NEOTONE¹ one / mutant

Owners manual

version 3.1

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What is **NEOTONE**?

NEOTONE is the world's first stage-ready, standalone digital handpan as well as ergonomic MIDI keyboard. This digital instrument is capable of playing most of the tones like acoustic instruments, such as open and closed sounds, overtones, and slap sounds.

Instrument tonefields

The instrument is divided into 11 independent tonefields, each section senses the position and strength of a hit or a hold, even when it is done simultaneously. The sensors are very precise with a large dynamic range and they easily detect from very light touches to strong slaps.

The mutant instrument has a separate field on each tonefield for the mutant notes.

Instrument body

The instrument's body is made out of wood which thanks to NEOTONE's unique touchsensitive technology makes it possible to imitate the experience and the sounds of playing an acoustic handpan. Not only the tonefields but the instrument body itself is touch sensitive and can make a sound. Virtually, it is divided into 9 top and 9 bottom hit areas evenly around the edges of the tonefields. These areas can be perceived as 18 separate sounds. There is no sharp boundary among these areas, as you hit higher and higher, you will suddenly feel that the body sound is changing.

Select a scale

You can switch between instrument scales by holding the dome and one of the tonefields on the side of the instrument at the same time, for 2 seconds. By default, NEOTONE has 6 scales, however the instrument will automatically download new scales if connected to WiFi. When connected to the Interface the loading in and switching between the scales is also possible.

Interface

You can configure any settings by using the online interface (<u>https://digitalhandpan.com/setup/</u>) of the instrument, using WiFi connection. The interface has many settings, for example adjusting the sensitivity / curve of the tonefields and the body, noise thresholds, configuring midi maps, assigning panel knobs / pedal jacks to any instrument setting. As well, the creation and editing of custom scales is only possible on the interface.

The online interface is also accessible through smartphones by using the internet browser and the same URL (<u>https://digitalhandpan.com/setup/</u>).

As a MIDI keyboard

If you want to use the instrument as an ergonomic midi keyboard you need to connect it to another midi device or computer. You can define multiple midi maps, assigning each tonefield / body section to a different midi note. Each tonefield is adjustable to send / receive midi notes. As well, you can choose to play the audio (or not) at the same time.

Record the audio

Press the record button in the record menu of the interface or enable the "recording by dome" feature, which begins the recording after pressing down the dome for three seconds. You can play the recorded audio on the interface, or you can download it or even share it if you prefer.

Turning On and Off and Charging of the Instrument



Turn on the digital handpan

by holding down the POWER button for 2 seconds



The instrument will boot the last used scale, which can take a couple of more seconds.

On the mutant instrument, the initial screen after turning ON the instrument will shown as below:



Turn off the digital handpan

by holding down the POWER button for 2 seconds (The RED/GREEN light next to the POWER button will start blinking).



If during the shutting down procedure the instrument is still connected to the WiFi, it may automatically download the available new scales. This downloading process could take a couple of minutes.



The downloading process can be interrupted by pressing down the power button again, in which case the download will continue where it left off at the next time when the instrument is turned off.

On a Mutant instrument, In this case "UPDATE SUSPENDED" appears on the LCD screen.

The process may also be interrupted in the case of low battery charge.



Power supply

A 12V 24W cabled power supply is included with the instrument, but it also runs on an internal battery for approximately 8 hours, when fully charged. It is recommended to charge the digital handpan from a power supply if a main power source is available, especially during a live performance, to avoid the possible discharge of the instrument's battery.

Status information on the Mutant Instrument:



Quick and Useful Tips

Hotkeys

Select scale Select midi set Hold DOME and a side tonefield simultaneously for 2 seconds Hold DING and a side tonefield simultaneously for 2 seconds

Upside down in its case

The instrument is placed upside down on its case, grasping at the marked area. There is a soft ring inside the case to protect the upper side of the instrument.



Tonefields and the Body of the Instrument

Tonefields

The instrument has 11 different tonefields. The numbers represent an ascending order of music notes. There are two center tonefields called DING and DOME, giving the deepest note frequency on any active scale. The numbers (from 1 to 9) represent the deepest to highest notes on the side tonefields. This is only the default configuration which can be changed on the interface.



There are 4 inlay marker points on the body of the instrument, for orientation. The double marker points mark the highest note. The two other marker points signal note #3 and #4. It is easy to find the highest note as the double marker has an indicator light built in.

Each tonefield has a very precise and sensitive sensor system to measure the velocity and position of a hit. It allows you to play overtones, closed sounds. The tonality of a sound depends on where you hit the tonefield. There are 4 key points on a tonefield where the difference in the tonalities are most significant: the center, vertical shoulder, horizontal shoulder, and between the center and shoulder. Each scale that NEOTONE includes has more than 1300 unique recorded audio samples that gives you the closest experience to an acoustic instrument. Furthermore each hit mixes multiple samples, depending on its position and velocity, so practically every hit will sound slightly different.

The dynamic range of the tonefield sensors is significant. You can adjust this range on the interface (Velocity hardness). The whole instrument (the body and the tonefields) is very durable so you can hit it hard (only by hand, obviously) without having to worry about damaging it.

Body

The whole body of the instrument is made of wood and it is hit sensitive. It can sense the position of a hit, and play different tones working towards the top or bottom or going round in a circle. The sensors on the body are slightly less sensitive than the tonefields, and you cannot play closed sounds on the body. This is the default configuration, you can change it on the interface.

It is important to note that it is not possible to play body and tonefield sounds at the same time. There should be at least 30 milliseconds of delay between the hits on the different instrument parts!

Select a Scale

The instrument has a maximum of 9 scales to choose from by pressing a side tonefield and the dome simultaneously and by holding down the pressure for an additional 2



seconds will start loading that scale.

