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REVIEW

BY MIKE METLAY



Grace Design m103

The famed Grace preamp adds some very musical extras

Grace Design's preamps, headphone amplifiers, and converters have been a staple of well-equipped studios for many years. While the company's earliest designs were large and upscale multi-channel units, readers in small studios rejoiced at the release of the Model 101, a very affordable single-channel preamp with all of the company's well-respected sonic signature intact.

The Model 101 has been updated as the m101 half-rack preamp (reviewed April 2009), and released as a 500-Series module, the m501 (reviewed July 2010). Now it's time for a hands-on trial of the new m103, a 1U rack channel strip that combines the m101 preamp with a 3-band eq and an optical compressor.

Outside and in

The m103, like all Grace products, sports a solidly-machined metal faceplate, silky-smooth pots and positive stepped controls with rubber O-rings for a firm grip, front-panel switches controlling gold-contact relays in the audio path, clearly-labeled meters and legends with multicolored LEDs for virtually every function, and rear-panel jacks of the same high quality. A class act all around.

The front panel follows the signal path from left to right. There's a Hi-Z instrument input jack that switches out the rear-panel Mic input, a stepped Input Gain knob (10 to 65 dB in 5 dB steps), and switches for Mic vs. Line input, +48V phantom power, Ribbon mode (more about that in a

moment), and a 12 dB/octave highpass filter with a 75 Hz corner frequency.

The eq section is next. The Low and High bands at left and right each have a Gain control (± 12 dB, detented at 0), a Frequency control (20–750 Hz for the Low, 3–20 kHz for the High), and a peaking/shelf switch. The Mid has ± 12 dB Gain (detented at 0), Frequency control (500 Hz to 4 kHz), and Q control (0.5 to 5). There's a Peak LED above the Eq In switch, and a switch to control whether the eq comes before or after the compressor in the signal chain.

There's a special magic about the idea of getting a really good channel strip to supplement what's in your console or audio interface.

The compressor offers controls for Threshold (+15 dB to -15 dB), Attack (3–200 msec), Release (30 msec–3 seconds), and Ratio (1:1 to 12:1), with a Compressor In switch and two 10-step LED meters, one for Gain Reduction (1–10 dB from right to left) and one for Output VU (-20 to +3 dB VU, where 0 dB VU is referenced to +4 dBu). Finally there's a switch to activate Linking or Sidechaining, a large Output Trim control (± 10 dB), and the power switch.

The rear panel has XLR jacks for Mic Input, Mic Pre Output, Line Input, and Main Output, as well as 1/4" jacks for

Balanced Main Out (TRS) and Unbalanced Mic Pre Out and Unbalanced Main Out (TS). The Link In jack (with Link/Sidechain switch) is a 1/4" TRS that takes a TS plug for sidechain use or a TRS for stereo linked operation. The m103 takes a standard IEC power cable for its internal power supply.

The m103 can operate as an integrated channel strip or as two separate devices: a mic preamp that's equivalent to the m101, and a line-level eq/compressor with reversible signal order. For the latter operating mode, plugging into either of the Mic Pre Outs severs the connection between the preamp and the rest of the unit, effectively turning it into two boxes with separate I/O.

Generalities

The eq is uncomplicated but very musical; it gives you the sort of control you'd have on a typical mid-level console in the old analog days. At its highest Q setting of 5, the Mid is tight but not what I'd call "surgical"; it lets you find and notch problem frequencies with manageable but not negligible effect on surrounding frequencies, always remaining very musical to my ears. Still, I found the Mid eq much more useful at lower Q settings, with the Mids providing a gentle and very nice-sounding bump or scoop to a variety of sources.

Maybe I'm weird [*"We-Hll..." says our Editor*], but I feel the lion's share of the power and beauty in the m103's eq, especially for the novice, will be found at

the High and Low ends. Having peak or shelf eq on the Highs and Lows gives you either a ballpark-but-great-sounding way to tame rumble or squeal, or a very sexy "tilt control" for adjusting the overall tone balance of your source, adding a bit of air or turning a shrieky signal into something a bit more rounded and pleasing. The Low shelf, combined with the HPF, lets you keep low-end ballsiness in bass-heavy signals without letting through the really deep rumble and crud that obscures details.

