

Milab DM1001

Hailing from Sweden, Milab's DM1001 digital microphone system isn't an entirely new product, having been around since 1999. However, it does represent a slightly different approach to other microphone manufacturer's digital offerings.

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the mixing of the diaphragm outputs together with user-definable high pass filtering. The A-DCs are 24-bit running at a fixed sample frequency of 48kHz.

The system (UK£2855 + VAT) ships with a rather elegant shockmount, which terminates in a ball and socket swivel joint that is in turn fixed to the mic stand. This arrangement makes positioning the microphone, which in conjunction with the shockmount is a fairly large piece of kit, surprisingly easy. A supplied 5-pin XLR connection then runs to the PPU01 remote box.

The designation of the remote box stands for Phantom Power Unit, but in fact this is only one of its functions. The rear panel sports a 5-pin XLR for connection to the microphone, together with an AES-EBU digital output on XLR. An external power supply provides power to the unit, and thence to the microphone. The front panel simply consists of a power switch, an error LED that illuminates if there is a problem with communication to the microphone, and a 12-position rotary switch. This switch allows the selection of factory preset or user-definable settings for polar pattern and filtering. In effect, selecting a position sends the corresponding data to the DSP onboard the microphone, which then matrixes and filters the signals from each of the diaphragms accordingly.

In addition to the five standard polar patterns, which move from an omni to a fig-8 response, there are switch positions for mute and test. The former is obvious in function, and the latter sends a 1kHz test tone down both channels of the AES output at -36dBFS.

Before going any further, it's worth pointing out that at this stage the system can be used exactly as it is. Unlike the Solution-D, for example, the DM1001 system doesn't need software control to make it do anything useful — it can function as a standalone hardware set-up. Having said that, the RS232 port on the rear of the remote box can be connected to the serial port of a PC (Windows 95 or higher), and the included Acoustic Designer software fired up. This allows full user control of polar pattern, high pass filter settings and digital gain — and settings can either be stored as a data file, or flashed back to an EPROM in the remote box where they are stored in one of four user-defined slots. The computer can then be safely retired, and the settings recalled by selecting the appropriate User position on the rotary switch.

The system's final party trick is what Milab calls a 'pass through' setting. Looking like two cardioid patterns back-to-back, selecting this position on the control box passes the signals from each diaphragm separately down the two channels of the AES output — which ordinarily carries identical signals in both channels. In this way, the front/back ratio of the

capsules can be adjusted using an external mixer — possibly even in postproduction.

All in all, a system that seems well thought out and flexible, if perhaps without the bells and whistles of something like the Solution D. But how does it sound? Very good as it happens, once you get it going! The no-fills digital implementation means that you're pretty much stuck with a 48kHz sampling rate, and unless you go via external sample rate convertors, you're also forced to use the DM1001 as a master clock over AES-EBU in most applications. While this is not necessarily a bad thing, especially if you subscribe to the view that the best jitter performance is generally from the closest clock to the A-DC, it is a little inflexible. This, coupled with the lack of any options to dither the AES output down to lower bit depths means that you have to think carefully about what you plug it into. As an experiment, the DM1001 was connected to the AES input of a DAT machine, and although everything indicated a valid lock, some rather disturbing artefacts were present in the signal. I put this down to some form of weird truncation error, as the problem disappeared when connected to the AES input of a digital console running 24 bits wide.

That said, the sound of this microphone is very satisfying. Nowhere near as clinical as other microphones that put the A-DC straight after the capsule, the DM1001 manages to sound characterful without being coloured. One of its most impressive traits is the distinct lack of tonal colouration as sound sources move off-axis to the directional patterns — there's a slight lumpiness about the high frequencies, but in most cases it sounds like a very progressive, natural drop in level.

Transient response is also very good, and the microphone manages to resolve low level high frequency detail extremely well, even with sources a substantial distance away. These characteristics make the DM1001 one of the most useable and nicest sounding room microphones I've used for quite some time. It performs nicely close-up too, although there is a noticeable limit on the DM1001's useful dynamic range, imposed I suspect, by those A-DCs immediately post-capsule. In use, this is unlikely to be anything more than a theoretical problem in all but the most demanding applications, as a 20dB pad on the microphone can be switched in post capsule/pre A-DC if high SPLs are the order of the day. And while this last

comment suggests that there is no fancy gain staging or other cleverness going on, the DM1001 would seem to be quite a rare beast nonetheless — a digital microphone with a soul. ■



THE DM1001 SYSTEM comprises the microphone itself, the PPU01 power unit, and some (PC only) software. The DM1001 microphone houses a rectangular dual diaphragm capsule. This rectangular shape is something of a Milab signature that also features in some of the company's more traditional offerings. The idea is that by not using a more conventional circular shape, diaphragm resonances can be more 'naturally' tuned across the response of the microphone.

Also packaged in the microphone body itself are a pair of analogue to digital convertors (one for each diaphragm), and some associated DSP that handles

PROS Can operate with or independently of a computer GUI; smooth, detailed sound; terrific off-axis response.

CONS Fixed sample rate; lack of digital connectivity options; dynamic range of convertors may be an issue for some.

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