tone
dexter.II

User Guide

Software 1.1

Version 2.9

Audio Sprockets®

ToneDexter II User Guide

ToneDexter II is an innovative professional grade preamp that improves the sound of an acoustic instrument pickup.

It learns the difference between how an instrument sounds through a microphone and how it sounds through its pickup.

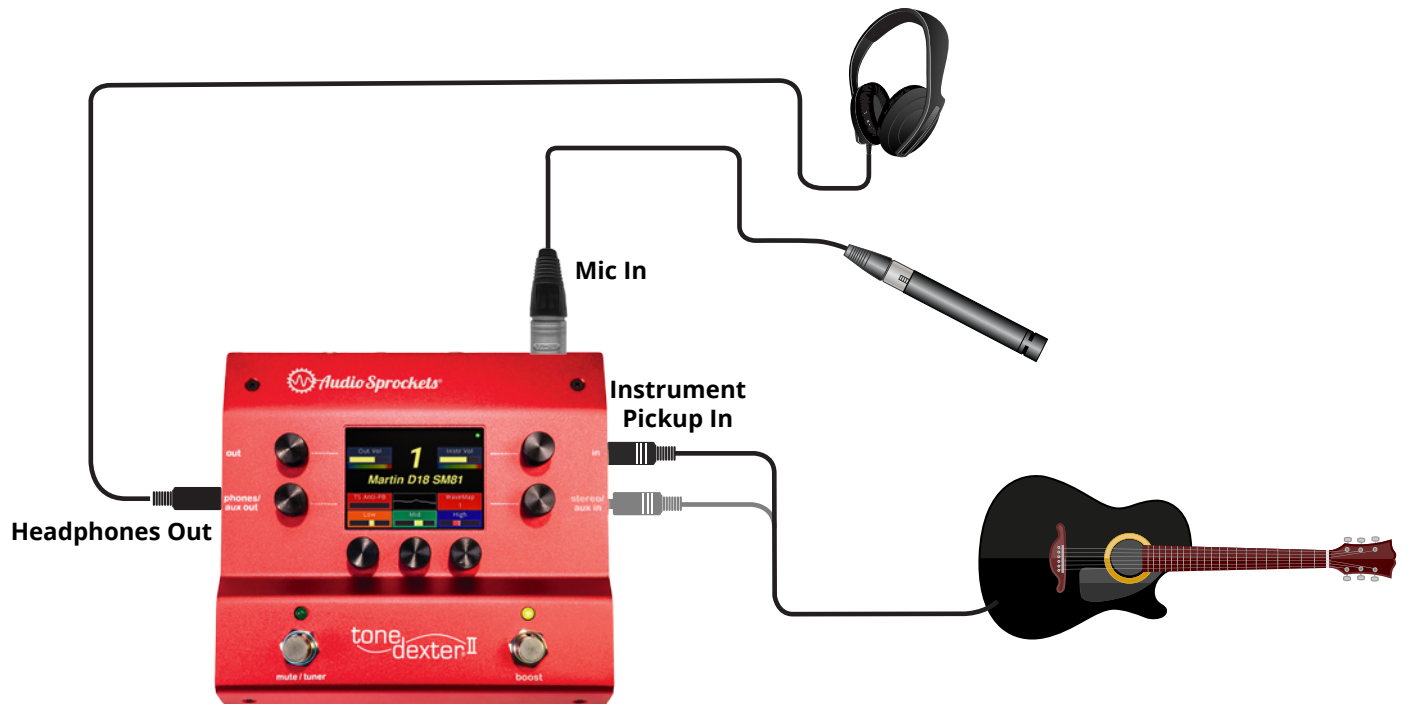Using proprietary WaveMap® technology, it corrects the pickup so that it sounds like the mic.

Main Features

- Advanced DSP algorithm creates a faithful reproduction of your miked sound with most pickups
- Works with any stringed instrument, and some without strings
- 32 WaveMap slots with all parameters automatically stored and recalled
- 3 EQ blocks each containing a HPF, plus Low, Mid, and High parametric EQs
- Spaciousness control adjusts time spread of impulse response, from 0% to 200%
- Smart feedback control reduces your unique resonance hotspots from 0 to 200%
- System configurable options include tuner style and reference frequency, MIDI program control, external footswitch control
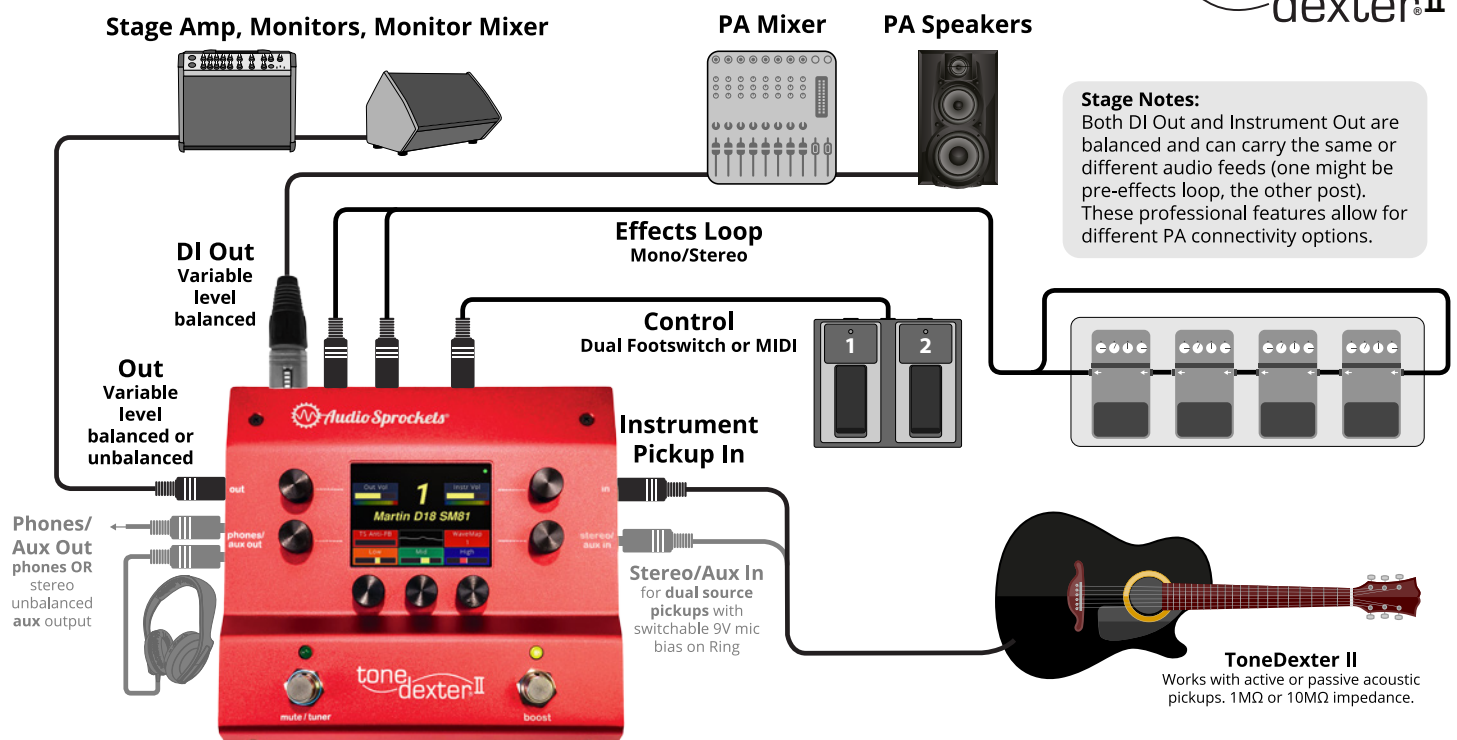
ToneDexter II Connectivity

Training

tonedexterII

Mic In

Instrument Pickup In

Headphones Out

Martin D18 SM81

Live

tonedexterII

Stage Amp, Monitors, Monitor Mixer

PA Mixer   **PA Speakers**

Stage Notes:
Both DI Out and Instrument Out are balanced and can carry the same or different audio feeds (one might be pre-effects loop, the other post). These professional features allow for different PA connectivity options.

Effects Loop
Mono/Stereo

DI Out
Variable level balanced

Control
Dual Footswitch or MIDI

Out
Variable level balanced or unbalanced

Instrument Pickup In

Phones/ Aux Out
phones OR stereo unbalanced **aux** output

Martin D18 SM81

Stereo/Aux In
for **dual source pickups** with switchable 9V mic bias on Ring

ToneDexter II
Works with active or passive acoustic pickups. 1MΩ or 10MΩ impedance.

Controls and Connections
Front Panel

Output Controls

Instrument Output

Stereo Phones/Aux Out

Tone Shaping

EQ Controls

USB 2.0 Port

Mute/Tune/Scroll

Color Display

Input Controls

Instrument Input

Stereo/Aux Input

WaveMap Select and Edit

Boost/Train/Scroll

AudioSprockets®

out

phones/ aux out

stereo/ aux in

in

Out Vol **1** Instr Vol
Martin D18 SM81
TS Anti-FB   WaveMap 1
Low   Mid   High

tone dexter II

mute / tuner

boost

Output Controls

Tap to set all output sources (pre/post FX) and levels independently, boost config, FX routing (mono/stereo/dual mono).