On a Mutant instrument, the LCD screen will display the name of the scale assigned to that tonefield,

On the left hand side of the LCD screen the arrow icon is indicating which scale will be loaded. To continuous pressure the arrow will turn into a circular spinning icon until the end of the loading (the status icon LED on the top of the instrument turns orange during the loading).



When the music note icon appears on the LCD screen and the status icon LED on the top of the instrument turns green marks that the loading of the selected scale finished and was successful. Now the instrument is ready to play the selected scale.

| P | b | | ma | ŀ". | 3 | -+- | | | |
|---|---|----|----|-----|---|-----|---|---|---|
| | ÷ | m1 | | 4 | 4 | ØH | 2 | ; | 2 |

The double music note icon indicates that the loaded and used scale is a mutant scale. Every scale which has 11 notes or above counts as a mutant scale.



You can switch between instrument scales by holding down the DOME and one of the side tonefields simultaneously for 2 seconds. You can choose 9 scales by default.

Seven live scales:

| DOME+1: B Amara | B2 | F#3 | A3 | В3 | C#4 | D4 | E4 | F#4 | A4 | B4 |
|--------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| DOME+2: C Aegean | С3 | E3 | G3 | В3 | C4 | E4 | F#4 | G4 | Β4 | E5 |
| DOME+3: C# Pygmy | C#3 | F#3 | G#3 | A3 | C#4 | E4 | F#4 | G#4 | A4 | C#5 |
| DOME+4: D Kurd | D3 | A3 | Bb3 | C4 | D4 | E4 | F4 | G4 | A4 | C5 |
| DOME+5: F# Pygmy | F#2 | C#3 | F#3 | G#3 | A3 | C#4 | E4 | F#4 | G#4 | A4 |
| DOME+6: G Romanian Hijaz | G3 | C4 | D4 | D#4 | F#4 | G4 | A4 | A#4 | C5 | D5 |

| And four mutant sca | les: |
|---------------------|------|
|---------------------|------|

| DOME+7: E-Amara | E3 B3 D4 E4 F#4 G4 A4 B4 D5 E5 F#5 G5 A5 |
|---------------------------|---|
| DOME+8: B2 Onoleo 15 | B2 E3 F#3 G3 A3 B3 C4 D#4 E4 F#4 G4 A4 B4 |
| | C5 D#5 |
| DOME+9: F2 Astronaut 16 | F2 A#2 C3 C#3 D#3 F3 G3 G#3 C4 D#4 F4 G4 |
| | G#4 C5 D#5 G5 |
| Optional: Eb La sirena 16 | C#3 D#3 F3 F#3 G#3 A#3 C4 C#4 D#4 F4 F#4 |
| | A#4 C5 D#5 F5 |
| | |

For example, to switch to scale B Amara, hold down the DOME and tonefield #1 simultaneously for 2 seconds. After 2 seconds the indicator light will turn ORANGE which means that the scale is loading. During this time the instrument is muted. After a scale is loaded the indicator light will turn GREEN, and the instrument will play a note to indicate that it is ready.

The instrument will load the scale that was last selected when turned on.

If you prefer, you can customize the combinations and add custom scales to the tonefields in the HOTKEYS submenu of the SCALES menu point.

Beginning with software version 6.6, a new mutant live scale—E Amara—has been introduced.

A corresponding non-mutant version of this scale is also available.

Below are the note layouts for both versions:

One: (C3, D3), E3/ (F#3, G3, A3), B3, (C4), D4, E4, F#4, G4, A4, B4, (C5), D5,

Mutant:

(C3, D3), E3/ (F#3, G3, A3), B3, (C4), D4, E4, F#4, G4, A4, B4, (C5), D5, E5, F#5, G5, A5

Status indicator LED light on the front of the instrument

The status indicator light shows the current status of the instrument.



| NO LIGHT | The Instrument is switched off |
|-----------------------------|--|
| ORANGE | Switching on / loading scale |
| GREEN | Ready to play |
| GREEN / FLASHING RED | Ready to play, battery below 20% (~1.5 hours left) |
| RED | Recording |
| YELLOW | Front LED flashes yellow for incoming MIDI messages, |
| | except when MIDI thru is enabled |
| | |

Connecting to a Wifi Hotspot

Connect the instrument to a WiFi hotspot

You need to connect the instrument to a WiFi hotspot if you like to use the interface. You can do it by several ways:

Connect to WiFi by WPS push button

1, Switch on the instrument by pressing the power button. Wait for about 30 seconds, until the front indicator light color will be GREEN.

2, Press the power button shortly three times, the front indicator light color will turn into ORANGE.



3, Press the WPS button on your WiFi router to establish a connection. Depending on the router and the home configuration, it may take 1-2 minutes to connect. If you share a hotspot via smartphone, just tap the "WPS button" (Only available for android devices, iPhone does not support WPS)



5, Following this, soon the instrument will turn off, the power button should be pressed again to turn the instrument back on and to refresh the preferred network settings.

6, The successful connection is indicated by the WiFi icon in the bottom right corner of the display and the network frequency 2 or 5. For stable communication, it is recommended to connect to a 2.4GHz WiFi network (number 2 next to the WiFi icon)

7, Check the connection, navigate to <u>digitalhandpan.com/setup</u> for login to the interface. If the GREEN indicator icon is visible on the interface, then the instrument is successfully connected to the interface via WiFi.

Connect to WiFi by setting up a hotspot on your smartphone

1, Switch on the instrument by pressing the power button. Wait for about 30 seconds, until the front indicator light color will be GREEN.

2A, **Android**:

Navigate to Settings > Wireless & networks >Tethering & portable hotspot > Portable Wi-Fi hotspot. Choose Configure Wi-Fi hotspot to set the name "**Neotone**", and password "**digitalhandpan**", then tap Save.

