

Marshall Morrison Instruments

Morrison Digital Trumpet

OWNER'S MANUAL

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MDT OWNERS MANUAL V1.01

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Section 1: Getting Started

1.1 Welcome to the MDT

Congratulations and thank you for purchasing a Morrison Digital Trumpet.

The Morrison Digital Trumpet, or MDT, is a trumpet-style MIDI wind controller developed in Australia by Steve Marshall in collaboration with respected Australian multi-instrumentalist James Morrison. Designer Steve Marshall began development of the MDT in 1996. The basic design concept of the MDT was to make a brass-style MIDI wind controller that would be easy for trumpet and other brass players to play. Unlike other trumpet wind controllers, the MDT feels and even looks a lot like a trumpet making the transition from acoustic trumpet to "electronic trumpet" quite easy. The MDT is to the acoustic trumpet what the electric guitar is to the acoustic guitar. Many years have gone into the MDT's design and the software that powers this wonderful new instrument. With its advanced MIDI capabilities and extensive on-horn editing abilities complete with LCD, it is arguably the most advanced MIDI wind controller ever produced. We sincerely hope you enjoy playing the MDT as much as we have enjoyed designing it.

1.2 What's Included

The following items are included with the MDT:

- * The MDT Brass-style MIDI controller
- * A custom stainless steel mouthpiece
- * A protective aluminum carrying case
- * A connecting cord that connects between the MDT and its power supply box
- * A power supply box with the appropriate plug adaptor for your region
- * A hexagonal Allen wrench used for adjusting the handle and thumb levers

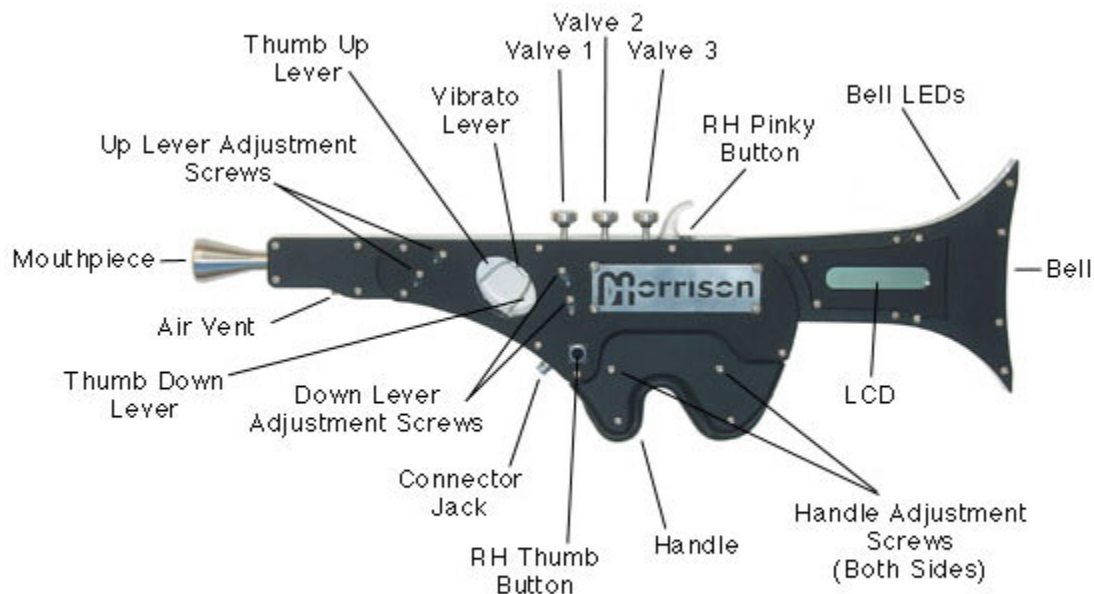
1.3 What else is required to play the MDT

The MDT is an extremely advanced MIDI wind controller but it is important to remember that the MDT is a controller- that is, it simply generates a MIDI signal that is used to control a MIDI sound source. The MDT must be connected to a MIDI sound source to create a sound. There are numerous MIDI sound modules, keyboards, and computer soft synths that will work well with the MDT.

You will also need a quality amplifier or pair of headphones. It is best to avoid guitar or bass guitar amps since they often are not full range, are EQ'd for guitar, and lack a tweeter. A much better choice is a full range keyboard or PA type amplifier. Many companies make such amps such as Yamaha, Roland, Mackie, Peavey, Bose, etc... A visit to your local music dealer will likely prove fruitful.

To get the most out of your system you may wish to load some patches into your sound source that are programmed specifically for use with wind controllers such as the MDT.

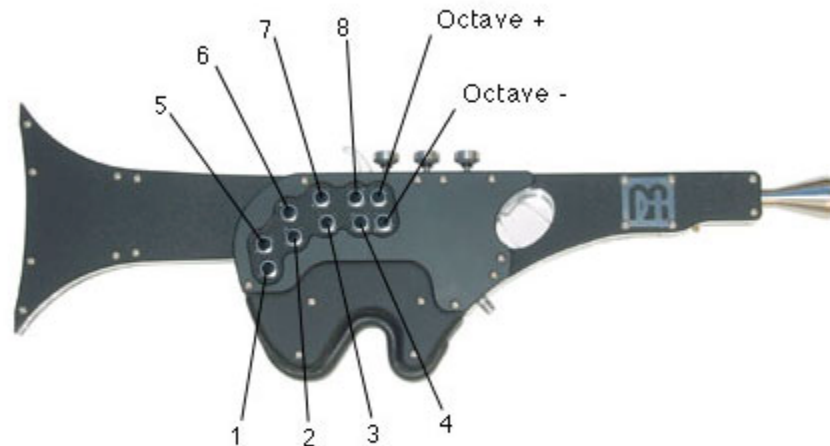
1.4 Getting To Know Your MDT



Right Hand View

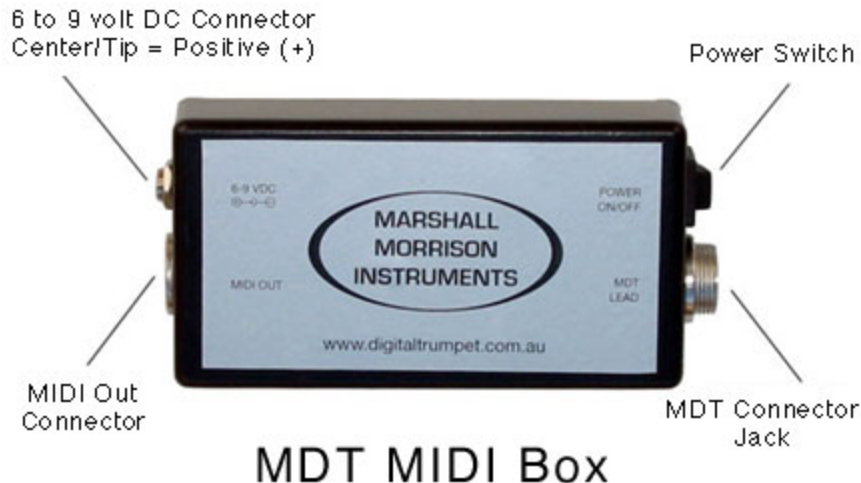
| | |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Mouthpiece | Removable custom stainless steel mouthpiece |
| Up/Down Lever Adjustment Screws | Used to adjust width between Thumb Levers |
| Thumb Up Lever, Thumb Down Lever | Assignable continuous MIDI controllers, Factory Default is for Pitch Bend Up and Down |
| Vibrato Lever | Assignable continuous MIDI controller, Factory Default is for Vibrato |
| Valve 1, Valve 2, Valve 3 | Valves used for playing with RH, also used for Editing |
| RH Pinky Button | Assignable Function Button, also used for Editing |
| Bell LEDs | Shows visually the current octave position, middle red LED indicates half octave, Middle green LED indicates middle C octave. |
| Bell | The bell end can be removed to access control jumpers |
| LCD | Visual LCD screen used for editing. |
| Handle Adjustment Screws | Used to adjust the handle to the desired position |

| | |
|-----------------|------------------------------------------------------|
| Handle | The trumpet is held by the handle using the LH |
| RH Thumb Button | Assignable Function Button |
| Connector Jack | Connects the MDT to the MIDI Box |
| Air Vent | Used to control airflow and allow moisture to escape |



Left Hand View

| | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1, 2, 3, 4, 5, 6, 7, 8 | These buttons are used for selecting Octave and Half Octave with the LH during normal play mode. This can be seen in the fingering chart below and is shown visually with the bell LEDs. They can also be used in combination with the function buttons for various controls. |
| Octave +, Octave - | These buttons modify the current position of buttons 1-8 in the overall 10 octave range. This can be seen in the bell LEDs |



| | |
|--------------------------|----------------------------------------------------------------------------------------------------------|
| 6 to 9 volt DC Connector | Connection for power plug pack adapter |
| Power Switch | Used to turn the MDT On and Off |
| MDT Connector Jack | Connects to the MDT Connector Jack with the cable provided |
| MIDI Out Connector | MIDI Out from the MDT, this connector should be connected to the MIDI In on your receiving sound source. |

1.5 Connecting the MDT

Connecting the MDT is simple. Unwind the connecting cable and carefully plug in the small end to the connector located on the underside of the MDT. Be sure to line up the pins visually then push it in and screw on the retainer to hold the cable securely on the MDT.

Next connect the larger end of the connecting cable to the connector on the power supply box labelled "MDT LEAD". Line up the pins visually then push it in and screw on the retainer to hold the cable securely onto the power supply box.

Next connect a standard MIDI cable from the MIDI OUT on the power supply box to your MIDI sound source's MIDI IN jack.

Next, connect the included AC power supply to the power supply box connector labelled "6-9 VDC". If included, attach the plug adaptor to the AC power supply and plug it into your AC wall socket. Note that the AC power supply is universal and can be used in most areas of the world with the proper plug adaptor. The AC power supply can run on anywhere from 100 to 240 volts AC at 50-60hz. All that is usually needed is a different plug adaptor for the country you are in.

1.6 Turn on the Power

Once you have finished connecting the MDT you can turn on the power. The MDT can then be turned on using the ‘POWER ON/OFF’ switch on the power supply box and your MDT should glow blue indicating that it is powered up. **Note:** All sensors are calibrated at startup so it is important to ensure that no levers are being pressed and no pressure is being applied into the mouthpiece at startup. When the MDT starts it is in play mode.

