maestro-tonalis

USER MANUAL

intonation software for eminent organs with P.E.S. version 1.22a

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I. Foreword

With the „Personal Edit System“ (PES) and the maestro tonalis computer software you have unlimited possibilities available for individual voicing of your eminent organ. You take on the role of the master organ builder who cannot only adapt the organ sound to different room acoustics, but also create completely new stop sounds to change the instrument‘s character to meet your wishes. The computer program maestro tonalis makes these technical tasks very simple indeed. The software allows you to work completely freely; you can combine settings at will – whether or not they make musical sense! Some knowledge is beneficial, therefore, of certain ground rules of overtones and acoustic relationships if you want to voice in a planned (as opposed to a „haphazard“) manner.

2. Technical Basics

This little „virtual wonder“ is made poss-ible by the unique sound generation system based on the Fourier analysis principle, which is particularly suited to authentic pipe sound simulation. In order To obtain the best possible results from the maestro tonalis voicing software, it is helpful to become familiar with the principles of pipe organ sound. Thereafter it is easy to learn the operation of the software, which is virtually self explanatory. So let’s first examine some of the important principles and specialist terms.

2.1 Attack and Release Times

In a pipe organ, the time required for a stop tone to reach to full volume following a keystroke, and to silence following release, is the time required for a sound pressure wave to build up in a pipe („attack“) and to collapse („release“). Low notes (large pipes) require more air than high ones, so . For this reason the lower notes of an eminent-organ register have longer rise and fall times than higher notes. We are talking about fractions of seconds rather than seconds. The correct rise and fall times for different notes are automatically calculated by your eminent-organ. You can, however, choose whether a register generally has longer or shorter attack/ release times.

2.2 Voicing Point (VP)

The entire compass, or register, of a 5 octave keyboard can be divided into 15 individual key sections. These sections are called voicing points (VP).

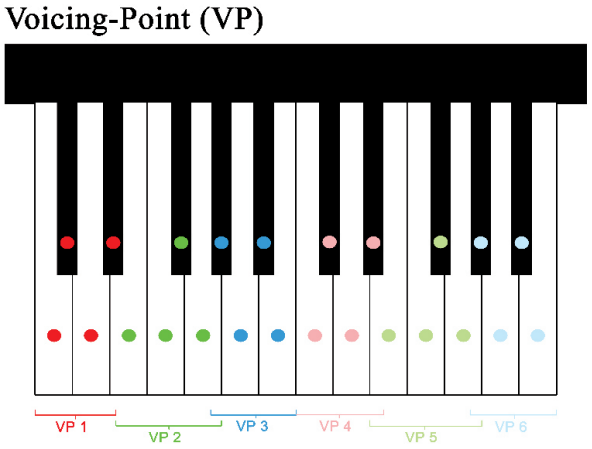


illustration: 2.1. Voicing Point

For the manuals, each voicing point consists of 4 consecutive semitones, with the exception of the last (highest) VP which has 5. This means that we have 61 manual keys - the first (lowest) four are grouped into the first VP, the next 4 (from low E to low G) in the 2nd VP and so on. The 15th and last VP is the range from highest G-sharp to top C. For the pedal board, two notes are always grouped to a VP. This division of the register has a number of advantages for voicing.

Consider the following example: A Principal 16‘ stop at full volume when playing the lowest A (in VP 3) causes an object - e.g. a window blind in a small room - to vibrate. The reason is quickly explained: every room has unique acoustic properties, caused by the construction and finish of the walls, floor, furniture, etc, and positioning of the organ. Some frequencies are amplified whereas others are reduced, necessitating a fine tuning and adaptation of the organ sound to the room in order to achieve optimum sound experience.
One possibility to avoid this annoying vibration of the blind would, of course, be to simply remove it. This is not always possible. Simply use Maestro Tonalis to reduce slightly the volume of the frequency causing the vibrations - in this case around the lowest A. This means that you only change the 3rd VP, leaving the remainder of the register unchanged.

2.3 Sound A (Fundamental) Sound B (Attack)

Each keyboard region (VP) can also be divided into two parts:

- **Sound A**, the “steady state” sound of the register, and
- **Sound B**, which is only heard for a very short time when the key is pressed (attack).

In true a pipe organ, when a key is pressed, air is sent to a selected pipe. In the first fraction of a second of this action, the air pressure is somewhat higher and causes other pipe harmonics to also develop (Sound B). Once the air column has stabilized, only Sound A is heard. Eminent organs authentically reflect this behaviour.

2.4 Harmonics and upper partial Harmonics (Overtones)

Let‘s come to the heart of sound generation. The eminent organ sound system generates 128 frequencies (64 each for Sound A & Sound B), from which the stop sound can be assembled. They are sequentially numbered (1 -64 for Sound A and 1-64 for Sound B) and are called „harmonic numbers“. Each of these frequencies can be set to a volume between 0 and 255. If a harmonic number is set to a value of 0, then it is switched off and cannot be heard.

The harmonic numbers 63 and 64 are combined frequencies and in the PC-software are known as Reed 16‘ and Reed 8‘ (see 4.20 and 4.21). They are used to generate the “rattle” of a reed stop in the lower regions (first five voice points). For 8‘ reed stops (e.g. Oboe 8‘) only the oscillations of reed 8‘ are used, for 16‘ reed stops (e.g. Trumpet 16’) the frequencies of reed 16‘ are often found together with those of reed 8‘.

The harmonic numbers 1 - 62 are unique frequencies of different tone levels (No.1 is the lowest, No.62 the highest) and will be referred to as harmonics.The volume of these frequencies can be set using the maestro tonalis harmonic sliders (see 4.14).