2B, **iPhone**:

• Navigate General > About > Name, enter the name "**Neotone**" then tap Done.

| 6:20 | | .ı. † ■) | 6:21 4 ° ♦ Settings General | | 6:21-7 Ceneral At | e ? ■) |
|-------------|------------------|-------------|--------------------------------|---------------|----------------------|---------------|
| Se | ettings | | About | | Name | iPhone > |
| | | × • | Software Update | | Software Version | 13.5 |
| | | | | 1 | Model Name | iPhone 11 Pro |
| > | Airplane Mode | | AirDrop | · | Model Number | MWCH2LL/A |
| ? | Wi-Fi | Tucks > | AirPlay & Handoff | <u> </u> | Serial Number | |
| * | Bluetooth | On > | CarPlay | × . | | |
| (1) | Cellular | × . | | | Limited Warranty | |
| 0 | Personal Hotspot | > | iPhone Storage | | | |
| | | | Background App Refresh | > | Songs | |
| | Notifications | ⇒. | | | Videos | |
| (1) | Sounds & Haptics | > | Date & Time | \rightarrow | Photos | 5,644 |
| | Do Not Disturb | > | Keyboard | | Applications | |
| X | Screen Time | × . | Fonts | \rightarrow | Capacity | 64 GB |
| | | | Language & Region | \rightarrow | Available | 18.99 GB |
| Ø | General | | Dictionary | \rightarrow | | |
| •• | Control Center | | | | Wi-Fi Address | |

• Navigate Settings > Cellular > Personal Hotspot or Settings > Personal Hotspot, enable "Allow Others to Join", Then set the Wi-Fi password to "**digitalhandpan**"

| Settings Personal Hotspot Personal Hotspot on your iPhone can provide Internet access to other devices signed into your iCloud account without requiring you to enter the password. Allow Others to Join Image: Comparison of the password of | 9:41 | | | - al ≎ ■ |
|---|---------------------------|---|---|--|
| Personal Hotspot on your iPhone can provide Internet access to other devices signed into your iCloud account without requiring you to enter the password. Allow Others to Join Wi-Fi Password lab2c3defghij > Allow other users or devices not signed into iCloud to look for your shared network "Michael's iPhone" when you are in Personal Hotspot settings or when you turn it on in Control Center. Family Sharing > Share Personal Hotspot with members of Family Sharing. Share Personal Hotspot with members of Family Sharing. Maximize Compatibility Internet performance may be reduced for devices connected to your hotspot when turned on. TO CONNECT USING WI-FI 1 Choose "Michael's IPhone" from the WI-Fi settings on your computer. 2 Enter the password when prompted. TO CONNECT USING BLUETOOTH 1 Pair iPhone with your computer. 2 On iPhone, tap Pair or enter the code | Settir | ngs Persona | al Hotspot | |
| Allow Others to Join Wi-Fi Password 1ab2c3defghij > Allow other users or devices not signed into iCloud to look for your shared network "Michael's IPhone" when you ure in Personal Hotspot settings or when you turn it on in Control Center. Family Sharing > Share Personal Hotspot with members of Family Sharing. > Maximize Compatibility > Internet performance may be reduced for devices connected to your hotspot when turned on. > TO CONNECT USING WI-FI 1. Choose "Michael's IPhone" from the Wi-Fi settings on your computer or other device. 2 Enter the password when prompted. > TO CONNECT USING BLUETOOTH 1. Pair iPhone with your computer. 2 on iPhone, tap Pair or enter the code > | Persor access accou | nal Hotspot on your s to other devices s nt without requiring | iPhone can pr igned into you you to enter t | ovide Internet r iCloud he password. |
| Wi-Fi Password 1ab2c3defghij > Allow other users or devices not signed into iCloud to look for your shared network "Michael's Bhone" when you are in Personal Hotspot settings or when you turn it on in Control Center. Family Sharing > Share Personal Hotspot with members of Family Sharing. > Maximize Compatibility • Internet performance may be reduced for devices connected to your hotspot when turned on. • TO CONNECT USING WI-FI 1 choose "Michael's Phone" from the Wi-Fi settings on your computer or other device. 2 Enter the password when prompted. If O CONNECT USING BLUETOOTH 1 Pair iPhone, tap Pair or enter the code | Allow | / Others to Join | | |
| Allow other users or devices not signed into iCloud to look for your shared network "Michael's IPhone" when you are in Personal Hotspot settings or when you turn it on in Control Center. Family Sharing Share Personal Hotspot with members of Family Sharing. Maximize Compatibility Internet performance may be reduced for devices connected to your hotspot when turned on. TO CONNECT USING WI-FI 1 Choose "Michael's IPhone" from the WI-Fi settings on your computer or other device. 2 Enter the password when prompted. TO CONNECT USING BLUETOOTH 1 Pair iPhone with your computer. 2 on iPhone, tap Pair or enter the code | Wi-F | i Password | 1ab2c | :3defghij > |
| Share Personal Hotspot with members of Family Sharing. Maximize Compatibility Internet performance may be reduced for devices connected to your hotspot when turned on. TO CONNECT USING WI-FI 1 Choose "Michael's iPhone" from the Wi-Fi settings on your computer or other device. 2 Enter the password when prompted. TO CONNECT USING BLUETOOTH 1 Pair iPhone with your computer. 2 on iPhone, tap Pair or enter the code | Famil | ly Sharing | | > |
| Maximize Compatibility Internet performance may be reduced for devices connected to your hotspot when turned on. To CONNECT USING WI-FI 1 Choose *Michael's IPhone" from the WI-Fi settings on your computer or other device. 2 Enter the password when prompted. To CONNECT USING BLUETOOTH 1 Pair iPhone with your computer. 2 on iPhone, tap Pair or enter the code | Share Family | Personal Hotspot w Sharing. | <i>i</i> ith members o | of |
| Internet performance may be reduced for devices connected to your hotspot when turned on. TO CONNECT USING WI-FI 1 Choose "Michael's iPhone" from the Wi-Fi settings on your computer or other device. 2 Enter the password when prompted. TO CONNECT USING BLUETOOTH 1 Pair iPhone with your computer. 2 On iPhone, tap Pair or enter the code | Maxii | mize Compatibi | lity | |
| TO CONNECT USING WI-FI 1 Choose "Michael's iPhone" from the Wi-Fi settings on your computer or other device. 2 Enter the password when prompted. TO CONNECT USING BLUETOOTH 1 Pair iPhone with your computer. 2 on iPhone, tap Pair or enter the code | Interne conne | et performance may cted to your hotspo | / be reduced fo ot when turned | or devices on. |
| * TO CONNECT USING BLUETOOTH 1 Pair iPhone with your computer. 2 On iPhone, tap Pair or enter the code | Ŷ | TO CONNECT US 1 Choose "Micha settings on you 2 Enter the pass | SING WI-FI Jel's iPhone" fr Jr computer or word when pro | om the Wi-Fi other device. mpted. |
| displayed on your computer. | ∦ | TO CONNECT US 1 Pair iPhone wit 2 On iPhone, tap | SING BLUETOO h your comput p Pair or enter t | DTH er. he code |