The optocompressor is equally easy to use, and its simple controls and responsive, intuitive metering make it a joy to set up—and a great teaching tool for the basics of dynamics control, too! The Attack and Release settings let the compressor be as grabby as you need it to be, or let you sneak attack transients through while controlling ringout and adding sustain. It's exceptionally clean and dignified, even when cranked to its highest Ratio settings, and the Output Trim gives you more than enough makeup gain to keep your levels where they need to go. It's not a crushing-levels-vibey compressor at all, but is meant to keep your levels where they belong in a genteel manner, and it does so beautifully.

Mic tests—lessons learned

Using the Mic input, I tried a variety of signals through several different mics: acoustic guitar, mandolin, and mountain dulcimer, winds, hand percussion, and vocals. I don't have a lot to add to the pages of editorial we've given the Model 101 and its children as a mic preamp family; as always, signals were exceptionally clean and clear without being brittle or sterile. With the m103, even (especially?) before you get to the eq or compressor, what you get out is what you put in... only somehow, magically, more so.

It would be untrue to call the 101 a "straight wire with gain" and nothing else, but what it does to signals serves (at least to my ears) to add a sense of clarity and detail that lifts the signal out of mere "realism" and up into something just that much sweeter. No, it's not a super-vibey-tubey-gooney pre, but it's not clinical or sterile either. It's *clean*... not so much "dressing in a white hazmat suit before entering a clean room" clean as "gazing into an untouched mountain lake" clean. (And here I'd promised myself I'd try to skip the poetry when discussing preamps! Sorry, folks.)

One of the most interesting things that cropped up in my tests is how the m103 behaved with mics of varying quality.

Everyone agrees that good sound must start with a good source in a good room, and everyone agrees that fancier signal processors or plug-ins are literally the last thing you should worry about in improving your tracks. But in the middle, what's your best investment to make your tracks better... a better mic, or a better preamp?

Most folks would say the mic, since it's first in the signal chain; read Paul J. Stamler's article "Just Like Downtown" (available for free at www.recordingmag.com, in our Resource Library under Your Studio > Microphones) to grasp the principle behind this stance. But Bruce Kaphan (recently featured in our Sound Advice monthly e-newsletter) states firmly that in the entire audio chain, the preamp is key—a fantastic preamp can make a decent mic sound good and a great mic sound stellar, but a low-quality preamp will ruin the sound of even the best mics. Working with the m103 made me revisit the idea, as its behavior with two mics in particular gave me food for thought.

First was my battered old Shure SM57. The SM57 may be the ultimate example of the adage that where mics are concerned, price does not determine quality... while very affordable, it is in my opinion the one mic everyone should own. It's a dynamic



with a decidedly (proudly!) lumpy frequency response; it sounds good on everything from snare drums to guitar cabinets, it's effectively indestructible, and it can be made to work decently well with almost any mic preamp... but using it with the m103 was a revelation.

Grace Design encourages users to try Ribbon mode on dynamic mics; the Ribbon switch not only locks out phantom power (which can destroy vintage ribbon mics) and bypasses the decoupling capacitors for the phantom circuit, but also boosts the m103's input impedance. Changing the input impedance on a dynamic mic can drastically change its sound, often for the better, and the Ribbon switch on the m103 did just that for my old SM57, making the sound fuller and gutsier with a more balanced low-midrange... effectively a brand-new mic sound.

On the m103, though, the mic's character shone through—a cheap (as opposed to inexpensive) bad knockoff with ringy peaky response and a painfully brittle high end. Lesson learned: the m103 can make a good mic sound great, but it will make a bad mic sound just as bad as it really is.

