



BRAINWAVES PITCH SHIFTER

Exceptional Pitch Shifter with Studio-Grade Algorithms,
4 Octave Dual Voices and Groundbreaking MASH Footswitch

Table of Contents

Important Safety Instructions	3
Legal Disclaimer	3
Limited warranty	3
1. About this Manual	4
2. Introduction	4
2.1 Unpacking	4
2.2 True Bypass	4
2.3 Setting Up	4
3. TonePrint	4
3.1 What are TonePrints?	4
3.2 Transferring TonePrints to your pedal using the TonePrint app	4
3.3 Editing TonePrints with TonePrint App	5
4. Inputs, Output and Controls	5
4.1 Power / Computer connection	5
4.2 Switching	5
4.3 Audio in and out	5
4.4 Effect controls	6
4.5 Pitch FX Types	6
5. Operation	6
5.1 Signal chain placement	6
5.2 MASH switch	7
6. Bypass Mode	7
6.1 True Bypass and Buffered Bypass explained	7
6.2 Switching between True Bypass and Buffered Bypass	7
6.3 Kill-dry on/off	7
7. Maintenance	8
7.1 Updating the firmware	8
7.2 Changing the battery	8
8. Links	8
9. Specifications	8

EN Important Safety Instructions



Terminals marked with this symbol carry electrical current of sufficient magnitude to constitute risk of electric shock.

Use only high-quality professional speaker cables with ¼" TS or twist-locking plugs pre-installed. All other installation or modification should be performed only by qualified personnel.



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure - voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.



Caution

To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside. Refer servicing to qualified personnel.



Caution

To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, shall be placed on the apparatus.



Caution

These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions. Repairs have to be performed by qualified service personnel.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Use only attachments/accessories specified by the manufacturer.



12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid

injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. The apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.

16. Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.



17. Correct disposal of this product: This symbol indicates that this product must not be disposed of with household waste, according to the WEEE Directive (2012/19/EU) and your national law. This product

should be taken to a collection center licensed for the recycling of waste electrical and electronic equipment (EEE). The mishandling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the efficient use of natural resources. For more information about where you can take your waste equipment for recycling, please contact your local city office, or your household waste collection service.

18. Do not install in a confined space, such as a book case or similar unit.

19. Do not place naked flame sources, such as lighted candles, on the apparatus.

20. Please keep the environmental aspects of battery disposal in mind. Batteries must be disposed-of at a battery collection point.

21. Use this apparatus in tropical and/or moderate climates.

LEGAL DISCLAIMER

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LIMITED WARRANTY

For the applicable warranty terms and conditions and additional information regarding Music Tribe's Limited Warranty, please see complete details online at musictribe.com/warranty.

Zhongshan Eurotec Electronics Limited

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1. About this Manual

Thank you for spending your hard-earned money on this TC Electronic product! We have done our best to ensure that it will serve you for many years to come, and we hope that you will enjoy using it.

This manual is available as a PDF download from the TC Electronic website.

Please read this manual in full, or you may miss important information.

Please do not operate your TC device before you have made all connections to external equipment as described in the “2.3 Setting Up” section. In the subsequent sections of the manual, we assume that all connections are made correctly and that you are familiar with the previous sections.

We reserve the right to change the contents of this manual at any time.

To download the most current version of this manual, view the product warranty, and access the growing FAQ database for this product, visit the web page tcelectronic.com/support/

2. Introduction

BRAINWAVES is a dual-voice pitch shifter that unlocks a world of creative potential in a compact package. The pedal offers slight detune as well as semitone shifts and one or two octaves up or down. Our revolutionary MASH functionality allows classic whammy style octave shifts as well as bidirectional dual-voice shifting on the fly, allowing detailed expression control for some very warped and previous unachievable sounds. 3 TonePrint slots allow you to download custom presets created by world-class artists, or craft your own presets using the free TonePrint app. BRAINWAVES harnesses years of innovation in digital processing and represents the next evolution in pitch shifting effects.

2.1 Unpacking

Your TC Electronic effect pedal box should contain the following items:

- Your TC Electronic effect pedal
- 1 USB cable (Type A to Mini-B)
- 1 TC Electronic sticker

Inspect all items for signs of transit damage. In the unlikely event of transit damage, inform the carrier and supplier. If damage has occurred, keep all packaging, as it can be used as evidence of excessive handling force.