• older iOS versions: Navigate Settings > Personal Hotspot, and make sure the Personal Hotspot is on. Then set the Wi-Fi password to "**digitalhandpan**"



• Check the connection, navigate to <u>digitalhandpan.com/setup</u> for login to the interface. If the GREEN indicator icon is visible on the interface, then the instrument is successfully connected to the interface via WiFi.

Make sure that "Maximize Compatibility" grid is turned on because this enables the mobile hotspot to share a 2,4GHz frequency connection. NEOTONE digital handpans prefer 2,4GHz frequency instead of the 5GHz.

Login to Interface

The very first time to login

1, Just click on the link (<u>digitalhandpan.com/setup</u>) you receive in the registration email to log in the interface.

NEOTONE

| Username: | | |
|-----------|--|--|
| Password: | | |
| | | |
| LOGIN | | |

2, Select the **HOTSPOT** menu point.



| INSTRUMENT |
|----------------|
| HOTSPOT |
| SCALES |
| RECORD |
| SOUND |
| SENSORS |
| CONTROL |
| MIDI |

3, Set up a WiFi hotspot on your mobile phone and configure it using the default hotspot username and password.

4, Turn off the instrument then turn it back on, and wait for about 30 seconds. A GREEN indicator icon will appear which means the instrument is connected to the interface.

Optional: Adding your own WiFi hotspots

If you already have a WiFi hotspot at home, just enter the login details to the HOTSPOT menu point. You can add 2 different WiFi hotspots to the digital handpan and the instrument will automatically connect to the available one. If there are no additional hotspots, the instrument will try to connect to the default one.

| Default hotspot username (2.4GHz |) | | |
|----------------------------------|---|--|--|
| Neotone | | | |
| Default hotspot password | | | |
| digitalhandpan | | | |
| 1. hotspot username (2.4GHz) | | | |
| | | | |
| 1. hotspot password | | | |
| | | | |
| 2. hotspot username (2.4GHz) | | | |
| | | | |
| 2. hotspot password | | | |
| | | | |
| | | | |

Using the Interface

Status icon

The interface always shows what status the instrument is in. When the circular icon is GREEN, it means the instrument is switched on and connected to the interface. When the circular icon is ORANGE, it means that the instrument is in power save mode (hit the dome to wake it up!). If there is no icon shown, the instrument is turned off or could not connect to WiFi.



You can change the settings even when the instrument is turned off. Always make sure to press the **SAVE** button to apply the modified settings! Press the **RESET** button to apply the factory default settings. A loading icon will appear when the new setting is being processed. If there is no WiFi network available the instrument will continue to use the last saved configuration.

When the instrument is connected to the Interface, changes and edits in most menu points are automatically saved, which take effect immediately on the instrument. In this case, the text "AUTOSAVE ACTIVE" is displayed on the Interface, instead of the save button!

WiFi and Battery indicator



The WiFi indicator shows the network's strength.

The Battery indicator shows the charge level of the battery when the instrument is turned on and connected to the WiFi. The battery bar is green if it is above 20%, and red if below 20% (\sim 1.5 hours left).

HOTSPOT menu point

| Default hotspot username (2.4GHz) | |
|-----------------------------------|--|
| Neotone | |
| Default hotspot password | |
| digitalhandpan | |
| 1. hotspot username (2.4GHz) | |
| 1. hotspot password | |
| 2. hotspot username (2.4GHz) | |
| 2. hotspot password | |
| | |

This menu point has all the hotspot login information. The default hotspot helps you to connect to the interface for the very first time by using WiFi. You can also add another 2 hotspots.

If there are more hotspots available at the same time, the instrument will automatically connect to a hotspot by the following order:

- > 1. hotspot
- > 2. hotspot
- > default hotspot

If you add a new hotspot while the instrument is switched on, it will take some time to connect to it. If it doesn't connect, try switching it off and on.

The instrument can fully operate without having to connect to any hotspots, however the interface provides you with different ways to configure the instrument.