Instrument DI—from bad to beautiful

For the Instrument Input tests, my main focus was on the Schecter A-5X. This is a 5-string baritone instrument tuned in fifths with a 26.5" scale; its highest string is a fairly conventional .011 tuned to C#, while its lowest string is a thundering low A with a .074 gauge that makes conventional guitarists quake with fear. It has the range of an electric guitar plus all but the lowest fourth of a bass's range, and its Seymour Duncan Hot Rails pickups give it blistering output levels. Even when very carefully set up and intonated, its lower strings tend to

The result was the most beautiful tone I'd ever gotten from my A-5X in nearly ten years of constant playing and recording: clear, vibrant, tonally balanced, and exceptionally smooth in delivery, with no weird honks, squeaks, or thumps, perfect for playing with fingers or plectrum. A very problematic instrument with a shaky player, tamed and made sweet in about 15 minutes of tweaking... in this reviewer's opinion, worth the price of the m103 with nary a mic in sight.

Conclusions

If a recording musician with a good basic studio wants to start improving it, he or she looks at the best places to invest money so as to get maximum improvement for the dollar. Some logical places for those targeted investments are: improving the sound of the room itself; adding better-quality mics (inexpensive or not); and installing trustworthy monitors.



The m103's rear-panel layout lets it operate as either a single channel strip, or as a mic preamp and a separate line-level eq/compressor with makeup gain.

For my "ultimate DJ voice without an SM7B handy" settings, I used: Input Gain 50 dB, Ribbon and HPF on, Low shelf +6 dB at about 200 Hz, Mid +3 dB at about 2 kHz, Q of 0.5 (very broad), High shelf -12 dB at 20 kHz. On the compressor, I had a Threshold of +12 dB with a fast Attack and a Release of just under 1 second with a Ratio of 10:1 or more, just to grab and clamp my loudest peaks, and 0 dB Trim.

Lesson learned: a mic with a good solid sound, even if it's inexpensive, can be made magical with the m103. Further, I would argue that if you need solid proof that dynamic mics aren't outdated in our era of cheap condensers, you need to run some good dynamics through the m103 with (and without) the Ribbon switch and hear how great they can be.

Oh, speaking of cheap condensers: I tried the m103 on a Chinese U87 clone that someone had abandoned in my studio years ago and I hadn't the heart to throw away. This mic was sort of tolerable on vocals and some string instruments when run through my old analog console's preamps; you had the feeling that something really wasn't up to snuff, but couldn't point at precisely what it was.

dominate its output, and getting a good balanced sound out of it rather than a wall of mud isn't always easy.

Well, let me rephrase... it isn't always easy if you don't have a Grace m103 in circuit. My recipe for a smooth, even, and powerful tone from the zingiest highs to the growliest lows went something like this: Input Gain at 35 dB, HPF in, Low eq at a -3 dB shelf at about 200 Hz, Mid -3 dB at about 1 kHz with Q of 0.5, and High eq at a +3 dB shelf at about kHz. Compressor Threshold at +2 dB, Attack 3 msec, Release 1 sec, Ratio about 6:1, +2 dB Trim.

This eq setup smoothed/tamed the A-5X's out-of-control lows in a two-stage attack on the bass frequencies, while scooping the over-energetic mids and adding air to the neglected high strings. The compressor's settings probably seem a bit aggressive to engineers who are used to setting up dynamics control on guitars or basses, but trust me on this—with a full-time job as a magazine editor, another full time job as a husband and father, and nowhere near as much time to practice as I'd like, saying I have problems playing with even dynamics is like saying Jack The Ripper had anger issues!

But there's a special magic about the idea of getting a really good channel strip to supplement what's in your console or audio interface—a really good clean clear mic preamp/DI that will get your miked sources and guitars to sound their best, a musical and easy-to-set eq that lets you remove problems or mold your source's tone for character and sweetness, and a smooth, clean compressor that can be used to tame dynamics problems or to give sustain and power to sources that need it.

With the m103, Grace Design provides an elegant, simple, and beautiful-sounding entry into the big leagues for the small studio owner, at a price that's very reasonable for what you're getting. There are other channel strips out there, some offering more features for way less money... but if you're buying with your ears, the m103 is something truly special. (And I've made it to the end of this review without a single pun about accomplishing its tasks with Grace!... wait. Dang.) ➔

Price: \$1575 street
More from: Grace Design,
www.gracedesign.com