How is sound produced in a true pipe Organ?

Simply put: single, but different, sound waves are generated in a pipe due to the varying paths taken by the air through the pipe, defining the upper partial harmonic behaviour - thus the tone or sound characteristic of a register. The register sound of a true pipe organ comprises of a series of individual frequencies. If a part of the wave hits the pipe rim just 4 times i.e. it is low frequency, we hear a lower tone than if it hits 24 times.The individual frequencies are known as „overtones“.The more air taken in a pipe by this oscillation i.e. the bigger the amplitude, the louder the sound heard. As a rule,the loudest oscillation is also the deepest. This is known as the main organ tone and is the basis of the register sound.

In maestro tonalis the main tone is equivalent to the 1st harmonic. In the following text, when we talk of the 1st harmonic, then we mean the main. In general, the higher the harmonics become, the smaller their amplitude and thus the less these upper partial harmonic frequencies can be heard. The individual harmonics are always a multiple of the first harmonic or main tone.

Your eminent organ is based on precisely this principal of the generation of an organ sound.All possible harmonics found in a 16‘- stop sound are stored in the harmonics 1 - 62 of the eminent organ. If, for example, you want to generate a 8‘-stop sound, not all 62 harmonic variations should be used.

The 1st harmonic number of the organ represents the 1st harmonic - main tone - of a 16‘stop sound and are not present in an 8‘stop at all. The 1st harmonic of an 8‘stop has the same frequency as the 2nd harmonic of a 16‘ stop. The harmonic numbers represent all available unique frequencies in your eminent organ.

The uppertone numbers are a subset which, in extreme cases, can consist of all individual frequencies (16‘-register). Normally, however, the uppertone numbers are just a selection of the available harmonic numbers.

To spare you annoying calculations you can use the maestro tonalis function “feet display” (see 4.25). Here, only the harmonics relating to the register sound of the selected foot set are shown. In the maestro tonalis display (4.3) you can see which harmonic is currently being changed and which upper partial harmonic based on the selected foot set - represents this frequency (If you nevertheless want to calculate, please take a look at chapter 11.8 „Tables for creating your own register sounds“.)

To summarise, by changing the individual uppertones, you can simulate the character of a real organ pipe and thus modify the true sound of a stop and its‘ foot setting. In order to create or change melodious stops experience is necessary. Please read chapter 5 „Simple Examples“ and take a look at the uppertones composition of the original stop sounds of your eminent organ. Don‘t give up if your first efforts do not produce the desired results. No master organ builder was made in a day.

3. First Steps with maestro-tonalis

3.1 Installation

To work with maestro-tonalis on your computer, you must first install the pro-gram as follows:

1. Place the program CD in the CD ROM drive

2. Doubleclick on „My Computer“

3. Select the drive letter (e.g. D:, E:)

4. Doubleclick on file „Setup“ or „Setup.exe“

5. Follow the instructions as they appear on the screen

3.2 First Programm start

Following successful installation, when starting the program for the first time you will be asked to select the MIDI port to which your eminent organ is connected. You can change this setting at any time under the menu selection <Options> (see 4.10).

There are three MIDI connectors on your organ. The MIDI-In on your organ must be connected to the MIDI-Out of your computer and the Midi-Out of the organ to MIDI-In on the computer. MIDI-Thru should be ignored. Your computer must have a MIDI interface in order to connect MIDI devices. Usually, you can use a SB-MIDI adapter cable to connect your organ to the sound card game port of your computer. If no MIDI-port is available (e.g. on a standard notebook computer) an external MIDI-adapter can be purchased from a computer specialist store.

Once the organ is properly connected to your computer and the MIDI port correctly selected in maestro-tonalis you must now turn on the MIDI connection with the <on/off> button (see 4.7). For maestro tonalis to recognize the organ setting, press the „Learn“ button (see 4.13) and then <Start>. Wait until the procedure is completed and then close the dialog box with <Save>.

When you start maestro tonalis the next time it is only necessary to activate the connection (see 4.7). The MIDI port and organ settings are saved.

In the next step, you must load an organ register into maestro tonalis. Choose the stop that you want to change (see 4.26) and press <Load Reg.> (see 4.11). Now you can begin tuning. Please read the descriptions of the various maestro tonalis program features in chapter 4.

4. The Software User Interface

Inside the back cover of this guide you will find a screen shot of maestro-tonalis; the function numbering refers to the descriptive chapter in this guide.

4.1 LED (MIDI-Activity-Indicator)

When your computer sends data to the organ, the virtual LED-display is red. When transfer is completed the LED reverts to green.
If the LED remains red for longer than about 15 seconds this normally indicates a data transfer error.

Left click the mouse on the LED to release the MIDI interface and resend the settings to your eminent organ manually by clicking the button „Send all changes to organ
<F2>“ or with the function key
<F2> (see 4.22).
If the problem persists it is possible that your MIDI-interface is too slow for the large data volumes. In this case, please contact your computer dealer.

4.2 Harmonics display

Independent of the foot setting (see 4.25), you always have a graphical representation of the volume of all harmonics (1-62) (see 2.4) of Sound A or Sound B. Editing is not allowed in this area.

4.3 Display

The values of the harmonic slider selected with the mouse or cursor keys (see 4.14) are shown in three displays:

● **Harmonic No:** the harmonic number (I-64 - see 2.4). Which, and how many harmonics are shown as sliders depend on the selected footage (see 4.25).

