TC Electronic M-One and D-Two

Looking for a quality reverb or delay unit for well under $1000? Then check out the new M-One and D-Two from Denmark's TC Electronic. TC introduced several new effects units last year, including the M3000, Fireworx and others - all priced at well over $1000. This year the focus has shifted with the introduction of two lower-cost effects units, priced at under $700, which should help to significantly expand TC's already broad customer-base.

The M-One Dual Effects Processor is a general purpose dual-engine processor offering some of TC Electronic's most coveted algorithms including enhanced reverbs based on all new research - plus a goodly selection of other popular effects. There are more than 20 different algorithms, all accessible via a fast, simple and intuitive user interface, with 100 factory presets and 100 empty user presets.

Based on the classic TC Electronic 2290 Delay, the D-Two Multi-Tap Rhythm Delay offers a very musically-oriented Rhythm Tap feature. Featuring up to 10 seconds of delay, the D-Two also provides six additional direct-access effects, including Spatial, Ping Pong, Reverse, Dynamic Delay, Chorus and Filter - with 50 ROM presets and 100 user RAM preset locations available.

The technical specifications of both these units are very pretty impressive for the price - with 24-bit A/D and D/A converters and 24-bit internal processing, lots of headroom, low distortion, a very wide and flat frequency response and a quoted dynamic range of better than 93 dB - and just about every parameter in these units can be controlled via MIDI SysEx or Continuous Controllers.

M-One Dual Effects Processor

Let's take a look at the M-One first. Primarily a reverb unit, this is a dual-engine processor which you can use as two independent reverbs controlled from separate Auxiliary sends on your mixing desk. Just select Dual Input Routing plus two Reverbs and you are up and running. The four output channels of the two Engines are mixed down internally to the two output channels so you just need one stereo pair of Auxiliary Return channels on your mixing board - saving you a set of return channels.

You can also use the two engines in combination in serial or parallel modes. For example, you might use a de-esser in front of a bright reverb to remove excessive sibilance while preserving the openness of the reverb. On the other hand, in a live setup you might use engine 1 for a short snare-type reverb and engine 2 for a big warm vocal hall.

Let's look at the routings in more detail later, but for now, note that different routings are stored with each preset. So what if you want to change presets and keep the same routing? No problem! Just use the handy 'Routing Lock' function and this will keep the routing the same when you change presets no matter what
routing has been saved with the new preset. And - talking about switching presets - this is instant, with no interruption to the sound - very impressive!

Front Panel

Looking at the front panel from the left you find a power button and three knobs to control the Input Level, the Mix between dry and wet signals, and the Effects Balance between the outputs of the two effects engines. At the centre of the panel there is a large LCD display section with input meters, overload LEDs, an analog/digital input selection LED, a samplerate indicator, a routing indicator, an algorithm indicator for each effects engine, a pair of meters to show gain reduction for the dynamics algorithms, the preset number and type, an icon to indicate if the current preset has been modified, an icon to show whether you are in the Factory or User bank, and a MIDI In icon.

To the right of this display area there are various groups of buttons for Setup, Effects control and Program selection, with a group of four Control buttons surrounding a large rotary control wheel for entering data. In the Setup section, the Routing key lets you select the routing mode; the I/O button lets you choose between the analog and digital inputs, set the samplerate, and suchlike; the TAP key lets you tap a tempo or enter the Tap menu; and the Utility key lets you access the MIDI, SysEx, Routing Lock, Bypass mode and Pedal functions. The Effects group has two buttons to let you select and change the algorithms in each effects engine - with two Bypass keys for the effects located underneath these. There are three Bypass modes: Mode 1 passes the input signal directly to the output - as you would expect. Mode 2, 'Bypass FX Input', cuts the input to the effects engine so that the input signal disappears yet leaves the effect 'ringing out'. Mode 3, 'Bypass FX Output', does exactly the opposite - so the button cuts the output of the effects engine instantaneously but keeps the level of the direct signal the same. The Program section has just two buttons - Recall and Store - which are used in conjunction with the Control Wheel to select the desired preset. Finally, in the Control section, a pair of Cursor Up/Down keys let you move around in the display while the Control Wheel is used to change values and, to the right of this, an Enter key lets you confirm operations and an EXIT key lets you exit a menu or cancel an action.

Operational Aspects

The user-interface is well designed and I found my way around most of it without having to look at the manual. The two things I did need to check out were the Routings and the Tap function - so let's look at these here. The Tap function lets you tap a tempo for the Delay time, Chorus rate and so forth. Just press the Tap key one time, and the Tap delay parameter appears at the bottom of the display. Tapping on the key in time with the music sets the delay to approximately the correct value and you can use the Control wheel for fine-tuning. Hitting the down cursor key brings up Tap Sub-division - the beat sub-division you want to tap along with - and you set this using the Control wheel. Hitting the down cursor again brings up the Tap Function selector so you can set which Engine the Tap control works with - 1, 2 or both. Going down once more takes you to the MIDI sync switch which you can set on or off. To adjust parameters is extremely
straightforward - you simply use the cursor keys to select parameters and spin the Control wheel to select values. Easy enough once you have been through this one time.