1.7 Play Mode

The following message is displayed on the LCD screen when you are in play mode. Also the octave LEDs in the bell of the horn light up. When the trumpet is first turned on it starts in play mode with the center octave green LED active.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | O | R | R | I | S | O | N | D | I | G | I | T | A | L |
| T | R | U | M | P | E | T | , | M | M | I | I | N | C | |

Play Mode Main Screen

1.8 How To Hold the MDT

The MDT is mostly supported by the left hand. While holding your left hand upward place the MDT in the crook of your left hand between your thumb and index fingers. Allow the weight of the horn to rest in the left hand. Place the tips of your left hand fingers on the lower row of buttons nearest the bell of the MDT. This is the normal position of the left hand. To access the upper range of the MDT, simply move your left hand fingertips to the upper 4 buttons. Note that the upper and lower buttons nearest the mouthpiece end of the MDT are used for overall octave transposition. They are not generally accessed too often in normal playing.

Your right hand is then used to play the valves like an acoustic trumpet. Your pinky finger rests in the ring while your first 3 fingers play the valves.

To access the right hand controllers, place your right hand thumb inside the large thumbhole. You will notice that there are 3 levers inside this hole. Normally you will rest the tip of your thumb on the lever furthest in the hole. This lever is called the Vibrato Lever. You wiggle this lever to create a natural sounding vibrato.

You will note that there are two additional levers inside this hole that are manipulated with the side of your thumb. These two levers are usually used for bending the pitch but they can be used for other things as well which is explained elsewhere in this manual. Ensure you adjust these levers to suit your hand so that you do not accidentally activate these sensors while playing.

1.9 Physical Adjustments on the MDT

The MDT incorporates physical adjustments to allow customization by the user to suit their varying hand sizes.

The handle for the left hand is adjustable in and out to compensate for finger length. The handle has four screws on each side. The top two on each side are used for adjustment. Just loosen the top two screws on each side, don't unscrew them completely, then push or pull the handle until it is in the position you want. Recommended position is when you are holding the horn and your fingers are straight they should line up with the top row of switches. You can also rotate the handle slightly if you desire, some people find it more comfortable, but it all depends on how you like to hold the horn and the balance you want.

The width between the bend up and bend down levers is also adjustable to compensate for varying thumb width and personal preference on movement sensitivity. There are two adjustment screws for each lever. Loosen the screws adjacent to the adjustment slots and move the lever to the desired position. When re-tightening the screws pull slightly sideways away from the levers. This ensures that the little space between the adjustment piece and the lever is maintained, otherwise the lever may rub slightly.

1.10 Overview Of Fingering

The fingering system on the MDT is similar but not exactly like an acoustic trumpet. The right hand is fingered exactly like an acoustic trumpet playing in it's lowest octave. Upper octaves on the MDT simply repeat this lower octave fingering.

The octaves and half octaves are selected with the four left hand fingers. The left hand pinky finger and left hand middle finger always select a C in one of four octaves. The left hand ring and index finger always select a G in one of four octaves. The left hand fingers rest on either the bottom or top row of buttons depending on what range you wish to play in.

The two buttons closest to the mouthpiece are octave transpose buttons. These are used for setting the overall octave transposition of the MDT. These two buttons are not generally used while playing, but rather they are set ahead of time to select the overall general pitch range of the MDT.

So C# is always fingered with valves 1, 2 and 3. D is always fingered with valves 1 and 3. Eb is always fingered with valves 2 and 3. E is always fingered with valves 1 and 2 etc...

It is possible to use alternate fingerings. The right hand pinky button can be set to a "Trill Key". In fact, this is the factory default. If you play a C and then press the trill key, the pitch will go up to an E. So while holding down the trill key it is possible to play a C# as 1 and 2, D as 1, Eb as 2, etc...

Since the embouchure is not needed or used for jumping octaves or intervals, the left hand is actively used in fingering. The use of the left hand is fairly simple. When no valves are down, the left hand selects Cs or Gs in various octaves and pushing the right hand valves lowers the pitch from there. Valve 1 lowers the pitch two half steps. Valve 2 lowers the pitch a half step. Valve 3 lowers the pitch 3 half steps.

Beginners to this system should keep in mind that it generally takes a few months of practice to become proficient on the MDT. As with any other MIDI wind controller, the embouchure is not used to change registers. Thus, the hands need to do what is normally done by adjusting the embouchure. Persevere and with a moderate amount of practice the system will become very natural and logical. Once the fingering system is learned the benefits are enormous. Once learned, you can then play ANY instrument with the same fingering! The possibilities are staggering.

Finger Chart

| Left | Right |
|-----------|-------|
| ① ⑤ | Ⓟ |
| ② ⑥ | Ⓥ③ |
| ③ ⑦ | Ⓥ② |
| ④ ⑧ | Ⓥ① |
| ① - oct + | |

MDT Fingering Chart 1


| F# | G | G# | A | Bb | B |
|------------------|------------------|------------------|------------------|------------------|------------------|
| <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> |
| | | | | | |

| C | C# | D | Eb | E | F |
|------------------|------------------|------------------|------------------|------------------|------------------|
| <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> |
| | | | | | |


| F# | G | G# | A | Bb | B |
|------------------|------------------|------------------|------------------|------------------|------------------|
| <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> | <div>LH RH</div> |
| | | | | | |

MDT Fingering Chart 2


| C | C# | D | Eb | E | F |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○○○</div> <div>●○○</div> <div>○○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○○●</div> <div>○○●</div> <div>●○●</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○○●</div> <div>○○○</div> <div>●○●</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○○●</div> <div>○○●</div> <div>●○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○○○</div> <div>○○●</div> <div>●○●</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○○○</div> <div>○○○</div> <div>●○●</div> <div>○○○</div> </div> |



| F# | G | G# | A | Bb | B |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○○○</div> <div>○○●</div> <div>●○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○○○</div> <div>○○○</div> <div>●○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○●○</div> <div>○○○</div> <div>○○●</div> <div>○○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○●○</div> <div>○○○</div> <div>○○○</div> <div>○○●</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○●○</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○●○</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> </div> |



| C | C# | D | Eb | E | F |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○●○</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○●●</div> <div>○○●</div> <div>○○●</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○●●</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○●●</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○●○</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> </div> | <div style="display: flex; justify-content: space-around;">LHRH</div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 2px;"> <div>○○○</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> <div>○○○</div> </div> |




MDT Fingering Chart 3

F# G G# A Bb B

| F# | | G | | G# | | A | | Bb | | B | |
|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|
| LH | RH | LH | RH | LH | RH | LH | RH | LH | RH | LH | RH |
| ○ ○ | ○ | ○ ○ | ○ | ○ ○ | ○ | ○ ○ | ○ | ○ ○ | ○ | ○ ○ | ○ |
| ○ ● | ○ | ○ ● | ○ | ○ ○ | ● | ○ ○ | ○ | ○ ○ | ○ | ○ ○ | ○ |
| ○ ○ | ● | ○ ○ | ○ | ○ ● | ● | ○ ● | ● | ○ ● | ○ | ○ ● | ● |
| ○ ○ | ○ | ○ ○ | ○ | ○ ○ | ○ | ○ ○ | ● | ○ ○ | ● | ○ ○ | ○ |
| ○ ○ | | ○ ○ | | ○ ○ | | ○ ○ | | ○ ○ | | ○ ○ | |

8va 8va 8va 8va 8va 8va



C C# D Eb E F

| LH | RH | LH | RH | LH | RH | LH | RH | LH | RH | LH | RH |
|----|----|----|----|----|----|----|----|----|----|----|----|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
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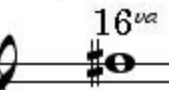
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8va 16va 16va 16va 16va 16va

F# G

| LH | | RH | LH | | RH |
|----|---|----|----|---|----|
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| ○ | ○ | ○ | ○ | ○ | ○ |
| | ○ | ● | | ○ | ○ |
| ○ | ● | ○ | ○ | ● | ○ |
| ○ | | | ○ | | |

16^{va} 16^{va}



Section 2: Hot Keys Guide

2.1 What are Hot Keys?

Hot Keys are combinations of button presses that allow parameter changes on the fly while still in 'Play Mode'. They allow you to change various aspects of the horn without having to stop playing to enter Edit Mode. For example you can change the MIDI controller sent from the thumb levers, or you can change patches on your synth, or you can transpose the MDT to any key, etc...

2.2 Hot Keys to Transpose

Hold in...

Left Hand bottom row 1/2/3 + Right Hand Pinky

While doing that...

The Octave Up and Down buttons transpose the horn by half steps. The LED strip indicates the number of half steps starting from the center and going either up or down. Note that while setting this parameter, you can play a reference note by blowing.

This setting is temporary unless you save it. If you do not save it, then the next time you boot the MDT, the setting that was last stored will be active.

To save the modified transpose setting permanently as the boot-up default. See "Hot Keys to Save Current Settings to Flash RAM".

You can also set this function in Edit Mode using the LCD if desired.

2.3 Hot Keys To Send Program Changes

Hold in...

Left Hand bottom row 1/2/3 + Right Hand Pinky

While doing that, use valves 1 and 2 to select patches

Valve 1 = Increment by 1

Valve 2 = Decrement by 1

Holding Valve 3 sets the increment/decrement for Valves 1 or 2 to ten.

Holding Down Valve 1 or Valve 2 will activate scrolling. See 'ProgChgScrollSpd' in expert mode to modify the scrolling speed.

2.4 About Bank Select

Bank Select allows you to jump amongst the various banks in your synth. This is one of the great features of the MDT. When you are scrolling through Patches, the MDT will

increment or decrement the Bank Select message if you "go over the edge" and pass higher than 127(128) or below 0(1). If the receiving synth is capable of responding to Bank Select messages, it will automatically go to the next higher or lower bank. Also, any Favorite Sounds you assign can include a corresponding Bank Number. This means you can select any patch in your synth in any bank simply by pushing a button on the MDT.

Yamaha VL70-m:

The Yamaha VL70-m uses LSB Bank Select and does not require MSB bank select. LSB Bank numbers on the VL70-m are as follows when using the default setting of Bank numbers 0-127 on the MDT. Pr1 is LSB Bank 0, Pr2 is LSB 1, Cst is LSB 2 and Int is LSB 3. For example if you wish to select patch 5 in the internal bank as one of your favourites then use the following, MSB is Off(127), LSB is 3, PGM NUM is 5.

Roland XV Series:

The Roland XV series has a small quirk. It is not possible to jump from Voice or Rhythm banks to a Performance bank. To select Performance banks, you need to first be in a Performance bank.

2.5 Hot Keys To Send Favorite Program Changes

The MDT has the ability to store either 4 or 8 or your favorite Program Change values along with their associated Bank Select values. Depending on the settings you have made in Edit Mode, you have either 4 or 8 available. Once you save your favorites using Edit Mode, it is very simple and quick to access your 4 or 8 favorite patches IN ANY BANK in the receiving synth!

