

## TASCAM DM-24 Microphone Preamplifier Design Philosophy

When the DM-24 was being created, its designers recognized that one of the biggest criticisms of earlier digital consoles was their lack of headroom when dealing with loud input signals, such as live drums. This lack of headroom would result in distortion as a result of clipping the mic preamp, with the signal level rising above the 0dBfs ceiling.

TASCAM's design philosophy on the DM-24's mic preamps was to overcome this issue by providing preamps that could handle very high input levels without clipping, and without incorporating a pad which would color the sound. We're proud to say that the customized preamps in the DM-24 achieved that goal. However, in doing so, some DM-24 owners have had difficulty at the opposite end of the input level scale: that of very low-level signals. It is important to note that the problem is not with the amount of gain of the preamp itself, but with the taper of the trim pot that controls the preamp, which was weighted to accommodate higher-level signals.

For most people who record rock and pop music, the internal mic pres on the DM-24 have been highly praised. Also, with the availability of inexpensive, high-quality outboard mic pre's, TASCAM felt that DM-24 owners who regularly dealt with extremely low-level signals (i.e., distance-miked acoustic instruments and the like) would turn to their external preamplification solution of choice. Additionally, when combined with the additional 10dB of gain available at the DM-24's input fader and yet another 10dB of gain available at its bus fader, both in the digital domain, these extremely low-noise (-128dB) mic preamps perform quite well.

The graph shown below illustrates the actual response curve of a DM-24 mic pre. The vertical numbers represent dB of gain, while the horizontal numbers represent the amount of trim pot turn to achieve that gain. At approximately 95% turn, the pre's achieve about 55dB of gain. Most input signals will require between 20dB and 40dB of gain, a range within the 65% to 85% turn of the trim pot. If more gain is required, raising the input fader to +10 provides an additional 10dB.

*[note : graph is missing ]*

In cases that that require more gain for quiet instruments or distant mic recording, TASCAM customers have reported to us that they rarely record with more than a few mics at a time in these situations. When this is the case, another solution is available: simply plug your mic into an XLR input and take a standard 1/4" unbalanced cable from the insert of your input to the LINE input of the next available input. This gives you the combined boost of two mic pres with no added noise, making the gain much easier to control while offering plenty of gain for these situations. This input is then assigned to a channel and used normally. This may seem like a strange thing to do, but it works perfectly and is easier than buying an outboard mic pre.

We've polled dozens of DM-24 owners in regard to the mic preamps, and the grand majority of them have reported that they find the DM-24 mic pres great-sounding and are happy with their performance compared to those on other affordable digital consoles. However, for those of you that do work mostly with very lowlevel

signals and would like to change the taper on your DM-24's microphone preamplifiers (and not turn to an external preamp solution), an option is now available. For a charge of US\$200, TASCAM will upgrade your DM-24 input modules to those found in our premier audio production console/recorder/editor, the US\$8999 SX-1 Digital Production Environment. The only difference you will find is that the gain is more evenly distributed throughout the turn of the trim pot. This upgrade does not "boost" the gain of the mic pre or change any specifications regarding noise or other audio performance. It simply improves the trim pots curve for a more even response.

If you wish to have TASCAM upgrade the mic preamps in your DM-24, this operation must be performed at TASCAM's in-house service facility. While you will pay for shipping costs to TASCAM, we will pay return freight costs. To initiate this process, U.S. customers please call 323-726-0303 and ask to be connected to TASCAM's service department. Customers in Canada please call 905-890-8008, Extension 119. For customers outside of North America, please contact your local TASCAM distributor.