The routings were a little more difficult at first. The key to understanding these is to stop and think what you are trying to achieve and then choose the best setup for your project. Dual Send/Return is the one to use if you want to use the unit as two independent effects processors. Parallel routing sums the left and right inputs and both engines are fed with the exact same signal. This is great when you want to add two different effects to the same source without these interfering with each other. For example - a Chorus and a Reverb on the same guitar track. In Serial mode the signal always passes through engine 1 before engine 2 - so using this you could combine effects such as a De-Esser to remove sibilance in engine 1 with a bright reverb in engine 2.

Parallel/Serial is similar to dual input routing except for one thing: the output of Engine 1 can be fed back to the input of Engine 2. Use this when you want separate inputs to each engine but still want the effects to be partially combined. For example, you might have a long delay running on engine 1 and a large hall reverb on engine 2, and you want to use both these effects on a lead vocal. The repeats from the delay seem kind of dry when compared to the ‘reverb’ed’ vocal, so you bleed a bit of the delay repeats from engine 1 into the reverb in engine 2 by turning up the engine 2 cross-feed parameter - and now you will hear reverb on both the vocal and the delay repeats.

When you switch to Stereo Linked Routing both engines produce exactly the same effect with synchronized parameter settings. Use this for true stereo operation - for example, to have the M-One as a stereo Compressor on a sub-group on your mixing console. Finally, with Dual Mono the two engines are totally independent with mono in and mono out for each engine. Use this if you need, say, a Tremolo effect on one channel and an EQ effect on another - effects which are frequently applied in mono rather than stereo.

The Algorithms

Most of the reverbs in the M-One contain two different parts - the Reflections and the Tail. These early reflections simulate the first reflections you would hear in a real room - defining the size and character of the room. The reverb tail simulates the diffuse reverberant field that builds up after the early reflections. You can build your own reverb presets by tweaking the parameters of both these sections. Parameters include Reverb Tail Decay, Predelay between the early reflections and the reverb tail, Size of the early reflection pattern, and a High Frequency Cut filter to reduce sibilance in the reverb. The High Color parameter adjusts the Decay time in the upper frequencies - and also helps to reduce sibilance. Low Color adjusts the reverb time in the low frequencies to remove rumble - while keeping the warmth of the reverb tail. You can also set the Early Reflections Level, Reverb Tail Level and the Overall Level of the effects. Modulation speed and depth controls are provided and there are two Modulation types - Smooth without detuning the original source sound, and Vintage which tends to detune the original source slightly. By suitably juggling these parameters you can achieve
both the Classic effect reverb sound with no early reflection patterns and heavy
detune style modulation, and the new more natural-sounding reverbs using Early
Reflections and complex non-detuning modulation styles. The M-One also offers
emulation of older style reverbs such as Plate, Spring and even a 'Live'-type
reverb. Although primarily a reverb unit, the M-One also has a full complement of
delay, EQ and dynamics effects including Chorus, Flanger, Phaser,
Compressor/Limiter, Gate/Expander, De-Esser, Tremolo, Pitchshifter and Detune
- and a three-band Parametric Equalizer.

**Conclusions**

TC claim that the M-One's reverb algorithms are more advanced and have more
density than any other processor in their price range. I would go along with this -
it beats any of the reverb plug-ins I have on my Pro Tools TDM system, for
example. For instance, 'Natural Hall + Ambien' added lots of life, depth and
richness to my solo guitar tracks and 'Large/Small Chamber' sounded just right
on a latin/pop track with an up-front female lead vocal. The delay effects are 'hot'
as well - just check out M-One Magic. This is something very special - sophisticated
and spooky sounding, with subtle delay repeats.

So should you be getting an M2000 or M3000 instead? Well, if you can afford to
pay two or three times as much and you need the M2000's more pro approach -
with XLRs, single presets, AES/EBU and more parameters - then go for the M2000.
But the M-One has the edge if you are looking for more interesting reverb
algorithms. The M3000, on the other hand, is definitely a superior unit, with all the
professional features of the M2000 plus the more natural-sounding newly-
developed VSS reverb algorithms. And it has more than twice as many presets as
the M-One. So go for the M3000 if you like the sound of $2500! Of course you can
buy an M-One and a D-Two for around the same price as an M2000, so the M-One
will definitely appeal budget-wise to project studio owners and 'live' sound
engineers alike.