●**Upper partial harmonic No:** The overtone number of the harmonic (see 2.4). Depending on footage (see 4.25), selected, the overtone numbers will be automatically assigned to the harmonics of the selected footage.

●**Volume:** harmonic amplitude
(values between 0-255 -
see 4.25) or the value of the riseor fall-time (see 4.17, 4.18, and 2. I).

4.4 Overall volume

This function adjusts the volume of the entire stop louder (+) and softer (-). The volume of all 64 harmonics of all voicing points of Sounds A and B relative to each other is increased or decreased (see 2.2, 2.3, and 2.4)
The changes must be transferred to your eminent organ manually using the <F2> key before they can be heard on the organ (see 4.22).

4.5 VP Volume

is used to proportionally increase (+) or decrease (-) A and B sounds at the selected voicing point (see 2.2, 2.3, and 2.4).
The changes must be transferred to your eminent organ manually using the <F2> key before they can be heard on the organ (see 4.22).

4.6 Memory

There are a total of 8 memories (I to 8). Left clicking on a memory number displays the stop settings of this memory. Right clicking on a memory allows partial or complete copying of the stored data. These memories are not designed for the creation of a stop library (see 4.8, and 4.9).They are for use as a sort of “scratchpad” for the current work session to store templates, partial results or to provide comparative stop information.
After recalling information from a memory (left mouse click), the changes must be transferred to your Eminent organ manually using the <F2> key before they can be heard on the organ (see 4.22).

Practical examples:

● Result comparison:

save a complete stop loaded from the organ to a memory (right click, select all Voicing-points (1-15), click „All“). Make your desired changes to the stop settings and then compare the changes to the original by switching between memories (left click on each in turn).

● Create a split-register

load two different stops from your organ. Store one stop in memory 1 and the other in memory 2 (left mouse click on 1, load 1st register; left mouse click on 2, load 2nd register). Now from memory 1 copy the first 6 Voicing-points and save them in memory 3 (left mouse click on 1, right mouse click on 3, select VP 1-6, deselect VP 7-15, click „All“). Now repeat the procedure but store VP‘s 7-15 from memory 2 in memory 3 (left mouse click on 2, right mouse click on 3, select VP 7-15, de-select VP 1-6, click „All“). Press function key <F2> and test the register on your organ.
You will hear the register from memory 1 up to middle C and that from memory 2 above middle C. This function is particularly important when it is required to work with registers which do not have the full range of five octaves, but only for example a limited range of 3 octaves, as in a pipe organ. In order to avoid an „acoustic hole“ when the organist plays outside this reduced pitch range, sounds from another register can be added to this area.

●separating **sound A and B (see 4.23.):**

Load a stop into memory 3 (left mouse click on 3, load register) Save only Sound A in memory I of the stop, sound B is then stored in memory 2 (right mouse click on memory 2, select all Voicing points, click on Sound A or Sound B). Now it is possible to independently edit the main and attack sounds. Finally, in order to hear the complete sound, simply copy both Sound A from memory I and Sound B from memory 2 to memory 3. After recalling information from a memory (left mouse click), the changes must be transferred to your eminent organ manually using the <F2> key before they can be heard on the organ (see 4.22).

4.7. On/ Off

This button switches the MIDI connection on (light green) and off (dark green). It also ends the Maestro Tonalis program. Remember - the MIDI connection must be active (light green) in order to work with Maestro Tonalis.
This function is normally used to reset the MIDI connection following data transfer errors without the need to reset the PC. It must also be pressed before changes are made to the MIDI settings (see 4.10). If you simply want to reset the MIDI connection, answer the question in the following dialogue box with „No“.

4.8. File load

The button <File Load> loads a previously saved (<Save File> eminent-registermemory-file (.erm) (see 4.9) into the currently selected Maestro Tonalis memory (see 4.6).

4.9. File save

The button <Save File> stores the currently displayed register sound in an *.erm (eminent-register-memory file). This file can be reloaded at any time using the function <Load File>.

This function is very useful for creating your own stop library.

4.10. Settings

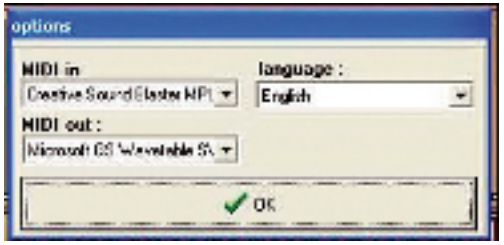


Illustration 4.1.: Dialogue „Settings“

Select the MIDI-Input (MIDI-In) and MIDI-Output (MIDI-Out) interfaces to which your Eminent organ is connected. Maestro Tonalis remembers this information - it need only be input once! MIDI settings can only be modified when the MIDI connection is switched off. (see 4.7).

4.11. Load register from rhe organ

The <Load Reg> button loads a stop from the organ to the current Maestro Tonalis memory location for tuning (see 4.6).
The stop loaded is always that selected in Maestro Tonalis (e.g. My stop > Great > Flute 8; see 4.26).
If you cannot select a register in Maestro Tonalis, then the status of your Eminent organ is not yet known (see 4.13). In order to work with Maestro Tonalis a stop must always have been loaded.

4.12. Save stop to the organ

The <Save Reg> button saves the current stop sound to your Eminent organ on the selected stop rocker key (see 4.26).

Each of your Eminent organ‘s stops rocker has two memory locations: a read only memory (ROM) - in which the original sound of the stop rocker key is stored, and a re-writable stop memory, in which edited or new stop settings are stored.
Thus the current sound of a stop sound will always be stored in the re-writable stop memory. of your Eminent organ. The ROM-memory (original stop sound) serves only to always allow you to re-load the original factory stop sound factory defaults.
The factory default values for the stop sounds are never lost! Your Eminent organ always plays sounds from the rewritable stop memory.