SCALES menu point

SCALES menu point

This menu point lists all the available scales you can select from.

| NEOTONE | SCALES HOTKEYS SHARED SCALES SHARED MUTANT SCALES | | |
|------------|---|---|---|
| INSTRUMENT | + add custom scale | | |
| HOTSPOT | Custom scale: | ► F# Pigmy | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |
| SCALES | Musical notes: | F#3, G#3, A3, C#4, E4, F#4, G#4, A4, C#5, E5 | |
| RECORD | | load share edit delete | |
| SOUND | | | |
| SENSORS | Live scale: | B Amara | |
| CONTROL | Model: | MAG Instruments - stainless | |
| MIDI | Musical notes: | B2, F#3, A3, B3, C#4, D4, E4, F#4, A4, B4 | |
| | | load | |
| | Live scale: | C Aegean | |
| | Model: | MAG Instruments - stainless, nr.1027 | |
| | Musical notes: | C3, E3, G3, B3, C4, E4, F#4, G4, B4, E5 | |
| | | load | |
| | Live scale: | C# Pyomy | |
| | Model: | MAG Instruments - stainless. nr.830 | |
| | Musical notes: | C#3, F#3, G#3, A3, C#4, E4, F#4, G#4, A4, C#5 | |
| | | load | |

The seven basic live scales (B-Amara, C-Aegan, C# Pygmy, D-Kurd, F#2 Pygmy, E-Amara and Romanian Hijaz) appear with a gray background here. Every standard mutant scale (Eb La Sirena 16, B2 Onoleo 15, F2 Astronaut 16) and userbuilt custom scale appears with a white background in this menu point. When the instrument is online it is possible to share user-built custom scales with other NEOTONE digital handpan players. All of these scales will appear under the "SHARED SCALES" and "SHARED MUTANT SCALES" submenus.

To change a scale, you can use the hotkeys (hold down the DOME and a tonefield simultaneously for 2 seconds) or when the instrument is online you can also change scales manually through the digital interface in this menu point (by pressing the "load" button under the scale).

If you are using the hotkeys to change the scale and you want to add a new scale to a tonefield remember to edit it and save it accordingly in the "HOTKEYS" sub menu. The instrument should be online to update this information.

Custom scale editing

Besides playing the live scales you have the possibility to create custom scales. For this click the "add custom scale" link on the top of the SCALES menu point.

The first step in assembling the notes of your custom scale is to select the preferred note and octave number from the above note and octave selection. If you selected the preferred note and octave number you have to put them in their preferred places on the instrument. You can do this by clicking on the preferred tonefield or mutant tonefield on the blueprint of the instrument, which you see below the note and octave selection.

Also, do not forget to give a name to the scale that you are assembling, a good custom scale name can be helpful later on.



Once you are done with assembling the notes of the custom scale, the next step is to set the harmony of the scale. Press the **"Save & Go To Set Harmony**" button below the blueprint of the instrument to begin the harmony setting of the custom scale.



For the best results, try to find the source samples that fit together the most harmoniously! You can choose multiple source samples for each individual note. Each source sample brings different harmony to the final result, depending on its original scale characteristic (Minor/major, etc).

If you choose these sources well, the final result can be similar to the beautiful, cohesive sound of a live scale.

NEOTONE

SCALES | HOTKEYS | SHARED SCALES | SHARED MUTANT SCALES

Build scale > Set harmony

| 0 | B2 | В2 | В | Amara 🖲 | ~ | 100% |
|-----|--------|-------|-----|---------------------|----------|------|
| 1. | F#3 | F#3 | В | Amara | ~ | 100% |
| 2. | G3 | G3 | С | Aegean | ~ | 100% |
| 3. | B3 | в3 | В | Amara | v | 100% |
| 4. | D#4 | E4 - | 1 D | Kurd | ~ | 100% |
| 5. | E4 | E4 | В | Amara | • | 100% |
| 6. | F#4 | F#4 | В | Amara | ~ | 100% |
| 7. | G4 | G4 | С | Aegean | • — | 100% |
| 8. | B4 | A4 + | 2 D | Kurd | • | 100% |
| 9. | C#5 | C5 + | 1 D | Kurd | • | 100% |
| BOD | Y SOUN | Di | | | | |
| | | Use b | ody | sounds of all notes | • | 100% |
| | | | | | | 1.0 |

RECORD -----

SOUND -

SENSORS -----

 For example, on the following image you can see the source sample options for the G4 note of the Onoleo scale:

| Pitch up | | |
|------------|------------------|--|
| F4 +2 | D Kurd | |
| F#4 +1 | B Amara | |
| F#4 +1 | C Aegean | |
| F#4 +1 | C# Pygmy | |
| F#4 +1 | G Romanian Hijaz | |
| Pitch ok | | |
| G4 | C Aegean | |
| G4 | D Kurd | |
| G4 | G Romanian Hijaz | |
| Pitch down | 1 | |
| G#4 −1 | C# Pygmy | |
| A4 -2 | B Amara | |
| A4 -2 | C# Pygmy | |
| A4 -2 | D Kurd | |

In many cases, the harmony of the custom scale will not be perfect by choosing source samples at the current frequency. In such cases, feel free to choose a lower or a higher sample, the software automatically pitches the frequency to the connected note (in this case, G4).

Starting with software version 5.7, you can listen to the harmony of the scale in a live preview. You can start this with the live harmony test button at the bottom. By pressing this, a preview (not so detailed and sensitive) of your scale will load in, which you can try out and test immediately. If you are not satisfied with the harmony, adjust the source samples step by step, tonefield by tonefield. These changes will be heard on the instrument in a few seconds.

After setting harmony, it is possible that some notes need gain (volume) correction too. You can set these with the sliders on the right side of each note. When you are done with selecting and adjusting the source samples, test how harmoniously the body sounds fit the custom scale. To avoid disharmony of multiple body sounds, select only one note whose body sound you want to use as default. In this case, the related body sound is not added to each tonefield, but it appears as a global body sound on the entire instrument.

