

PRO AUDIO REVIEW

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equipment
review

QSC Audio DSP-3 Digital Signal Module

by Ted Wetzel

QSC Audio has developed pioneering audio products and systems for three decades. Its DSP-3 Digital Signal Processing Module (DSP) is an integrated power amplifier accessory designed to reduce or eliminate the need for any additional signal processing gear. Its small size and numerous capabilities are sure to be a hit with sound contracting professionals.

Features

The DSP-3 module (\$525) measures two rack-spaces high, 3.75 inches wide and 1.38 inches deep. The face of the module has input and output terminal blocks for two channels, one DB-9 RS-232 connector, one HD-15 Data Port connector, one power receptacle plug, a blue power LED and a green Signal LED.

The back of the module has one HD-15 Data Port through-connector for connecting to appropriately equipped QSC power amplifiers. Check the QSC Audio Web site (www.qscaudio.com) or the DSP-3 manual for compatibility. Alternatively, you can use the two output terminal blocks for your post-DSP connection.

The input terminals provide for electronically balanced or unbalanced connections with input impedance of 8.3 k-ohm and 3.7 k-ohm respectively. The full-scale input sensitivity is selectable to 1.5, 4.0, 9.0, or 18.0 VRMS via the software interface. The output terminal blocks are post-DSP and can be used for daisy chaining to additional amplifiers or as the primary output to amplifiers without the QSC Data Port connection.

The DB-9 connector provides the RS-232 connection to your PC; the HD-15 through-connector provides the interface to the CM16a Amplifier Network Monitor. A power receptacle is provided; check the Web site or product manual for compatibility.

The DSP capabilities include a compressor-limiter, multiple parametric filters, high-

and low-pass filters, a shelf filter, muting, attenuation, multiple delays, polarity reversal, audio routing and post-crossover audio mixing. The analog-to-digital and digital-to-analog converters claim 24-bit resolution and 48 kHz sampling.

The QSC Signal Manager software interface is the only way to manipulate the settings of the DSP-3.

In use

Unpacking the DSP-3 was simple: The box contains input and output terminal connectors, software, manual and the DSP-3. I cannot stress enough the importance of reading the manual before installing the unit. Although I found nothing difficult about the installation or use of the DSP-3, caution must be used or equipment damage can result.

QSC provided a PowerLight2-series PL230 for use in testing the DSP-3, making setup straightforward and easy. While the DSP-3 can be used with any power amplifier, mounting of the DSP-3 to the PowerLight2 is as



simple as a couple of screws.

Depending on what model power amplifier you use, a separate power supply may be required. All mounting configurations are well documented in the manual. Any accessories needed are also readily available from QSC. Just be aware that you may need to get some of these accessories before you can take the DSP-3 for a test drive.

After mounting the DSP-3 to the PL230, I connected the PL230 to a pair of MAS monitor speakers. Since I was using my laptop for software control, I decided to utilize the internal CD-ROM and unbalanced audio outputs as my source equipment. The only hardware connection left was the RS-232 connection between the laptop and the DSP-3. This cable is not supplied by QSC, but is readily available at any computer or office supply store.

That left the software installation. The documentation with the software states that Windows 95 OSR2, Windows 98 or NT 4.0 with SP4 or later is supported. As I currently use Windows 2000 Professional, I called QSC Audio and asked about compatibility. I was told that Windows 2000 had not been qualified, but many customers were using it

At a Glance

Applications:

Contracting/install, sound reinforcement

Key Features:

Small size; two channels; electronically balanced and unbalanced inputs; multiple DSP capabilities; 24-bit resolution and 48 kHz sampling rate; control software provided

Price:

\$525

Contact:

QSC Audio at 714-754-6175;
www.qscaudio.com.

without a problem. After a week of running the Signal Manager on Windows 2000 Professional, I can say that I did not experience any compatibility issues.

As soon as the software was loaded and all connections were made, I powered up the PowerLight2. I expected some tweaking of ports for the DSP-3 to communicate properly, but that was not the case. I got confirmation that everything was online the second the software finished loading. Having spent some time with computers, this was a refreshing change.

I did my first testing with the supplied version of the software and firmware. With a little time spent in the help section, I was able to quickly and easily string together any configuration of filters, delays or compression limiting that I needed.

The Signal Manager is in a user-friendly, drag-and-drop format. I liked the way it allows the user to set a parameter frequency, gain and Q factor simply by dragging the response curve. I was able to just enter in my parameters when I knew exactly where I was having a problem, or I could just click and drag the response curve while listening to the change until I heard what I was looking for. This worked well for EQ settings where I was looking for a particular sound.

An example of this is when I put in an old rock CD which was not a great recording to start with. Transferred to CD it was even worse. With the real-time controls I quickly took the edge off of the high end and gave the lower midrange a little bump to smooth out the overall response. In a matter of minutes I dramatically improved the sound of the CD. While the DSP-3 is considered real time,

I did experience a slight delay between my adjustments and an audible response.

I was pleased at how much processing I was able to perform from such a small package. Any given filter can be bypassed by a click of the mouse. Signal is easily split, processed and mixed for output. Pink noise, white noise and a variable frequency generator have also been provided for system analysis. QSC Audio wisely cautions that there may be some occasional clicks and pops from the output of the DSP-3 while updating configuration changes, so watch your power amplifier's output levels! I only experienced this during full configuration changes, not during routine parameter adjustments. Otherwise the DSP-3 performed flawlessly and sounded great.

After familiarizing myself with the supplied Signal Manager Software, I downloaded the newly released version 3.16 to see what improvements had been made. The software and firmware update was a simple, straightforward task — definitely worthwhile. The response time to setting changes was noticeably improved and the graphic displays were a little better — a good indication of QSC's commitment to support and quality. New features for the DSP-3 control software are already in the works.

Summary

The QSC Audio DSP-3 is a versatile DSP product that is perfect for a large variety of uses and installations. Although the DSP-3 was obviously designed to work perfectly with properly equipped QSC Audio power amps, it can be used anywhere that a small,

portable and powerful DSP is required. The one downside is that the limiter only functions with Data Port-equipped QSC Audio power amps. On the other hand, the latest versions of the software and firmware are available for download, so your product can stay current. Something we all can appreciate.

Ted Wetzel, owner of Integrity Audio, a commercial and residential sound contracting and consultation company, is a new contributor to Pro Audio Review.

Product Points

QSC Audio DSP-3

Plus

- Small size
- Powerful DSP capabilities
- Easy-to-use software

Minus

- Limiter exclusive to properly equipped QSC power amplifiers
- RS-232 cable not supplied with the product

The Score

An excellent value in a portable, versatile digital signal processor.