If you have „Overvoiced“ and you want to restore the factory stop values, you can proceed with a reset as follows.
Please note that for organs with the alternative baroque and romantic voices, a RESET must separately be carried out for each.

IMPORTANT: before performing a reset, make sure to make a backup copy of all stops which you have already voiced and wish to keep (see 4.9).

1. Connect your PC to the organ. Switch on the organ, de-activate all stops and start the maestro tonalis program.

2. Click on the <on /off> button (see 4.7) - it should turn to light green.

3. From the PC switch on an original stop (e.g. Diapason 8‘) in the Great organ. The selected stop should illuminate on the organ.

4. Now on the Swell manual press (at the same time) the keys E - F - F# -G (in the lowest octave on the left) and the keys C - C# - D - D# (in the highest octave on the right).

5. Keep these keys pressed and press with your nose the middle G on the manual of the Great organ.

If this is successful, you will hear a constant tone for about 20 seconds. The contents of the organ display will change at the same time.
If you do not hear the tone, ensure that all steps were completed and repeat, if necessary.

End the editing procedure by again clicking on the <on/off> button. Switch off the organ. Wait for 20 seconds and switch back on, set it to the second tuning (see organ handbook) and repeat the reset procedure if desired.

If you have the optional sequencer installed you can relax! This will not be deleted!

4.13 Learning Organ settings

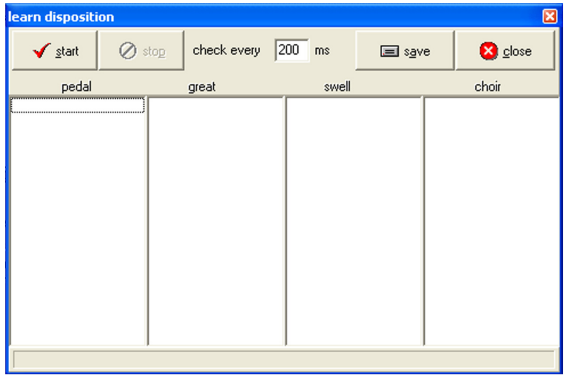


Illustration 4.2. Dialogue „learning“

Click on <Start> in the following dialogue window and Maestro Tonalis „learns“ the Eminent organ settings – stop by stop. If your Eminent organ has lighted register rocker keys, you can monitor this process by watching stop selection tabs When the procedure is finished, click on the <Save> button to store the settings list to your hard drive. These settings will be automatically loaded when Maestro Tonalis is restarted.

PLEASE NOTE:

If the status of your Eminent organ is not fully recognized, this can be due to a slow MIDI connection. You may be able to resolve the problem in this dialogue window by increasing the time between requests (request interval) e.g. from 100 ms to 600 ms (1000 ms = I second).

4.14 Harmonic adjusting sliders

With these sliders you can change the volume of individual stop harmonics (see 2.4). Use the left mouse button, to change individual sliders. Holding the right mouse button, you can select multiple sliders and thus quickly raise or lower partial harmonics all at once. The changes only affect the selected key board section (Voicing Point - see 4.19) and the selected sound (Sound A or Sound B - see 4.23).
The number of harmonic sliders visible on the display depends on the defined footage (see 4.25).
In order To make fine adjustments,
you can change the partial harmonic volumes with your computer cursor keys (← →:slider choice;↓↑: volume change)

If your organ clicks, is noisy or distorted on replaying the changed stop, this indicates that the sum of all harmonic volumes is too high. Reduce the harmonic volume controls.
Also, take care with the volumes of higher harmonics in the upper voicing points. The frequencies of these harmonics can be beyond those audible to the human ear and may not be correctly reproduced by the amplifier system. In neither case will your Eminent organ be damaged. You will not, however, be particularly happy with the stop sound produced.

4.15 Sound A delete

The button <Delete A> sets all harmonics of the main sound (see 2.3) in the current memory to volume = 0.

4.16 sound B delete

The button <Delete B> sets all harmonics of the attack sound (see 2.3) in the current memory to volume = 0.

4.17 Attack time

This slider allows adjustment of the stop attack time (see 2. 1).

4.18. Decay time

This slider allows adjustment of the stop decay time (see 2.1).

4.19. Voicing Points

By clicking on one of the buttons 1 - 15 you can choose which keyboard region (VP) you want to change. All harmonic sliders (see 4.14) and the sliders Reed 16‘ and Reed 8‘ (see 4.20 and 4.21) are only valid for the selected voicing point range.

4.20. Reed 16`

This slider varies the volume of the reed vibration (see 2.4) of the 16‘-register. The changes only affect the selected keyboard section (voicing point, see 4.19) and the selected basic sound (Sound A or Sound B, see 4.23).

4.21. Reed 8`

This slider varies the volume of the reed vibration (see 2.4) of the 8‘-register. The changes only affect the selected keyboard section (voicing point, see 4.19) and the selected basic sound (Sound A or Sound B, see 4.23).

4.22 Send all changes to Organ

To avoid unnecessary waiting times caused by transfer of large data volumes the changes made by the following functions are not automatically transferred to your eminent organ:

- Overall volume (see 4.4)
- VP-Volume (see 4.5)
- Memory request (see 4.6)
- Clear register (see 4.24)

In order to hear the changes on your eminent organ you must first manually transfer the data to the organ. This is done by either pressing the button <Send all changes to organ2 <F2>> or by pressing the function key <F2>. The button is inactive as long as none of the functions have been changed. In order to hear the changes on your Eminent organ you must first manually transfer the data to the organ. This is done by either pressing the button <Send all changes to organ2 <F2>> or by pressing the function key <F2>.The button is inactive if none of the functions have been changed.