HOTKEY editing

When you are editing the hotkeys of the instrument you can set yourself an easy, offline way to swap between the scales of the instrument. When you are in the SCALES menu point simply select the "HOTKEYS" submenu on the top of the page to begin the editing of the hotkeys of the instrument.

The usage of the hotkeys is very easy: you just need to press the dome and one of the tonefields at the same time for 2 seconds. Following this, the loading of a scale will begin. Each tonfield can bear a separate scale which you can edit and set in the "HOTKEYS" submenu. All together you can set hotkeys to nine scales, each for one from the nine tonefields of the instrument. These scales can be both live scales and custom scales.

The pitch fields on the right side of the submenu make you available to set the tuning of the scale assigned to a tonefield. You can pitch them up or down, going half a note with every set, both ways. This pitching is practical, because this way it is possible to duplicate scales with only half-note (or more) differences and assign them to hotkeys of the instrument.

SCALES | HOTKEYS | SHARED SCALES

| | | | PITCH | |
|----|------------------|---|-------|---|
| 1: | B Amara | ~ | • | + |
| 2: | C Aegean | ~ | - 0 | + |
| 3: | C# Pygmy | ~ | 0 | + |
| 4: | D Kurd | ~ | - 0 | + |
| 5: | Low F# Pygmy | ~ | - O | + |
| 6: | Low F# Pygmy | ~ | 2 | + |
| 7: | G Romanian Hijaz | ~ | - 0 | + |
| 8: | | ~ | • | + |
| 9: | | ~ | - O | + |

RECORD menu point

| NEOTONE | RECORDINGS SETTINGS | |
|------------|--|------------------|
| | | |
| INSTRUMENT | | |
| HOTSPOT | 007. 2022-11-02, 14:14 D Kurd | ▶ 00:00 ● |
| SCALES | 006. 2022-11-02. 14:09 D Kurd | ▶ 00:00 |
| RECORD | | |
| SOUND | 005. 2022-11-02, 14:08 D Kurd | ▶ 00:00 ● |
| SENSORS | 004 2022-10-22 23:34 B Amara | ► 00:00 ■ |
| CONTROL | | |
| MIDI | 003. 2022-10-22, 23:31 B Amara | ▶ 00:00 ● |
| | 002. 2022-10-22, 23:22 B Amara | ▶ 00:00 ● |
| | 001. 2022-10-11, 14:48 B Amara | ▶ 00:00 ● |
| | | |

If the instrument is online you can also press the record button in the record menu of the interface. Another way to make recordings is by enabling the "recording by dome" feature, which begins the recording after pressing down the dome for three seconds. Once you have finished a recording, its track will appear on the list. You can play the recorded audio on the interface, or you can download it or even share it if you prefer.WiFi connection required).

If you enable the "Save to instrument" feature in the "SETTINGS" sub menu you will be able to record offline too. When you make an offline recording to the instrument with this feature, it will automatically appear among the recordings the next time you go online with the instrument and connect it to the digital interface.

RECORDINGS

Here you can manage your recordings.

PLAY - Listen to your instrument's recordings. SHARE - Copy the URL of your recordings to share it with others. DOWNLOAD - You can download your recordings to your devices. DELETE - If you are not content with a recording you can also delete it.

SETTINGS

Save to instrument

This feature can enable saving recordings to the instrument itself. With the help of this feature offline recordings are possible.

Start recording by dome

If you enable this feature you can begin the recording by pressing down the dome for three seconds.

Auto stop

The recording stops after 10 seconds of inactivity or not hitting the instrument.

MP3 compression

- ON Recording is automatically compressed to MP3
- OFF Recording is stored as WAV

MP3 quality

The bitrate can be set between 128 to 320 kbps

RECORDINGS | SETTINGS

Start recording by dome (i)



Auto stop 🛈



MP3 compression (i)



MP3 quality (i)

256

SOUND menu point

| NEOTONE | | SET 1 ★ SET 2 +ADD | |
|-----------------------|---|--|--------|
| | | set 1 | |
| INSTRUMENT HOTSPOT | | SOUND HANDPAN SENSORS MIDI SENSORS THRESHOLD | |
| SCALES | | Volume | 86% |
| CONTROL | | Velocity hardness | 1% |
| MIDI | _ | Dymanic range () | 4% |
| | | Edge effect at the rim of the side notes | 2% |
| | | Stereo environment | 75% |
| | | Sustain ① | 93% |
| | | Mute | 100% |
| | | Tonefield polyphony (j) | 80% |
| | | Body crossfade softness | 30% |
| | | Tone crossmix (j) | 100% |
| | | Tuner (j) | 440 Hz |
| | | Velocity layer loading density (j) | 100% |
| | | Force mute | |
| | | Notification sounds ① | |
| | | Mirror assigned notes ① | |
| | | | |
| | | Advanced body sound | |

At this menu point the NEOTONE instrument's sound qualities and preferences can be adjusted and customized. With each slider different sound qualities and details can be set and saved.

Volume

Adjust the master volume (0 - 200%)

It may cause sound distortion if going above 100%..

Dynamic range

The dynamic range of the instrument is quite large, which is not ideal for all conditions of use. If you integrate the handpan into an electronic setup or play with an orchestra, too weak beats can be lost in the music, and strong ones can stand out unpleasantly. In such cases, reduce the dynamic range, thus the volume becomes more balanced and stable.

Stereo environment

Adjust the stereo width. 70% is ideal for headphones, 100% for loudspeakers.

Sustain

Adjust the sustain.

Closed Sound Sensitivity

Setting the closed sound sensitivity. 100% being the most sensitive, and closest to sounding like its acoustic instrument version. If setting the value lower, it will need stronger pressure on the tonefields to close a sound.

