

## **MAADHURIUM DIGITAL HARMONIUM**

### **USER MANUAL**

Please read this manual carefully to familiarize yourself with the operation of this digital Indian musical instrument before switching it on.

### **INTRODUCTION**

Congratulations! You are the proud owner of a Radel quality product – the unique Maadhurium digital Harmonium.

Radel products are renowned for their excellent tonal quality as well as their reliability. The latest state-of-the-art technology is used in the design as well as manufacture of the products. Being the inventor of these products and pioneer in the field of electronic musical instruments for Indian music, Radel continues improving the existing models and introducing new products. Radel is an ISO 9001:2015 quality certified company. Radel is the new landmark in South Bangalore; a landmark signifying innovation, quality and total commitment to the customer.

### **Aerospace quality in Radel products:**

Radel musical instruments are of the quality of high-precision defence equipment. Our sister concern, Radel Advanced Technology, designs and manufactures products for the defence and aerospace sectors. It is one of the very few companies in the country with the coveted quality certification from the Ministry of Defence. It has gained the reputation of being a quality design and manufacturing organisation, and has supplied sophisticated equipment being used by the defence forces of the country. By using a Radel product, you are therefore assured of the highest quality, and, although you may never need it, dedicated after-sales service.

### **GENERAL INFORMATION**

Size: 540 x 320 x 120 mm    Weight: 4 kg without stand, 5 kg with stand

Voltage: It can be directly operated on any voltage from 90V-260V AC or on internal batteries. It automatically switches over to batteries (DC) on failure of mains power (AC). Input Wattage (power consumption):

A line-out socket (6mm) is provided.

### **The Special Features of the Maadhurium are:**

1. Light weight scale changer with both Chromatic and Indian (Just Intonation) scales.
2. Generation of stunning realistic Harmonium sound.
3. Adjustable volume to suit user tastes.
4. 8 Harmonium voices (single, double and triple reed).
5. Digital LCD display for easy settings.
6. 5 Demo tunes with gamaks.
7. Pitch alterable continuously over an octave.
8. Shadj can be set according to user's choice to any key of an octave.
9. Memory for storing 5 personalised user settings apart from auto-save feature.
10. Individual key fine tuning to suit specific raags of Indian music, which can be stored in 10 memories with names.
11. Tone adjustable according to user's choice
12. MIDI IN and OUT facility.
13. Handy height-adjustable, foldable stand for ease of playing
14. Gamak lever for slides of notes as required for Indian music (Advanced model only)
15. Emphasis lever to simulate acoustic harmonium (Advanced model only)

### **CAUTION:**

1. It is advisable to wait for at least 10 seconds after switching OFF and again turning ON the product.
2. Avoid using the product close to other electronic equipment such as mobile / cordless phones, etc. to prevent any interference.

## OPERATION:

Switch ON the product by pressing the power button. Maadhurium works directly on the built-in rechargeable batteries provided. When battery charge is low, insert the AC Mains power cord into the power socket of the instrument. Plug the cord into a standard wall power outlet. Batteries will charge even if the instrument is switched OFF.

Note: Internal SMPS adapter allows instrument to be operated directly on any voltage from 90V-260V AC.



## HARMONIUM SETTINGS

**Important note:** When any of the function buttons such as TONE, SCALE, MEMORY, etc. are pressed, the instrument waits for about 4 secs for subsequent key/knob to be operated. If no such operation is performed, it returns to the normal display and volume mode.

### 1. Volume control:

- 1.1 Turn knob clockwise to increase the volume.
- 1.2 Turn knob anti- clockwise to decrease the volume.
- 1.3 Volume level can be seen on the LCD display. Volume can be selected over a range of 0-32.



Volume: 07

### 2. Voice Selection:

- 2.1 Press VOICE button

- 2.2 Within 4 sec, press any button from 1 to 8 to select the voice. User can select any one out of 8 different voices available.