2.2 True Bypass

Here at TC, we have a simple philosophy: When you are using one of our products, you should hear something great – and when it’s off, you shouldn’t hear it at all. This is why this pedal sports True Bypass. When it is bypassed, it is really off and as zero influence on your tone, resulting in optimum clarity and zero loss of high end.

Sometimes, it is advisable to switch an effect pedal from True Bypass to Buffered Bypass mode. For more information, see “6.2 Switching the pedal from True Bypass to Buffered Bypass”.

2.3 Setting Up

Connect a 9 V power supply with the following symbol to the DC input socket of your TC Electronic effect pedal.



This product does not come with a power supply. We recommend using TC Electronic’s PowerPlug 9 (sold separately).

- If no power supply is available, you can run this product using a battery. For more information on changing batteries, see “7.2 Changing the battery”.
- Plug the power supply into a power outlet.
- Connect your instrument to the in jack on the right side of the pedal using a ¼" jack cable.
- Connect the out jack on the left side of the pedal to your amplifier using a ¼" jack cable.

3. TonePrint

This TC Electronic product supports TonePrints. To learn more about TonePrints, go to tcelectronic.com/toneprint/

3.1 What are TonePrints?

When you look at your TC Electronic effect pedal, you’ll only see a few knobs. Actually, for some pedals, it’s just one knob. So – one knob, one function, right?

Actually, there’s a lot more to it than meets the eye.

Star-tweaked signature sounds

When TC Electronic builds an effect pedal, the relationship between its controls and many parameters “under the hood” are defined by developers, musicians and product specialists who live and breathe sound. This gives you an excellent starting point: a great-sounding pedal with well-balanced controls.

But wouldn’t it be cool to have world-famous guitar players – guys like Paul Gilbert, Guthrie Govan, John Petrucci or Steve Vai – virtually rewire your reverb pedal, defining what should happen “behind the scenes”?

And how about doing this yourself?

This is exactly what TonePrint allows you to do.

TC Electronic is working with top guitar players who explore a pedal’s hidden tonal potential, redefining the controls and creating their personal TonePrints. And we are making these custom TonePrints available to you. Uploading them to your pedal is really easy (see “Transferring TonePrints to your pedal using the TonePrint app”) – and with the amazing TonePrint app, you can even create your own signature pedal, tweaked specifically to your liking.

You can change the TonePrints in your pedal as often as you like, and the best part: It’s totally free.

3.2 Transferring TonePrints to your pedal using the TonePrint app

Being able to virtually rewire your TC Electronic effect pedal wouldn’t be much use if you needed a lot of extra equipment to do it. This is why we created the TonePrint app. The TonePrint app is free software for popular smartphones that allows you to “beam” new TonePrints right into your effect pedal whenever and wherever you feel like it.

Obtaining the TonePrint app

If you own an iPhone, you can download the TonePrint app from Apple's App Store.

If you own an Android phone, you will find the TonePrint app on Google Play.

Once you have the app, no additional downloads or in-app purchases are required. You can access all available TonePrints from within the app, and all TonePrints are free.

Transferring TonePrints to your pedal – step by step

- Launch the TonePrint app on your smartphone.
- Find the TonePrint you want to use. You can browse TonePrints by Artist or Product (i.e., pedal type). You will also find Featured TonePrints.
- Plug your guitar or bass into your TonePrint pedal.
- Turn your TonePrint pedal on.
- Turn up the volume on your instrument and set the pickup selector to one pickup.
- Hold the speaker of your smartphone next to the chosen pickup and touch "Beam to pedal".

3.3 Editing TonePrints with TonePrint App

The TonePrint app allows you to use TonePrints created by your favorite guitar and bass players. But this is only the start. Using TC's TonePrint app, you can create your very own signature pedal sounds.

TonePrint app features

- Use TonePrint app to build your own custom sounds.
- Enjoy complete control over all effect parameters and effect behavior – it's your vision, your sound.
- Customize knob function and knob range to suit your needs and sounds.
- Audition your sonic creations in real-time live – make changes on the fly and listen to results immediately.
- Works with both PC and Mac.

