

Drawmer DMS-1 M-Clock

Digital sync and clocking can be addressed from a number of directions depending on the application. Getting the balance right for first timers is crucial.

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SYNCHRONISATION IS IMPORTANT. Digital audio is now sufficiently well understood for most people to be at least dimly aware that some form of sample rate synchronisation between various bits of kit is essential.

At the simplest this means one device designated as master with another slaving to it. This arrangement can deal with many situations such as 'domestic' equipment, DAT recorders, CD players and many sound cards, that often lack the ability to slave. However, such sources are frequently prone to jitter. Internal word clock generators are rarely specified to AES 11 Grade 1 i.e. 1ppm accuracy, which really should be the minimum for serious work.

In any case, once the number of devices rises beyond two, or time code and video are involved, something more robust is a much better idea. The effects of using lesser-specified sync sources vary from subtle degradation of imaging through increased granularity to obvious clicks.

For most studios the solution is to install a single source of syncs with multiple outputs as the master. This allows each bit of audio kit to have its own,

dedicated, sync feed in a star topology. In bigger facilities and broadcast, the generator itself will be jam-synced to a 'house' word clock or video syncs source. While this works very well with professional kit there remains the problem of devices that cannot slave to external sync. The answer here is a synchroniser or sample rate converter. An asynchronous SRC is ideal since it can deal with asynchronous sources at the same sampling rate and also convert between rates while removing excessive jitter in both cases.

Trouble is, the small studios most in need of this combination tend to be the ones least able to afford two relatively expensive extra boxes.

Enter the Drawmer DMS-1 or M-Clock as it is affectionately known. The M-Clock brings the logic of the multi-effects unit to the far less glamorous arena of synchronisation. It is both a Grade 1 master clock generator and multiple sample rate converter. Since the four stereo SRC channels each have simultaneous outputs in AES 31 plus optical and coaxial SPDIF they can also distribute an input to more than one destination. At the asking price of less than UK£800 this is an attractive proposition.

The M-Clock is a smart looking unit with subtly sculpted alloy front panel and glowing blue Drawmer logo. Operation is ridiculously simple. All five front panel buttons latch to indicate their status and indicator LEDs confirm the settings. For once, the user manual is almost superfluous.

In the absence of suitable digital measurement equipment it is impossible to verify the manufacturer's claims regarding stability and accuracy but some useful insight can be gained by simply listening. I elected to do this by substituting the M-Clock for my Rosendahl Nanosyncs. I can't honestly say I noticed any audible difference but for completeness I also made a comparison using a sound card's internal generator. Here there was a subtle but discernible change, with the M-Clock perhaps best described as 'less fatiguing'.

There are a couple of omissions, presumably this has helped Drawmer achieve the price point. There is no external sync input, word clock, video or time code. This is a pity since I feel sure the M-Clock would be popular with studios already using another master clock generator but needing more outputs and sample rate conversion. The ability to pull-up and pull-down the output rates is also absent. This is sometimes needed for drop-frame video and 24 frame film applications, although it is unlikely to be a requirement for the majority of potential purchasers.

The M-Clock achieves what it sets out to accomplish. It will deal with the clock generation and distribution and the sample rate conversion issues that arise in smaller studios and, in many cases, will offer a tangible improvement to the overall sound. It does all this cost-effectively and without any unnecessary complexity. ■

The bits

At the heart of the master clock generator are two temperature compensated crystal oscillators running at 24.576MHz and 22.6792MHz. The output of these is divided down to give the familiar 48kHz and 44.1kHz basic rates and their multiples up to 192kHz plus 256Fs superclock. Eight word clock BNC outputs are provided on the rear panel together with two XLR and two phons that supply AES 11 standard blank frame (DARS).

BNCs 1-4 and the AES 11 outputs all have the same sample rate selected by the push buttons in the Output Sample Rate section on the front panel. Rate sets the basic rate as either 44.1kHz or 48kHz and Hi (x2) doubles this as indicated on the adjacent LEDs. Outputs 5 and 6 can be further doubled to give a maximum rate of 192kHz and outputs 7 and 8 can be set to give Fs256 superclock.

The other half of the unit offers four independent stereo channels of sample rate conversion. Inputs 1 to 3 are on the rear panel, 1 and 2 are AES31 XLR, 3 is SPDIF phono and input 4 is on the front panel with the choice of optical (Toslink) or coaxial SPDIF.

The four sample rate convertor outputs are simultaneously available in AES31 XLR and phono SPDIF on the rear panel and in Toslink on the front. Four front panel LEDs indicate when the inputs are locked. The outputs are all locked to the fundamental output sampling rate of the master clock generator. Inputs with higher or lower rates are automatically converted to this rate.



PROS Cost effective versatility; simple to use; accurate.

CONS No external sync inputs; no pull-up or pull-down.

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