Instrument Output

1/4" balanced TRS or unbalanced with mono instrument plug. Programmable level.

Stereo Phones/Aux Out

1/4" balanced TRS drives headphones, or can be used as a stereo Aux line output. Programmable level.

Tone Shaping

Smart Feedback Control reduces feedback for your particular resonances. Tap for Spaciousness control and dedicated parametric notch filter. Option to select which of these appears on main page.

EQ Controls

Display bars vs. numbers for easier comprehension at-a-glance. Tap to adjust boost/cut and frequency for Low (bell or shelf), Mid (width), and High (bell or shelf), plus separate High-pass. Independent bank of EQs for second source mic and blending paths.

USB 2.0 Port

Connect to your computer for software downloads and WaveMap management.

Mute/Tune/Scroll

In Play mode, tapping mutes the output and engages the Tuner. Hold for Bypass. If in Scroll mode, tapping scrolls down.

Color Display

Uncluttered and color-coded to show only the most needed info.

Input Controls

Sets pickup input level. Tap to set input levels, single and dual-source modes (wet/dry, crossover).

Instrument Input

1/4" phone jack. Works with active or passive acoustic pickups. 1MΩ or 10MΩ impedance.

Stereo/Aux Input

1/4" TRS jack. Stereo input mode supports dual source pickups with switchable 9V mic bias on RING.

WaveMap Select and Edit

Select from 32 slots. Each can have a WaveMap representing the way your instrument sounds through a mic, plus extensive EQ, level, anti-FB, and tone shaping options. Create WaveMaps for different instruments and different mics. Tap to name/rename, copy, move, save, and delete WaveMaps.

Boost/Train/Scroll

In Play mode, tapping gives a 2-8dB adjustable gain boost. Tap from Tune mode to start Training process to capture a mic sound. If in Scroll mode, tapping scrolls up through all active WaveMaps.

System Configuration

In Tune mode press the System Config encoder for System Config screen with options for Ext switches, MIDI Setup, Page Timeout, IR Underlay Hide/Show, Start in Play/Tune mode.

Controls and Connections
Side Panel

Instrument Output

1/4" balanced TRS or unbalanced with mono instrument plug. Programmable level.

Stereo Phones/Aux Out

1/4" balanced TRS drives headphones or can be used as a stereo Aux line output. Programmable level.

USB 2.0 Port

Connect to your computer for software downloads and WaveMap management.

Controls and Connections
Rear Panel

Boot Button **Control Select** **DC Power In** **DI Out Male XLR**

Mic In Female XLR **Control Input Jack** **Effects Loop**

Boot button

A short tap will restart ToneDexter II. A press-hold longer than 1 second will allow ToneDexter II software to be drag and dropped into a folder which will automatically appear on your computer when connect via USB Jack. Normally this button will not be used since the web interface provides a more convenient way of upgrading the software.

Mic In

Provides switchable 48V phantom power.

Control Select switch and Control Jack

If set to Pedal, the Control jack allows a dual momentary footswitch to either duplicate the Mute and Boost switches, or to function as dedicated scroll up/down switches. This is selectable in global options.

If set to Midi, provides a standard TRS midi connection to allow selecting WaveMaps via program change commands. The channel assignments and WaveMap number mapping are configurable from the global options page.

DC In

- Accepts 9V to 15V DC power, either polarity. Requires 8W minimum startup, 7W continuous

Effects (FX) Send and Return

Configurable as:

- **Mono**

  o Normal FX mode similar to most other pedals
  o WaveMap and Dry channels are blended together appearing on FX Send TIP
  o FX Return TIP and RING signals are summed together to drive all outputs

- **Mono -> stereo**

  o Useful for stereo reverb, for example.
  o WaveMap and Dry channels are blended together and appear on FX Send TIP
  o FX Return TIP and RING signals are summed together to drive the Main and DI outputs
  o The Aux output is the stereo FX return

- **Dual Mono**

  o Useful for parallel FX loop
  o WaveMap and Dry channels are blended together and appear on FX Send TIP and RING
  o FX Return TIP and RING signals are summed together to drive the Main and DI outputs
  o The Aux output is stereo FX return (if selected)

- **Dual Mono -> Stereo**

  o For separate effects on the WaveMap and Dry channels
  o WaveMap channel drives FX Send TIP, Dry channel Drives FX Send RING
  o FX Return TIP and RING signals are summed together to drive the Main and DI outputs
  o The Aux output is stereo FX return (if selected)

Main Out

- Configurable as post or pre FX loop

DI Out

- Configurable as post or pre FX loop
- Selectable as an independent level setting, or it follows the Main Out level

Aux Out

- Configurable

  o FX Return Mono
  o FX Return stereo
  o WaveMap channel left, dry channel right, both pre FX
  o Instrument channel unprocessed left, Mic input right

Definition of Terms

- **WaveMap** - a transformation filter that ToneDexter II creates, stores, and uses. It is a multi-dimensional impulse response (IR) filter which maps the sound of your pickup to the sound of your mic.
- **Tap** – a quick press and release to one of the footswitches or encoders
- **Press-Hold** – pressing and holding a footswitch for at least one second until the display changes and the action takes effect.
- **Mute** switch – the left footswitch
- **Boost** switch – the right footswitch
- **Encoder**– a digital control knob for selecting values or options either by rotating or by a Tap or Press-Hold
- **Slot** – one of 32 WaveMap storage locations selectable with the **WaveMap** knob

Getting Started
What You'll Need

- **ToneDexter II with included power supply**
- **Your instrument, fitted with a pickup**
  Most active or passive pickup types will work. Magnetic pickups can work to some degree, they may make the sound 'more acoustic', but will not achieve a realistic miked sound.
- **Microphone**
  It doesn't need to be expensive. What works best for studio recording is not necessarily the optimum choice for training as the requirements are different. See below and the web page for microphone guidance.
- **Microphone stand**
  This is important so that whatever position you choose will be fixed and repeatable.
- **Headphones**
  Closed ear type, for training. This is optional but useful to assess the sound as you position of your microphone and to compare the results while blocking out a lot of the direct sound of your instrument. If you don't have headphones, don't worry—you can still get great results.

Training

It's necessary to create at least one WaveMap for your instrument by training ToneDexter II with a microphone.

Once that's done, the mic is no longer needed. Up to 32 WaveMaps can be stored in the unit at one time. These can be for the same instrument with different mics or mic positions, or for different instruments.

ToneDexter II's web interface allows an unlimited number of WaveMaps to be stored, backed up, recalled, renamed, reordered, reloaded, and more. See the section on WaveMap Management with Web Interface later in the document.

ToneDexter II does not come with any existing Wave-Maps because they would not work satisfactorily for your particular instrument, pickup, and mic.

Training is easy, let's get started!

Training

Headphones Out

Mic In

Instrument Pickup In

Training Procedure

1. Set up a mic on a stand, plug it into the **Mic in** jack.

2. Plug your instrument into either the **Instrument (In)** or **Aux jack**. ToneDexter II will know which one you are connected to. *Helpful note: For standard mono pickups, you will normally just use the Instrument jack. If you are using a dual-source or stereo pickup, you can use either the Instrument jack or the Aux jack, and ToneDexter II will just use the mono TIP connection for training.*

3. If you are using headphones to monitor the training process, plug them into **Aux out**.

4. **Tap the Mute switch** to get to Tune mode if you are not there already.

5. **Tap the Boost switch** to get into Train-Level Set mode. At this point, all outputs except Aux will be muted. **Helpful Note:** *Here you can decide whether to leave phantom mic power on or turn it off. It will not harm most mics to leave it on. If you have a ribbon mic, you may want to turn it off.*

6. Once you position the mic, start playing at a medium loudness. ToneDexter II will automatically set the instrument gain and the mic gain to give you enough headroom to avoid distortion. You should see the level meters both be in the middle range. **Helpful Note:** *Don't worry about precisely how loud you are playing, the resultant WaveMap will be at a fixed power level, independent of pickup and mic gains during training.*

7. Once it sets levels, ToneDexter II will automatically proceed to Training mode. Play for about a minute as you hear the training in the headphones and watch the progress bar shown on the screen. **Helpful Note:** *It doesn't need to be musical, what's important is that the instrument's character and overtones are excited. Furthermore, playing soft and loud doesn't matter. Play at a medium level, being careful not to move your position relative to the mic.* **Recommended approaches:**

   a **Guitar, mandolin, banjo, etc** – open chords, open strings, barre chords up and down the neck to say 5th position or so. Fingerpicking or flat picking are both fine. Flat picking may train a little faster though, and the result will apply to any style of playing.

   b **Violin, cello, bass** – double stops and string sweeps on open strings and higher. Bassists should always use a bow and never pizzicato for training as arco best facilitates training. This training will translate to any style of playing.

8. Once the training phase completes, the WaveMap will be transferred to a holding position, awaiting confirmation as to which slot to store it in. Before deciding to keep it, you can successively tap the **Boost switch** to audition the WaveMap, the raw pickup, and the live Mic sound for comparison. ***Brace yourself for a shock!***

9. Training complete will automatically select the next empty slot, but you can select any slot and if occupied will be overwritten. **Press-Hold Boost** to store the WaveMap in your choice of slots.