Voice: 08

### 3. Tone control:

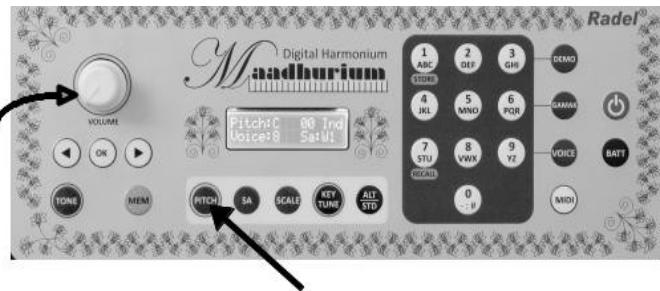
- 3.1 Press the TONE button
- 3.2 Within 4 sec, turn the knob clockwise to increase treble or vice versa.
- 3.3 Use the TONE control to change the sharpness of the voice. Tone level can be seen on the display. User can select tone in the range of 1-10.



Tone: 05

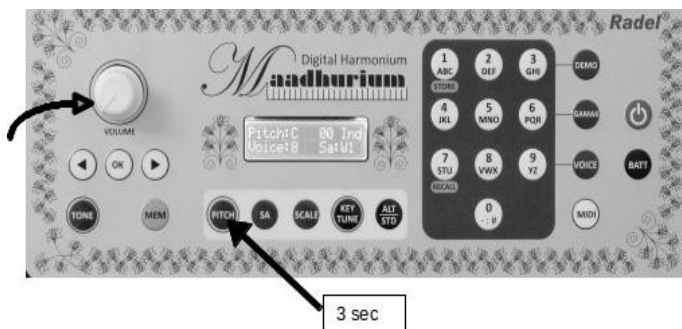
### 4. Pitch Selection:

- 4.1 Press and release PITCH button. Current Pitch will be visible on screen.
- 4.2 Within 4 sec, turn the knob clockwise to increase the pitch or anti clockwise to decrease the pitch.  
Pitch can be selected over one octave from A through G#.



## 5. Fine tuning pitch

- 5.1 Long press (3 seconds) of PITCH key puts the instrument in fine tune mode.
- 5.2 Turn the knob clockwise to raise and fine tune from +1 to +20 micro steps around the coarse pitch selected.
- 5.3 Turn the knob anti clockwise to select fine pitch from -1 to -20 micro steps around the coarse pitch selected.



- 5.4 The LCD screen will show Fine tune step selected.

Pitch:C +04

## 6. Scale Selection:

- 6.1 Maadhurium allows selection between CHROMATIC and INDIAN (Just Intonation) scales.
- 6.2 Press SCALE button to change between Indian (Ind) and Chromatic (Chr) styles.

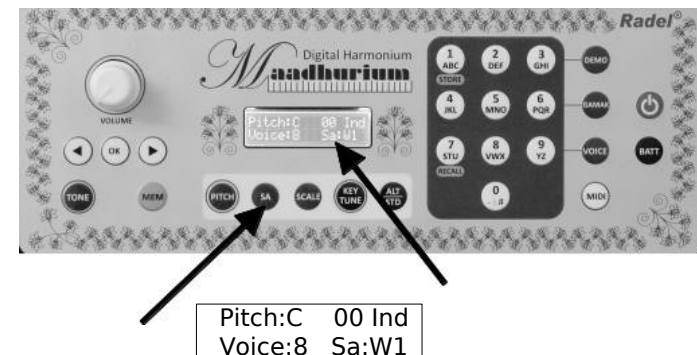


Pitch:C 00 Ind  
Voice:8 Sa:W1

Pitch:C 00 Chr  
Voice:8 Sa:W1

## 7. SA Selection:

- 7.1 Since the Indian Scale (Pancham Gandhar tuning) is of unequal temper, Maadhurium allows designation of any specific key as the Shadj (Tonic). The Indian scale is then available on all the other keys with the chosen key as the Shadj.
- 7.2 Press SA button
- 7.3 Within 4 sec, press any key to be selected as the SA. The current SA key is displayed on the LCD. The currently set pitch is also applied to that key.