Tonefield polyphony

Adjusting the density of a tone when hitting the same tonefield repeatedly.

Tuner

The default tuning setting is 440 Hz. You can adjust the tuning of the instrument up and down by half a note (down to 415 Hz and up to 466 Hz).

Velocity layer loading density

The default velocity layer loading density of the instrument is set to the highest level. This is because higher density enhances dynamic responsiveness and the details of the sound. Lower density velocity layers decrease the loading speed and reduce the level of sound detail. This is what you can control with this slider.

Force mute

Forcing the instrument to play closed sounds. It is recommended to pair it with a foot pedal.

Notification Sounds

When you load in a new scale, the instrument plays the base note of the scale after

the successful loading. By turning off notification sounds, the scales will load in without giving any sounds. This feature is recommended for players who use the instrument a lot during live performances.

Mirror assigned notes

The lowest side note is on the right side by default. When this feature is switched on, it will be on the left side.

SOUND / Tone crossmix:

0%: Always selects a single tone without mixing multiple sounds. 100%: Uses the current behavior, blending tones based on hit position

SOUND / Edge Effect on Side Notes:

At higher slider values, the shoulder tone is blended in more significantly

Body Crossfade softness

This feature can disable the blending between body sounds. When it is turned on, the instrument performs crossfades between different body sounds depending on the striking position.

Velocity Hardness

How hard the velocity impacts volume scaling

HANDPAN SENSORS:

SOUND | HANDPAN SENSORS | MIDI SENSORS | THRESHOLD



You can adjust **the Dome, Ding and tonefield's sensitivity curves** (dynamic characteristic).

You can adjust the **amplification** (gain) of tonefields and the body tones.

Shoulder octave size

The degree of dominance of the shoulder tone along the octave (longer) axis. If you increase it, the shoulder tone appears over a larger area; if you decrease it, it appears over a smaller, narrower section.

Shoulder octave offset

This fine-tunes the shoulder tone to ensure it sounds equally on both sides of the octave (longer) axis. If there is less shoulder tone on one side and more on the other, you can use this slider to adjust it in the desired direction.

Shoulder fifth size

The degree of dominance of the shoulder tone along the fifth (shorter) axis. If you increase it, the shoulder tone appears over a larger area; if you decrease it, it appears over a smaller, narrower section.

Shoulder fifth offset

This fine-tunes the shoulder tone to ensure it sounds equally on both sides of the fifth (shorter) axis. If there is less shoulder tone on one side and more on the other, you can use this slider to adjust it in the desired direction.

With the **adjust mutant area**, You can adjust the width of the mutant fields slider. If you set the percentage up, the mutant area becomes wider, if you set the percentage down the mutant area becomes narrower.

Top body gain

The amplify (volume) of the body note around the ding.

Bottom body gain

The amplify (volume) of the body note on the slap/rim area.

If you turn off the **enable mutant area** switch the mutant fields of the tonefields will stop working as separate fields. This way the mutant instrument becomes very similar to a standard NEOTONE¹ model.

On the LCD screen you can always follow the notes that you play on the instrument. With the **display note** switch you can turn this off if you do not want to see the played notes displayed on the LCD screen.

Body sensors enabled are turned on by default. The instrument will be muting the body tones when it is switched off.

MIDI

The **volume slider** helps the volume to be more balanced and stable, by reducing the dynamic range.

You can adjust the **sensitivity curves** (dynamic characteristic) of tonefields and the body tones for the MIDI.

You can adjust the **amplification** (gain) of tonefields and the body tones for the MIDI.

Body sensors enabled are turned on by default. The instrument will not send body midi notes when it is switched off.

The foot pedal connectors work as an expression pedal mode by default. When the **trigger pedal** switch is turned on, the pedal connectors work as a kick trigger.

THRESHOLD

The default **Noise threshold for the tonefields** is 50%. It is recommended to increase this value if you use a handpan stand, or if you play strongly or hard on the body. You can decrease this value if you play softly on the instrument.

The default **Noise threshold for the body** is 20%. It is recommended to increase this value if you use a handpan stand, or if you play strongly or hard on the instrument. You can decrease this value if you need extra sensitivity for the body. It may cause crosstalk between the body and the tonefields when this value is below 20%.

Noise threshold for trigger PEDAL 1

The threshold is where the trigger pedal perceives and ignores the signals. With the slider it is possible to set the noise threshold for trigger pedal 1.

Noise threshold for trigger PEDAL 2

The threshold is where the trigger pedal perceives and ignores the signals. With the slider it is possible to set the noise threshold for kick trigger pedal 2.

Parameter configurations in the sound and sensor menu now can form a set, It can be saved as a preset and can be recalled anytime.

| (+) presets |
|-------------|
| 120% |
| |

CONTROL menu point

At this menu point the NEOTONE instrument's main technical features can be controlled. The main audio and MIDI inputs and outputs can be controlled here and as well, the instrument's power saving through setting the shutdown time.

Most of the sliders and switches can be paired up with a back panel knob or foot pedal. This function allows you to change any settings on the interface by physically making adjustments on the instrument (no WiFi connection needed). For example, if you have paired up KNOB 1 with the volume slider, even when the instrument is not connected to WiFi, you can adjust the volume by physically turning KNOB 1.

Connecting sliders to knobs / foot pedals

Most of the sliders and switches can be paired up with a back panel knob or foot pedal. This function allows you to change any settings on the interface by physically making adjustments on the instrument (no WiFi connection needed). For example, if you have paired up KNOB 1 with the volume slider, even when the instrument is not connected to WiFi, you can adjust the volume by physically turning KNOB 1.