10. You can name and rename the WaveMap by either using the etch-a-sketch controls (Cursor and Char), or more conveniently by using the web interface.

Helpful Training Info

- You can audition sources during training as well as during the post training phase before storing the WaveMap. If you audition other sources while training, training will continue in the background.

- If you stop playing, the training process will just wait for you to continue.

- To cancel out of training **Tap Mute**.

- Mic EQ can be engaged during training. At Level Set, **switch the Mic EQ encoder from Mic Off to Mic On**. Then Tap the encoder to adjust Mic EQ. The next time you train, the EQ adjustments will be remembered, but the default will always be Mic Off.

- You can store several WaveMaps using different mics and/or mic locations and decide later which ones to keep or move to different locations.

- You can train in virtually any location—you don't need a refined acoustic space because the Wave-Map picks up very little of the room sound. Small tiled rooms are not recommended however.

- A small diaphragm condenser (capacitor) mic is recommended. Large diaphragm mics can also work well but may be more finicky about placement due their response coloration.

- Dynamic mics, such as common vocal mics, can yield usable results, though generally will not have as much high frequency information, and tend to be quite colored.

- Tube (valve) mics, due to their higher non-linearity, are not recommended but may yield good results nonetheless.

- Both cardioid and omni-directional pickup patterns will give excellent results.

- Active ribbon mics may also be used.

- Passive ribbon mics may be used so long as they can tolerate 48V phantom power. If using a passive ribbon mic, consider either plugging in the mic first before training starts, or by disabling 48V phantom power at the Level-Set phase first, before plugging in the mic. See website for further mic guidance.

- A note about hum: If you are using a passive piezo pickup, you may hear some AC power line hum if your system is not grounded. In normal use ToneDexter II will be connected to an amplifier or PA system which is grounded, and you will not experience any noticeable hum. But if you do experience hum when training using just headphones, plugging one of the outputs into a grounded system will eliminate the hum.

Modes of Operation

Play

- Processes your pickup sound with a WaveMap and any EQ you dial up, and with any Tone Shaping options like Smart Feedback Control or Spaciousness.
- Input and Output levels are adjustable for a WaveMap slot and are automatically recalled. The same goes for input source selection and boost level setting.
- It is possible to create an "empty" WaveMap that does not contain a trained WaveMap, but rather contains a simple pass-through impulse, as well as all other programmable parameters. **Use the WaveMap encoder** to scroll to an empty slot which will show as gray. **Press-Hold the Wave-Map encoder** to save a WaveMap and the color will turn blue. Adjust parameters and rename it as desired.
- Slots with a previously saved WaveMap will be gold.

Tune

- Mutes all outputs except Aux
- Engages a precision tuner which is accurate to 1 cent.
- Automatically tunes from whichever jack (Instrument or Aux) you are plugged into. If you have instruments plugged into both jacks, it tunes from whichever jack the WaveMap slot has stored as the input.
- Display style and reference frequency can be adjusted using the encoders.

Boost

- **Tapping the Boost** footswitch during Play Mode Increases the output level by 2-8dB. **Tapping again** returns to normal level
- The setting is configurable by **Tapping Out Vol** from the main page.
- The extra gain is provided in the analog domain, so as not to compromise digital headroom.

Bypass

- **Press-Hold the Mute** switch to enter and exit Bypass mode.
- Audio is routed straight from the digital input to the digital output, bypassing all signal processing and effects.

Train Level Set

- **Tap Boost** from Tune mode to enter Level Set mode.
- Automatically sets instrument and mic gains to facilitate training.
- Whichever instrument gain is selected during Level Set is remembered but can always be adjusted later.
- Any level adjustment is automatically remembered for that WaveMap.

Train

- Train starts automatically after Level Set completes.
- Audition Sources works in Train and Post Train modes.
- Mic EQ can be engaged to tailor your mic's sound for the WaveMap to match.

Post Train

- When training complete, but before you save the newly created WaveMap into a chosen slot.
- Audition Sources allows easy comparison.
- You can also adjust the EQ before saving the WaveMap. Any adjustments you make will follow along to stored WaveMap parameters, exactly as if you'd done it after saving. This might be useful if you've trained but aren't sure it's going to suffice without a little EQ. This will allow you to conveniently answer that question.

Edit WaveMap

- Tapping the **WaveMap encoder** will show the Edit WaveMap page where renaming, moving, copying, saving, and deleting actions are available. These can also be done more conveniently by using the WaveMap Management web interface described below.

Foot Scroll

- From Tune mode, **Press-Hold the Boost** footswitch to enter foot scroll mode. There, tapping **Boost** will increment the WaveMap selection number, tapping Mute will decrement it. **Press-Hold Boost again** to exit foot scroll mode.
- From System Config, you can select the original ToneDexter foot scroll behavior if desired.
- From **System Config**, you can set the external footswitches to provide the Footscroll function instead of Mute and Boost. Using this mode will disable Footscroll on the unit, and a **Press-Hold to Boost** during play mode will engage boost the same as a tap will.

ToneDexter II Operation and Display

Parameter Adjustment

Any parameter change is automatically saved with the WaveMap in the Active Memory. You don't have to think about it. When that WaveMap is recalled, the parameters will be recalled to the same settings you last used.

If you want to commit those parameter settings to the Baseline Memory, **press-hold the WaveMap encoder**. Now you are free to make more changes such as 'what if' experiments, or to tailor your sound for a particular venue. As before, these changes are automatically stored in the Active Memory.

At any time you can recall the baseline parameters by tapping the WaveMap encoder, then tapping Revert to Saved.Tap any encoder that has a box around the text for more options.

Main Page

- Tap any encoder that has a box around the text for more options
- The level meters are quasi-rms with peak hold indication
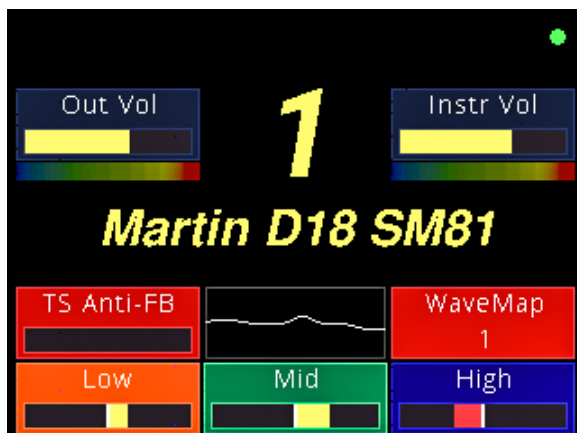
Instr Vol Submenu
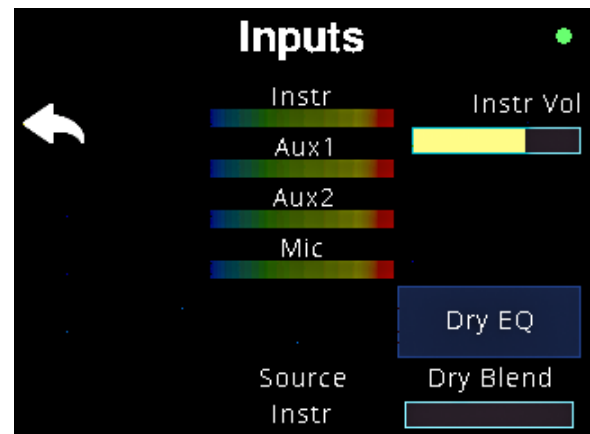
- **Tap Instrument Vol** to change input options
- In default Instrument mode, the dry pickup signal can be blended with the WaveMap signal
- **Adjust Dry Blend** to add dry pickup signal. The default is 100% WaveMap, 0% dry pickup
- The dry signal is automatically time aligned with the WaveMap signal. This time alignment varies automatically as the **Spaciousness** control is adjusted.
- **Tap Dry EQ** to adjust dry pickup channel signal EQ separately from WaveMap channel
- **Tapping the encoder** next to the arrow will always take you back to the previous page
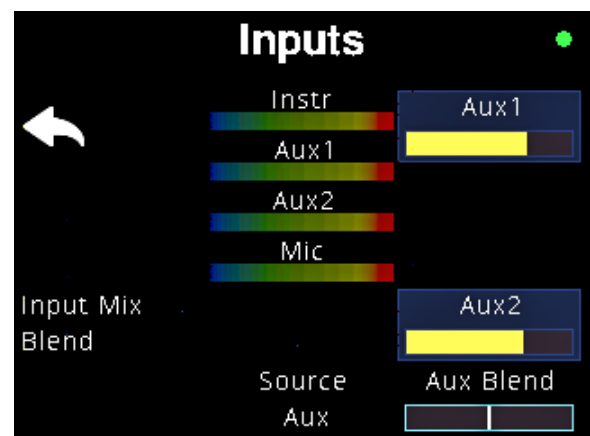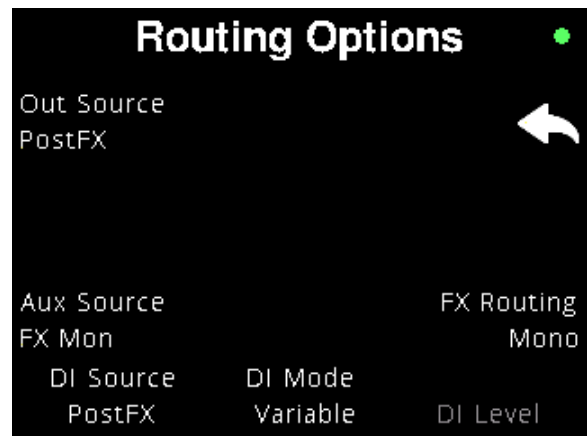

