



Product illustration. Connector configuration varies by model.

USER MANUAL / ENGLISH

DPB Series Audio Processors

DPB24 / DPB26 / DPB28 / DPB36 / DPB46 / DPB48

96 kHz processing • 64-bit floating-point DSP • Flexible system control

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1 System overview and control options

The DPB series uses a 64-bit floating-point audio DSP with 32-bit A/D and D/A conversion at a 96 kHz sampling rate. Multiple input and output configurations support flexible crossover arrangements.

Model	XLR inputs	XLR outputs
DPB24	2 female	4 male
DPB26	2 female	6 male
DPB28	2 female	8 male
DPB36	3 female	6 male
DPB46	4 female	6 male
DPB48	4 female	8 male

Front panel and PC control

Functions can be adjusted using the front-panel function keys and rotary encoder, or through the PC control software. A 2-inch TFT color display shows settings. Five-segment LED meters indicate input/output levels, with mute and edit status indications.

The series supports USB 2.0, USB 3.0, RS485 and TCP/IP control interfaces. The connector specification lists one front-panel USB port, one rear RS485 terminal-block connector and one rear RJ45 TCP/IP connector. RS485 supports cascading up to 250 devices with individual device IDs.

Presets and access control

Each unit stores up to 60 user programs. Additional program data can be saved to other storage media through the PC software. FIR parameters can be saved with programs. Channel parameters can be copied to another channel, and channels can be linked for coordinated adjustment.

Individual functions can be locked or unlocked to suit the installation and restrict unintended changes or access to settings. The PC software includes a control-code generator for integration with central control systems.

Remote control and matrix functions

Connection through an external UTWR box or the TCP/IP network control interface supports remote control over the Internet. The processor also includes a component matrix function to accommodate different system requirements.



2 Audio and hardware specifications

Unless otherwise noted, the following specifications apply across the DPB series.

Parameter	Specification
DSP processing	64-bit floating point
A/D and D/A conversion	32-bit
Sampling rate	96 kHz
Input impedance	13 k Ω
Output impedance	50 Ω
Common-mode rejection	>40 dB at 0 dBu, 1 kHz
Input range	<+20.3 dBu
Noise floor	<-90 dBu
Frequency response	20 Hz-20 kHz, ± 0.3 dB
Signal-to-noise ratio and dynamic range	>112 dB at 20.2 dBu, 1 kHz
Distortion	<0.005% at 0 dBu, 1 kHz
Channel separation	>111 dB at 0 dBu, 1 kHz
Display	2-inch TFT color display
Metering	5-segment input/output LED meters; mute and edit indicators
Control interfaces	Front USB; rear RS485 terminal block and RJ45 TCP/IP
Onboard memory	60 user programs

Signal generator

The input signal generator provides white noise, pink noise, sine wave and frequency-sweep modes. Mode, time, frequency and signal level are adjustable.

Processing overview

Each input and output provides independent mute, gain, delay, polarity, 12-band equalization and FIR filtering. Inputs additionally include a noise gate, harmonic excitation, automatic gain control and compression. Outputs include routing, crossover filters, compression, limiting, two-band dynamic EQ and bass enhancement.



3 Input processing

Level and timing controls

Function	Adjustment
Noise gate	Threshold: -120 to 0 dBu; 1 dBu steps
Mute	Independent for each input
Gain	-80 to +12 dB; 0.1 dB steps
Delay	0-1000 ms; fine adjustment: 10 μ s; coarse adjustment: 1 ms
Delay units	Milliseconds, meters or feet; delay bypass available
Polarity	Normal (+) or inverted (-)

Harmonic excitation

Each input provides four independently adjustable exciters: one subharmonic exciter and three higher-harmonic exciters. These functions can be used to adjust perceived depth and spatial character.

Parameter	Range
Subharmonic HPF/LPF frequencies	49.6-204 Hz
Higher-harmonic HPF/LPF frequencies	19.7-10079 Hz
Excitation amount	0-100%

Automatic gain control

Each input has independent AGC. The software displays processing status graphically. Input compression is also listed as an available function; separate input-compressor ranges are not supplied in the source.

AGC parameter	Range
Threshold	-80 to +20 dBu; 0.1 dBu steps
Target level	-80 to +20 dBu
Ratio	1:1.0 to 1:20
Ratio increments	0.1 from 1:1.0 to 1:2; 0.5 from 1:2 to 1:20
Attack time	0.1-1000 ms; 0.1 ms steps below 1 ms, 1 ms steps above 1 ms
Release time	1-60000 ms; 1 ms steps



4 Equalization and FIR filtering

Independent 12 band EQ

Every input and output has 12 independent EQ bands. Available modes are parametric EQ (PEQ), low shelf, high shelf, first-order all-pass and second-order all-pass. Bands can be bypassed individually or together.