To send a Favorite Patch, you need to assign the Right Hand Thumb Button to "Nxt Fav Snd", "Func Button", or "8 Fav Snds". Then you can make patch changes by using the thumb button in conjunction with the LH buttons. See 'Button Functions Availability and Explanation' in the LCD edit mode section of the manual for more explanation on the fingering combinations required for your thumb button setting.

2.6 Hot Keys to set the MIDI Controllers Sent from the Breath Sensor

At startup, hold down any combination of the following...

Valve 1 = Breath Controller (MIDI Controller #2)

Valve 2 = Volume (MIDI Controller #7)

Valve 3 = Channel Aftertouch

RH Pinky = Expression (MIDI Controller #11)

Any combination of the above can be selected to be transmitted in response to your breath pressure. It is not recommended to use volume control in conjunction with any other controller being used to directly or indirectly control volume.

The following occurs ONLY when VOLUME (MIDI Controller #7) is active: The Velocity that gets sent switches between the following four values in response to tonguing; 124, 125, 126, 127. For example, gentle tongued notes are sent with a velocity value of 124, medium tongued notes have a velocity value of 125, etc... This can be useful for velocity switching samples etc. Also after approximately 5 seconds of non-activity, a Volume value of 127 is sent to reset the synth.

This setting is temporary unless you save it. If you do not save it, then the next time you boot the MDT, the setting that was last stored will be active.

This setting can be stored permanently as boot-up defaults. See "Hot Keys to Save Current Settings to Flash RAM".

You can also set this function in Edit Mode using the LCD if desired.

2.7 Hot Keys to Set the MIDI Controllers Sent from the Thumb Controllers

Hold in the following:

- + Left hand bottom row 2/3/4
- + Right Hand Pinky
- + Hold in the thumb lever you wish to edit

While doing that, push ONE of the following to choose the MIDI controller to be sent...

- Valve 1 = Normal (Pitchbend/Vibrato)
- Valve 2 = Mod Wheel (MIDI CC#1)
- Valve 3 = Foot Controller (MIDI CC#4)
- Valves 2 & 3 = Portamento Time (MIDI CC#5)

...then release all buttons.

Only one of the above MIDI controllers can be sent per lever.

This setting is temporary unless you save it. If you do not save it, then the next time you boot the MDT, the setting that was last stored will be active.

This setting can be stored permanently as boot-up defaults. See "Save Current Settings to Flash RAM".

You can also set this function in Edit Mode using the LCD if desired.

A special note regarding the Vibrato Lever: Due to technical reasons, when the Vibrato Lever is set to send a controller the maximum value it can send for the controller is less than the maximum level of 127. This is normal and not a malfunction of the MDT.

2.8 Hot Keys to Send MIDI Volume Data (CC#7) to Adjust Synth Level

MIDI Volume Control (continuous controller #7) can be sent if you wish to remotely adjust the volume of the receiving synths. To send this, hold in...

Left hand bottom row 3, top row 2/4 + Right Hand Pinky
(Note the "V" shape for easy recall of this Volume parameter)

While doing that, use Valves 1 or 2 to scroll down or up through MIDI Volume values. Hold down either valve to scroll continuously.

For visual reference, the approximate value is displayed on the MDT's LEDs as you change this value.

2.9 Hot Keys to Send MIDI Expression Data (CC#11) to Adjust Synth Level

MIDI Expression Control (continuous controller #11) can be sent if you wish to remotely adjust the volume of the receiving synths. To send this, hold in...

Left hand bottom row 2/4, top row 3 + Right Hand Pinky
(Note the inverted "V" shape as opposed to the MIDI Volume setting above)

While doing that, use Valves 1 or 2 to scroll down or up through MIDI Expression values. Hold down either valve to scroll continuously.

For visual reference, the approximate value is displayed on the MDT's LEDs as you change this value.

The advantage of using MIDI Expression over MIDI Volume, assuming the receiving synth can react to this data, is that the relative balance between multiple synths is maintained. With MIDI Volume, all synths will jump to the same Volume value and their relative balance would be lost.

2.10 Hot Keys to Save Current Settings to Flash RAM

Sometimes it is useful to save your current settings. Perhaps you were in Edit Mode and exited it without saving. To save the settings...

Hold down the Octave Up and Octave Down buttons AND also all 3 valves then release them.

This can be done during normal operation (not in Edit Mode).

2.11 Hot Keys to Activate PANIC

If you have stuck notes or controllers that will not zero out, there is a PANIC key combination that will reset all the controllers and stop all notes from playing- assuming the receiving synth responds to the following MIDI messages. To activate Panic:

Push and hold down all all 5 Lower Left Hand buttons including Octave Down then release them.

The following MIDI messages are sent with this key combination...

All Sounds Off (MIDI Controller #120, Value=0)

All Notes Off (MIDI Controller #123, Value=0)

Reset All Controllers (MIDI Controller #121, Value=0)

If this doesn't help, turn off all your synths and the MDT and reboot them.

2.12 Hot Keys to Transmit The MDT's Parameters as MIDI Data

Push ALL 5 of the Upper Row of Left Hand buttons then release.

This will cause the horn to dump the contents of its memory for later viewing in a MIDI sequencer. This list is sent as a series of MIDI Mod Wheel data messages which can be viewed in the list editor of a MIDI sequencer. First a parameter ID number is output followed by its value. This is repeated until all of the parameters and their values have been sent. Values above 127 have their highest bit chopped off but this doesn't matter because all user settable values should be below this.

This function is currently only for informational purposes. It may be used more in the future.

2.13 Hot Keys to Initialize to Factory Settings

Hold down both octave up and octave down button at startup. Then wait a moment while the factory values are saved to Flash RAM.

2.14 Hot Keys for Test Mode

Push left hand top row 1/2/3/4 + RH pinky then release to enter Edit Mode.

Press left hand lower 1/2/3/4 to display the MDT's sensor readings for testing.

Push the right hand Pinky Button two times to exit from this display and return to normal playing mode.

2.15 Hot Keys to Enter Expert Mode

Push Left hand top row 1/2/3/4 + Right Hand Pinky then release.

Push Octave Up and Octave Down at the same time then release

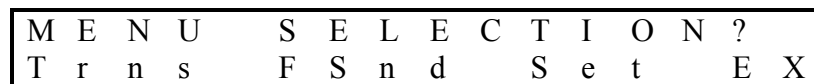
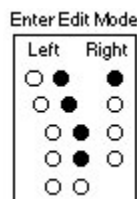
(Note that you can enter Expert Edit Mode ONLY from the initial top menu of Edit Mode.)

This puts the horn into the Expert Mode where additional parameters are available. IMPORTANT: This area is intended only for very advanced users and it is possible to put the MDT into a state of unplayability. No permanent harm will be done, but if this occurs, you will probably need to do a Factory Reset. To do this, see the section called "To Initialize to Factory Settings WITHOUT using the LCD..."

Section 3: Edit Mode Guide

3.1 Entering Edit Mode

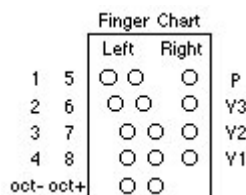
To enter LCD edit mode push and hold, 5-6-7-8-P, then release. The LCD menu comes up as shown below.



Edit Mode Main Screen

3.2 Navigating Edit Mode

The edit mode menus are navigated and controlled by the right hand using V1, V2, V3, and P. These keys correspond to the options available on the bottom row of the LCD. In most menus, if a key is used for scrolling, then holding down the key for more than half a second will activate auto-scrolling.



Edit Mode Navigation

3.3 Making Changes and Saving in Edit mode

When in edit mode you can make changes to as many parameters as you want and these parameters are used temporarily until you power off the trumpet. If you want to save a parameter permanently, then you need to select 'Save' in a menu, which will store all

changes made. Note: Selecting ‘Save’ from any menu will save all the current settings in the trumpet. So you can make all the changes you want and then just save once. Saving takes about 10 seconds, do not turn off the power while saving changes, because in rare cases this can do damage to the flash memory. You can also save settings using hot keys, see the Hot Keys section of the manual for the details.

3.4 Transposing the Trumpet

From the main edit mode screen select ‘Trns’ by pressing V1. Then select the key you want using the ‘Up’ and ‘Down’ keys. The factory default key is Bb3. You can select any key within an octave of the factory key. The key is displayed both numerically and alphabetically as you make changes. You can save your setting permanently using the ‘Save’ parameter or just ‘Exit’ back to play mode to use the setting temporarily.

See Hot Keys Menu for changing key without using LCD.

| | | |
|-------------------|-----------|---------------------|
| Select | M E N U | S E L E C T I O N ? |
| Transpose | T r n s | F S n d S e t E X |
| Select Key | T R A N S | = + 0 0 = B b |
| | S a v e | D o w n U p E X |
| Then Save or Exit | T R A N S | = + 0 0 = B b |
| | S a v e | D o w n U p E X |

3.5 Setting Favourite Sounds

To set up your favourite sounds to use with the ‘Func Button’, ‘8 Fav Snds’ or ‘Nxt Fav Snd’ settings, accessible from the pinky or thumb button, do the following.

Select ‘FSnd’ from the main edit menu. Then select which favourite sound you want to edit by using the ‘Prv’ and ‘Nxt’ buttons. Then press ‘Edit’ to edit the settings. The current settings are displayed on the screen. M is the abbreviation for most significant byte (MSB) for Bank Select. This can be set from 0-126, 127 is Off which means that the MSB Bank Select is not sent. L stands for Least Significant Byte (LSB) for Bank Select. This can be set from 0-127 and is always sent. P# stands for program number, which is the sound’s number within the selected bank. This can be set from 1-128. The display for bank numbers and program numbers can be set to either 0-127 or 1-128 to match up with your sound module, see PatchNumber1-128 and Bank Number1-128 in expert mode.

The valves are then used to select the parameter you wish to edit. Modify the parameter to the value you desire by either pressing the ‘Dn’ or ‘Up’ key. Once you have made all your changes, you can ‘Save’ and ‘Exit’, or just ‘Exit’. You need to hit the ‘Exit’ multiple times to return to play mode.