- **Turn Source** to change from Instrument input to Aux input. Aux input can operate as a normal mono in- put, or it can be a stereo dual-source input.
- **Select Input Mix** mode of Blend or Crossover
- In **Blend Mode**, the Aux1 and Aux2 level controls are independently settable, but at the top menu the level is shown as simply Aux and adjusts both gains in tandem, proportionately.
- **Tap Aux 1 or Aux 2** to adjust EQs
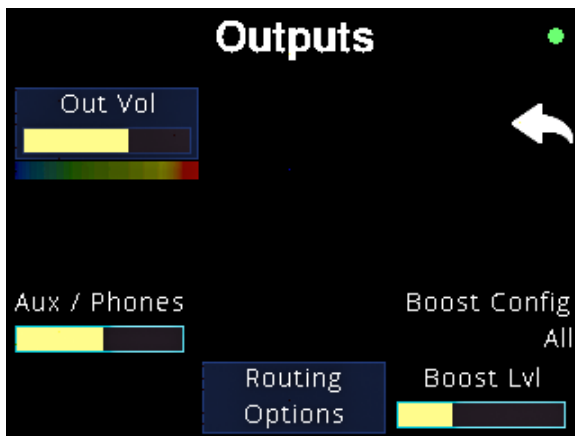
Instr Vol Submenu
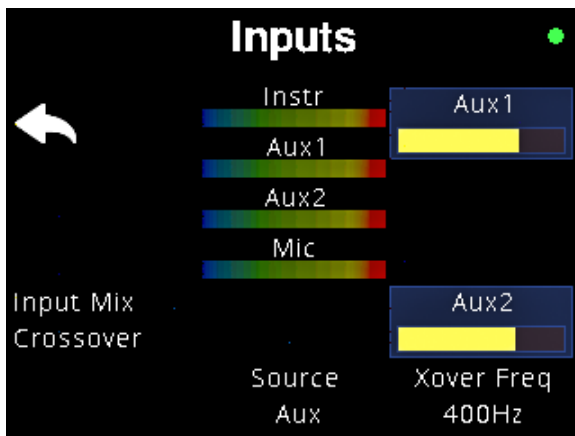
- In Crossover Mode Aux 1 is low pass filtered. This will typically be used for the pickup.
- The pickup can be processed by a trained Wave-Map, or not
- Aux 2 will be high pass filters and normally used with a 2nd pickup, typically an internal mic
- The Crossover frequency can be adjusted
- Use the input gain controls, the level meters and your ears to balance the sound
- In this mode there is just one EQ block that comes after the low pass and high pass outputs are summed together

Out Vol

- **Tap Out Vol** to change output polarity
- Adjust levels for Main **Out Vol** and **Aux/Phones**
- **Adjust Boost** Level
- **Tap Routing Options** to configure...

Routing Options

- DI Mode can be Variable which tracks Main Out level (the default), or set to a specific level
- **Turn the Out, Aux, or DI Source encoders** to select configuration

Using The EQ

There are three blocks of EQs, one each for the Main path, Blend path and Mic path. Each EQ block has high pass, low band, mid band and high band. There is one notch filter for the output.

From the main page, the Low, Mid, and High EQ gains can be set for instrument or Aux 1, whichever applies to your routing selection. Tap Low, Mid, or High to adjust all the parameters for that EQ band. The High pass filter adjustment is accessible by tapping Low.
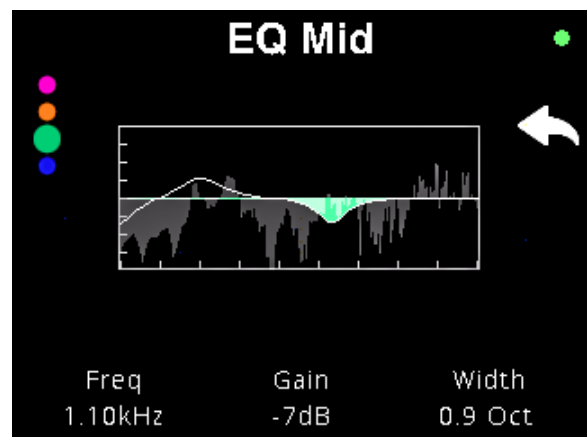
High pass filter

- 2nd order 12dB/octave
- Frequency adjustment, 20Hz minimum (default)

The WaveMap IR frequency response is shown in light gray behind the EQ curve.
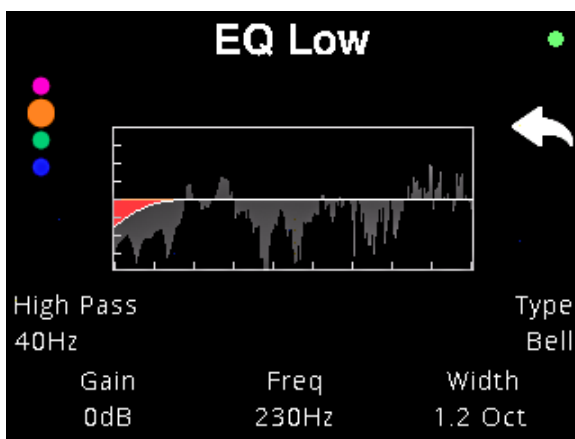
Mid band filter

- 2nd order PEQ, Bell
- Frequency, gain and octave width adjustment
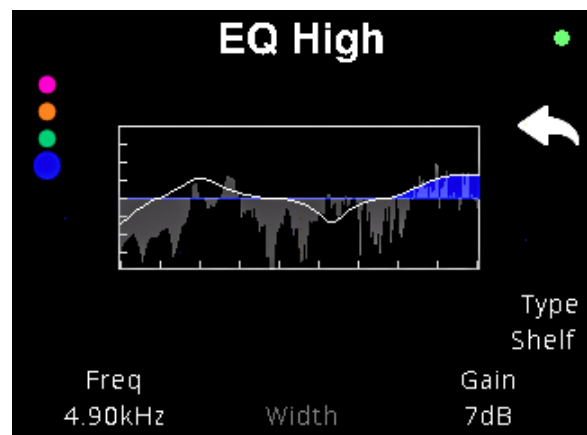- The Mid band filter area is shown with green shading

Low band filter

- 2nd order PEQ, Bell (shown) or Low Shelf (default)
- Frequency and Gain adjustment
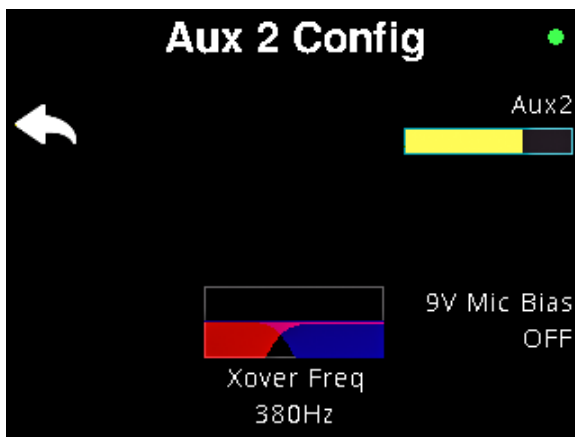- The Low band filter area is shown with orange shading
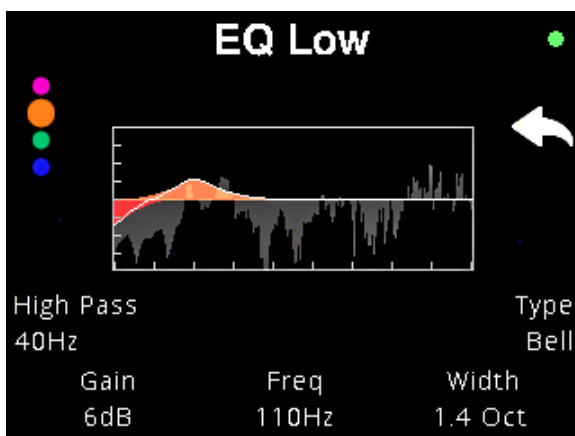
High band filter

- 2nd order PEQ, Bell or High Shelf (shown, default)
- Frequency and gain adjustment
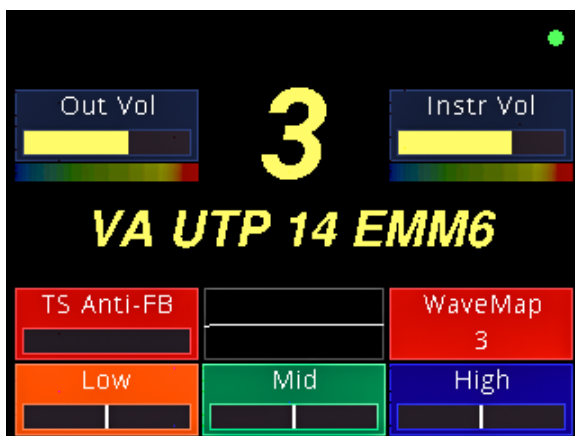- The High band filter area is shown with green shading