Last but not least...

- TonePrint app is absolutely free!

Obtaining TonePrint App

If you want to use TonePrint App for your Windows or OS X computer, download it from

tcelectronic.com/toneprint

If you want to use TonePrint app on your Apple iPad, download it from Apple's App Store.

Please note that version 2.0 or higher of the TonePrint app is required for working with TC Electronic Mini pedals. Version 2.0 has a Library function that allows you to access and use TonePrints even without an Internet connection.

Obtaining the TonePrint app manual

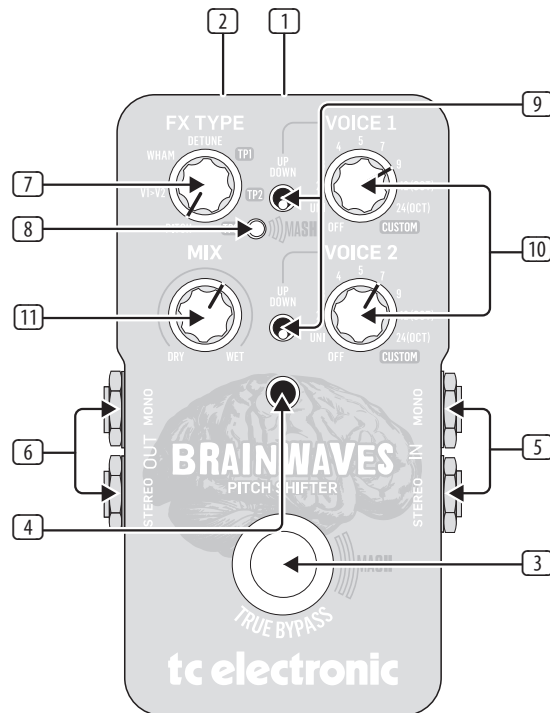
Download the TonePrint app manual from

tcelectronic.com/toneprint

If you open the manual for TonePrint app in Adobe Reader, you can click on interface sections to jump directly to the sections of the manual you are interested in.

4. Inputs, Output and Controls

EN



4.1 Power / Computer connection

- ① **POWER input** - To power up your pedal, connect a power supply to its power input socket. The power input socket of your TC Electronic effect pedal is a standard 5.5/2.1 mm DC plug (centre = negative).

Your TC Electronic effect pedal requires a 9 V power supply providing 100 mA or more (not supplied). TC Electronic recommends using the PowerPlug 9.

To minimize hum, use a power supply with isolated outputs. If no power supply is available, you can run this product using a battery. For more information on changing batteries, see "7.2 Changing the battery".

- ② **USB port** - Use the standard Mini-B USB port on your TC Electronic effect pedal to connect your pedal to a computer. If there should be firmware updates for this pedal, they can be installed using the USB port – see "7.1 Updating the firmware". TonePrints can also be transferred to your pedal as described in Chapter 3.

4.2 Switching

- ③ **FOOTSWITCH** – The footswitch performs 2 functions – on/off and MASH.
- To turn the effect on, tap the footswitch. To turn the effect off, tap the footswitch again.
 - The footswitch also controls the MASH function, which is detailed in section 5.2.
- ④ **INDICATOR LED** - The LED lights up when the effect is switched on.

4.3 Audio in and out

- ⑤ **AUDIO INPUT** - The audio inputs on the right side of this pedal are standard 1/4" jacks (unbalanced/TS). Connect your guitar to the mono audio input on the right side of your pedal using a regular 1/4" instrument cable. The pedal also accepts stereo signals using a pair of 1/4" TS cables.
- ⑥ **AUDIO OUTPUT** - The audio outputs on the left side of this pedal are standard 1/4" jacks (unbalanced/TS). Connect the audio output of your pedal to the next device in the signal chain, either with a single cable or with a pair of 1/4" cables if both inputs are used.

4.4 Effect controls

- 7 **FX TYPE knob** – Select between the 4 pitch effects and TonePrint 1-3 with this knob. See chapter 4.5 for effect descriptions.
- 8 **MASH LED** - This will light up when the MASH function is engaged by pressing down firmly on the footswitch. The LED gets brighter as the footswitch receives more pressure, indicating a more intense triggering of the parameter that is assigned to this function. See section 5.2 for details.
- 9 **UP/DOWN switches** – Selects whether the associated Voice knob will shift the pitch up or down.
- 10 **VOICE 1/2 knobs** – Determines the number of semitones each voice is pitch-shifted.