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| Select Favourite Sound | <table><tr><td>M</td><td>E</td><td>N</td><td>U</td><td>S</td><td>E</td><td>L</td><td>E</td><td>C</td><td>T</td><td>I</td><td>O</td><td>N</td><td>?</td></tr><tr><td>T</td><td>r</td><td>n</td><td>s</td><td>F</td><td>S</td><td>n</td><td>d</td><td></td><td>S</td><td>e</td><td>t</td><td>E</td><td>X</td></tr></table> | M | E | N | U | S | E | L | E | C | T | I | O | N | ? | T | r | n | s | F | S | n | d | | S | e | t | E | X | | | | |
| M | E | N | U | S | E | L | E | C | T | I | O | N | ? | | | | | | | | | | | | | | | | | | | | |
| T | r | n | s | F | S | n | d | | S | e | t | E | X | | | | | | | | | | | | | | | | | | | | |
| Select Favourite Sound to Edit | <table><tr><td>#</td><td>1</td><td></td><td>F</td><td>a</td><td>v</td><td>o</td><td>u</td><td>r</td><td>i</td><td>t</td><td>e</td><td>S</td><td>n</td><td>d</td></tr><tr><td>E</td><td>d</td><td>i</td><td>t</td><td></td><td>P</td><td>r</td><td>v</td><td></td><td>N</td><td>x</td><td>t</td><td>E</td><td>X</td><td></td></tr></table> | # | 1 | | F | a | v | o | u | r | i | t | e | S | n | d | E | d | i | t | | P | r | v | | N | x | t | E | X | | | |
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| E | d | i | t | | P | r | v | | N | x | t | E | X | | | | | | | | | | | | | | | | | | | | |
| Select Value to Edit | <table><tr><td>M</td><td>=</td><td>O</td><td>f</td><td>f</td><td>L</td><td>=</td><td>0</td><td>0</td><td>0</td><td>P</td><td>#</td><td>=</td><td>0</td><td>0</td><td>1</td></tr><tr><td>E</td><td>d</td><td>i</td><td>t</td><td></td><td>E</td><td>d</td><td>i</td><td>t</td><td></td><td>E</td><td>d</td><td>i</td><td>t</td><td></td><td>X</td></tr></table> | M | = | O | f | f | L | = | 0 | 0 | 0 | P | # | = | 0 | 0 | 1 | E | d | i | t | | E | d | i | t | | E | d | i | t | | X |
| M | = | O | f | f | L | = | 0 | 0 | 0 | P | # | = | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | |
| E | d | i | t | | E | d | i | t | | E | d | i | t | | X | | | | | | | | | | | | | | | | | | |
| Modify parameter to desired value | <table><tr><td>#</td><td>1</td><td></td><td>B</td><td>a</td><td>n</td><td>k</td><td>M</td><td>S</td><td>B</td><td></td><td>=</td><td></td><td>O</td><td>f</td><td>f</td></tr><tr><td>S</td><td>a</td><td>v</td><td>e</td><td></td><td></td><td>D</td><td>n</td><td></td><td></td><td>U</td><td>p</td><td></td><td>E</td><td>X</td></tr></table> | # | 1 | | B | a | n | k | M | S | B | | = | | O | f | f | S | a | v | e | | | D | n | | | U | p | | E | X | |
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| <table><tr><td>#</td><td>1</td><td></td><td>P</td><td>G</td><td>M</td><td></td><td>N</td><td>U</td><td>M</td><td></td><td>=</td><td></td><td>0</td><td>0</td><td>1</td></tr><tr><td>S</td><td>a</td><td>v</td><td>e</td><td></td><td></td><td></td><td>D</td><td>n</td><td></td><td></td><td>U</td><td>p</td><td></td><td>E</td><td>X</td></tr></table> | # | 1 | | P | G | M | | N | U | M | | = | | 0 | 0 | 1 | S | a | v | e | | | | D | n | | | U | p | | E | X | |
| # | 1 | | P | G | M | | N | U | M | | = | | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | |
| S | a | v | e | | | | D | n | | | U | p | | E | X | | | | | | | | | | | | | | | | | | |
| Save or Exit | <table><tr><td>#</td><td>1</td><td></td><td>P</td><td>G</td><td>M</td><td></td><td>N</td><td>U</td><td>M</td><td></td><td>=</td><td></td><td>0</td><td>4</td><td>6</td></tr><tr><td>S</td><td>a</td><td>v</td><td>e</td><td></td><td></td><td></td><td>D</td><td>n</td><td></td><td></td><td>U</td><td>p</td><td></td><td>E</td><td>X</td></tr></table> | # | 1 | | P | G | M | | N | U | M | | = | | 0 | 4 | 6 | S | a | v | e | | | | D | n | | | U | p | | E | X |
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| S | a | v | e | | | | D | n | | | U | p | | E | X | | | | | | | | | | | | | | | | | | |

3.6 Setting Button Functions

To set the desired function for either the pinky key or the thumb key do the following. From the main edit menu select 'Set'. Button functions are the first in the list so select 'Edit'. Then select which button you wish to edit. Then scroll through the options to select the function you want. Lastly, 'Save' and 'Exit' or just 'Exit'.

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| Select Set | <table><tr><td>M</td><td>E</td><td>N</td><td>U</td><td>S</td><td>E</td><td>L</td><td>E</td><td>C</td><td>T</td><td>I</td><td>O</td><td>N</td><td>?</td></tr><tr><td>T</td><td>r</td><td>n</td><td>s</td><td>F</td><td>S</td><td>n</td><td>d</td><td>S</td><td>e</td><td>t</td><td>E</td><td>X</td><td></td></tr></table> | M | E | N | U | S | E | L | E | C | T | I | O | N | ? | T | r | n | s | F | S | n | d | S | e | t | E | X | | | | | |
| M | E | N | U | S | E | L | E | C | T | I | O | N | ? | | | | | | | | | | | | | | | | | | | | |
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| Select Edit | <table><tr><td>B</td><td>u</td><td>t</td><td>t</td><td>o</td><td>n</td><td>F</td><td>u</td><td>n</td><td>c</td><td>t</td><td>i</td><td>o</td><td>n</td><td>s</td></tr><tr><td>E</td><td>d</td><td>i</td><td>t</td><td>P</td><td>r</td><td>v</td><td>N</td><td>x</td><td>t</td><td>E</td><td>X</td><td></td><td></td><td></td></tr></table> | B | u | t | t | o | n | F | u | n | c | t | i | o | n | s | E | d | i | t | P | r | v | N | x | t | E | X | | | | | |
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| E | d | i | t | P | r | v | N | x | t | E | X | | | | | | | | | | | | | | | | | | | | | | |
| Select which button to edit | <table><tr><td>T</td><td>h</td><td>u</td><td>m</td><td>b</td><td>P</td><td>i</td><td>n</td><td>k</td><td>y</td></tr><tr><td>E</td><td>d</td><td>i</td><td>t</td><td>-</td><td>-</td><td>-</td><td>E</td><td>d</td><td>i</td><td>t</td><td>E</td><td>X</td><td></td><td></td></tr></table> | T | h | u | m | b | P | i | n | k | y | E | d | i | t | - | - | - | E | d | i | t | E | X | | | | | | | | | |
| T | h | u | m | b | P | i | n | k | y | | | | | | | | | | | | | | | | | | | | | | | | |
| E | d | i | t | - | - | - | E | d | i | t | E | X | | | | | | | | | | | | | | | | | | | | | |
| Select desired function and | <table><tr><td>T</td><td>h</td><td>u</td><td>m</td><td>=</td><td>P</td><td>o</td><td>r</td><td>t</td><td>N</td><td>o</td><td>n</td><td>L</td><td>t</td><td>c</td><td>H</td></tr><tr><td>S</td><td>a</td><td>v</td><td>e</td><td>P</td><td>r</td><td>v</td><td>N</td><td>x</td><td>t</td><td>E</td><td>X</td><td></td><td></td><td></td><td></td></tr></table> | T | h | u | m | = | P | o | r | t | N | o | n | L | t | c | H | S | a | v | e | P | r | v | N | x | t | E | X | | | | |
| T | h | u | m | = | P | o | r | t | N | o | n | L | t | c | H | | | | | | | | | | | | | | | | | | |
| S | a | v | e | P | r | v | N | x | t | E | X | | | | | | | | | | | | | | | | | | | | | | |
| Save and/or Exit | <table><tr><td>T</td><td>h</td><td>u</td><td>m</td><td>=</td><td>8</td><td>F</td><td>a</td><td>v</td><td>S</td><td>n</td><td>d</td><td>s</td></tr><tr><td>S</td><td>a</td><td>v</td><td>e</td><td>P</td><td>r</td><td>v</td><td>N</td><td>x</td><td>t</td><td>E</td><td>X</td><td></td><td></td><td></td><td></td></tr></table> | T | h | u | m | = | 8 | F | a | v | S | n | d | s | S | a | v | e | P | r | v | N | x | t | E | X | | | | | | | |
| T | h | u | m | = | 8 | F | a | v | S | n | d | s | | | | | | | | | | | | | | | | | | | | | |
| S | a | v | e | P | r | v | N | x | t | E | X | | | | | | | | | | | | | | | | | | | | | | |

3.7 Button Functions Availability and Explanation

There are a number of functions that the thumb and pinky button can be assigned to. Some functions are not available on the pinky button as shown in the table due to conflicts with other edit functions. Also the Thumb and Pinky cannot be set to the same function. The software avoids this by not showing the function in the select list if it is being used by the other button.

| | Functions | | Thumb | Pinky |
|----|-------------|--|-------|-------|
| 1 | No Function | | Yes | Yes |
| 2 | Sustain | | Yes | Yes |
| 3 | Nxt Fav Snd | | Yes | |
| 4 | Func Button | | Yes | |
| 5 | Trill Key | | Yes | Yes |
| 6 | 8 Fav Snds | | Yes | |
| 7 | PortNonLtch | | Yes | Yes |
| 8 | Port Latch | | Yes | Yes |
| 9 | BrSustnMode | | Yes | Yes |
| 10 | ExSwNonLtch | | Yes | Yes |
| 11 | ExSw Latch | | Yes | Yes |
| 12 | No Function | | Yes | Yes |

Function Button Availability

1. No Function

Button will not implement any function but will still work for hot keys and LCD.

2. Sustain

Button will implement MIDI sustain CC#64. Works just like a sustain pedal, sustain is activated while holding the button in.

3. Nxt Fav Snd

This allows very easy and fast patch changes. When the button is pressed the next favourite sound in the list is sent. It scrolls through the 8 sounds set as favourite sounds. If, for example, you wish to flip between just two sounds, then you would need to set every other sound to be the same. For example, to switch between patch 4 and 5, set fav 1 to patch 4, set fav 2 to patch 5, set fav 3 to patch 4, set fav 4 to patch 5, etc.

4. Func Button

This allows patch changes and primitive sequencer control. You need to hold down the button in combination with a LH button to get the following results:

Func Button +

LH 1: Favourite Sound 1 patch change

LH 2: Favourite Sound 2 patch change

LH 3: Favourite Sound 3 patch change

LH 4: Favourite Sound 4 patch change

LH 5: Start Song

LH 6: Stop Song

LH 7: Continue Song

LH 8: Increment Song number (must restart to get back to zero)

5. Trill Key

Assigning a button to trill key allows the user to use alternate fingering to avoid having to trill with the left hand. Pressing the trill key raises the current note position by a perfect third (4 semitones). This amount is adjustable in expert mode and can be set to different values depending on whether your LH octave position is on a C or a G. Some people prefer to set the distance at 4 semitones when on a C (raises to an E) and 5 semitones when on a G (raises to a C) to keep right hand fingering more consistent with an acoustic trumpet.