Crossover filters

- 4th order Linkwitz Riley
- Frequency adjustment
- Applies to Aux input when Input Mix set to cross-over mode
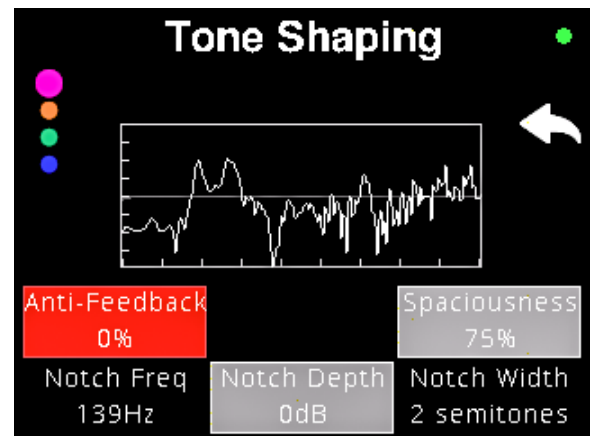

Main menu – Tone Shaping

Tap the left side lower encoder marked **TS** to show Tone Shaping options for Anti-Feedback (shown) Spaciousness, or Notch. This brings you to the Tone Shaping page. Here you can select which of these three options shows on the main page for quickest access. Two options are shown with gray boxes, and the one selected with a red box.
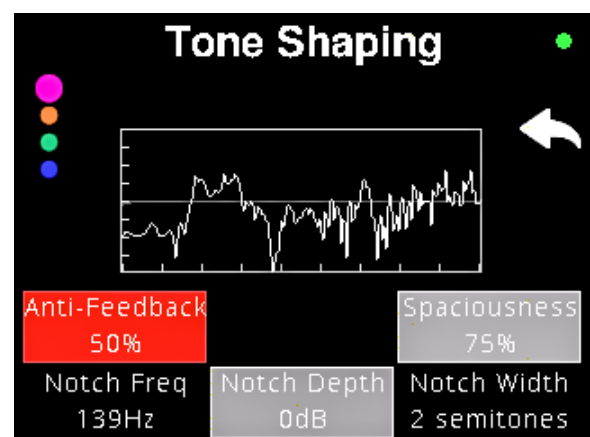
Anti-Feedback

Note the four colored buttons in the upper left. You can use this encoder to quickly scroll through adjustment pages.

- Violet – Tone Shaping
- Orange – EQ Low
- Green – EQ Mid
- Blue – EQ High

The display shows a frequency response curve of the WaveMap. The horizontal ticks are notes A0 (27.5Hz), A1 (55Hz), … thru A9 (14,080Hz). Vertical ticks are 5dB per. This curve shows how the WaveMap is altering (filtering) what your pickup is sending through. It is normal to have large peaks and dips. This is a large part of what makes an acoustic instrument sound rich and interesting.

Note: this does not represent what your ear is hearing, as it is not taking into account what the pickup is sensing from the strings and instrument's body. It represents the difference between your pickup and what the mic heard during training.

At the default 0% position, the **Anti-Feedback** control is not altering the response. As you increase it from 0%, you'll see the peaks in the lower region from 50Hz to 440Hz start to be reduced from the top down, starting with the highest one first.
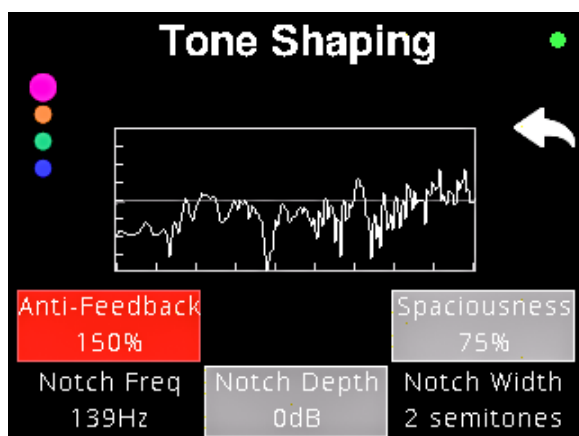
Anti-Feedback *(continued)*

Then, as the highest one reaches the level of the next highest one, they will both go down together until at 100%, the whole lower region is approximately flattened out, leaving no dominant peaks in the Wave-Map response.
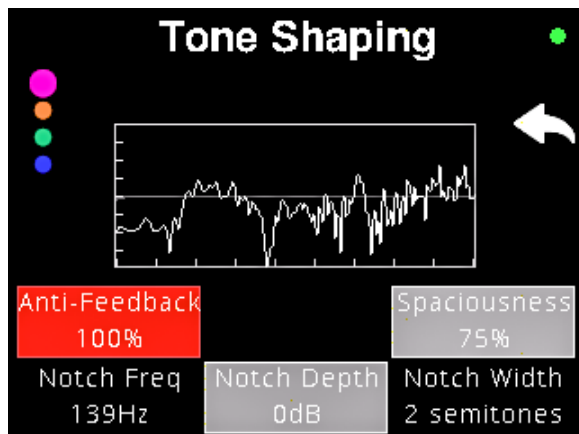

But sometimes even that isn't quite enough. For example, if you have a sound board transducer which senses a lot of resonances (as most do), they will still be present even though you won't see them on this curve (Remember this curve just represents the difference between the pickup and mic).

So, you may still have feedback issues. If so, turn the **Anti-Feedback** control past 100% and you will see the resonances dip below the average level. It is normal for the bass to sound weaker at these extreme settings. You can mitigate this to some degree by carefuly boosting the lows with the Low Band EQ, while not exacerbating the feedback issues.


The Anti-Feedback control goes all the way to 200%.
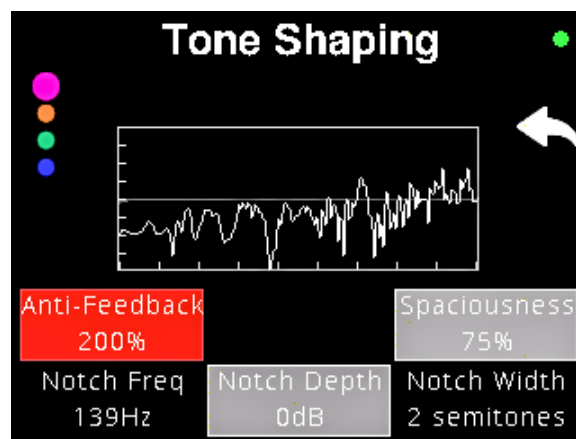
Spaciousness

The display shows the time domain impulse response of the WaveMap, IR for short. The horizontal ticks are 5ms. Vertical is linear amplitude. This gives a visual cue to what the Spaciousness control does.

At the default of 100%, The IR is the exact difference between your pickup and what the mic heard during training.
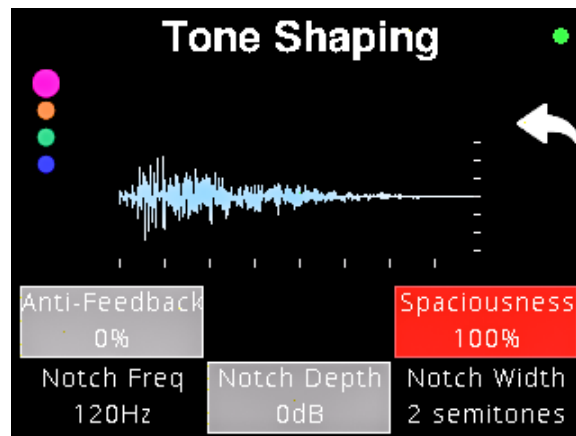
Acoustic body instruments act like miniature echo chambers and the vibrations can show significant energy for as long as 20-30ms or more. This is especially true of upright basses where the time spread is usually much longer than a guitar.

This is the most natural sound, but sometimes this natural spaciousness can get lost through a PA system, which has its own spaciousness in the room environment. It is often desirable to dial this back to cut through the PA system better. The Spaciousness control allows you to do exactly that.

Moving the control down from 100% towards 0% shortens the time span of the IR's energy, without changing the frequency response or tonality.
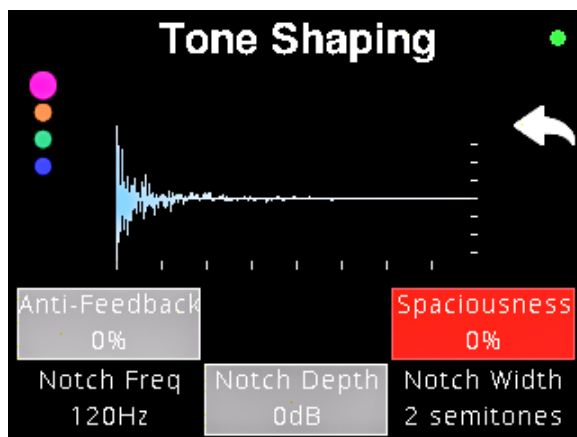
50% cuts the time span roughly in half.
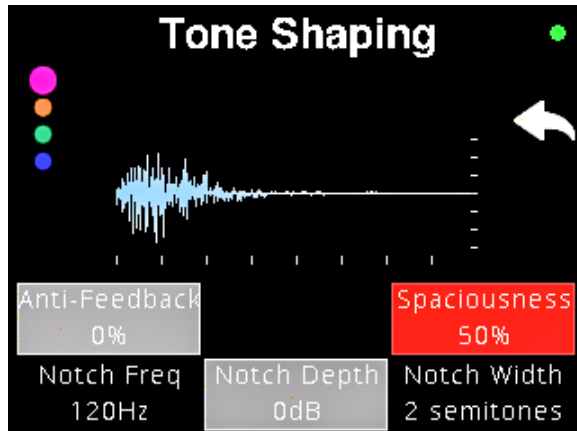
Going all the way to 0% takes all the excess time out of the IR, reducing it to a minimum phase filter but again without changing the tonality.

