	On/Off
60	Resonator	x	Speed	Depth	Carrier Freq.	Feedback	Mode	Slowing	Mix
Combination									
61	Chorus & Reverb		Speed	Depth	Delay	Reverb Mix	Decay	Hi Damp	Mix
62	Flanger & Reverb		Speed	Depth	Feedback	Reverb Mix	Decay	Hi Damp	Mix
63	Leslie & Reverb		Speed	Depth	Doppler	Reverb Mix	Decay	Hi Damp	Mix
64	Pitch & Reverb		Semitones	Cents	Bandlimit	Reverb Mix	Decay	Hi Damp	Mix
65	Delay & Reverb		Delay	Feedback	Type	Reverb Mix	Decay	Hi Damp	Mix
66	Tremolo & Reverb		Speed	Depth	Auto Mod.	Reverb Mix	Decay	Hi Damp	Mix
67	Phaser & Reverb		Speed	Depth	Feedback	Reverb Mix	Decay	Hi Damp	Mix
68	Chorus & Delay		Speed	Depth	Delay	Delay Mix	Delay Time	Hi Damp	Mix
69	Flanger & Delay		Speed	Depth	Feedback	Delay Mix	Delay Time	Feedback	Mix
70	Pitch & Delay		Semitones	Cents	Bandlimit	Delay Mix	Delay Time	Feedback	Mix
71	Tremolo & Delay		Speed	Depth	Auto Mod.	Delay Mix	Delay Time	Feedback	Mix

MIDI

MIDI Implementation Chart

Function	Transmitted	Recognized	Remarks	
Basic Channel	Default Changed	OFF, 1 - 16 OFF, 1 - 16	OFF, 1 - 16 OFF, 1 - 16	memorized
Mode	Default Messages Altered	1,2,3,4 X X	1,2,3,4 X X	
Note Number	True Voice	X	X	
Velocity	Note ON Note OFF	X X	X X	
After Touch	Key's Ch's	X X	X X	
Pitch Bender		X	X	
Control		0,102 - 116	0,102 - 116	
Progr. Change	True #	O (0-99) 1-100	O (0-99) 1-100	
System Exclusive		O	O	
System Common	Song Pos Song Sel Tune	X X X	X X X	
System Real Time	Clock Commands	X X	X X	
Aux Messages	Local ON/OFF All notes OFF Active Sense Reset	X X X X	X X X X	
Notes				
O = YES, X = NO				
Mode 1: OMNI ON, POLY				
Mode 2: OMNI ON, MONO				
Mode 3: OMNI OFF, POLY				
Mode 4: OMNI OFF, MONO				

MIDI Control Changes

Parameter Name	Display Range	MIDI Control Number	Control Value Range
Bank Select	1,001 .. 100/U,001 .. 100	0	0 = ROM / 1 = RAM
Algorithm	Algorithm Name	102	0 .. 70
Edit A	Depends on effect	103	Depends on effect
Edit B	Depends on effect	104	Depends on effect
Edit C	Depends on effect	105	Depends on effect
Edit D	Depends on effect	106	Depends on effect
Edit E	Depends on effect	107	Depends on effect
Edit F	Depends on effect	108	Depends on effect
EQ Low	-16 .. +16 dB	109	0 .. 32
EQ High	-16 .. +16 dB	110	0 .. 32
Mix	Depends on effect	111	Depends on effect
Store	U,001 .. U,100	112	0 .. 99
In/Out	BYP0 .. 100%	113	0 = BYP / 1 = MIX
Combination Mode	SER 1, SER 2, PARA	114	0 = S1 / 1 = S2 / 2 = PA
Input Mode	MONO, STER	115	0 = MONO / 1 = STER
External/Internal Mix	EXTN/INTN	116	0 = EXTN / 1 = INTN