6. 8 Fav Snds

This setting allows 8 favourite sounds to be selected with use of the assigned button and LH finger combinations. To use this function, hold down the assigned Pinky or Thumb button + a LH button with the following results:

8 Fav Snds +

LH 1: Favourite Sound 1 patch change

LH 2: Favourite Sound 2 patch change

LH 3: Favourite Sound 3 patch change

LH 4: Favourite Sound 4 patch change

LH 5: Favourite Sound 5 patch change

LH 6: Favourite Sound 6 patch change

LH 7: Favourite Sound 7 patch change

LH 8: Favourite Sound 8 patch change

7. PortNonLtch

Button will activate MIDI Portamento Switch (CC#65). Will De-activate Portamento Switch when released.

8. Port Latch

Button will Latch MIDI Portamento Switch (CC#65). Each time you press the button Portamento Switch will toggle. Note: The first time this button is pressed Portamento is De-activated.

9. BrSustnMode

Allows the MDT to access two MIDI channels. This allows soloing on two different instruments on different MIDI channels with the touch of a button. Another great use for this feature is as follows. You can set up a polyphonic synth to play chords on one channel while soloing on the other channel. When the Pinky button is set to this function the following will occur:

While the button is not held down, you are playing on the current MIDI Channel set in 'Edit Mode'. While the button is held down, all note information including function buttons and continuous controllers are sent on the current MIDI Channel + 1. This means that if you are normally on MIDI channel 1, when you press the button you are playing on MIDI channel 2. In the case when main MIDI channel is channel 16, then the secondary channel will be MIDI channel 1.

This mode allows you to play two different instrument sounds from the MDT simply by assigning two different sounds to two different MIDI channels within your sound module.

The other cool feature of this function is that if a note is currently being played on either MIDI channel when a channel transition is made, then all note and controller information will be frozen until you return to that channel. This allows for some very funky stuff like giving yourself a chord backing on the second channel. Note: The MDT doesn't send chords. So if you want to hear a chord on one of the MIDI channels, you will need to program your synth to play a layered chorded sound on that channel. You can just play away then give the button a quick press on the note you desire to activate a chord on the second channel. Any notes sustained on the second channel can easily be turned off by hitting the button when you are not blowing. Note that to take advantage of playing on two different MIDI channels, most sound modules will need to be put into Multi, Combi, or Performance Mode.

10. ExSwNonLtch

Allows the button to be set to any MIDI controller. The 'On Value' is sent when the button is pressed, and a 0 value is sent when the button is released. The factory default is Foot Pedal CC#4 at a level of 64. The controller number and level ('On Value') can be set in Expert Mode to anything you wish.

11. ExSw Latch

The ExSw Latch is the same as the ExSwNonLtch except that it latches. You press the button to turn on the desired MIDI controller with the 'On Value' level. Then hit the

button again to turn it off. Note: The first time you hit the button it will send a value of 0 for the assigned controller.

12. No Function

Button will not implement any function but will still work for hot keys and LCD.

3.8 Setting Lever Functions

The three RH thumb levers have factory default settings of, Pitch Bend Up, Pitch Bend Down, and Vibrato (Pitch Bend). To re-assign the levers to a different function, do the following:

From the top level of the edit menu, select 'Set'. Then scroll through using the 'Nxt' button to 'Lever Functions' and then select 'Edit'. Then select which lever you wish to 'Edit' using the associated button. Then scroll through the options to select the MIDI controller you wish to send from that lever. Lastly 'Save' and 'Exit', or just 'Exit'.

Please note that the Vibrato lever does not quite have full range when assigned to another controller. Depending on what you are trying to control this is not usually critical. Each lever can be assigned to either its default setting of Pitch Bend or to one of the following:

1. Mod Wheel MIDI CC#1
2. Foot Controller MIDI CC#4
3. Port Time MIDI CC#5
4. Expression MIDI CC#11
5. Sustain MIDI CC#64
6. Portamento Switch MIDI CC#65
7. Foot Pedal MIDI CC#36
8. Expression MIDI CC#43

Select 'Set'

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | E | N | U | S | E | L | E | C | T | I | O | N | ? |
| T | r | n | s | F | S | n | d | S | e | t | E | X | |

Scroll with
'Nxt'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | u | t | t | o | n | F | u | n | c | t | i | o | n | s |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

'Edit' Lever
Functions

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | e | v | e | r | F | u | n | c | t | i | o | n | s |
| E | d | i | t | P | r | v | N | x | t | E | X | | |

Select Lever
to 'Edit'

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--|--|
| U | p | D | o | w | n | V | i | b | | | | | |
| E | d | t | E | d | i | t | E | d | t | E | X | | |

Select Function
'Prv' or 'Nxt'

| | | |
|---------|---|-----------------------|
| U P | = | P i t c h B e n d U p |
| S a v e | | P r v N x t E X |

'Save' or 'Exit'

| | | |
|---------|---|---------------------|
| U P | = | E x p r e s s # 1 1 |
| S a v e | | P r v N x t E X |

3.9 Setting Breath Functions

The controller information from the breath pressure can be set to 5 different MIDI controllers. Unlike the other controllers on the MDT, the breath pressure information can be assigned to multiple controllers at once. It is not recommended however to send volume control in association with other controllers. The available controllers are:

1. Breath MIDI CC#2
2. Volume MIDI CC#7
3. Aftertouch
4. Expression MIDI CC#11
5. Slope Out, Assignable to any MIDI controller in expert mode.

Volume control works in a very different manner to Breath, Aftertouch, and Expression. As described in the Hot Keys Guide, the following ONLY occurs when Volume is active: The velocity that gets sent will switch between the following four values in response to tounging; 124, 125, 126, 127. For example, gently tounged notes are sent with a velocity value of 124, medium tounged notes have a velocity of 125, etc... This can useful for velocity switching samples. Also after approximately 5 seconds of non-activity, a Volume value of 127 is sent to reset the synth.

Volume control is generally only used when using a sound module that is not able to be or is not set up to respond to breath data. Using this parameter usually will allow basic continuous volume control of any sound source. For best results, it is recommended to either set up your module to respond to breath data or obtain breath control patches from sources such as patchmanmusic.com.

Slope Out is controller data you can send on any MIDI controller and it is controlled by positive slope of the breath curve. There is a slope gain parameter in expert mode which allows you to adjust the range of this controller. For example, this could be used on the VL70-m and be routed to Embouchure, Growl, Throat, or Scream in order to get more expressive effects with breath changes.

Breath Controllers are set from the main menu as follows, select 'Set', then scroll through to Breath Functions using the 'Nxt' key. Select 'Edit' and then scroll through the

available controllers and ‘Edit’ each one and set it to either ‘On’ or ‘Off’ and then ‘Save’ and ‘Exit’, or just ‘Exit’.

Select ‘Set’

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | E | N | U | S | E | L | E | C | T | I | O | N | ? |
| T | r | n | s | F | S | n | d | S | e | t | E | X | |

Scroll with
‘Nxt’

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | u | t | t | o | n | F | u | n | c | t | i | o | n | s |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

‘Edit’ Breath
Functions

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | r | e | a | t | h | F | u | n | c | t | i | o | n | s |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

Select MIDI
controller ‘Nxt’
or ‘Prv’

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| B | r | e | a | t | h | # | 2 | i | s | O | N | | | |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|
| V | o | l | u | m | e | # | 7 | i | s | O | F | F | | |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|
| A | f | t | e | r | T | c | h | i | s | O | F | F | | |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| E | x | p | r | e | s | # | 1 | 1 | i | s | O | F | F | |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|
| S | l | o | p | e | O | u | t | i | s | O | F | F | | |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

Select ‘Off’ or
‘On’

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| V | o | l | u | m | e | # | 7 | i | s | O | N | | | |
| S | a | v | e | O | F | F | O | N | E | X | | | | |

‘Save’ and/or
‘Exit’

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| V | o | l | u | m | e | # | 7 | i | s | O | N | | | |
| S | a | v | e | O | F | F | O | N | E | X | | | | |

3.10 Setting Portamento Time On Value

Portamento Time ‘On Value’ is the value you want sent when you activate Portamento from one of the latching or non latching portamento button functions. Note that both Portamento Time (CC#5) and Portamento Switch (CC#65) are sent when one of the RH switches is assigned to send Portamento.

To Set this value, select ‘Set’ from the main menu, then scroll through to ‘PortTime OnValue’ using the ‘Nxt’ button. Then ‘Edit’ to edit the parameter. Use the ‘Up’ and ‘Down’ keys to select the desired value and then ‘Save’ and ‘Exit’, or just ‘Exit’.

Select 'Set'

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | E | N | U | S | E | L | E | C | T | I | O | N | ? |
| T | r | n | s | F | S | n | d | S | e | t | E | X | |

Scroll with
'Nxt'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | u | t | t | o | n | F | u | n | c | t | i | o | n | s |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

'Edit' PortTime
OnValue

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | o | r | t | T | i | m | e | O | n | V | a | l | u | e |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

Select desired
value 'Dn' 'Up'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | o | r | t | T | i | m | e | O | n | V | = | 0 | 6 | 4 |
| S | a | v | e | D | o | w | n | U | p | E | X | | | |

'Save' and/or
'Exit'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | o | r | t | T | i | m | e | O | n | V | = | 0 | 9 | 9 |
| S | a | v | e | D | o | w | n | U | p | E | X | | | |

3.11 Setting MIDI Channel

The current MIDI channel can be set from 1-16, the factory setting is MIDI channel 1. To change the current MIDI channel, select 'Set' from the main menu, then scroll through to 'MIDI Channel' using the 'Nxt' button. Then 'Edit' to edit the parameter. Use the 'Up' and 'Down' keys to select the desired value and then 'Exit' or 'Save' and 'Exit'.