Mode	Available parameters
PEQ	Center frequency: 19.7 Hz-20 kHz, 241 selectable points. Bandwidth: 0.05-3 octaves, 0.01-octave steps. Gain: -20 to +20 dB, 0.1 dB steps.
Low shelf and high shelf	Frequency: 19.7 Hz-20 kHz, 241 selectable points. Slope options: 6 dB or 12 dB. Gain: -20 to +20 dB, 0.1 dB steps.
First-order all-pass	Center frequency: 19.7 Hz-20 kHz, 241 selectable points.
Second-order all-pass	Center frequency: 19.7 Hz-20 kHz, 241 selectable points. Bandwidth: 0.05-3 octaves, 0.01-octave steps.

Unit clarification: EQ gain and gain increments are expressed in dB here. The source uses dB and dBu inconsistently for these relative-gain controls; absolute signal-level settings elsewhere retain dBu.

FIR filters

Each input and output has an independent FIR filter supporting up to order 1024, as stated in the source. The software can display magnitude and phase response curves. FIR parameters can be stored in user programs.

The source specifies filter order rather than tap count. Confirm the supported coefficient-file format and filter length with the supplied PC software before importing FIR data.

Copy and linked adjustment

All parameters of a channel can be copied to another channel. Linked control allows coordinated adjustment of channels. Independent mute, polarity and delay settings remain available as described in the processing sections.



5 Output routing and dynamics

Routing and basic controls

Each output can select an individual input or any combination of input channels. Outputs provide independent mute, gain from -80 to +12 dB in 0.1 dB steps, and normal (+) or inverted (-) polarity. Delay is adjustable from 0 to 1000 ms, with 10 μ s fine steps and 1 ms coarse steps; units can be milliseconds, meters or feet, with delay bypass.

Crossover filters

Each output has independent high-pass and low-pass filters. Crossover frequencies span 19.7 Hz-20 kHz with 241 selectable frequency points.

Filter type	Available slopes
Bessel and Butterworth	12, 18, 24, 30, 36, 42 or 48 dB/octave
Linkwitz-Riley	12, 24, 36 or 48 dB/octave

Compressor and limiter

Each output has independent compression and limiting, with PEAK or RMS detection and an adjustable knee.

Parameter	Compressor	Limiter
Threshold / level	-40 to +20 dBu 0.1 dBu steps	-40 to +20 dBu 0.1 dBu steps
Ratio	1.0:1 to 20:1	Not specified
Knee	0-10 dB	0-10 dB
Attack	0.1-1000 ms	0.1-1000 ms
Release	1-60000 ms	1-60000 ms

Attack increments: 0.1 ms below 1 ms and 1 ms above 1 ms. Release increments: 1 ms. Compressor ratio increments: 0.1 from 1:1 to 2:1, then 0.5 from 2:1 to 20:1.

Ratio notation note: the source mixes 1:x and x:1 in its compressor increment description. The compressor values above follow its stated overall range of 1.0:1-20:1. AGC and DEQ ratio notation is retained as provided in the source.



6 Output enhancement and physical specifications

Dynamic equalization

Each output provides two fully adjustable dynamic EQ bands. The PC software includes graphical and level displays to show operating status.

DEQ parameter	Range
Frequency	19.7 Hz-20 kHz; 241 selectable points
Bandwidth	0.05-3 octaves; 0.01-octave steps
Target level and threshold	Each adjustable from -45 to +15 dBu
Ratio	1:1.0-1:20; 0.1 steps to 1:2, then 0.5 steps to 1:20
Attack	0.1-1000 ms; 0.1 ms steps below 1 ms, 1 ms steps above 1 ms
Release	1-60000 ms; 1 ms steps

Bass enhancement

Each output includes bass enhancement, which can be used with input subharmonic excitation. HPF/LPF frequencies: 19.7-297 Hz. Gain: 0-20 dB in 0.1 dB steps. Target level: -45.0 to +20.0 dBu in 0.1 dBu steps.

Power dimensions and shipping

Parameter	Specification
Power consumption	≤25 W
Power supply	110 V / 220 V AC, 50/60 Hz
Dimensions W × D × H	482 × 228 × 44 mm
Net weight	3.85 kg
Single-unit shipping size	555 × 325 × 98 mm; 0.0177 m ³
Six-unit shipping size	573 × 337 × 615 mm; 0.1188 m ³
Gross weight	1 unit: 4.70 kg; 6 units: 29.4 kg

Product information and support: www.hzsaudio.com