Knob Position	Up	Down
OFF	OFF	OFF
UNI(son)	Unison	Unison
2	2nd	minor 7th
3	minor 3rd	6th
4	major 3rd	minor 6th
5	4th	5th
7	5th	4th
9	6th	minor 3rd
12(OCT)	Octave	Octave
24(2OCT)	Two octaves	Two octaves
CUSTOM	Custom	Custom

Note – setting both Voice knobs to the 'Off' position will cause the signal to be muted when the pedal is engaged.

- 11 **MIX knob** – Adjusts the balance between the dry and pitch-shifted signal.

4.5 Pitch FX Types

DETUNE

Rather than shift a voice by a number of semitones, this effect changes the pitch by a few cents, which can then be blended with the dry signal using the Mix knob. This gives a thicker, double-tracked sound to your tone. You can still use the MASH to perform pseudo-bends up 30 cents for V1 and down 30 cents for V2.

WHAM

With the pedal engaged, both Voice knobs will default to the unison setting until MASH is engaged. Engaging MASH will cause each Voice setting to bend gradually up or down toward the selected pitch, similar to classic whammy pedals. You can even set one voice to bend, say, up a fifth, and the other to drop down an octave. There are lots of creative options here!

V1-V2

With the pedal engaged, the Voice 1 knob will already be active, assuming it is set to something other than Off. Use the MASH function to shift from the Voice 1 setting to the Voice 2 setting. This can be used to shift seamlessly from an octave up to octave down, change chord tones, or even simulate a B-bender guitar!

PITCH

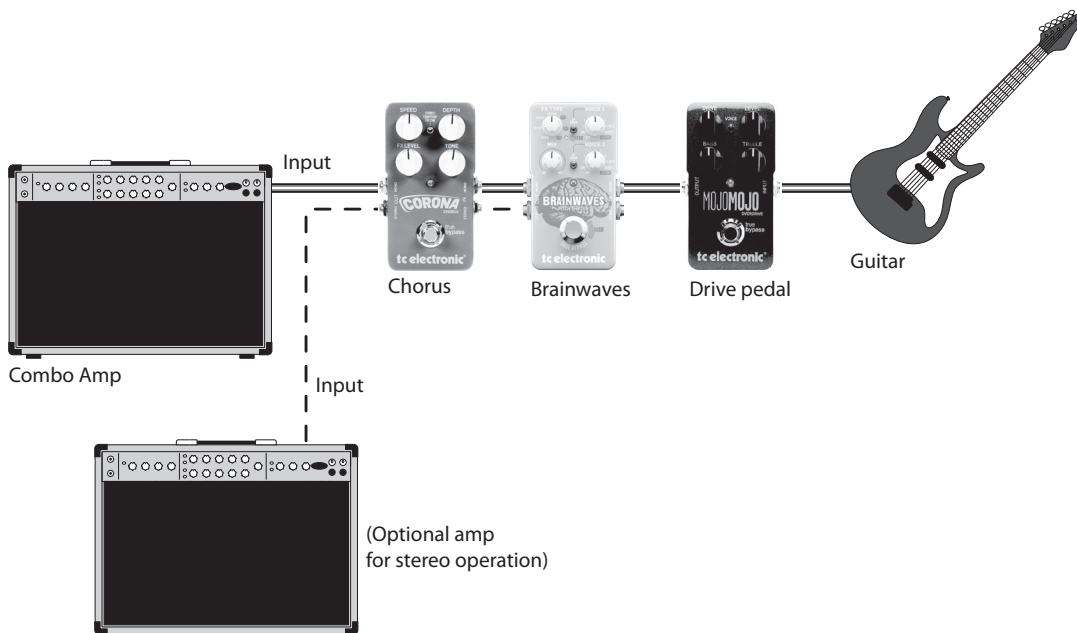
Both Voice knobs are always active in this setting as long as the pedal is engaged (and 'Off' is not selected). You can set one Voice as a harmony (with Mix ~50%) or as a total pitch shift (Mix fully wet), or set 2 Voices that are always present. This can be used to simulate a capo by shifting up a few notes, or detune to play songs in flat or drop tunings. The MASH function will work as a pitch bend up to 3 semitones.

