



# PINT

Personal Intonation Trainer – Tuner – Tone generator

## User's Manual

### 1. Introduction

PINT is short for Personal INtonation Trainer. While you can use PINT as a standard multi-temperament tuner and tone generator, an innovative function allows you to check your intonation by ear against a fixed drone of your choice.

You can choose the height of the drone (the fundamental of the scale), the octave, the base "A" pitch and the temperament: PINT will recognize the scale step you are playing and check your intonation against the selected temperament.

But PINT can also give you a hint: you will hear both the base drone and the note you are playing (with the correct tuning). With beat tones and combination tones in your ears, being in tune couldn't be easier!

Eleven main temperaments are preloaded into the app:

- Equal;
- "PINT pure" (a different flavor of just intonation);
- Just intonation;
- Vallotti;
- Young;
- Werckmeister III;
- Kirnberger III;
- Pythagorean;
- Quarter comma meantone;
- Fifth comma meantone;
- Sixth comma meantone.

But you can load any other 12-step temperament of your choice, from over 4.500 available in Scala (scl) format (<http://www.huygens-fokker.org/scala/downloads.html#scales>), or even define your own.

With copy&paste and by exporting it to a Scala file, you can easily share your custom temperament with your friends, colleagues and students.

Headphones required!

## 2. Main “Modes”

PINT offers three main modes:

1. Trainer;
2. Tuner;
3. Sound generator.



You can “swipe” left or right from one mode to another or simply select it from the Tab bar in the top part of the screen.

### 2.1 Trainer

While in this mode, PINT will work both as a tuner and a sound generator: plugged headphones are required for PINT to detect the pitch of your sound with precision.

To start the training just touch the circle at center top of the screen: you will hear the fundamental or base note selected in the settings.

Start emitting notes with your voice or instrument and PINT will detect the height of your sounds by comparing them against the selected temperament.

**Hint** If you select “Hint”, PINT will play a sound at the same height of the note you are playing, with the correct intonation for the selected temperament.



Listen to the beats produced by your sounds and the ones generated by PINT: when you are in tune the beats disappear.

#### Temperament

A temperament is the way the notes are arranged within an octave, i.e. the way they are tuned. The main temperament system in use today is the “Equal” temperament, where all the twelve steps within an octave are at the same distance.

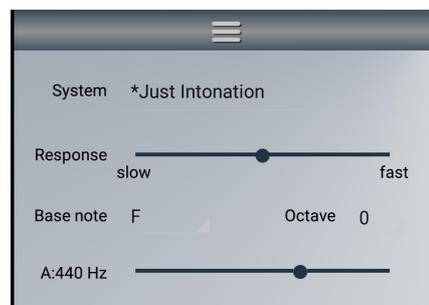
While the Equal temperament is very useful to play in tune in different tonalities, our ear works in a different way: it privileges the so-called “pure” or “just” intonation, where the heights of the notes mainly depend upon their relation to the *harmonic* components of a sound.

If you select “Pure PINT” or “Just Intonation” you can train with a more natural tuning.

#### Trainer settings

If you touch the bar at the bottom of the screen or slide it up, you can change the settings of the Trainer. In particular, you can:

- Select the desired temperament system;
- Adjust the responsiveness of the tuner (it has to be calibrated with your instrument or voice);
- Select the base note;
- Select the octave of the generated sounds (from -2 to +2)
- Adjust the base A pitch (from A=392Hz to A=466Hz).



You can modify the settings while training: PINT will change accordingly in real time.

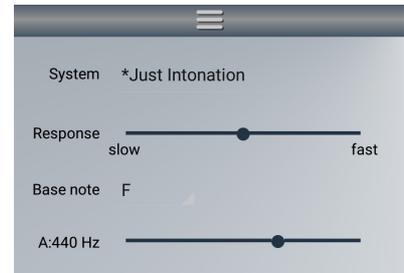
## 2.2 Tuner

PINT's Tuner mode works as a regular tuning machine. When this mode is selected, the tuner is automatically switched on: it will be switched off once you select another Mode or leave the app.