4.23 Sound A (steady state) - sound B (attack)

Use these sliders to select which basic sound - A or B - (see 2.3) you want to edit. All harmonic sliders (see 4.14) as well as those for reed 16‘ and reed 8‘ (see 4.20 and 4.21) affect only the selected basic sound A or B.

4.24 Clean Register

The button <clean register> serves as a sort of validity check for the tuning changes. Since all parameters can be changed at will, it is possible that actively set harmonic numbers (value > 0) may be physically impossible in combination with the selected footage setting from the footage display (see 4.25).

For example, in a 4‘-register, the low frequency uppertones of a 16‘ or 8‘ register are not allowed. If this does happen, however, a stop is created with a footage other than that shown in the display. Press this button to delete all harmonic numbers (set them to a value =0) which should not occur in the selected foot set (see 4.25). All volume values of the harmonic slider not relevant to the selected footage are set to a value = 0.

Independent of the selected voicing point or basic sound: all voicing points of Sounds A and B are affected. After completing this function in order to test the sound of your eminent organ you must first manually transfer the data to the organ. This is done by pressing the function key <F2> (see 4.22).

4.25 Footage Display

Here you choose register footage (or the one it should have) that you want to edit or create. Only those harmonic sliders (see 4.14) (max. 62 in the case of a 16‘ register) will be displayed having harmonic numbers in the upper partial harmonic spectrum of the register. In addition the harmonic numbers relating to the selected foot set are assigned to their respective upper partial harmonic numbers in the display (see4.3).

4.26 Register Selection

Select the register that you want to load <Load Reg.> (see 4.11) into maestro-tonalis from your eminent organ in three steps:

- **Chioce for organ memory:** Up to three memories are available for each register rocker on your eminent organ:

- **Original Register** (ROM memory): These are the original, factory settings for the rocker. This memory is read only and serves to allow you to restore the original settings at any time.

● **Personal Register** (writable stop memory):The values stored in this memory are those actively used by your organ. This is the actual main memory of your eminent organ in which possibly changed or edited stops are stored (see 4.12)

● **Library Register:** If your eminent organ has a resident register library, select this option to load a register sound from the library into maestro tonalis. This memory - like the original register memory - is read only. As a rule, select <Personal register>. Should you want to reset to the default factory values, select <Original register>

● **Manual Selection** Select here the manual/pedal holding the register that you want to load.

● **Register Selection**
Stop Selection All stops of the selected manual/pedal of your eminent organ are free for selection. If an entry is not available, this can be for one of two reasons:

- Either you have selected a manual which is not present on your original model (e.g. „positive“ on two manual models) or

- The organ settings have not yet been „learned“ by maestro tonalis (see 4.13).

5. Simple Application Examples

5.1 Make an entire Register Sound louder or softer

Using the <General volume> button (see 4.4) it is easy to change the volume of the loaded stop.

5.2 Make selected key regions louder or softer

Using the <VP Volume> button (see 4.5), the volume of a selected region of keys (voicing point - VP) can be edited.You can, for example, change the balance between higher and lower VP‘s if this is necessary due to the room‘s acoustic characteristics.

5.3 Tune the Stop stronger or Brighter

You can influence the transparency and forcefulness of a stop. This can be achieved by changing the volume of the main and possibly the second partial harmonic.

5.4 Tune the stop sound brighter

Instead of increasing the volume of all upper uppertones, we recommend the following procedure: adjust the first and possibly the second uppertone number to be somewhat softer and then set the overall volume a little louder.

5.5 Tune the stop sound more dark

Instead of decreasing the volume of all upper uppertones, we recommend the following procedure: adjust the first and possibly the second uppertone number to be somewhat louder and then set the overall volume a little softer.

5.6 Change a stop charakter

The character of a stop sound is mainly determined by the 3rd - 8th uppertones. Changing the volume of these uppertones will alter the sound character.

5.7 Some rules for creating a stop

- Principals and octaves include all uppertones (1, 2, 3, etc.), the 2nd uppertone is proportional ly louder.

- Flutes have mostly odd uppertones (1, 3, 5 etc.) where the 1st and 3rd are proportionally louder.

- The initial tones (= attack sound, Sound B) of principals comprise mainly of the 2nd (strong), 4th, 6th and 8th uppertones.

- The initial tones of flutes comprise mainly of the 3rd (strong), 5th, and 7th uppertones.

6. Basic code of practice with maestro tonalis

General there are three groups of register:

Principal register

- octave
- quints
- mixtures
- gamba
- celeste
- salicional
- flute
- diapason
- superoctave
- violon
- sesquialtera
- viola
- scharff
- cymbal
- principal
- terzian

Flute register

- gedackt
- reed pipe
- flute
- nasard
- bordun
- third
- gemshorn
- flageolet
- rohrquinte
- seventh
- sound of the bell
- cornet
- larigot
- oktavin
- quint sound
- subbass

Reed register

- trumpet
- cromorne
- oboe
- trombone
- shalm
- clarinet
- fagotto
- vox humana
- dulcian
- regal
- cornopean
- trumpet harmonique
- harm. trompete
- bombard
- rankett
- horn

● You can exchange a principal or flute registers for a reed register!
● It is not possible to exchange a reed register for a principal or a flute register!

● It is not possible to put flute- and principal-stops on a tongue-stop (Version 122)
● All organ models since year of construction 04/07 allow loading registers into the group without limitation.