Select 'Set'

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | E | N | U | S | E | L | E | C | T | I | O | N | ? |
| T | r | n | s | F | S | n | d | S | e | t | E | X | |

Scroll with
'Nxt'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | u | t | t | o | n | F | u | n | c | t | i | o | n | s |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

'Edit' MIDI
Channel

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| M | I | D | I | C | h | a | n | n | e | l | | | | |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

Select desired
value 'Dn' 'Up'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| M | I | D | I | C | h | a | n | = | 0 | 1 | | | | |
| S | a | v | e | D | o | w | n | U | p | E | X | | | |

'Save' and/or
'Exit'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| M | I | D | I | C | h | a | n | = | 0 | 2 | | | | |
| S | a | v | e | D | o | w | n | U | p | E | X | | | |

3.12 Setting Vibrato Response

Vibrato response sets the tracking response to movement of the vibrato lever when the lever is being used for Vibrato (Pitch Bend). The pitch variation is set by the distance between the actual position of the vibrato lever when compared to the software tracking position which can only move at a limited speed. This speed is set by the vibrato response. The range is from 1-16 and the factory default is 4. Higher values give faster tracking response which results in less pitch variation. Only small changes (1-2 values) from the factory default value are recommended for normal use.

To set Vibrato response from main edit menu do the following. Select 'Set', then scroll using 'Nxt' to 'Vibrato Response' and then press 'Edit'. Select the desired value using 'Up' and 'Down' and then 'Save' and/or 'Exit'.

Select 'Set'

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | E | N | U | S | E | L | E | C | T | I | O | N | ? |
| T | r | n | s | F | S | n | d | S | e | t | E | X | |

Scroll with
'Nxt'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | u | t | t | o | n | F | u | n | c | t | i | o | n | s |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

'Edit' Vibrato
Response

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V | i | b | r | a | t | o | R | e | s | p | o | n | s | e |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

Select desired
value 'Dn' 'Up'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V | i | b | R | e | s | p | o | n | s | e | = | 0 | 0 | 4 |
| S | a | v | e | D | o | w | n | U | p | E | X | | | |

'Save' and/or
'Exit'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V | i | b | R | e | s | p | o | n | s | e | = | 0 | 0 | 5 |
| S | a | v | e | D | o | w | n | U | p | E | X | | | |

3.13 Setting Vibrato Width

Vibrato width sets the amount of pitch variation when using the vibrato lever. The amount of pitch variation already varies depending on how much you depress the lever and at what speed, but vibrato width is an overall setting that increases or decreases the amount proportionally. Factory Default is 6 and the range is from 1-16. **Note:** Smaller values give a bigger change in pitch.

To set Vibrato width from main edit menu do the following. Select 'Set', then scroll using 'Nxt' to 'Vibrato Width' and then press 'Edit'. Select the desired value using 'Up' and 'Down' and then 'Save' and/or 'Exit'.

Select 'Set'

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | E | N | U | S | E | L | E | C | T | I | O | N | ? |
| T | r | n | s | F | S | n | d | S | e | t | E | X | |

Scroll with
'Nxt'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | u | t | t | o | n | F | u | n | c | t | i | o | n | s |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

'Edit' Vibrato
Width

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| V | i | b | r | a | t | o | W | i | d | t | h |
| E | d | i | t | P | r | v | N | x | t | E | X |

Select desired
width 'Down'
or 'Up'

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| V | i | b | W | i | d | t | h | = | 0 | 0 | 6 |
| S | a | v | e | D | o | w | n | U | p | E | X |

'Save' and/or
'Exit'

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| V | i | b | W | i | d | t | h | = | 0 | 0 | 6 |
| S | a | v | e | D | o | w | n | U | p | E | X |

3.14 Setting Breath Gain

Breath Gain is a proportional linear gain control for breath response. The higher the value the more sensitive the breath response. Factory default is 3 and range is from 1-4.

Select 'Set'

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | E | N | U | S | E | L | E | C | T | I | O | N | ? |
| T | r | n | s | F | S | n | d | S | e | t | E | X | |

Scroll with
'Nxt'

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | u | t | t | o | n | F | u | n | c | t | i | o | n | s |
| E | d | i | t | P | r | v | N | x | t | E | X | | | |

'Edit' Breath
Gain

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | r | e | a | t | h | G | a | i | n | | |
| E | d | i | t | P | r | v | N | x | t | E | X |

Select desired
Gain 'Dn' 'Up'

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | r | e | a | t | h | G | a | i | n | = | 0 | 0 | 3 |
| S | a | v | e | D | o | w | n | U | p | E | X | | |

'Save' and/or
'Exit'

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | r | e | a | t | h | G | a | i | n | = | 0 | 0 | 3 |
| S | a | v | e | D | o | w | n | U | p | E | X | | |

3.15 Setting MIDI Density

MIDI Density sets the amount of MIDI data being generated from the MDT's continuous controllers. If MIDI density is set too low then you may hear stepping in the receiving synth sound. If MIDI density is set too high then the receiving synth's processor may become overburdened and this could cause sluggish response from the synth. It is best to set this as low as possible while maintaining a smooth sound from the synth. Remember

that there is a finite amount of MIDI data that can be sent via MIDI. So, for example, if the density is thinner, then more MIDI tracks will be possible when using a MIDI sequencer. Factory Default is 14 and the range is from 1-16. The higher the setting the more dense the MIDI stream. The setting used is highly dependent on the receiving synth. The optimal setting for this parameter depends on the smoothing algorithms and processor speed of the receiving synth. Depending on the response required, you can set the MIDI density separately for controllers controlled by the breath sensor and the ones controlled by the levers. This is often used to decrease the MIDI density when multiple controllers are being sent in response to breath.

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3.16 Factory Reset

Factory reset returns all parameters and settings in the MDT back to the values set during manufacture. Note that performing a factory reset erases all user settings permanently. User settings can, of course, be reprogrammed after the factory reset.

To perform factory reset. From the main edit menu select 'Set', then scroll using 'Nxt' to 'Factory Reset'. Select 'Edit', then 'Reset', then confirm with 'Yes'. Then wait about 10 seconds until factory reset is complete.

Select 'Set'

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'Edit' Factory
Reset

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Select 'Reset'

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Confirm Reset
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3.17 Software Version Number

The operating system version currently installed in your MDT can be checked in the 'About MDT' menu.

Select 'Set' from the main edit screen. Scroll using 'Nxt' to 'About MDT' then press 'Edit' to view details. Use the 'Exit' button to return to main edit menu.

Select 'Set'

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Scroll with
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'Edit' About
MDT

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Check Version
then 'Exit'

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Section 4: Tips and FAQs

4.1 Where Can I Find Sounds To Use With The MDT

It is important to remember that the patches in the receiving sound generator should be programmed to respond to the MIDI data the MDT transmits. If the patches are not set up right, then you will have very little control over the sound source. Well programmed wind controller sounds will respond to your breath naturally just like an acoustic instrument- i.e. the sound gets louder and brighter as you blow harder. When everything is set up right in your patches, it will feel very natural to play the MDT. You will be able to blow softer, harder, crescendo, and decrescendo, just like on an acoustic instrument.

One sound design company that offers professional quality sounds specifically designed for use with a wind controller such as the MDT is Patchman Music (www.patchmanmusic.com). For a current list of MIDI sound modules and synths they support with wind controller soundbanks, visit:

<http://www.patchmanmusic.com/WindControllerBanks.html>

4.2 To Latch Growl On and Off on the TURBO VL70-m

If you are using the TURBL VL70-m sound module with your MDT, here is a great way of using the right hand pinky switch to switch on and off the growl... Most of the sax and brass sounds in the TURBO VL70-m have been preprogrammed to add a realistic growl in response to MIDI controller #4 (footpedal). By making a quick edit in edit mode, you can set up the MDT to control this growl effect by simple pushing the right hand pinky button.

To do this, enter edit mode and set one of the left hand buttons to "ExSw Latch". The factory default MIDI controller number for the Extra Switch is #4 and the default ON value for this Extra Switch is 64. Exit Edit mode and now you can push the switch to toggle on and off a growl effect in the TURBO VL patches.

Other Options:

You can set a right hand switch to "ExSwNonLtch" if you wish to just add in this effect ONLY while HOLDING in the switch.

You can set one of the right hand thumb sensors to send MIDI controller #4 (footpedal) if desired. The advantage of this method is that you can vary the amount of footpedal data that is sent thus giving you complete control over the amount of growl.

Keep in mind that the above applies only if the receiving synth has been set up to add growl in response to the footpedal controller.

4.3 What are the advantages of modifying patches on my receiving synth? Why not just use the factory presets?

With the exception of a few synths such as the Yamaha VL1, VL1-m, VL7, VL70-m, PLG-VL cards, WT11, WindJamm'r, and the AKAI EWV2000, EWI3000m, EWI3020m,

and EWI3030m modules (which were designed for use with wind controllers), sound modules generally do not come with factory sounds specifically programmed to respond to the data that the MDT transmits (usually MIDI controller #2 - breath controller). So, you can trigger notes on and off like an organ but they won't respond to realtime dynamic changes in your breath pressure while they are sustaining. The MDT can transmit other controllers like MIDI Volume (controller #7) instead of- or in addition to- MIDI Breath Controller data, so you could use MIDI Volume instead and get almost any modern synth to respond dynamically to how hard you are blowing. The problem with using MIDI Volume (or the MIDI Expression controller #11), though, is that when you play an acoustic wind instrument, it's not just the volume of the sound that changes as you blow harder, it's the character and brightness of the sound too. If all you affect when you play a sound is it's volume, it won't be as expressive a sound (or as accurate an emulation) as it can be. The same goes for expressiveness with non-emulative sounds, too. What and how to affect with the breath MIDI controller is somewhat dependent on the synth. Of course if you need a keyboard oriented sound or some drums to back up your wind synth playing, the factory sounds should be just fine.

For more information about topics like this see the following link.
<http://www.patchmanmusic.com/WindControllerFAQ.html>

4.4 How to set up patches for Wind Control?

Very few synths, past or present, work well right out of the box with a wind controller. Pretty much the only synths made to work with a wind controller as they come from the factory are the VL70-m/PLG-VL cards, WT11, and Akai EWI series modules. All other synths require that you either program them to respond to the wind controller or buy some commercial wind controller sounds for them. The patches on most synths are usually pre-programmed to be controlled from a keyboard via MIDI velocity and sometimes a few controllers such as aftertouch, mod wheel, and pitchbend. Velocity is very much a keyboard/percussion kind of notion. It's completely appropriate for controlling the loudness of patches where you bonk something right at the beginning and the overall loudness is dependent on the strength of that bonk and then control is taken over by the envelope generators in the patch. Wind controller players are generally not too concerned with, or happy about, having the envelopes "hijack" control of this. Wind controller players generally want to be in control of the envelope with their breath--essentially creating their own complex envelope in realtime as they change their breath pressure on the wind controller. Programming a patch for this is quite different and requires a whole different patch programming paradigm. The overall loudness of a wind note is NOT determined by some bonk or other event right at the beginning; it's determined continuously by your changing breath control through the whole duration of the note. You might start a note very softly, crescendo, waver up and down, and cut off the note at full volume. The volume envelope of each note can be different--the player becomes the real-time, flexible envelope generator.