Pitch:C 00 Ind  
Voice:8 Sa:W1

## 8. Demo:

- 8.1 Press DEMO button.
- 8.2 Press any key from 1 to 5 to play the respective demo tune.
- 8.3 To stop playing Demo tune, press the DEMO button again.
- 8.4 Demo tunes have been created to demonstrate the ability of the instrument in playing gamaks (Possible only on models provided with a Gamak Lever).



**MIDI OUT:** Connect one end of MIDI cable to MIDI OUT of Maadhurium and other end to MIDI IN of other instrument. Play the Maadhurium. The other instrument would now play the same notes with its own voice as the notes played on the Maadhurium.



**MIDI OFF:** When not required, select MIDI OFF setting.



## ADVANCED FEATURES

### 9. MIDI Selection:

- 9.1 MIDI allows the Maadhurium to play in synchronism with another MIDI enabled instrument or computer.
- 9.2 Press the MIDI button to select any one of the three options MIDI OFF, MIDI OUT, MIDI IN.
- 9.3 Click MIDI button again to change the option.

**MIDI IN:** Connect one end of MIDI cable to MIDI IN connector of Maadhurium and other end to MIDI OUT of another MIDI enabled instrument. Play the other instrument. The Maadhurium will produce the same notes with its own voice as notes played on the other instrument.



### 10. Gamak Range selection:

- 10.1 This number sets the maximum number of notes that the Gamak Lever can produce on either side of its central position.
- 10.2 This feature is available only for models provided with a Gamak Lever.
- 10.3 Press GAMAK button
- 10.4 Within 4 sec, Press any key from 0-9 to select Gamak range value.



Select range 0 - 9  
Current:1



Gamak Range:05

**For Example:** If Pitch is set to 'C' and Gamak range is set to 4, movement of Gamak lever to the left will allow the 'SA' note key to be lowered gradually upto G#. Similarly, moving the lever to the right will allow the 'SA' note to be raised gradually upto E. The same effect is applied simultaneously on all the keys of the instrument.

## 11. Key Tuning :

**11.1** Maadhurium has the unique facility for fine tuning of individual notes of an octave since Indian music uses micro-tuned notes specific to each raag being performed. Key tuning can be performed in two ways.

**11.1.1** Manual key tuning: Notes can be manually fine tuned over a range -10 to +10 micro-steps.

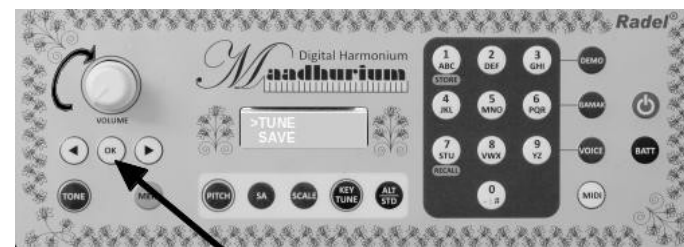
**11.1.2** ALT/STD key tuning: Key can be tuned to Alternate or Standard (fixed positions) as per the 22 Sruthi system of Indian classical music.

### 11.2 Key Tune Selection:

**11.3** Press KEY TUNE button.



**11.3.1** TUNE/ SAVE/ RECALL option is displayed on LCD. Within 4 sec, select TUNE using knob and press OK button.



>TUNE  
SAVE

**11.3.2** Press the note key to be tuned. For manual tuning, turn the knob for raising or lowering its pitch as desired. For 22 Sruthi tuning, press ALT/STD for selection of one of the two settings for that key.