Principal register contain all even and odd harmonics (uppertones).

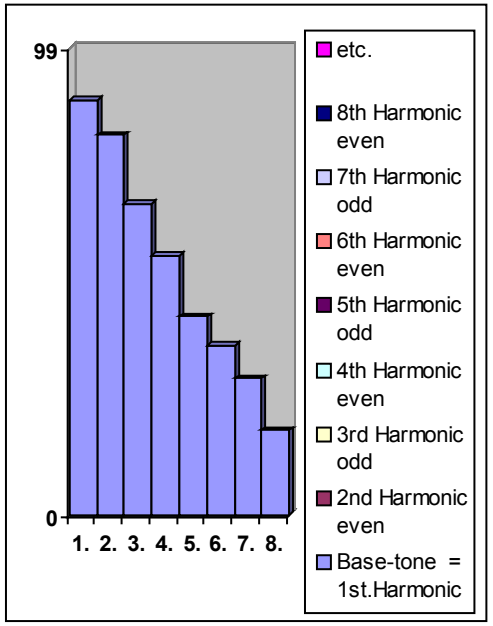


Illustration 6.2.: Uppertone Principal

Flute register contain only odd harmonics. Small volumes of even harmonics possible

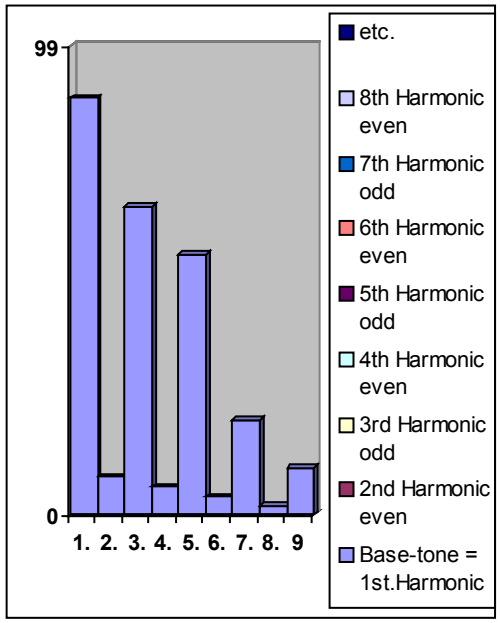


Illustration 6.3. Uppertone Flute register

Reed register contain all the harmonics.

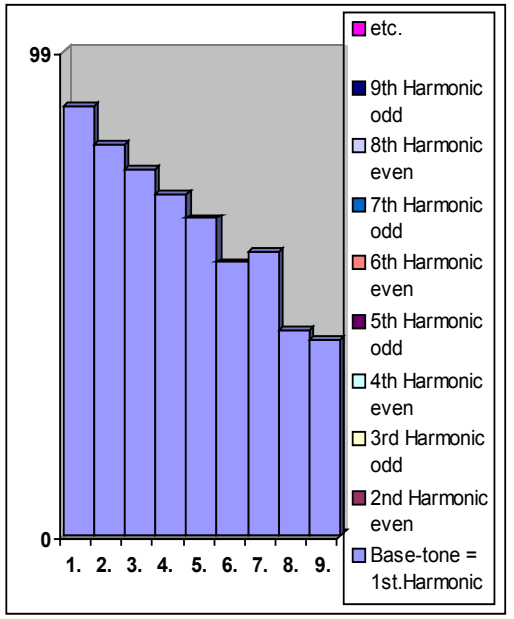


Illustration 6.4.: Uppertone Reed stops

The basic tone resp. the first overtone generally determines the thickness of the register.

6.1 Principal stops

Sound A (please note): The second harmonic (uppertone) is the most important one! The 2nd till the 8th harmonics are defining the character of the sound.
Sound B (attack sound): The most important harmonic of the attack sound of principal stops is the second one with at least the same volume as in the A-sound.
Please note: The attack therefore is an octave higher (harmonic number 2 – 4 – 6 – 8 then the remaining sound)

6.2 Flute stops

Special directives for 8' and 16' flute stops:

- **Sound A:** Voicing Point 1 + 2 : Most important harmonic is the 5th, then the 3rd.

  Voicing Point 3:
  Harmonic 3 and 5 both important.

  Voicing Point 4:
  Harmonic nr. 3 most important.

  Higher Voicing Points :
  Harmonic nr. 3- 5-7 not dominating anymore.

- **Sound B :** The 3rd harmonic is louder than the one in the A sound. Also the 5th and the 7th are present in the attack.

6.3 Reed stops

Sound A : The first 12 harmonics are all present, the 7th is the most important followed by the 9th one.
After the 10th harmonic the volumes of the harmonics are slowly falling down. When there is a 16' Reed stop, the "Reed-16" fader has to be rather loud for the first 5 Voiving Points. The Reed-16 and Reed-8 faders have to be at zero above he 5th Voicing Point. The 8' and 16' Reeds are rather loud for the first 4 or 5 Voicing Points.

6.4 The keyboards are divided in 15 Voicing Points

There is a difference between the first harmonic (upper-tone) of a stop and the first harmonic internally of the organ. First harmonic internally is the first fader in Maestro Tonalis. Fader 1 is always a 16 foot. Fader 2 is always a 8 foot (is thus the first harmonic of the 8 foot). On the screen in Maestro you see these numbers right on top.

The harmonic numbers of a stop are always given in internally organ numbers, so if the lowest harmonic numbe is 2, then it is an 8 foot. Is the lowest number 4 then it is a 4 foot. Nr. 8 is a 2 foot, etc
The table below lists the highest possible harmonics numbers (fader nrs.) of all Voicing Points.
If there are higher harmonics then distortion is heard!