When programming for straightforward wind control, the basics are:

1. Ignore velocity values. They have to be there, to make valid Note-On messages.
2. Set the envelope generators that control the final amplifier(s) to the "square" or neutral shape. Such envelope generators are usually wired in, but setting them to the neutral square shape causes them to tell the amplifier to play at full volume all the time.
3. Set the amplifiers and filters to be controlled by Breath Control- or whatever MIDI controller you set the MDT to send from its breath sensor.

Sometimes this can be done directly and completely. Other times, such modulation effectively acts as a valve between the envelope generator and the amplifier, letting anywhere from all or none of the value from the envelope generator get through to the amplifiers/filters. It is possible to keep using the Velocity value in wind patches to control the strength of the initial "chiff" of tonguing (rather than the overall loudness of a note). There is some merit to this since a tonguing chiff occurs only at the beginning of a note.

4.5 Tips On Emulative Playing

A great way to improve your emulative playing is to play along with recordings of well known instrumental artists. Try to copy their phrasing, tonguing, and pitch inflections as closely as possible. Remember that for quality emulations you must make a conscious mental switch to THINK like a player who plays that instrument.

4.6 Tips on Playing Guitar Patches

When you play a guitar Voice it is essential to keep in mind how a guitarist plays. That is, they pluck almost every note. You wouldn't see a guitarist pluck, in our case tongue, ONLY the first note then play a 4 bar bebop melody by wiggling JUST his left hand. He is constantly plucking notes but he also is occasionally sliding into or out of notes. But the slide generally encompasses only 2 or 3 notes before the note dies away. A long legato line (a single pluck with multiple notes after it) just doesn't happen commonly on a guitar. So when playing guitar/plucked patches you need to adjust your playing technique to tongue much more often.

4.7 Tips on Playing Sax Patches

For effective sax emulation, try to not tongue as much as you would on a trumpet. Slur more notes and your sax emulations will sound a bit more authentic.

4.8 Tips on Playing Flute Patches

For most effective flute emulations, you might try using a diaphragm-based tremolo instead of a pitchbend-type vibrato. Tremolo (amplitude/volume-based repetitive modulation) often sounds better with flute sounds.

Section 5: Expert Edit Mode

5.1 Expert Mode Note

IMPORTANT: The Expert Edit area is intended only for very advanced users and it is possible to put the MDT into a state of unplayability. No permanent harm will be done, but if this occurs, you will probably need to do a Factory Reset. To do this, see the section in hot keys called 'Hot Keys to Initialize to Factory Settings' or 'Factory Reset' in normal Edit mode.

The following contains only brief descriptions of the various Expert Edit parameters. It only provides an overview of the various Expert Edit mode parameters.

Note that most of these parameter values are in hexadecimal. A Hex to Decimal conversion chart is provided for your convenience at the end of this section.

5.2 To Enter Expert Mode

Push Left hand top row 1/2/3/4 + Right Hand Pinky then release.
Push Octave Up and Octave Down at the same time then release

(Note that you can enter Expert Edit Mode ONLY from the initial top menu of Edit Mode.)

This puts the horn into the Expert Mode where additional parameters are available. IMPORTANT: This area is intended only for very advanced users and it is possible to put the MDT into a state of unplayability. No permanent harm will be done, but if this occurs, you will probably need to do a Factory Reset. To do this, see the section called "To Initialize to Factory Settings WITHOUT using the LCD..."

5.3 Expert Mode Parameters

5.3.1 Transpose Value

This is same parameter that gets set in normal edit mode when setting the transpose. Range is from 0 to 18h. Factory default = 0Ch (MDT set to the key of Bb like an acoustic trumpet). Setting this parameter to 0Eh puts the MDT in concert pitch (C). Note that in normal edit mode, this parameter is displayed as -12 to +12.

5.3.2 Thumb Button Fn

This is same parameter that gets set in normal edit mode when setting the Button Functions. Range is from 0 to 0Bh. Factory default = 06h.

5.3.3 Pinky Button Fn

This is same parameter that gets set in normal edit mode when setting the Button Functions. Range is from 0 to 0Bh. Factory default = 04h.

5.3.4 Breath Gain

This is same parameter that gets set in normal edit mode when setting the "Breath Gain" parameter. Range is from 1 to 4. Factory default = 3. Higher values provides more sensitive breath response.

5.3.5 Vib Resp Time

This is same parameter that gets set in normal edit mode when setting the "VibResponse" parameter. The range is from 1 to 16. The factory default = 4. Higher values give a faster tracking response to movement of the Vibrato lever.

5.3.6 Vib Width

This is same parameter that gets set in normal edit mode when setting the "Vibrato Width" parameter. Smaller value gives a bigger change in pitch when moving the Vibrato Lever. The range is from 1 to 16. The factory default = 6.

5.3.7 De-Gl Valve Rst

Deglitch Valve Reset. "De-Gl Valve Rst" and the "Deglitch Count" parameters interact. This parameter sets the time delay for only the Valves. It affects only the valves not the left hand octave and half octave switches. The range for this parameter is from 0 to "Deglitch Count"-1. The factory default = 08h.

If you find you are getting glitches when changing only RIGHT hand fingerings, then decrease the "De-Gl Valve Rst" parameter in Expert Edit mode. This slows down the right hand fingering response time.

Right Hand Deglitch Time = "Deglitch Count" - "De-Gl Valve Rst"

5.3.8 Deglitch Count

Fingering deglitch time is set by the "Deglitch Count" parameter. "De-Gl Valve Rst" and the "Deglitch Count" parameters interact. "Deglitch Count" is the overall count (delay) value for when you change fingerings. This is the amount of time that has to pass before the current note is stopped and the new note is sent. This value is used for the left hand switches. When the counter reaches the "Deglitch Count" (factory default = 13h) then the new note is played. When you change fingerings in the left hand, the counter is reset to 0. The counter then increments until reaching the "Deglitch Count" before outputting the

new note. If a valve is pressed, then counter is reset to the "De-Gl Valve Rst" value (factory default = 08h) instead of 0. So the deglitch time for the valves is "Deglitch Count"-"De-Gl Valve Rst" (which equals 11 when using the factory defaults). Note that the deglitch time for the left hand is always longer than for the valves.

Note that when changing fingerings in BOTH hands at once the LEFT hand response time has precedence. In other words, if both hands are changing fingering, then the left hand is the hand that resets the "Deglitch Count" (to 0).

The value used for right hand valve fingering changes is "Deglitch Count"-"De-Gl Valve Rst". So if "Deglitch Count" = 13h and "De-Gl Valve Rst" = 08h then the deglitch time for the left hand is 19 counts and the deglitch time for the right hand is 11 counts.

If you find you are getting glitches when changing left hand fingerings, then increase the "Deglitch Count" parameter. This effectively slows down the left hand note change response time. It also adds time to the right hand deglitching, so you may want to add the same amount to the "De-Gl Valve Rst" parameter as well to maintain the current right hand deglitch timing.

Left Hand Deglitch Time = "Deglitch Count"

5.3.9 Startup Octave

Sets the startup octave position at middle C. Range is from 0 to 12h. Factory default = 9.

5.3.10 Breath Threshold

This is the note-on threshold level. Range is from 0 to 7Eh. Factory default = 4.

5.3.11 Aftertouch O/F

Aftertouch On/Off. This is same parameter that gets set in normal edit mode when editing the Breath Functions and turning on or off the AfterTch parameter. Range is from 0 to 1. Factory default = 0 (Off). 1 = On.

5.3.12 Breath O/F

Breath On/Off. This is same parameter that gets set in normal edit mode when editing the Breath Functions and turning on or off the Breath #2 parameter. Range is from 0 to 1. Factory default = 1 (On). 0 = Off.

5.3.13 Breath MIDI CC#

Sets the MIDI controller number that is used when breath controller is selected. Breath Controller is controller #2 so this is usually set to 2. This can be set to any controller number if desired. Range is from 0 to 7Fh. Factory default = 2.

5.3.14 Full Oct Switch

Not used.

5.3.15 Capture Time

The amount of time after breath threshold is reached until a note on is sent. At that point the breath level is read and calculated for the velocity value according to the "NoteOn Vel Mode" parameter. Higher values will make the tonguing feel slower. If "Capture Time" is set too small, then inaccurate velocity readings will occur since the breath pressure should optimally be near the peak for most accurate breath tracking. Range is from 0 to 7Fh. Factory default = 6.

5.3.16 VolCtrl MIDI CC#

Sets the MIDI controller number that is used when the volume controller is activated. MIDI Volume Controller is controller #7 so this is usually set to 7. This can be set to any controller number if desired. Range is from 0 to 7Fh. Factory default = 7.

5.3.17 Initial Volume

Not used.

5.3.18 Expres O/F

This is the same parameter that gets set in normal edit mode when editing the Breath Functions and turning on or off the Expres#11 parameter. Range is from 0 to 1. Factory default = 0 (Off).

5.3.19 Volume O/F

This is same parameter that gets set in normal edit mode when editing the Breath Functions and turning on or off the Volume #7 parameter. Range is from 0 to 1. Factory default = 0 (off).

5.3.20 Volume Vel Level

Not used.

5.3.21 PortTime OnValue

Portamento Time ON value. This value of Portamento Time gets sent when Portamento Switch ON is sent. When Portamento Switch is turned OFF, then a Portamento Time value of 0 is sent as well. Range is from 0 to 7Fh. Factory default = 40h (64 decimal).

5.3.22 Use Alt ThUp O/F

Use Alternate Thumb Up Controller On/Off. When set to 0 then the right hand thumb up sensor sends pitchbend data. When set to 1 then the right hand thumb up sensor sends the MIDI controller number as specified in the "Alt ThU MIDI CC#" parameter. Range is from 0 to 1 (On). 0 = Off. Factory default = 0.

5.3.23 Alt ThU MIDI CC#

Alternate Thumb Up MIDI Controller Number. Specifies the MIDI Controller number used for the right hand thumb sensor (vibrato sensor) of the MDT when the "Use Alt ThU O/F" parameter is set to 1. Range is from 0 to 7Fh. Factory default = 5 (Portamento Time).

5.3.24 Use Alt ThDn O/F

Use Alternate Thumb Down Controller On/Off. When set to 0 then the right hand thumb down sensor sends pitchbend data. When set to 1 then the right hand thumb down sensor sends the MIDI controller number as specified in the "Alt ThDn MIDI CC#" parameter. Range is from 0 to 1. Factory default = 0 (Off). 1 = On.

5.3.25 Alt ThD MIDI CC#

Alternate Thumb Down MIDI Controller Number. Specifies the MIDI Controller number used for the right hand thumb down sensor of the MDT when the "Use Alt ThD O/F" parameter is set to 1. Range is from 0 to 7Fh. Factory default = 4 (Foot Pedal).