### Tuner settings

If you touch the bar at the bottom of the screen or slide it up, you can change the settings of the Tuner. In particular, you can:

- Select the desired temperament system;
- Adjust the responsiveness of the tuner (it has to be calibrated with your instrument or voice);
- Select the base note;
- Adjust the base A pitch (from A=392Hz to A=466Hz).

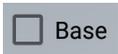


You can modify the settings while tuning: PINT will change accordingly in real time.

## 2.3 Generator

While in Generator mode, PINT generates the sound of any step of the selected scale, with the selected temperament system.

To change step, just select it in the settings.



By selecting “Base”, PINT will generate both the fundamental of the scale and the selected step.

### Generator settings

If you touch the bar at the bottom of the screen or slide it up, you can change the settings of the Generator. In particular, you can:

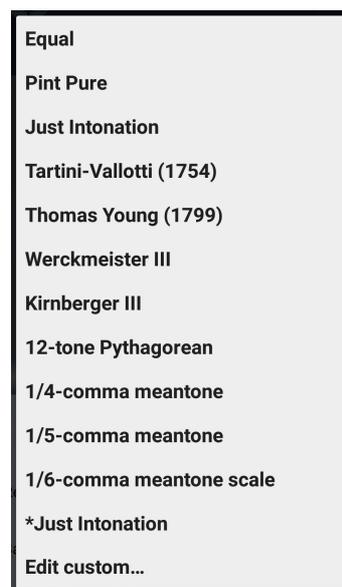
- Select the desired scale step;
- Select the desired temperament system;
- Select the base note;
- Select the octave of the generated sounds (from -2 to +2)
- Adjust the base A pitch (from A=392Hz to A=466Hz).

You can modify the settings while generating sounds: PINT will change accordingly in real time.

### 3. Custom temperaments

PINT has eleven built in temperaments:

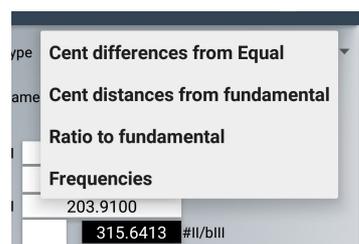
- Equal;
- "PINT pure" (a different flavour of just intonation);
- Just intonation;
- Vallotti;
- Young;
- Werckmeister III;
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But you can load any other 12-step temperament of your choice, from over 4.500 available in Scala (scl) format (<http://www.huygens-fokker.org/scala/downloads.html#scales>), or even define your own.

To edit your custom temperament, select “Edit custom...” from the temperaments list: you will be presented with a screen where you can:

- Select between four types of values:
  - Cent differences from Equal;
  - Cent distances from fundamental;
  - Ratio to fundamental;
  - Frequencies.



- Insert values for each of the twelve steps of the desired type;
- Share your temperament through other apps (a text Scala file will be generated);
- Import an existing Scala file;
- Copy your current values to the Clipboard (to paste them in a messaging app, for example);
- Paste the values from the Clipboard.

You can switch between the value types while editing your temperament: this way you can insert your values according to different techniques (for example: ratios for diatonic notes and cents for chromatic notes).

There are two different ways you can share your temperament with your musicians or students:

- By exporting it to a Scala file and sending it by email or messaging app. The recipient will save the file onto her/his phone memory and import it.
- By copying it into the clipboard and pasting it into a text message of any sort. The recipient will copy the received message and paste it into the “Edit custom...” screen.



PINT supports only 12-step temperaments.

## 4. Main Menu

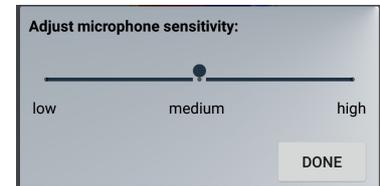
PINT's Main menu contains two visible icons, Headphones and Microphone, and a few other text elements.



The Headphones icon will become green when the headphones are plugged in or red otherwise.



The Microphone icon will show the current input level: you can adjust your microphone sensitivity by touching the microphone icon. You can choose between three levels: *low* – *medium* – *high*.



Other menu elements:

- Help (this text);
- Share PINT! Recommend PINT with a text messages to your friends, colleagues and students;
- About PINT. Info about PINT's authors.
- Remove Ads. Buy a PINT's full license to get rid of those annoying banners.

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