Attention: The harmonical tones in the table below must not be exceeded. Due to each foottune and registertype are compose of different overtones. Harmonical numbers could be stated only organ internal. You will find the data in the „maestro tonalis" above on the right hand site.

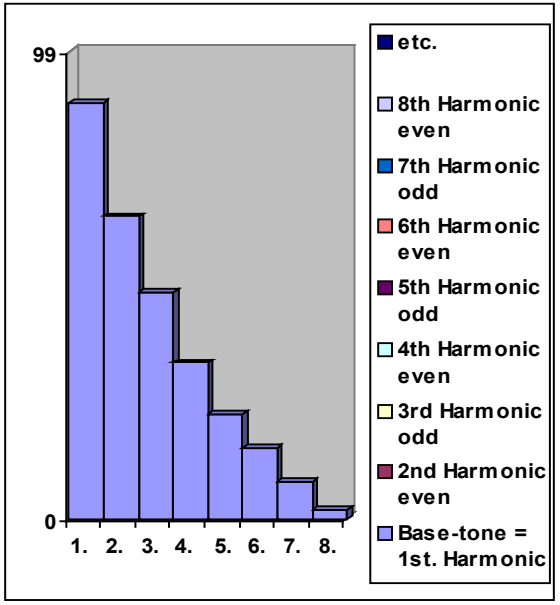
4.19	4.14	4.20	4.21
Part of tone pitch	**Fader**	**Reed 16`**	**Reed 8`**
Voicing Point 1	62	63	64
Voicing Point 2	61	63	64
Voicing Point 3	60	63	64
Voicing Point 4	59	63	64
Voicing Point 5	56	63	64
Voicing Point 6	53	- -	- -
Voicing Point 7	48	- -	- -
Voicing Point 8	40	- -	- -
Voicing Point 9	32	- -	- -
Voicing Point 10	28	- -	- -
Voicing Point 11	24	- -	- -
Voicing Point 12	18	- -	- -
Voicing Point 13	16	- -	- -
Voicing Point 14	14	- -	- -
Voicing Point 15	12	- -	- -

Abb. peak values of harmonics within the voicing points

Please note: the maximum volume date inside the voicing points guidelines. Harmonical and volume devive from this setting.
Sound B ledd-only first even and unequal as far as overtones are dedicated to the register. Valid for all register groups.

6.5 When the harmonics are falling down faster

the tones become more dark (concern all stops)



In maestro tonalis the first harmonic of the stop is displayed in red.

● Simple use through „software-intelligence“

Be sure that the right footage is displayed on screen, so that all harmonics of a stop are visible. With the footage-selection the right footage can be selected.
Doing this it’s for sure that all possible harmonics of a sound are displayed.
After this, even non-harmonics can be added, because it’s for sure that in nature also strange harmonics are vibrating.

Due to that set up, only overtones based on musical principal will be displayed.

● Complex control in the intonation

If you are not satisfied with the sound of the register, external overtones for acoustic pattern enrichment could be used to reach a better result.
If you wish more agility in the register attack tones (sound B) could be reworked to enrich the acoustic pattern by external overtones.
For all, inclusively register foreign overtones, have you only access, if maestro tonalis will show all faders (foot 15 activ)

For processsing: All hearable faders have to be disclosed. If not, open by clicking the button „foot“ the foot-position-option and choose register 16.
Now all overtones are available for editing.

7. All footages with their harmonic numbers with the same formula. (Fader numbers)

The harmonics between brackets have different fader numbers:
Above fader-number 50 then harmonic nr's are different: When fader 1 is the first harmonic the is fader 50 harmonic 50, fader 51 is harm 52, f52 = h54, f53 = h56, f54 = h58, f55 = h60, f56 = 64 f57 = h72, f58 = h80, f59 = h96, f60 = 128, f61 = 144, f62 = h160

Footage	Harmonic 1	Harmonic 2	Harmonic 3	Harmonic 4	Harmonic 5	Harmonic 6	Harmonic 7
16'	1	2	3	4	5	6	7
8'	2	4	6	8	10	12	14
5 1/3'	3	6	9	12	15	18	21
4'	4	8	12	16	20	24	28
3 1/5	5	10	15	20	25	30	35
2 2/3	6	12	18	24	30	36	42
2	8	16	24	32	40	48	56
1 3/5'	10	20	30	40	50	60	70
1 1/3'	12	24	36	48	60	72	84
1'	16	32	48	64	80	96	112
2/3'	24	48	72	96	120	144	168
0,5'	32	64	96	128	160	192	224
1/3'	48	96	144	192	240	--	--
1/4'	56	112	168	224	---	---	---

These formula provide a basis of computation for further overtones!

figure 7.1: footposition/uppertones table of food-positions with the related upper-tones

8. Available register could be changed by using „maestro tonalis"

1. choose a sound of a saved databank, from the libary or a sound of the register. Load it by using the button < loading register 4.11>

Successful exocution could be perceived on the overtone-fader,

2. Laod the register of the storage space 2 in „maestro tonalis" click on storage space 1, choose the register and load it by using the button <load register 4.11> into the organ. A light from the particular register compensator confirms the execution.