Probably not for live performance, but rather for recording purposes, it may be desirable to add *more* time to the IR to *increase* its sense of spaciousness and lushness. To do this, you can dial the **Spaciousness** control up past 100%.
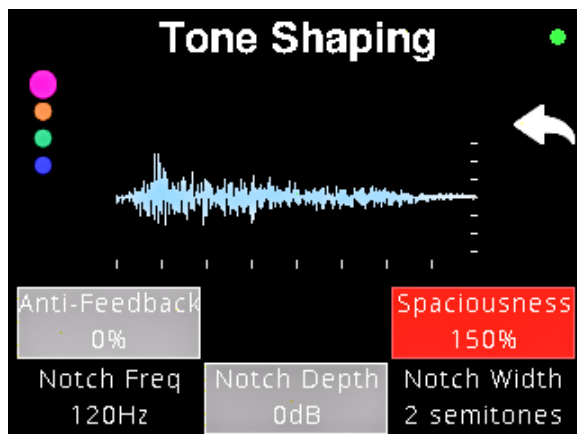
Notch filter

Affects the WaveMap and Dry paths, but not the Mic path.

- 2nd order PEQ, Bell
- Frequency, depth, & semitone width adjustment

Main menu - WaveMap options

- **Press-Hold the WaveMap encoder** to store current parameters in the Baseline Memory
- **Tap the WaveMap encoder** for more WaveMap editing options

- **Press-Hold Revert to Saved** to recall Baseline Memory parameters to currently active
- **Tap Move Copy** to move or copy WaveMaps to new locations
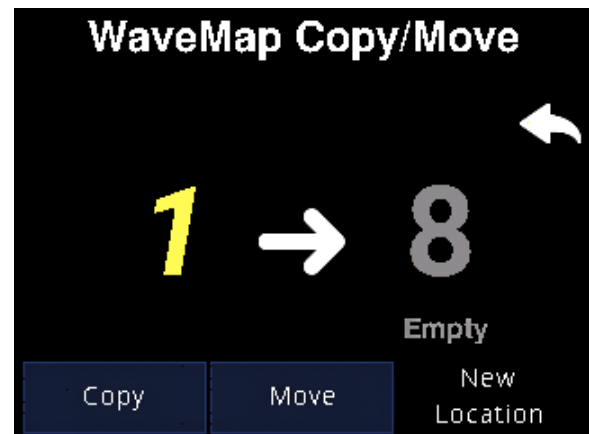
WaveMap Management with Web Interface
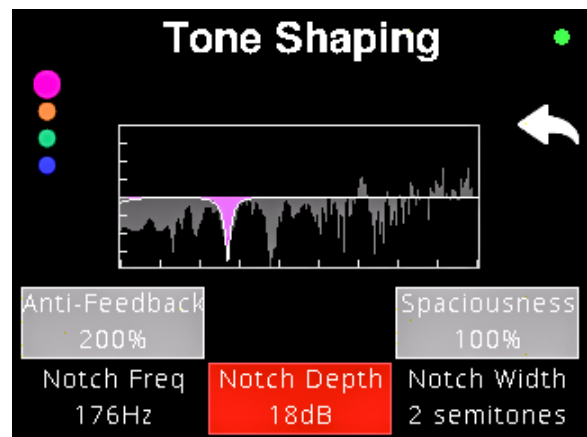
ToneDexter II Web Home Page

- With your ToneDexter II connected to your computer, either Mac or PC, go to your favorite browser and type in the URL **192.168.7.1**
- The Web Management tool should appear. It is a live link to your ToneDexter II, and not to an external site.
- Save that as a bookmark for future reference.
- Changes that are made on the web interface, such as naming a WaveMap, will instantly take affect and be permanently saved on your ToneDexter II.

The home page has several buttons for doing useful things:
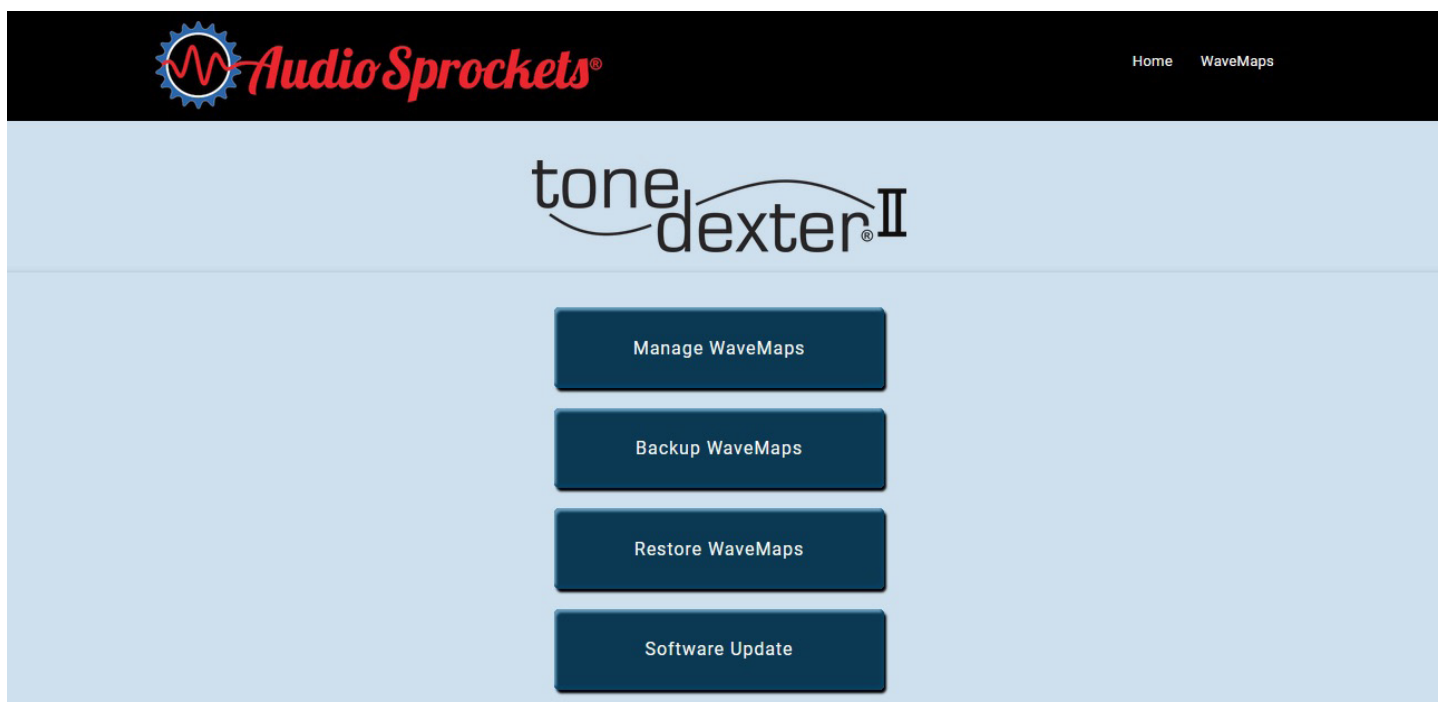
WaveMap Management with Web Interface

