

DSP-30

Computer Configurable Digital Signal Processor

ADVANCED SYSTEMS PRODUCTS



Optimize Your Sound With DSP From QSC

Featuring intuitive PC system configuration combined with "set-and-forget" convenience, the DSP-30 unites easy-to-use, customizable, two-channel digital signal processing (DSP) with a simple preset selection interface that requires only two buttons. It can be used with all amplifiers and is housed in a 1RU, 19-inch rack-mount steel chassis. Sampling frequency is 48 kHz with 24-bit resolution. Dynamic range is greater than 95 dB. Rugged and dependable in the spirit of all QSC professional audio products, the DSP-30 is well suited to a variety of applications including mobile DJ, club PA, and pro touring.

Powerful

The DSP-30's powerful processor enables a wide range of signal processing functions. Whether you need speaker crossovers, EQ, time delay, or subsonic filters, the DSP-30 is as flexible as your system's needs.

Each channel includes:

- Crossover filtering
- Multiple Parametric EQs
- Shelf filtering
- Multiple Delays (up to 910 ms)
- Compression and limiting
- Precision attenuation
- Mixing
- Tone and noise generation

Configurable

The DSP-30's processing horsepower is dynamically assignable, so you are not limited by a fixed signal chain. Simply use QSC's powerful PC-based *Signal Manager* software to easily configure multiple processing functions and signal flow with "drag-and-drop" tools. The DSP-30 provides eight fully configurable user presets, selectable from front-panel switches.

Cost-effective

The power and flexibility of the DSP-30 eliminates the need for individual outboard signal processors—reducing cost, space, and installation time for almost any application. Housed in a 1RU, 19-inch rack-mount steel chassis, it can be used with all audio systems.



Hear the Power of Technology.

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email: info@qscaudio.com

SIGNAL PROCESSING FUNCTIONS

- **Multiple Parametric Filters**, assignable anywhere in the signal chain:
 - Variable Frequency Variable Q
 - Variable Gain Show Response
- **Multiple Delays**, assignable anywhere in the signal chain:
 - 20.83 μ sec Incremental
 - 910 msec Maximum (total of all delays)
- **Compressor**, assignable anywhere in the signal chain:
 - Gain Release Time
 - Threshold Show Response
 - Ratio Bypass
 - Attack Time
- **Output Peak Limiter**, assignable anywhere in the signal chain:
 - Gain Release Time
 - Threshold Show Response
 - Attack Time Bypass
- **High and Low-Pass Crossover Filters**, assignable anywhere in the signal chain:
 - Butterworth 6, 12, 18, 24 dB per octave slope
 - Bessel 6, 12, 18, 24 dB per octave slope
 - Linkwitz-Riley 12 and 24 dB per octave slope
- **High and Low-Pass Shelf Filters**, assignable anywhere in the signal chain:
 - Variable Corner Frequency Variable Q
 - Variable Gain Show Response
- **Signal Mute**
- **Attenuation:** 0.1 dB steps
- **Mix Post Crossover Audio** (2 \rightarrow 1 Mixer)
- **Signal Splitter**
- **Built-in Noise Generator** (Pink & White)
- **Built-in Variable Frequency Tone Generator**
- **Signal Polarity Reversal**
- **Frequency Response** readout for each filter
- **RMS and Peak Metering with Clip Indication**
- **Add or delete up to 7 additional bands of "EQ" per filter block**
- **Visual editing of composite filter response, using cursor controls in graphical display**
- **Individual or group bypass of EQ bands per filter block**
- **Predictive Delay feature** — produces less signal distortion than analog compressor/limiters — especially for fast attack times

ADDITIONAL FEATURES

Hardware

- Two independent channels of DSP
- 48 kHz, 24-bit converters
- No turn-on pops or "zipper" noise
- If the memory or hardware fails, unit turns on muted to prevent driver damage
- Easy PC connection with front panel RS-232
- Balanced Neutrik® Combo (XLR and 1/4") inputs and XLR outputs
- Power and signal present LEDs with signal level
- Numeric display indicates current preset
- Eight fully configurable user presets
- Preset Browse and Accept buttons with lock-out feature
- Selectable input sensitivity: 1.5, 4, 9, 18 Vrms;
6, 14.5, 21.5, 27.5 dBu; 3.5, 12, 19, 25 dBV

Software

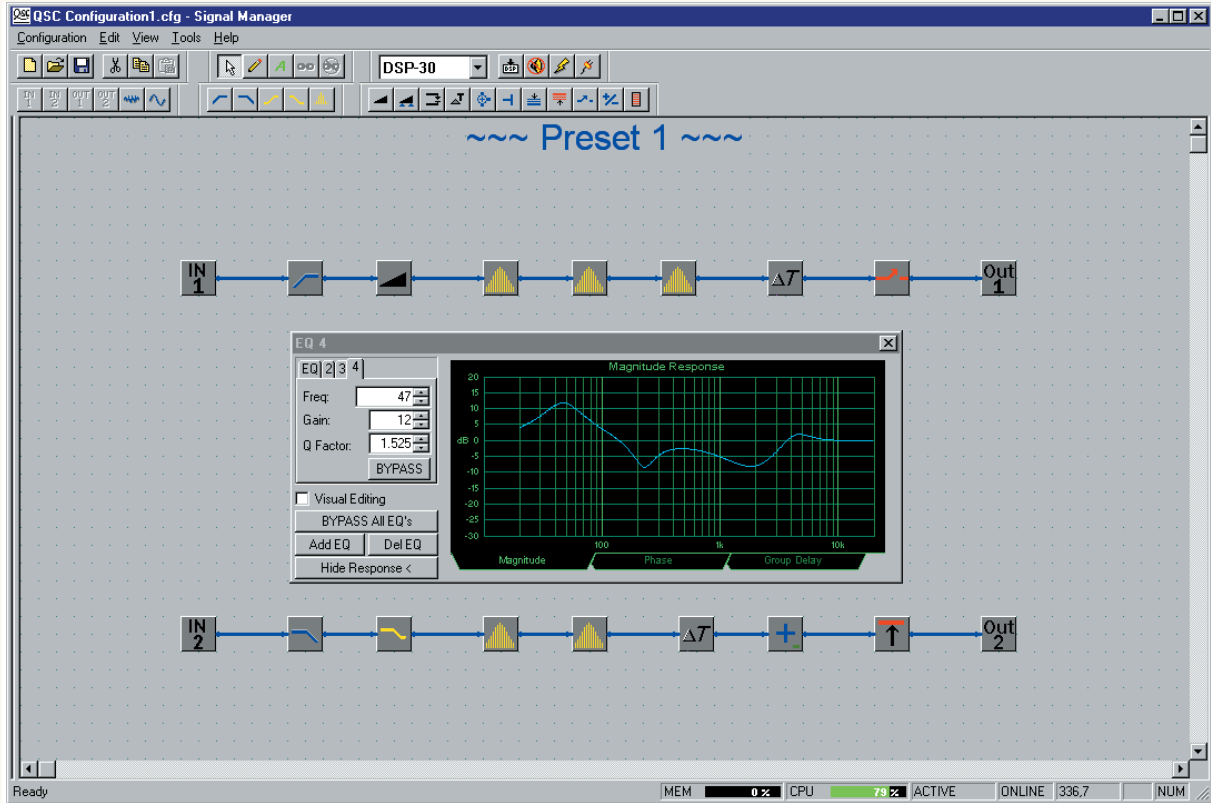
- "Drag-and-drop" configuration software
- Hard copy printout of configuration layout or parameter settings
- DSP processing power and memory is dynamically assigned to signal processing functions — eliminating the limitations imposed by fixed signal chain designs.
- Graphical representation of DSP resources
- Firmware upgrades via RS-232
- Download the latest Signal Manager software at www.qscaudio.com

System Requirements

- Windows® 98, NT4 (SP6), and 2000 (SP1)*
- SVGA monitor @ 800 x 600 (min.); 1024 x 768 recommended
- CD-ROM drive
- 32 MB RAM (min.)
- 10 MB free hard disk space (min.)
- Available RS-232 COM port
- Male-to-female 9-pin serial cable (for programming)

* Windows Me not supported

DSP-30 CONFIGURATIONS



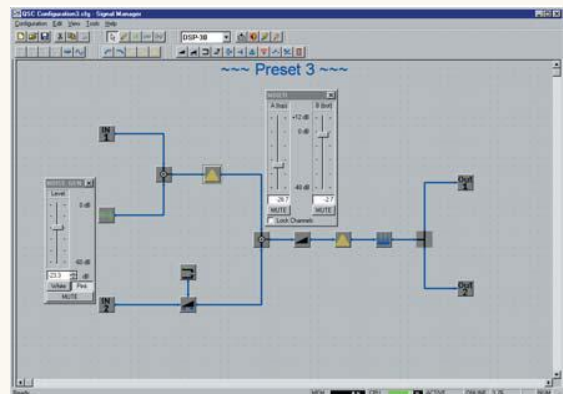
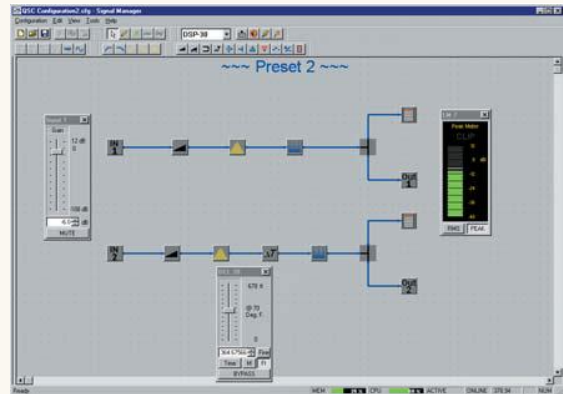
SIGNAL MANAGER

Advanced "Drag-and-Drop" Software Configuration

DSP configuration is made simple with a PC-based "drag-and-drop" software program called *Signal Manager*. Users access a DSP "toolbox" and simple drawing tools to configure processing functions and signal flow. DSP processing power and memory is dynamically assigned to signal processing functions. Any combination of functions may be configured until the total capacity is used. DSP resources are graphically displayed at the bottom of the screen.

Configurations can be downloaded directly to the DSP-30 via an RS-232 serial connection. The software package also offers real-time control and set-and-forget convenience. Once saved, configurations (presets) can be recalled via the DSP-30's front panel switches-without the need for a computer.

The DSP is configured with an easy-to-use software interface. Signal processing icons from the toolbar are dropped onto the workspace and the signal path is routed with simple drawing tools.



DSP-30 SPECIFICATIONS

Characteristics	Specifications
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AUDIO CONVERTERS	24 bit, 48 kHz																				
FREQUENCY RESPONSE	20 Hz to 20 kHz \pm 0.4 dB at 1 dB below full scale input voltage (all sensitivities)																				
DISTORTION	<0.007% THD+N at 1 dB below full scale output, (all sensitivities) 20 Hz to 20 kHz																				
THROUGHPUT DELAY	1.00 milliseconds (A/D – DSP – D/A)																				
DYNAMIC RANGE	>95 dB unweighted, 1.5V, 4V and 9V input sensitivities																				
AES-17 -60 dB METHOD	>93 dB unweighted, 18V input sensitivities																				
POLARITY	In-phase or inverted																				
MUTE	>95 dB attenuation																				
INDICATORS	Power: 1 blue LED Channel 1 and Channel 2 signal level: 2 green LEDs Preset Display: 7 segment LED																				
INPUT SENSITIVITY	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Volts</th> <th style="text-align: left; padding: 2px;">dBU</th> <th style="text-align: left; padding: 2px;">dBV</th> <th style="text-align: left; padding: 2px;">Full scale sine wave RMS before clipping.</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">1.5</td> <td style="padding: 2px;">6.0</td> <td style="padding: 2px;">3.5</td> <td style="padding: 2px;">Full scale output voltage 9.3 Vrms.</td> </tr> <tr> <td style="padding: 2px;">4</td> <td style="padding: 2px;">14.5</td> <td style="padding: 2px;">12.0</td> <td></td> </tr> <tr> <td style="padding: 2px;">9</td> <td style="padding: 2px;">21.5</td> <td style="padding: 2px;">19.0</td> <td></td> </tr> <tr> <td style="padding: 2px;">18</td> <td style="padding: 2px;">27.5</td> <td style="padding: 2px;">25.0</td> <td></td> </tr> </tbody> </table>	Volts	dBU	dBV	Full scale sine wave RMS before clipping.	1.5	6.0	3.5	Full scale output voltage 9.3 Vrms.	4	14.5	12.0		9	21.5	19.0		18	27.5	25.0	
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INPUT IMPEDANCE	8.3 k Ω balanced 3.7 k Ω unbalanced																				
COMMON-MODE REJECTION	>54 dB, 20 Hz–20 kHz																				
CROSSTALK (inter-channel w/in DataPort pair)	>78 dB separation, 20 Hz to 20 kHz																				

Specifications subject to change without notice.

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