3. Choose storage space 2 by using the button <send all changes to organ> resolve register substitution.

Ih the library on the official maestro-tonalis CD-R there are over 700 register available.
They could be selected directly from the CD-R, which could be imported to the organ register by register (development see 8. , 4.8, 4.12, 4.26

9. hotline and registration

Don‘t hesitate if you have any questions!

email: info@eminentorgans.nl

via post: maestro-tonalis Hotline
Titaanstraat 16
P.O.Box 2246
NL-8203 AE Lelystad
Netherlands

We kindly ask for your appreciation that is not possible to answer all your questions, which are not directly connected with maestro tonalis (e.g. how to connect the organ with the PC?).

The usage of the hotline is online possible, if you have sent the registry-card to us, because an answer is only possible if we know which organ you use (modell, year of build, serial number).

Don‘t hesitate to sent us an e-mail if you think you have made a sucessfull register.
We are looking foreward to publish you on the internet.

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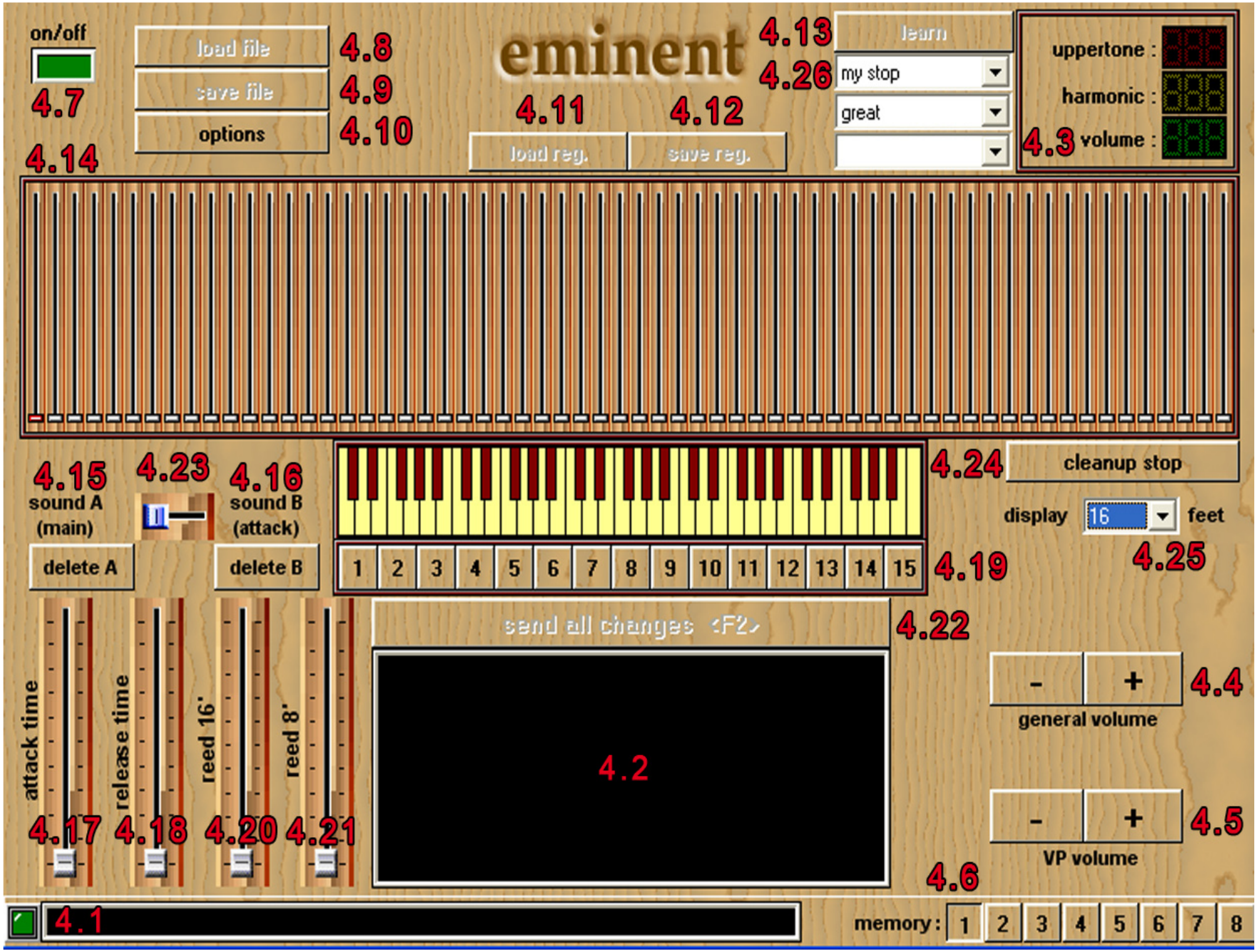
Technical requirement

Intel PII, 266 MHz or Higher, also AMD K6, 400 MHz

32 MB RAM

2 MB graphic card, 256 colours (recommended 4 MB with 65768 colours)
3 MB free space in the hard drive
external MIDI connector (via sound card or USB MIDI Port)

Microsoft Windows TM 98/98 SE/ME/NT4/2000 (in Windows 2000 compatibility mode) / XP / 7


on/off
4.7
load file
4.8
save file
4.9
options
4.10
eminent
4.11
load reg.
4.12
save reg.
4.13
learn
4.26
my stop
great
uppertone :
harmonic :
4.3
volume :
4.14
4.15
sound A
(main)
4.23
4.16
sound B
(attack)
delete A
delete B
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
4.19
4.24
cleanup stop
display
16
feet
4.25
attack time
release time
reed 16'
reed 8'
4.17
4.18
4.20
4.21
send all changes <F2>
4.22
4.2
-
+
general volume
4.4
-
+
VP volume
4.5
4.6
4.1
memory :
1 2 3 4 5 6 7 8