Incoming MIDI signals now able to control different parameters

| NEOTONE | MIDI CONTROL CONNECTION POWER | | |
|------------|---|---------------------|-----|
| | \oplus add function control \oplus add slider control | | |
| INSTRUMENT | | | |
| HOTSPOT | SOUND - Stereo environment | ∽ - note - ∽ - ch - | × 😣 |
| SCALES | | | |
| SOUND | | | |
| CONTROL | - name - | - note - 🗸 - ch - | ~ 🗙 |
| RECORD | | | |
| MIDI | - load scale - 🗸 🗸 - load sound set - | ✓ - load midi set - | ~ |
| CORE | | | |
| | AUTOSAVE ACTIVE CLEAR | | |

Available parameters to control:

| - slider - |
|--|
| SOUND |
| SOUND - Volume |
| SOUND - Velocity hardness |
| SOUND - Dymanic range |
| SOUND - Edge effect at the rim of the side notes |
| SOUND - Stereo environment |
| SOUND - Sustain |
| SOUND - Force mute |
| SENSORS |
| HANDPAN SENSORS - Enable mutant area |
| MIDI SENSORS - Volume |
| |

CONNECTION

Most of the sliders and switches can be paired up with a back panel knob or foot pedal. You can select a parameter which you like to pair up to a knob or foot pedal. You can select the empty option if you don't like pairing a knob with none of the parameters, in this case when you turn the knob, it has no effect.

Midi input enabled

Enable midi input messages when it is switched on.

Midi output enabled Enable midi output messages when it is switched on.

Midi thru enabled

Send input messages to the output when it is switched on.

Midi thru filtered

Filter midi output messages by channels (set instrument channels at **MIDI** menu) when it is switched on.

POWER

Shutdown time on battery mode

Set auto switch off duration when the battery charger is not connected.

Shutdown time when plugged

Set auto switch off duration when the battery charger is connected.

MIDI menu point



It is possible to create several different MIDI SETs at the same time. (SET 1 - 9.) You can activate a MIDI SET on the instrument by holding down the DING and tonefield #1 simultaneously for 2 seconds. For example, hold down the DING and tonefield #3 to select midi set 3.

The MIDI map of the instrument can be configured via the visual MIDI editor on the interface. You can assign specific MIDI notes separately for the dome, ding, marked sections of the body, and the 9 side notes (or an additional 9 mutant notes in the case of a mutant instrument).

To assign notes to specific areas, select a musical note and an octave combination, then click on the desired field on the instrument.

There are two special indicators among the musical notes:

Handpan icon: When selected, it always plays the MIDI note corresponding to the active handpan scale.

Delete icon: This allows you to remove existing MIDI notes from specific areas.

Additionally, with the "HANDPAN NOTE" section, you can decide whether the handpan sound should be played together with a specific MIDI note or not.

The background colors of the assigned areas indicate these options:

White area: The section does not send MIDI messages.

Gray area: In these sections, the handpan sound is played along with the MIDI note through the audio output.

Red area: In these sections, only the MIDI note is played, and the handpan sound does not play through the audio output.

Note off method:

By default (OFF), the MIDI note will stop when the tonefield is released. If you set the switch to ON, the MIDI note will play continuously and stop only when you press it again with an aftertouch (not hit).

New Functions that comes with Software version 6.6:

Incoming Note On MIDI messages can be mapped to functions, allowing control without WiFi: scale switching, MIDI set selection, sound set selection, slider adjustments.

Bottom panel and controls



| 1.) POWER | Press the button to turn on the instrument Hold down for 3 seconds to turn off the instrument |
|-----------------------------------|--|
| 2.) CHARGE | Connect the DC 12V adapter to charge the battery |
| 3.) PHONES | Connect headphones (1/4" TRS) |
| 4.) VOLUME | Adjust the headphones volume |
| 5.) LINE OUT | Unbalanced line outputs |
| 6.) MIDI IN / OUT 7.) MIDI USB | Connect an external MIDI device here Connect an external MIDI device through USB cable |
| 8.) TRIG/EXPR | Connect an external trigger or expression pedal |
| 9.) BLUE LIGHT | DC charger adapter connected |
| 10.) GREEN/RED LIGHT | Instrument is turned on |
| BLINKING GREEN/RED | Instrument is turning off |

Included Accessories

- DC 12V 24W adapter for charging
- Semi-hard case for carrying and protection

Technical specifications

- Operational temperature: 0 40°C
- Weight: 3.7 kg if black walnut, 4.2kg if natural ash
- Dimensions: 47 cm diamater, 16 cm height
- Battery discharge: 8 hrs
- Full charge: 4 hrs
- Tonefield sensors weight precision: < 1 gr.
- Tonefield sensors position accuracy: < 1 cm
- Audio latency: ~ 5ms
- DAC: 24bit 384kHz 2.1Vrms SNR: 112dB THD: -93 dB

Troubleshooting

No sound at all

- Are headphones or a loudspeaker connected to the instrument?
- When the status icon light is ORANGE, the instrument loading or updating a scale. During this time sound is muted.
- When there is no light, the instrument is switched off.

The instrument does not turn on

• The battery is exhausted, connect the charger.

The instrument does not turn off

• The instrument needs about 30 seconds to completely turn off. The instrument checks the software and scale updates when it is going to turn off, this is indicated by blinking RED and GREEN light on the back panel. It will turn off automatically when it is done.

The instrument is automatically turned off

• It is normal behaviour, if you are not using the instrument for a while. (The duration is adjustable on the interface.)

The overall volume is low, or no sound is heard

• Check if the volume knob is turned to low position or if there is a low volume setting at the interface.

The instrument can't connect to WiFi hotspot

- Check the interface hotspot configuration to match the hotspot name / password.
- The instrument has to be turned on.
- Check the signal strength of your WiFi hotspot. The ideal frequency is 2,4 GHz.
- Try switching off the instrument and back on again.