**D-Two Multitap Rhythm Delay**

The D-Two is a dedicated Delay unit for music applications with speed-of-
operation and sound quality as the main focus. Based on TC's classic 2290 delay,
the D-Two has all the features you could wish for - and more! Not only tempo but
actual rhythm patterns consisting of up to 10 steps can be tapped in directly from
the front-panel key (or a foot-pedal) and the Pattern can then be scaled up or
down in speed. Using the automatic Subdivision feature you can just tap the BPM
and the D-Two will automatically adapt to the subdivision you want - say 1/8
notes. Want to view your Delay time in BPM? No problem, the D-Two will do that
as well. Another great feature is Track Tap. Enable this feature and the preset will
instantly track the current basic tempo and adapt to this instead of using the
tempo that the current preset was stored with. Are you beginning to get the
message here? This box means business!

**Front Panel**
OK, let's check out the front panel. Looking from the left, the D-Two has a Power switch and a pair of controls for Input Level and the Mix between wet and dry signal. Next along, the large display area has an Input meter at the left and a Delay Time Indicator which displays in milliseconds or BPM. An indicator to the right of this blinks to show the Tempo/Rhythm, with the Subdivision Indicator to the right again. Further along, the Dynamic meter indicates gain reduction for the Dynamic Delay algorithm. At the far right you can see the preset number - and icons next to this indicate whether the current preset had been modified and whether you are using the Factory or User bank. There is also a Midi In icon. Underneath the Delay Time indicator, several more small indicators show the sample rate, the feedback percentage (which determines the decay of the Delay repeats), the Feedback number (the exact number of repeats), with three LEDs to show the Feedback High and Low Cut filter setting, the overall High and Low Cut filter setting and the Ping Pong LEDs to indicate that panning is active.

The rest of the front panel is filled with control buttons and a couple of large rotary controls. The first set of buttons includes the Delay/Tap key, the Feedback Rhythm key and a large Delay wheel. When you hit the Delay key once the wheel changes the delay time, or you can just tap on the Delay key to set the Delay time. The D-Two measures the time between the last two taps and the delay time is calculated according to the selected subdivision. The Feedback/Rhythm key has 3 main functions. If you hit this once, you can use the Delay wheel to set the Feedback %, If you press and hold the key, the Delay wheel changes the number of repeats. Or you can tap a rhythm pattern of up to 10 steps.

The next group contains the six direct-access Effects keys which let you selectively enable or disable the different effects - Spatial, Filter, Chorus, Reverse, Dynamic and Ping Pong.

Four Function keys next to these let you Edit, Setup, Store and Recall the presets. Hit Setup to access the setup menu or hit Edit to access the preset parameters - and you can use the Arrow keys to the right of the Function keys to select parameters and the large Control wheel to change values. Finally, at the far right of the panel, you will find the Enter and Bypass buttons - which work just like those on the M-One.

**Delay Modes**

A standard delay line produces repeats by feeding back the delay output to the delay input. The D-Two supports this Traditional mode of operation, with up to 5 seconds of delay in stereo or 10 seconds in mono and also provides a couple of other modes which use a multistep delay design.

The Straight Delay mode lets you control the exact number of repeats - great for 'tweakheads'! The multiple output 'taps' from the delay line produce delays at different points in time. Using the Feedback number you can set the number of taps to produce what will sound like simple repeats of the first delay heard. Then, using the Feedback % control, you can set the feedback amount for the last tap - which is fed back to the delay input in the multi-tap modes. This starts the whole process again, so the complete sequence of taps is heard repeating in rhythm. Don't go 'over the top' here though - the maximum delay time has to be shared
among the number of taps specified - so with 10 repeats you only have 1 second available on each tap in mono mode. Interestingly, a shuffle parameter is provided to let you add a shuffle feel to the delay repeats in Straight mode.

But it gets even more interesting in Rhythm mode. Here you can tap the exact rhythm you want, using the Feedback/Rhythm key, then quantize the rhythm pattern to a specific subdivision. You can edit the rhythm pattern and even change the level of each tap in the pattern to create some great delay pattern 'feels!' - setting each Tap Level to Mute, -12dB, -6dB, -3dB, 0dB, +3dB, or +6dB. Again, the maximum delay time is divided by the number of specified taps.

**Instant Satisfaction**

The dedicated Delay/Feedback wheel, the two different Tap keys, and the six direct-access keys (which you can double-click to shortcut to the relevant Edit parameters) all help to make the D-Two easy and speedy to operate. Hitting Spatial instantly broadens the Delay picture by introducing a small time difference between the two channels - and one Delay channel can be phase reversed, widening the Delay even more. Hit Ping-Pong and the Delay instantly pans from left to right - with 5 patterns to choose from. Panning styles can be hard left to hard right, or with taps at left, centre and right, or Dynamic. Choosing Dynamic style will fit the number of Delay repeats with the number of panning positions - so a Delay with 5 repeats would use 5 pan positions from left to right. The Reverse delay feature is very sophisticated, again with a number of styles to choose from, but there are a couple of limitations - the maximum delay is halved to 2.5 seconds in stereo and 5 seconds in mono and the number of repeats is fixed. Now if you want to clean up your effects 'picture' just hit the Dynamic key. This lets you set a release time and threshold to let the input signal control the level of delay. When the input signal is high the level of the delays is 'ducked', but when the input signal drops below the threshold the delay signal gets louder. Using this feature the delays will only be heard where you really want them - in the pauses - keeping everything nice and tidy! And if you want to smooth out the Delay sound or simply to change its flavor, just hit Chorus to add Chorus or Flanger along with the Delay. Finally, you can apply Filters (both in the Delay line and in the Feedback loop) to the delay repeats to progressively remove more high frequencies as the repeats ring out - more closely mimicking analog devices.

**Presets**

Some of the names are really obvious, such as Tape Echo, Chorused Delay, Straight 2290 Delay, My Old Echoplex, and suchlike. Others, such as Shuffle Your Feet and Stabbed in the Back are less obvious - but these names are very memorable, so once you have heard the effect you know what to ask for next time! Moving Hat gives you instant spacey 'dub' effects - filtered and flanged with an unpredictable rhythm. Low Cut 1/8th notes is great for reggae stuff as well - with all the low frequencies filtered out on the delay repeats. Preset 41, called The End, gave me a laugh. At first I couldn't work out why it was called The End - it wasn't even the last preset. I kept retriggering a track through the preset while I was thinking about this, and then, suddenly, I heard it - like a Morse Code in the sound - and I knew the answer. If you want to know - go take a listen yourself.
Overall, I liked what I heard and found myself wishing that there were a lot more than 50 presets!

**Applications**

The D-Two is really easy to operate and the manual contains lots of useful operational hints and suggested applications. For example, in the Project Studio, the Engineer wants to use a Multi-tap Delay with a rhythmical relationship between the taps for the lead vocal. He is not tightest person around, so he sets the D-Two up to quantize to 1/8 notes. He taps the desired rhythmic pattern on the Rhythm Tap key, and instantly gets his Multi-tap Delay running. Then the Sequencer Guy wants to create a fast Jungle style Rhythm Delay, synchronized to his sequencer. In order to create the right pattern, he taps and edits the pattern at half speed, e.g. 1/16 notes. When enabling the MIDI Sync function he selects the 2/1 setting, thereby creating the double-speed feel of his custom-designed Rhythm pattern. On top of this he real-time controls the Filters, enables/disables the Reverse function and changes the Flanger speed on the fly, using MIDI Continuous Controllers. Or on the road with the PA system, the Live Engineer wants to reproduce the very significant three tap panned Delay from the record of tonight’s band. He activates the Ping Pong key, limits the repeats to three and taps the Delay time - and that’s it. Fast and efficient!

**Conclusion**

Operationally, the D-Two is very similar to the M-One - so, for example, Store and Recall work the same way and you get the same three bypass modes. Again, just about every parameter can be controlled via MIDI, and you can lock the delay to an incoming MIDI clock from a sequencer or drum machine and subdivide this clock to adapt to very slow or fast tempos. And at the price TC are asking you will find it much easier to afford to buy both the M-One for reverb effects and the D-Two to produce those special delay effects to give your next production ‘the edge’. Highly recommended!

**Additional Info**

**Rear Panels**

The rear panels of both units are identical - featuring a pair of 1/4” jacks for analog inputs, with the left jack reserved for mono input, along with another pair for the analog outputs. The analog inputs and outputs are electronically balanced and you can hook these up to a wide range of equipment, whether consumer or professional - as the inputs can handle up to +24 dBu while the outputs can deliver up to +20 dBu. A pair of RCA jacks is also available for S/PDIF digital input and output at up to 24 bits resolution at either 44.1 or 48 kHz samplerates. The usual MIDI In, Out and Thru connectors follow these, with another 1/4” jack provided for pedal switch input and an IEC socket to hook up power for the internal power supply. This works with any voltage between 100 and 240 volts.

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Prices:
Retail Price of the M-One - $699, Retail Price of the D-Two - $699

Pros: Excellent effects units from one of the 'big' name manufacturers on offer at very attractive prices.

Cons: The internal processing doesn't provide as much headroom as in the more expensive units.

"EM Meter" ratings:

M-One:
Features 4
Ease of Use 5
Audio Quality 5
Value 4

D-Two:
Features 5
Ease of Use 4
Audio Quality 5
Value 4

Author Bio:

Music Technology Consultant, Mike Collins, lives in London, England where he plays guitar, writes and produces music, teaches music technology and writes for magazines worldwide about all this stuff.