Manage WaveMaps

Allows convenient management of WaveMaps. Here is a representative example:
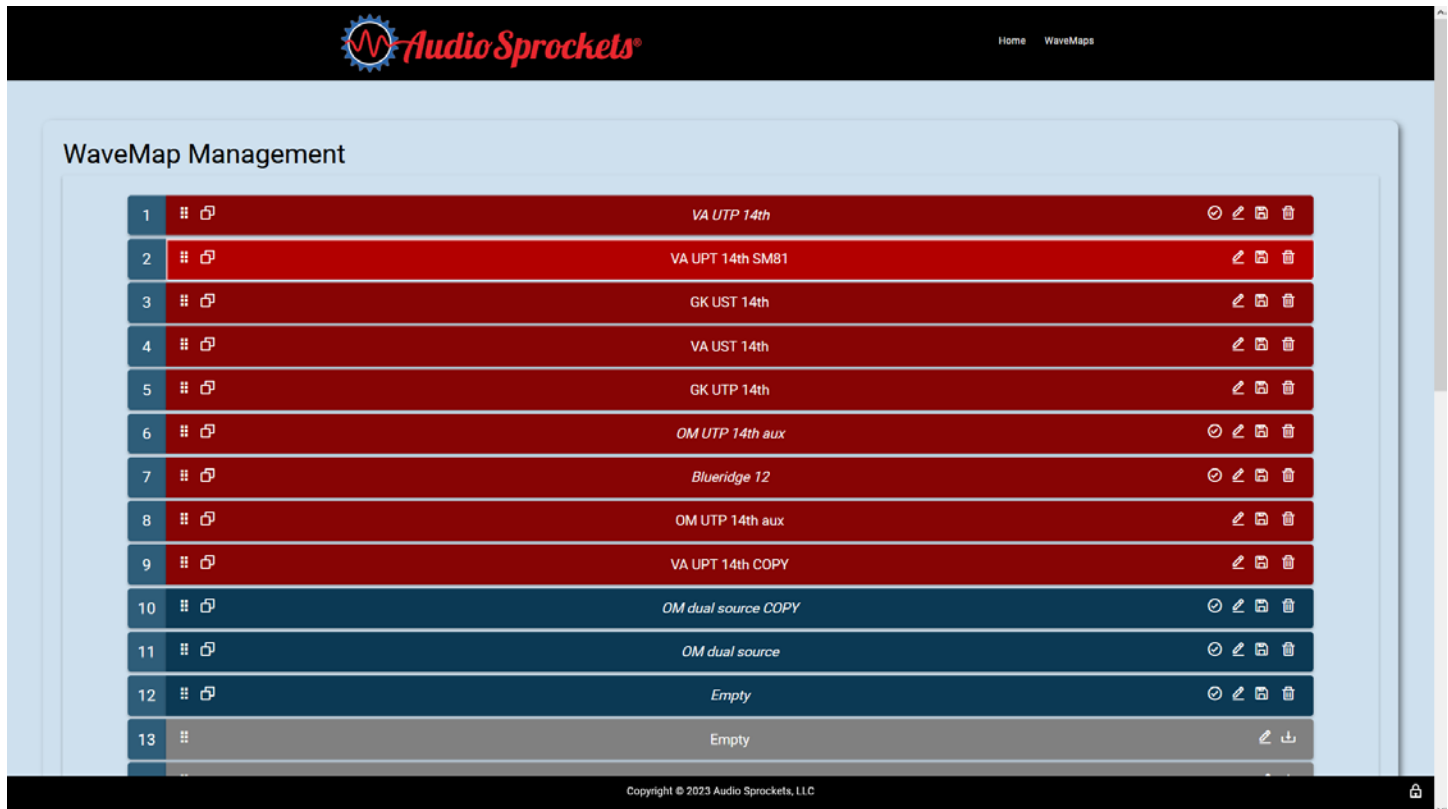
Backup WaveMaps

Writes all existing into a .bak file. The front part of the file name should be changed to something meaningful.

Restore WaveMaps

Reloads WaveMaps from a .bak file.

Software Update

Save the latest software release from the Audio Sprockets website to your download folder, or any other convenient location. Click this button and browse to the software you just saved. Click open or okay at the prompt, then the red upload button and ToneDexter II will be updated.

If for some reason the software update fails and the screen goes black, there is a back door method to restore and update the unit using the .uf2 file (also available on the Download page), instead of the .bin file.

- Connect a USB cable
- **Press and hold the red boot button** on the rear for about 2 second and let go. A removable drive named RPI-RP2 will appear on your computer.
- Drag the .uf2 file to this drive. Say OK to any warnings. The removable drive will disappear once transfer is complete. Ignore the eject warning.

Web Interface Icon functions:

⠿ **Click and drag a WaveMap** to another location to reorder your set.

⧉ **Copy WaveMap** to create a clone in the next available slot. Appends COPY to the name.

⊘ **Save changes.** Only applies to italicized names which indicate there have been adjustments to the Wave-Map in active memory that haven't been saved to baseline memory. This is strictly an optional convenience, since all parameters stay with the WaveMap whether they are saved into the baseline memory or not.

✎ **Edit the name**

💾 **Saves the WaveMap** to a file

🗑 **Deletes the WaveMap**

Color and Text coding

Red bands are WaveMaps that have a trained WaveMap in them. On ToneDexter II they appear with gold text.

Blue bands are saved WaveMaps that do not have a trained WaveMap, but rather a simple pass-through impulse, and may have most of the other parameters such as gains, EQ, and routing configurations. On ToneDexter II they appear with blue text. These would typically be used for a dual source configuration with blending or crossover, EQ and routing, but no trained WaveMap.

Gray bands indicate empty slots and appear gray on ToneDexter II as well. Press-Holding the WaveMap encoder will save an empty slot into a WaveMap with a pass-through impulse, and it will turn Blue.

Italics indicate there are adjustments to the WaveMap that are not saved in the WaveMap's memory.

Straight text indicates all adjustments have been saved to the baseline memory for that WaveMap.

Technical Specs

Instrument Input

- 1/4" phone jack
- Input impedance: 1MΩ if using a standard mono plug, 10MΩ if using a TRS plug with RING unconnected
- Gain range: -38dB to +25dB
- Maximum signal level before clipping: +16dB-Vrms

Aux Input

- 1/4" TRS phone jack

Left or Right channel:

- Input impedance: 1MΩ
- Gain range: -38dB to +25dB
- Maximum signal level before clipping: +16dB-Vrms

Right channel:

- Switchable +9V bias through 10K resistor

Mic Input

- XLR female
- Input impedance: 2KΩ differential
- Gain range: -11dB to +49dB
- Maximum signal level before clipping: +18dB-Vrms
- Switchable +48V phantom power

Main Output

- 1/4" TRS phone jack
- Unbalanced single ended, or impedance balanced differential drive
- Source impedance: 300Ω per side
- Gain range: off, -34dB to +14dB
- Maximum signal level before clipping: +18dB-Vrms

DI Output

- 1/4" TRS phone jack
- Voltage and impedance balanced differential drive
- Source impedance: 300Ω per side
- Gain range: off, -28dB to +20dB
- Maximum signal level before clipping: +24dB-Vrms differential

Aux Output

- 1/4" TRS phone jack
- Dual mono or stereo operation, capable of driving most headphones
- Source impedance: 20Ω per side
- Gain range: -22dB to +26dB
- Maximum signal level before clipping: +24dB-Vrms differential

FX Sends

- 1/4" TRS phone jack
- Dual mono or stereo operation
- Source impedance: 500Ω per side
- Maximum signal level before clipping: +18dB-Vrms

FX Returns

- 1/4" TRS phone jack
- Dual mono or stereo operation
- Input impedance: 1MΩ per side
- Maximum signal level before clipping: +16dB-Vrms

USB Jack

- USB 2.0
- Micro B

DC Power Input

- 2mm pin, 5.5mm barrel
- Accepts 9-15VDC, either polarity
- Requires 8W minimum startup, 7W continuous

Control Jack

- 1/4" TRS phone jack
- If Midi selected, wired to the TRS midi standard
- If footswitch selected, Tip and Ring are pulled up to +5V with a 20mA current source
- Footswitches should make momentary closure to ground

On Board Footswitches

- Optical interrupter sensors for zero wear operation

ToneDexter II   Print for Quick Reference

Output Controls
Tap to set all output sources (pre/post FX) and levels independently, boost config, FX routing (mono/stereo/dual mono)

Instrument Output
1/4" balanced TRS or unbalanced with mono instrument plug. Programmable level.

Stereo Phones/Aux Out
1/4" balanced TRS drives head-phones, or can be used as a stereo Aux line output. Programmable level.

Tone Shaping
Smart Feedback Control reduces feedback for your particular resonances. Tap for Spaciousness control and dedicated parametric notch filter.

EQ Controls
Display bars vs. numbers for easier comprehension at-a-glance. Tap to adjust boost/cut and frequency for Low (bell or shelf), Mid (width), and High (bell or shelf), plus separate High-pass. Independent bank of EQs for second source mic and blending paths.

USB 2.0 Port
Connect to your computer for software downloads and WaveMap management.

Mute/Tune/Scroll
In Play mode, tapping mutes output and engages Tuner. Hold for Bypass. If in Scroll mode, tapping scrolls down.

Color Display
Uncluttered and color-coded to show only the most needed info.

Input Controls
Sets pickup input level. Tap to set input levels, single and dual-source modes (wet/dry, crossover).

Instrument Input
1/4" phone jack. Works with active or passive acoustic pickups. 1MΩ or 10MΩ impedance.

Stereo/Aux Input
1/4" TRS jack. Stereo input mode supports dual source pickups with switchable 9V mic bias on Ring.

WaveMap Select and Edit
Select from 32 slots. Each can have a WaveMap representing the way your instrument sounds through a mic, plus extensive EQ, level, anti-FB, and tone shaping options. Create WaveMaps for different instruments and different mics. Tap to name/rename, copy, move, save, and delete WaveMaps.

Boost/Train/Scroll
In Play mode, tapping gives a 2-8dB adjustable gain boost. Tap from Tune mode to start Training process to capture a mic sound. If in Scroll mode, tapping scrolls up through all active WaveMaps.

ToneDexter II Training - Quick Start Guide

1. Set up a mic on a stand, plug it into the **Mic in** jack.

2. Plug your instrument into either the **Instrument (In)** or **Aux jack**. ToneDexter II will know which one you are connected to.

3. If you are using headphones to monitor the training process, plug them into **Aux out**.

4. **Tap the Mute switch** (1) to get to **Tune** mode if you are not there already.

5. **Tap the Boost switch** (2) to get into **Train-Level Set** mode (see screen right). At this point, all outputs except Aux will be muted. Condenser mics require 48v phantom which can be switched on/off with the lower middle control.

6. Once you position the mic, start playing at a medium loudness. ToneDexter II will automatically set the instrument gain and the mic gain to give you enough headroom to avoid distortion. You should see the level meters both be in the middle range.

7. Once it sets levels, ToneDexter II will automatically proceed to Training mode. Play for about a minute as you hear the training in the headphones and watch the progress bar.

8. Once the training phase completes, the WaveMap will be transferred to a holding position, awaiting confirmation as to which slot to store it in. Before deciding to keep it, you can successively tap the **Boost switch** (2) to audition the **WaveMap**, the **raw pickup**, and the **live Mic sound** for comparison.

9. Training complete will automatically select the next empty slot, but you can select any slot and if occupied will be overwritten. **Press-Hold Boost** (2) to store the WaveMap in your choice of slots.

10. You can name and rename the WaveMap by either using the etch-a-sketch controls (Cursor and Char), or more conveniently by using the web interface.

11. Connect to your USB computer port and type in the browser URL **192.168.7.1** to rename and backup your WaveMaps.
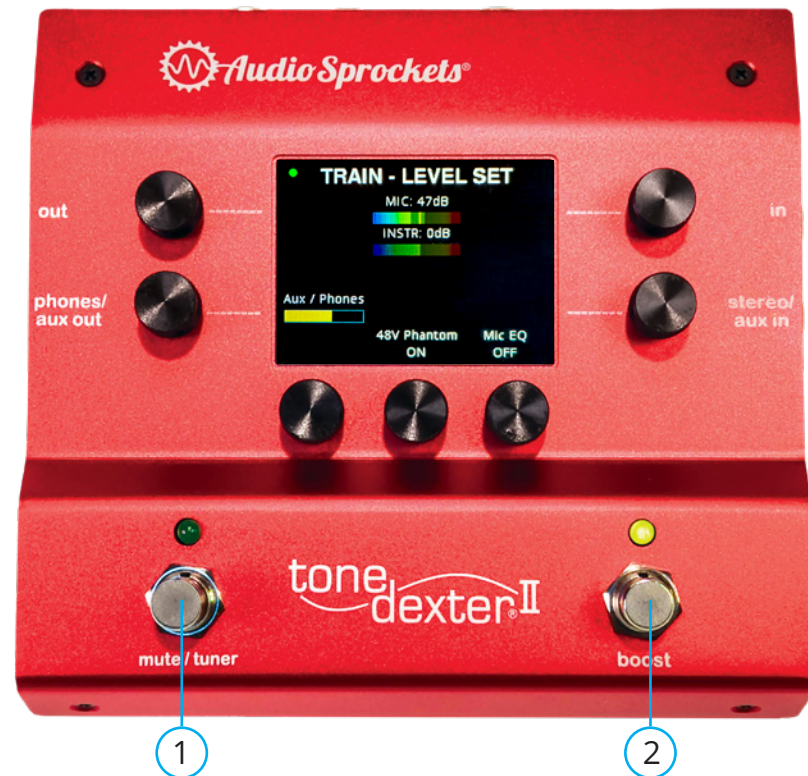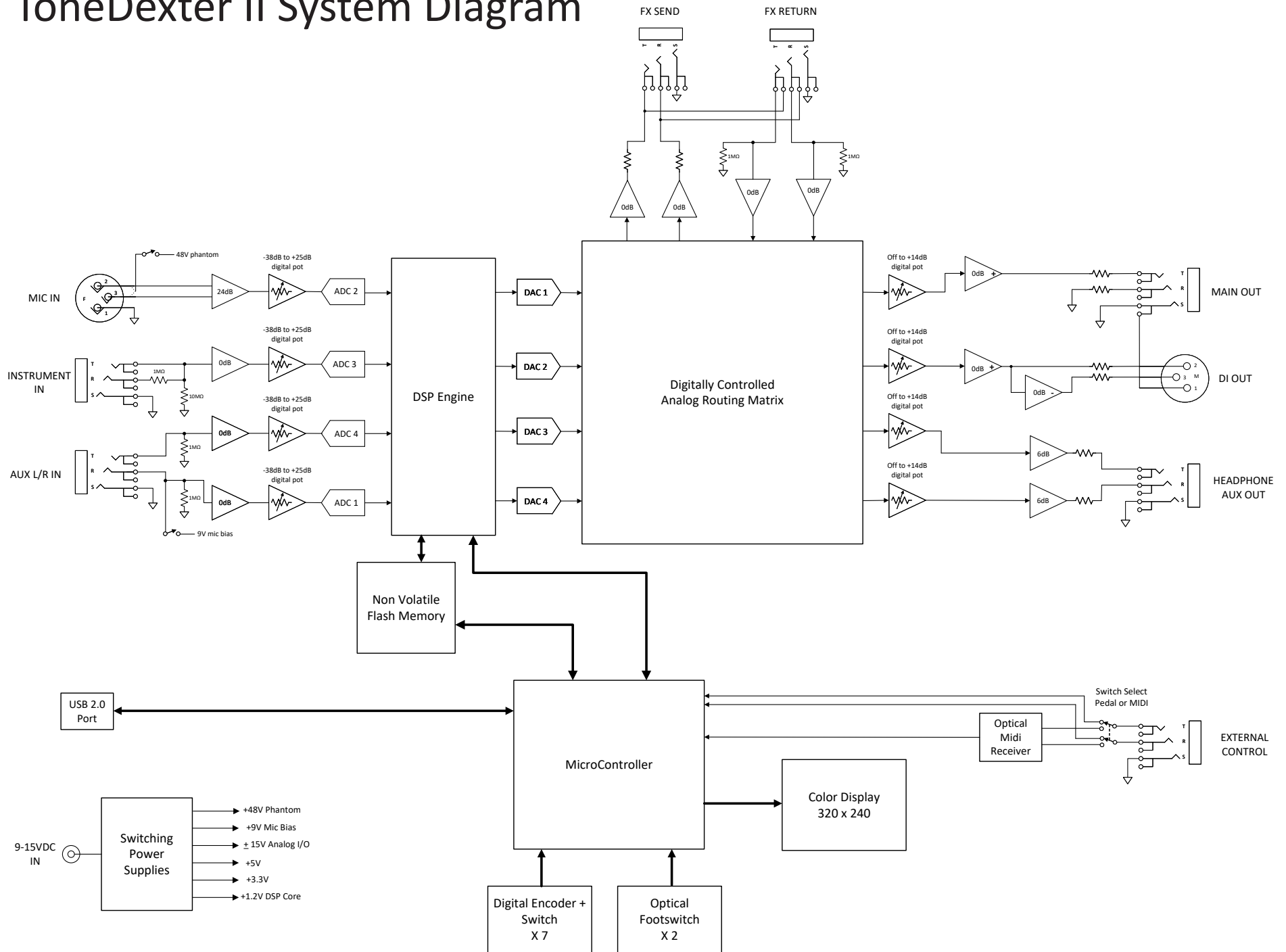
Training
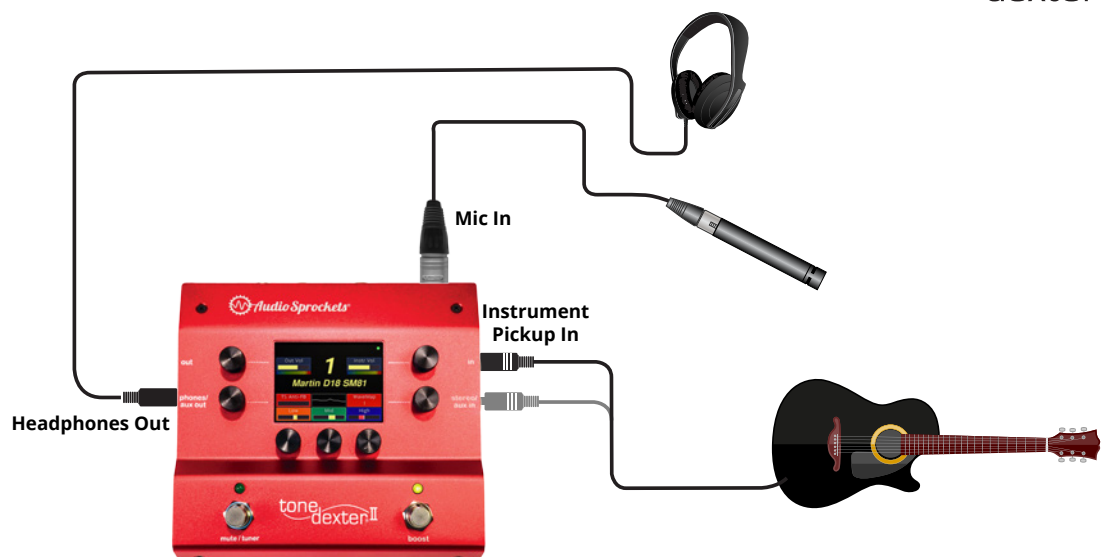
For more details about training and for helpful training hints see the User Guide pages 9 & 10

ToneDexter II System Diagram

Additional support and operational information is
available on the Audio Sprockets website including:

SUPPORT - AudioSprockets.com/support

- Frequently Asked Questions FAQs with sections about which pickups work with
  ToneDexter II, power supply info and general questions about operation and training
- Software Versions - Version history, downloads and install
- Setup and Training videos
- WaveMap Transfer and Archive, info and how-to video
- Support Request Forms