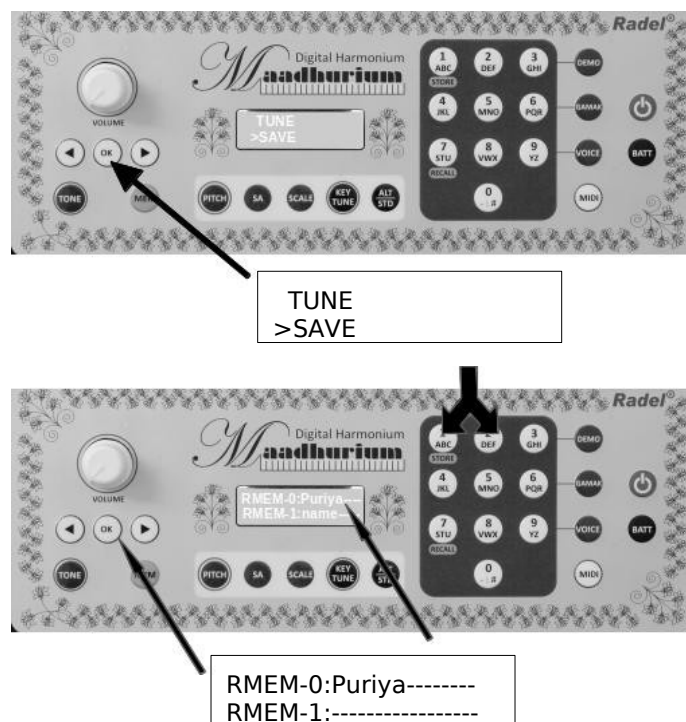


**11.3.3** On completion of tuning as above, press OK to exit the Key Tuning Mode.

Pitch:C 00 Ind  
Voice:8 std

Pitch:C 00 Ind  
Voice:8 alt

- 11.3.4** Save the current setting of keys tuned to Raaga Memory (RMEM) using the SAVE option. Select any memory from RMEM-0 to RMEM-9 using knob. Press OK button. Name it using the alphanumeric keypad. Buttons > and < are used for navigation during naming. Press OK button to save the name in Raaga Memory.



- 11.3.5** Recall any stored raaga from RMEM-0 to RMEM-9 by using RECALL option. When RECALL is selected, the LCD displays the list of stored raagas with their names. Select the raaga by using the knob and press OK button. Note that the key-tuned raaga would be recalled with the presently set pitch and SA key.

- 11.3.6** Note: If the instrument is set to Chromatic scale, pressing KEY TUNE button will automatically change Scale to Indian Scale and key tuning can be performed in Indian scale.



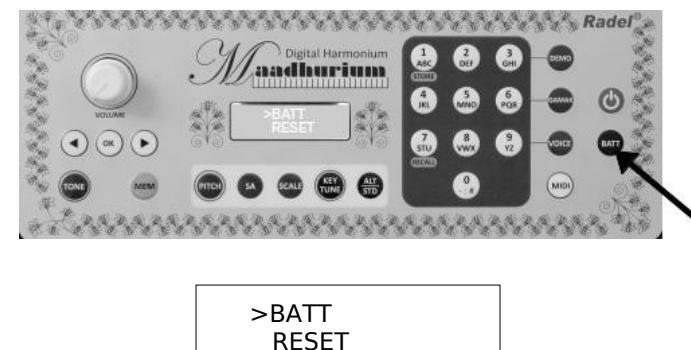
## 12. Battery Charge:

The instrument is provided with 3 internal Li-ion rechargeable batteries which get charged whenever the AC Mains power is connected. BAT button is provided to check the charge status of the batteries.

- 12.1** Press BAT button. Display shows BATT and RESET with BATT selected

- 12.2** Press OK button.

- 12.3** LCD will show “charge: xx%” if AC is not plugged in or “charging: xx%” if AC is plugged in.



## 13. Reset:

If for any reason the user wishes to restore all the settings to the Factory Default values, the RESET button can be used.

- 13.1** Press BAT button.

- 13.2** Within 4 sec, turn the knob to select RESET.