5.3.26 Use Alt ThL O/F

Use Alternate Thumb Lever Controller On/Off. When set to 0 then the right hand thumb lever (vibrato sensor) sends pitchbend data. When set to 1 then the right hand lever sends the MIDI controller number as specified in the "Alt ThL MIDI CC#" parameter. Range is from 0 to 1. Factory default = 0 (Off). 1 = On.

5.3.27 Alt ThL MIDI CC#

Alternate Thumb Lever MIDI Controller Number. Specifies the MIDI Controller number used for the right hand thumb lever (vibrato sensor) of the MDT when the "Use Alt ThL O/F" parameter is set to 1. Range is from 0 to 7Fh. Factory default = 1 (Mod Wheel).

5.3.28 Breath Calibrate

Sets the zero point for the breath sensor. The higher you set "Breath Calibrate" the harder you will need to blow to start the note. If you notice that notes are getting sent when you

physically move or shake the MDT, then increase the value of this parameter slightly. Range is from 0 to 40h. The factory default = 10h.

5.3.29 RH Pinky Int G

This is the right hand Trill Key interval in semitones (half steps) when left hand is fingering any G (half octave) button. This value is always positive (pitch rises). Range is from 0 to 0Ch. Factory default = 4 (a major 3rd up).

Tip: While keeping the "RH Pinky Int C" parameter set to 4, set "RH Pinky Int G" to 5 (a perfect 4th up) to duplicate how an acoustic trumpet would jump from G to C upwards. This allows you to play an A, for example, with valves 1 and 2 plus the pinky key without having to change left hand fingering!

5.3.30 RH Pinky Int C

This is the right hand Trill Key interval in semitones (half steps) when left hand is fingering a C (octave) button. This value is always positive (pitch rises). Range is from 0 to 0Ch. Factory default = 4 (a major 3rd up).

5.3.31 Pos Tongue Slope

This parameter sets the POSITIVE rate of change required in the breath pressure to generate a new tongued note. If EITHER "Neg Tongue Slope" or "Pos Tongue Slope" are exceeded, then a new note can be generated. This parameter is used in the MDT to allow for new notes to be generated without the need for the breath pressure to drop below the "Breath Threshold" level. Range is from 0 to 7Fh. Factory default = 6.

5.3.32 Slope Cont O/F

This is same parameter that gets set in normal edit mode when editing the Breath Functions and turning on or off the Slope Out parameter. Range is from 0 to 1. Factory default = 0 (Off). 1 = On.

5.3.33 Slope MIDI CC#

Sets the MIDI Controller number used for the Slope Controller feature of the MDT. Range is from 0 to 7Fh. Factory default = 1 (Mod Wheel).

5.3.34 Slope Gain

The gain for the Slope MIDI controller. Higher settings create higher Slope MIDI controller values. Range is from 0 to 10h. Factory default = 3.

5.3.35 Neg Tongue Slope

The "Neg Tongue Slope" parameter sets the NEGATIVE rate of change required in the breath pressure to allow for the possibility of a newly generated tongued note. If EITHER "Neg Tongue Slope" or "Pos Tongue Slope" are exceeded, then a new note can be generated. This parameter is used in the MDT to allow for new notes to be generated without the need for the breath pressure to drop below the "Breath Threshold". Range is from 0 to 7Fh. Factory default = 0Ah (10 decimal).

5.3.36 MIDI Channel

Sets the MIDI Channel. This is same parameter that gets set in normal edit mode when editing the MIDI Channel. It is shown in Expert Edit mode in hex values. Range is from 1 to 10h. Factory default = 1. Note that the values are shown in Expert Edit mode from 1 to 10h, but shown as 1 to 16 in Normal Edit mode.

5.3.37 TngNoteOff Delay

Sets the point in Capture Time to turn the previous note off when tonguing. Range is from 0 to CaptureTime-1. Factory default = 3.

5.3.38 NoNote Cont Mute

Sets whether or not the MIDI controllers that are responding to breath pressure get sent while no notes are being sent. If this parameter is set to 1 (Mute is On) then no breath controlled data is sent between note. If it is set to 0 (Mute is Off) then breath controlled MIDI data is sent at all times. Normally it is best to set this to 1 since there is often no reason to send controller data when no notes are on. Range is from 0 to 1. Factory default = 1 (Mute is on).

5.3.39 Favourite Sound 1 Bank ... Favorite Sound 8 Bank

Sets the Bank Select Number for Favourite Sound 1 through Favourite Sound 8. Range is from 0 to 7Fh. Factory default = 0 for the lower 4 Favourites, 1 for the upper 4 Favourites. VL70-m Users: This correlates to Pr1 and Pr2 banks on a Yamaha VL70-m.

5.3.40 Favourite Sound 1 Num ... Favorite Sound 8 Num

Sets the Program Change Number for Favourite Sound 1 through Favourite Sound 8. Range is from 0 to 7Fh. Factory default = 0 through 3 for the lower 4 Favourites, and 0 through 3 for the upper 4 Favourites.

5.3.41 Br MIDI Density

Sets the sampling rate (MIDI density) of any MIDI controllers being sent in response to the breath sensor. It is generally best to set density as low as possible (higher parameter values) so as not to overburden the receiving synth or MIDI sequencer. Some synths require more data for smoother response. Some work better with less dense controller streams. The optimum value for this parameter depends on the smoothing algorithms and processor speed of the receiving synth. Range is from 1 to 10h. Factory default = 3. Note: The MIDI stream gets denser as this number is LOWERED. Also note that in normal edit mode, the opposite is true. That is, higher numbers cause higher density.

5.3.42 LeverMIDIDensity

Sets the sampling rate (MIDI density) of any MIDI controllers being sent in response to the three right hand thumb sensors. A setting of 0 sets the highest density. Higher values cause less dense MIDI streams. It is generally best to set density as low as possible (higher parameter values) so as not to overburden the receiving synth or MIDI sequencer. Some synths require more data for smoother response. Some work better with less dense controller streams. The optimum value for this parameter depends on the smoothing algorithms and processor speed of the receiving synth. Range is from 1 to 10h. Factory default = 3. Note: That the MIDI stream gets denser as this number is LOWERED. Also note that in normal edit mode, the opposite is true. That is, higher numbers cause higher density.

5.3.43 Hot Keys Active

Allows or disallows editing via Hot Keys, that is, making changes just from special key combinations in Play Mode and NOT using the LCD. Range is from 0 to 1. Factory default = 1 (On). Set this parameter to 0 to block the ability to edit with special "Hot Key" combinations. Set this parameter to 1 to allow editing with special "Hot Key" combinations.

5.3.44 ProgChgScrollSpd

Sets the speed at which Program Changes are auto-scrolled when using Hot Keys. Range is from 0 to 7Fh. Factory default = 6E. Some synths, such as the Yamaha VL70-m, require slower program change transmission and this parameter allows you to slow the transmission down so that you see each program change happen in the VL display.

5.3.45 PortSw MIDI CC#

Sets the MIDI Controller number used for the Portamento Switch functions. To match the MIDI spec this should be set to 41h (65 decimal). Portamento Switch is MIDI controller #65. A value of either 0 or 127 is sent when one of the right hand switches is set to either "PortNonLatch" or "Port Latch" in normal Edit Mode. Range is from 0 to 7Fh. Factory default = 4.

VL70-m Users Note: It is generally best to NOT send Portamento Switch data (CC#5) since it can cause the VL70-m to stop playing smooth slurs. This happens when patches are programmed for smooth slurs with the "Porta Sw" parameter set to "On" as found in many of the plucked sounds. To avoid this problem, simply set this parameter to a non-used controller number.

5.3.46 Bank Select MSB

Not in use.

5.3.47 FavSnd 1 MSB Bnk ... FavSnd 8 MSB Bnk

Sets the Bank Select Most Significant Byte (MSB) that is sent when sending Favourite Sounds 1 to 8. This is set separately for each of the 8 Favourite Sounds thus giving the user the ability to jump between banks when changing patches. Range is 0 to 7Fh. Factory default = 7Fh. Note: This is always displayed in Expert mode as 0 to 7Fh. But in Normal edit mode, this parameter can be displayed as 0-127 or 1-128 depending on how the "Bank Number1-128" parameter is set (see below).

5.3.48 PatchNumber1-128

Sets the way the MDT DISPLAYS patch numbers. If this is set to 1 then patch numbers are displayed as 1 to 128. If this is set to 0 then the patch numbers are displayed as 0 to 127. Note that this only affects the way the patch numbers are DISPLAYED in the LCD. This parameter does not affect the actual MIDI data being transmitted. Range is from 0 to 1. Factory default = 1. Any number greater than 1 will give undesirable results.

5.3.49 Bank Number1-128

Sets the way the MDT DISPLAYS bank select numbers in the MDT's LCD. If this is set to 1 then bank numbers are displayed as 1 to 128. If this is set to 0 then the bank numbers are displayed as 0 to 127. Note that this only affects the way the bank numbers are DISPLAYED in the LCD. This parameter does not affect the actual MIDI data being transmitted. Range is from 0 to 1. Factory default = 0. Any number greater than 1 will give unexpected results.

5.3.50 Swap Pinky-Thumb

This was used for beta testing. Essentially it swaps the right hand thumb and pinky button functions. It is recommended to leave this set to the factory default of 0. Range is from 0 to 1.

5.3.51 NoteOn Vel Mode

This parameter sets how velocity is calculated. Range is from 0 to 2. Factory default = 1. When set to 0, the actual level of breath used to derive velocity value. When set to 1, the velocity from the previous note is used and a value is added. When set to 2, the peak breath value is used from the previous note.

5.3.52 ExtraSw MIDI CC#

Sets the MIDI Controller number used for the "Extra Switch" function. Factory default is MIDI controller #4 (footpedal). Range is from 0 to 7Fh.

5.3.53 ExtraSw On Value

Sets the value that gets sent when the Extra Switch is ON. When the Extra Switch is OFF, the value is always 0. The factory default value is 40h (64 decimal). Range is from 0 to 7Fh.

5.4 Hexadecimal Conversion Table

Dec: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Hex: 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F

Dec: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Hex: 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F

Dec: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
Hex: 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F

Dec: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
Hex: 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F

Dec: 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79
Hex: 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F

Dec: 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Hex: 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F

Dec: 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111
Hex: 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F

Dec: 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127
Hex: 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F

Dec: 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143
Hex: 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F

Dec: 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159
Hex: 90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F

Dec: 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175
Hex: A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF

Dec: 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191
Hex: B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF

Dec: 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207
Hex: C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF

Dec: 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223
Hex: D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF

Dec: 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239
Hex: E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF

Dec: 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255
Hex: F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF