



# **DELUXE MEMORY MAN 550-TT**

## **TAP TEMPO ANALOG DELAY with FX LOOP, MODULATION and EXPRESSION PEDAL CONTROL**

Congratulations on your purchase of the Electro-Harmonix Deluxe Memory Man 550-TT (DMM550). The DMM550 is designed with high quality, new old-stock bucket brigade ICs for an analog delay sound equal to the original Deluxe Memory Man. In addition to Tap Tempo control of the delay time, the DMM550 also includes delay time modulation, an effects loop in the feedback path of the delay block, an input gain control, tap tempo divide and optional expression pedal control over five parameters: Delay Time, Feedback, Modulation Depth, Rate and Blend. The DMM550 is true bypass.

### **-CONTROLS and INDICATORS -**

**WARNING:** Your Deluxe Memory Man 550-TT comes equipped with an Electro-Harmonix 9.6DC-200BI power supply (same as used by Boss® & Ibanez®: 9.6 Volts DC 200mA). The Deluxe Memory Man 550-TT requires 200mA at 9VDC with a center negative plug. The DMM550 does not take batteries. Using the wrong adapter may damage your unit and void the warranty.

### **KNOBS**

**DELAY Knob** – Sets the delay time from 30 mS to 630 mS. As you turn the DELAY knob clockwise, the delay time will increase. It is normal for the noise floor to rise as the delay time increases. At the longest delay settings it is normal to hear ring modulation. If you tap in the delay time, the DELAY knob's setting will be ignored until you move it again. If you turn the DELAY knob after tapping in a delay time, the DELAY knob's setting will supersede the last tap tempo that was entered. Turning the DELAY knob, while listening to your echoes, will bend the pitch of your notes. The DELAY knob can also be used to set the maximum

delay time for expression pedal control. **N.B.:** the TAP DIVIDE button functions have no effect on the DELAY knob; pressing this TAP DIVIDE button while the DELAY knob controls the delay time will not change the delay time.

**FEEDBACK Knob** – Controls the amount of signal that is circulated from the output of the delay block to its input. Turning the FEEDBACK knob clockwise increases the number of echoes. Setting the FEEDBACK control to its maximum clockwise position will cause the DMM550 to run-away, or self-oscillate. Alternatively setting the FEEDBACK knob to its minimum position will yield just one echo or repeat for each of your notes. The FEEDBACK knob is also used to set the maximum amount of feedback for expression pedal control.

**DEPTH Knob** – Sets the amount of modulation that is applied to the delay time. As you turn the DEPTH knob clockwise, the amount of modulation increases. Turn the DEPTH down to the full Counter-Clockwise (CCW) position to turn modulation off. The DEPTH knob is also used to set the maximum amount of modulation for expression pedal control.

**RATE Knob** – The RATE knob sets the rate or speed of modulation. As you turn the RATE knob clockwise the modulation rate increases. The DEPTH knob must be set above the full CCW position to hear the RATE knob change the modulation speed. Additionally, the RATE knob sets the maximum rate of modulation for expression pedal control.

**GAIN Knob** – Sets the input gain for the DMM550. As you turn the GAIN knob clockwise, the input gain will increase. The total gain range is -13 dB to +20 dB. The gain block is the first stage that the input signal goes through in the circuit. Both the dry and wet signals mixed by the BLEND knob go through the gain block.

**BLEND Knob** – The BLEND knob is a wet/dry control allowing you to vary the mix between direct and delayed signals at the OUTPUT jack of the DMM550. Set the BLEND knob to the full clockwise position for an output that is 100% wet. Set the Blend knob to full counter-clockwise for an output that is 100% dry. Setting BLEND anywhere in between will mix the wet and dry signals together. Additionally the BLEND knob sets the maximum wet/dry mix for expression pedal control.

## **SWITCHES & LEDs**

**BYPASS Footswitch and STATUS LED** – The BYPASS FSW is used to toggle the DMM550 between effect mode and true bypass mode. The red STATUS LED will light up when in effect mode and turn off in bypass.

**EXP. MODE Button and LEDs** – The EXP. Mode button cycles through the six available expression modes: BLEND, RATE, DEPTH, FEEDBACK, DELAY and OFF. Each time you press the EXP. MODE button the DMM550 will advance to the next expression mode LED. An expression pedal must be plugged into the EXP. PEDAL jack to make use of these modes. A lit LED for one of the modes indicates the

expression pedal will control that parameter. For example, if the RATE LED is lit, the expression pedal controls the modulation rate, from slowest (expression pedal = toe up), to the RATE knob's current setting (expression pedal = toe down). When no EXP. MODE LEDs are illuminated the expression pedal is disabled while it remains plugged into the DMM550. The setting for the EXP. MODE is saved and recalled when power cycling.

**TAP Footswitch** – The TAP FSW is used to tap in the delay time. Stomp on the TAP FSW two times and the delay time will jump to the time between taps (if all the TAP DIVIDE LEDs are off). If you tap more than twice, it will average the tap tempo for all taps, it will stop averaging if there is more than 2 seconds between two consecutive taps. The DMM550 will always take into account the TAP DIVIDE setting when determining the delay time from the tap tempo. For example, if your tap time is 1 second and TAP DIVIDE is set to eighth notes, the actual delay time will be 0.5 seconds. **The maximum delay time, when tapped in, is 1.5 seconds; though at this delay time the effect will sound quite lo-fi.** The DMM550 will save and recall the tap tempo when power cycling. In addition, if an expression pedal is controlling the delay time, the Tap Tempo and TAP DIVIDE setting will determine the maximum delay time of the expression pedal.







**N.B.:** The delay time for the DMM550 is always set by the last method used. If you tap in a delay time, the DELAY knob's setting is ignored. After tapping in a delay time, if you turn the delay knob, the tap time will be forgotten and replaced by the current position of the DELAY knob.

**TAP FSW HOLD TO PRESET FEEDBACK** – If you press and hold the TAP FSW, the DMM550 will slowly ramp up to a high FEEDBACK setting. After releasing the held TAP FSW, the feedback amount ramps back down to the current FEEDBACK knob setting. The high feedback setting that the DMM550 ramps up to is set at the factory but may be adjusted when you are holding down the TAP FSW, if held for more than 1 second. If you do not like the setting chosen at the factory, simply turn the FEEDBACK knob to your preferred setting, while the TAP FSW is held down. It may take a few tries before nailing the perfect setting. Release the TAP FSW to save the feedback hold setting. The DMM550 will remember the TAP FSW HOLD setting after power cycling.

If you want to restore the original factory setting for the FEEDBACK HOLD, press and hold the EXP. MODE button while applying power to the DMM550. When you see all 5 expression mode LEDs light up, the factory setting has been restored, you can now release the EXP. MODE button.

**BEAT LED** – The green BEAT LED either blinks at the current delay time setting (if delay time is set by the DELAY knob) or the tempo that you tapped in. Cycling through the TAP DIVIDE settings will not change the BEAT LED blink rate. If you are modulating the delay time, the change in delay time due to modulation will be reflected in the BEAT LED.

**TAP DIVIDE Button and LEDs** – This button cycles through the six possible settings for TAP DIVIDE. Each setting, except when all LEDs are off, will divide the tap tempo to create shorter delay times in sync with your original tempo. It works like so: The DMM550 always assumes that the musician taps in a quarter note. That quarter note can then be divided down to five other types of notes: dotted eighth note, quarter note triplet, eighth note, eighth note triplet and sixteenth note. The sixth mode is quarter note or OFF, where the tap tempo is not divided down and the delay time is set to your actual tap time. No LEDs are lit when Tap Divide is set to quarter note/OFF. Below is a chart displaying the six modes, their divide ratios and an example of the delay time for each mode:

<b>TAP DIVIDE MODE</b>	<b>SYMBOL</b>	<b>DIVIDE RATIO</b>	<b>DELAY TIME (for a 600 mS TAP)</b>
Quarter Note / OFF		1 / 1	600 mS
Dotted 8th Note		3 / 4	450 mS
Quarter Note Triplet		2 / 3	400 mS
8th Note		1 / 2	300 mS
8th Note Triplet		1 / 3	200 mS
16th Note		1 / 4	150 mS

**N.B.** The TAP DIVIDE button has no effect on the delay time when the delay is set by the DELAY knob. Cycling through the different TAP DIVIDE modes, when the delay time was last set by the DELAY knob, will not change the delay time in any way.

The TAP DIVIDE button setting is saved and recalled when power cycling.

**TAP DIVIDE SEQUENCE MODE** – The DMM550 contains a little easter egg called Tap Divide Sequence mode. In this mode, the DMM550 will automatically cycle through the six tap divide modes at a rate set by the RATE knob. To use this mode, do the following:

1. Tap in a delay time. Tap Divide Sequence mode will not work if the delay time is set by the DELAY knob.
2. Press and hold the TAP DIVIDE button for 2 seconds. After 2 seconds, all of the TAP DIVIDE LEDs will light up briefly, now you are in sequencer mode. You can release the button.
3. Turn the RATE knob to change the speed of the sequence. You should see the tap divide LEDs light up in a sequential fashion.
4. You can tap in new delay times to change the delay time range.
5. To exit Tap Divide Sequence mode: hold down the TAP DIVIDE button for another 2 seconds. All 5 LEDs will light briefly to indicate you have exited sequence mode. You could also simply turn the DELAY knob.

## **I/O & POWER JACKS**

**INPUT Jack** – Connect the output of your instrument or other effects pedal to the ¼" INPUT jack. The impedance presented at the INPUT jack is 100 k $\Omega$ .

**OUTPUT Jack** – Connect the output of the DMM550 to the input of an amplifier or another effects pedal. The output impedance is 200  $\Omega$ .

**SEND Jack** – Connect this jack to the input of another effects pedal or chain of effects pedals to insert an effects loop before the DMM550's delay block. The output impedance is 200  $\Omega$ .

**RETURN Jack** – Connect this jack to the output of another effects pedal or chain of effects pedals to insert an effects loop before the DMM550's delay block. The input impedance presented at the RETURN jack is 2 M $\Omega$ .

**EFFECTS LOOP** – The Deluxe Memory Man 550-TT has an effects loop feature which allows other effects to be inserted into the feedback loop of the delay block, before the bucket brigade chips. This means that you can put additional effects on your wet signal without changing your dry signal and each time your notes go around the feedback loop, they will also go through the effects loop.

For example, if you connect a Micro POG in the DMM550's effects loop, setting the Micro POG to output only the upper octave, the delayed note will be one octave above the dry note that you played. Additionally, with a fair amount of feedback on the DMM550, each time the note circles around the delay loop, the signal will go up another octave. So if you play a C2 on the guitar, the first echo will be a C3, the second C4, the third C5 and so on.

Another example would be to plug a volume pedal into the DMM550's effects loop. The volume pedal will act as a FEEDBACK control. With the addition of an expression pedal, you could have the volume pedal control feedback and the expression pedal control one of the other expression modes..

To properly use the DMM550's effects loop, connect the SEND jack to the input of your effects loop and the RETURN jack to the output of your effects loop.

**N.B.** If you do not wish to use the effects loop, please leave the RETURN jack disconnected.

**EXP. PEDAL Jack** – Enables the musician to control any of the five available expression modes with an optional expression pedal or control voltage. The expression pedal should have a Tip-Ring-Sleeve plug attached to it. It is important that the expression pedal have the correct polarity. The tip of the plug must be connected to the wiper of the potentiometer inside the expression pedal. If you are not sure what type of expression pedal to use, try to purchase one with a polarity switch so that it will work with many different types of instruments. Some suggested Expression Pedals: M-Audio EX-P, Moog EP-2,

Roland EV-5 or Boss FV-500L. You may also connect a Control Voltage on TS plug to this jack. The Control Voltage range must be 0 V to 5 V.

**EXPRESSION PEDAL CONTROL** – The Deluxe Memory Man 550-TT allows external control over five of its parameters: BLEND, modulation RATE, modulation DEPTH, FEEDBACK and DELAY time. Please see the EXP. PEDAL Jack section above for suggestions on the type of expression pedals to use. The pedal will need to have a TRS plug. In addition you may use a control voltage, with a TS plug. The acceptable CV range is 0 V to 5 V.

Use the EXP. MODE button to choose the function you want to control with an expression pedal; repeatedly press and release the EXP. MODE button until the proper LED lights. After selecting a parameter, its associated knob will now set the maximum sweep range, which is the toe down position for the expression pedal. For example, if you want to sweep the full range of the FEEDBACK knob, you will need to set the FEEDBACK knob to its full clockwise position. The expression pedal will then sweep from 0% feedback (toe up position) to 100% feedback (toe down position).

Some expression pedals allow you to dial in the toe up position using an extra knob on the pedal itself. When using this type of pedal you can set the range for both toe up (using the knob on the expression pedal) and toe down (using the selected knob on the DMM550). If you use an expression pedal that does not allow you to dial in the toe up position, then toe up will always be that particular knob's minimum setting.

**TAP SW Jack** – Allows the musician to input the tap tempo from an external momentary switch. The external switch should be normally open. Upon engaging the switch, it should create a short circuit between the Tip and Sleeve of the plug inserted into the TAP SW jack on the DMM550. Releasing the switch should open the circuit between the Tip and Sleeve. The TAP SW jack is connected in parallel with the TAP FSW on the DMM550 so they can both work at the same time. A suggested Momentary Footswitch that has been tested with the DMM550 is the Boss FS-5U Momentary Foot Switch.

**TAP SW Jack Extra Control** – If you are handy with a soldering iron, you may also make connections on the DMM550's PCB to allow external control of either the TAP DIVIDE button or the EXP. MODE button by connecting an external momentary switch between the Ring and Sleeve of the TAP SW jack.

To enable external control of the TAP DIVIDE button, short together the pads of R139 on the DMM550 PCB. R139 is labeled TAP DIV SW and is located just above the 10-Pin IDC header, CN6.

To enable external control of the EXP. MODE button, short together the pads of R140 on the DMM550 PCB. R140 is labeled EXP FUNC SW and is located above the 6-Pin IDC header, CN5.

These external switch connections work in parallel with their associated buttons on the DMM550. If either of the buttons have been enabled for external use, a TRS plug must be inserted into the TAP SW jack. In this circumstance, if a TS plug is inserted into the TAP SW jack it will be equivalent to holding down whichever button has been enabled for external use, without the ability to release the button.

**9V PWR JACK** – Connect the output plug of the supplied AC Adaptor into the 9V power jack at the top of the DMM550. The DMM550's current requirement is 200mA at 9VDC. The polarity of the power jack is center negative. The maximum allowable power supply voltage is 10.5 VDC.

## **FACTORY RESTORE**

The Feedback Hold setting, along with the original EXP. MODE and TAP DIVIDE mode, can be restored to their original factory settings by holding down the EXP. MODE button during start up.

Press and hold the EXP. MODE button, then apply power to the DMM550 while continuing to hold the EXP. MODE button. Once you see all five EXP. MODE LEDs light up solid, you may release the button. The factory settings have been restored.

## - WARRANTY INFORMATION -

Please complete and return the enclosed warranty card within 10 days of purchase. We will repair the unit at **no charge within one year of date of purchase**. If you should need to return your unit for service within the warranty period, please include a brief description of the problem as well as your name, address, telephone number, copy of your receipt, and a check or money order for shipping and handling:

## - FCC COMPLIANCE -

*Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

*Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.*