5. Operation

5.1 Signal chain placement

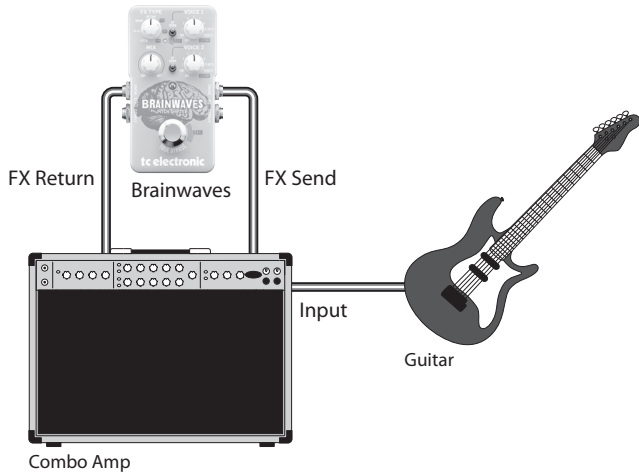
The Brainwaves pedal can be used several ways depending on your situation. While there isn't necessarily a right and wrong use, here are the most common scenarios.

Example 1: Before the amp's input



When using the Brainwaves before the amp's input, it is generally best to place it before your other pedals. However, if any stereo effects are used before the pedal, you can preserve this stereo signal by connecting to both of the Brainwaves' inputs and sending the output jacks to other stereo pedals, different amps, or to a stereo input on a mixer.

Example 2: In the amp's FX loop



The Brainwaves has a very wide gain range, and can easily be used with guitar or loop-level signals. Simply connect the amp's Send jack to the Brainwaves input, and connect the output to the amp's Return jack.

5.2 MASH switch

The MASH function on the Brainwaves is a very exciting and innovative feature that allows continuous control of a desired parameter through pressure on the footswitch. This opens up countless creative possibilities, particularly with the user-defined TonePrints.

The standard toggle function of the footswitch reacts to single, quick presses of the switch to turn the pedal on and off. If you press the switch slightly harder and hold it down, the MASH function will engage, causing the associated LED to light up slightly. As you press down harder on the switch, the LED lights up brighter and the parameter that has been assigned to this function will increase its value. Releasing the footswitch will exit the MASH function and the LED will turn off, but the pedal will still be engaged.

Note that the pressure needed to reach the maximum MASH level is only 10 kg (around 20 pounds), which can be achieved just by squeezing with your fingers. You shouldn't need to lean too much weight on the pedal. With some practice, this feature will become familiar and expressive much like a wah or volume pedal.

Using the TonePrint app software, you can assign your own parameter to this unique feature and save a custom preset that allows you to create sounds that very few pedals have been capable of before. See Chapter 3 for more details on TonePrints.

6. Bypass Mode

6.1 True Bypass and Buffered Bypass explained

True Bypass mode is a hard-wire bypass that gives absolutely no coloration of tone when the pedal is bypassed. This is the default mode for your effect pedal.

Using True Bypass on all pedals is a perfect choice in setups with a few pedals and relatively short cables before and after the pedals.

If...

- you use a long cable between your guitar and the first pedal or
- if you use many pedals on your board or
- if you use a long cable from your board to the amp,

... then the best solution will most likely be to set the first and the last pedal in the signal chain to Buffered Bypass mode.

Can you hear the difference between a pedal in True Bypass or Buffered Bypass mode?

Maybe, maybe not – many factors apply: active vs. passive pick-ups, single-coil vs. humbucker, cable quality, amp impedance and more. We cannot give a single ultimate answer. Use your ears and find the best solution for your setup!

6.2 Switching between True Bypass and Buffered Bypass

To set the bypass mode, proceed as follows:





- Disconnect the pedal and turn it on its back.
- Unscrew the back plate of the pedal and look for the two small dip-switches in the upper left corner.
- The upper DIP switch (the one closer to the power in jack), switches between True Bypass mode (default) and Buffered Bypass mode.
- Set the DIP switch to the desired position.
- Remount the back plate.