- 13.3** Press OK button. It will reset the Maadhurium to factory settings.

**Caution:** This action will erase all the memory data (User memory & Raaga memory) stored along with names. The User setting will change to factory default : SA : W1, Pitch : C, Volume : 15, Voice : 1, Gamak range : 4, Tone : 01, Fine Pitch : 00, Scale : Ind

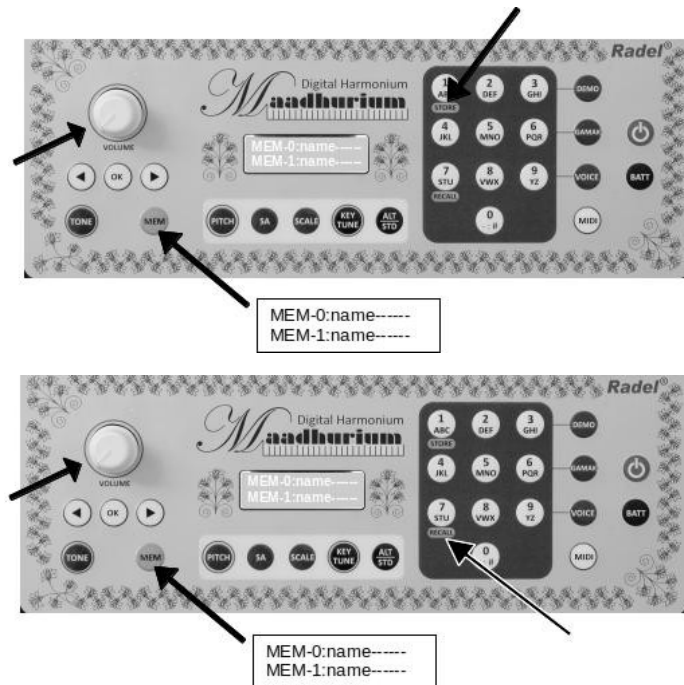
## MEMORY SETTINGS

### 14. User Memory Settings:

User can store five sets of settings (Pitch, Volume, Voice, SA reference, Scale, Tone) into user memory. This allows the User to customise his/her own preferred settings. This memory setting is distinct and different from the Raaga Memory already described.

Steps for saving in Memory:

- Press MEM button.
- Press '1' button to STORE or '7' button to RECALL the selected memory.
- Turn the knob to shuffle between 1 to 5 memories.
- Press STORE (button 1) to enter a name to the memory selected using keys from 0-9. For navigating, use  $\geq \leq$  keys while naming. Press OK button to save the name.
- Press RECALL to recall the memory (M1 to M5) selected in (c) above.



### 15. Auto-Save Memory (ASM):

The current User Settings like Pitch, Volume, Voice, SA reference, Scale, Tone are automatically saved into memory when the instrument is powered off. On switching on the instrument again, these settings will automatically be restored. Thus, the user need not worry about losing the selected pitch and other settings, etc. if power is lost accidentally.

### 16. Key tune memory Settings (Raaga memory):

Refer to para 11

### 17. Features only available in Maadhurium+ model:

(a) Gamak / Meend / Pitch bend: Press GAMAK button.



Select Gamak Range  
Current Range : 1

Display will show as above. Press required number button for desired depth of meend. Suppose '5' is pressed. Display will show as follows:



Gamak Range 05

Use the pitch bend lever situated on the left, to play with meend / gamak as desired.

(b) Bellows effect for emphasis: Unlock the 'bellows panel' on the rear of the Maadhurium, by sliding the lock on the top of the instrument, to the right.



The bellows panel will open. Press it in the normal manner whenever emphasis is needed. BELLOWS PANEL NEED NOT BE PRESSED TO PRODUCE NORMAL SOUND. IT IS TO BE PRESSED ONLY FOR PROVIDING EMPHASIS.

After use, close the panel and lock it in place by sliding the same lock to the left.