6.3 Kill-dry on/off

When you activate Kill-dry, the direct signal is removed from the pedal's output. Use this mode when you place your TC Electronic effect pedal in a parallel effects loop.

To set Kill-dry mode, proceed as follows:

1. Disconnect the pedal and turn it on its back.
2. Unscrew the back plate of the pedal and look for the two small dip-switches in the upper left corner.
3. The lower DIP switch (the one further away from the power in jack), switches between Kill-dry on and Kill-dry off mode.

True bypass	
Buffered bypass	
Kill-dry off	
Kill-dry on	

7. Maintenance

7.1 Updating the firmware

TC Electronic may provide updates for the built-in software of your pedal, the firmware.

Updating your TC pedal's firmware requires...

- a computer running Microsoft Windows or OS X with a standard USB interface
- the specified DC power supply for your pedal.

Preparing the firmware update

- Download the newest firmware from the "Support" page for your TC pedal. There are updaters for Microsoft Windows (these are ZIP archives containing the firmware installer) and for OS X (these are disk image files containing the firmware installer).
- Unplug all cables (including the power supply) from your TC pedal.
- Connect the pedal to your computer using a USB cable.
- Press and hold the footswitch on your TC pedal. If your TC pedal has more than one footswitch, press and hold the leftmost footswitch.
- Insert the DC power supply plug.
- The LED on your pedal should turn green. If your TC pedal has more than one LED, the leftmost LED should turn green. This indicates that the pedal is ready to receive the software update.
- Release the footswitch.
- Your TC pedal will now be recognized as an updatable device.

Applying the firmware update

- Quit all MIDI-related applications (e.g. your DAW) on your computer and launch the firmware updater you have downloaded in step 1.
- In the firmware updater app, select your TC pedal from the drop-down list under the "STEP 1" heading.
- When the "Update" button under the "STEP 2" heading turns green, click it.
- The updated firmware will now be transferred to your TC pedal. Wait for the progress bar to reach 100%. When the update procedure is complete, the pedal will automatically restart.

7.2 Changing the battery

If you need to change the battery of your TC Electronic effect pedal, proceed as follows:

- Unscrew the thumb-screw on the back of the pedal and detach the back plate.
- Unmount the old battery and attach the new battery to the battery clip making sure the polarity is correct.
- Remount the back plate.

Notes regarding batteries

- Batteries must never be heated, taken apart or thrown into fire or water.
- Only rechargeable batteries can be recharged.
- Remove the battery when the pedal is not being used for a longer period of time to save battery life.
- Always dispose batteries according to local laws and regulations.

8. Links

Support resources

- TC Electronic Support: tcelectronic.com/support/
- TC Electronic – product software: tcelectronic.com/support/software/
- TC Electronic – all product manuals: tcelectronic.com/support/manuals/
- TC Electronic user forum: forum.tcelectronic.com/

TC Electronic on...

- the Web: tcelectronic.com/
- Facebook: facebook.com/tcelectronic
- Google Plus: plus.google.com/+tcelectronic/
- Twitter: twitter.com/tcelectronic
- YouTube: youtube.com/user/tcelectronic

9. Specifications

Connectors

Inputs	2 x ¼" TS, unbalanced, mono
Impedance	≥1 Ω
Outputs	2 x ¼" TS, unbalanced, mono
Impedance	100 Ω
USB port	Mini USB connector for firmware updates and TonePrints
Bypass mode	True bypass (buffered bypass optional)

Power

Connector	Standard 9V DC, center negative, >100 mA power supply (not included)
Battery option	9V battery (not included)

Physical

Dimensions (H x W x D)	50 x 74 x 122 mm (2.0 x 2.9 x 4.8")
Weight	0.34 kg (0.75 lbs)

FEDERAL COMMUNICATIONS COMMISSION COMPLIANCE INFORMATION



Responsible Party Name: **Music Tribe Commercial NV Inc.**
Address: **5270 Procyon Street
Las Vegas, NV 89118
USA**
Phone Number: **+1 702 800 8290**

BRAINWAVES PITCH SHIFTER

complies with the FCC rules as mentioned in the following paragraph:

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

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

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Caution!

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

