

The Magic Flute

Improvise or play a well-known melody

Comes with more than 100 sounds + MIDI + programmable = Endless Possibilities

Easy accessible - for starters or skilled musicians.

The Magic Flute was originally designed as an adaptive musical instrument for people with little or no arm movement --with the goal of allowing people with a wide range of disabilities the ability to perform live electronic music that can be at the highest professional quality. It is also an exciting and rewarding way for people who have limited lung function to carry out Breathing Exercises that will never become tedious to them.



The Magic Flute is not only an instrument but also acts as the remote control for the Control Module (sip & puff).

We want you either in your local school band or playing a professional gig with your new group live on stage! We want you to be able to pursue music the way that you have always dreamed no matter what physical condition you may have encountered in your life's journey! You can play hundreds if not thousands of musical sounds from saxophone, trumpet, pan flute and other breath instruments to guitar, drums, piano for just starters -- and we challenge you to give this instrument a try. We are a new community of users. We want our community to grow and you to be a part of it --we want not only to share our instrument but your experiences and your ideas to make this instrument better and better with your help.

How it works.

The flute swivels on top of a camera mount and can be moved up or down using the mouth piece. An internal gyroscope detects the angular position and converts that into a note or pitch. A keyboard, sound module, sampler, synthesiser, MIDI organ, a software synthesiser or sampler on a computer can be used for sound but also there is an internal sound card fitted in the Control Module. So you only need a set of small computer speakers and you can start playing.

The strength of the breath into the mouth piece controls the volume of the note. However, because we are interfaced with the computer we can also use several adaptive switches and countless other adaptive strategies. We feel we are only a limited by our imaginations. Breath pressure can be used to control volume as well as pitch and other parameters. Multiple notes can be triggered in one breath. If you are concerned that you are not physically able to access the instrument, we encourage you to make inquiry and we will work toward making music happen for you. Please join us.

Getting started

A quick start guide:

You must plug the flute into the control module BEFORE you connect the power supply.

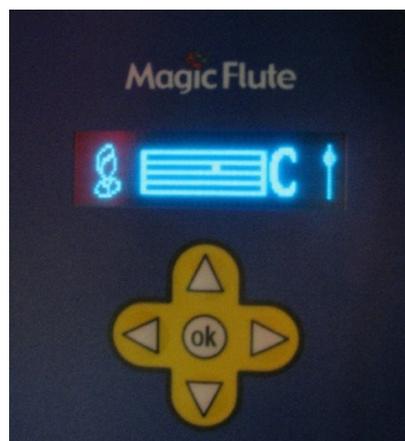
Connect the power supply and keep the flute still during the calibration. The flute has to be in a horizontal position.

Connect the Audio output to external active loudspeakers or use a MIDI* cable to connect the MIDI output of the Control Module to the MIDI input from your musical instrument or computer**.



The Control Module -The Magic Flutes control centre.

 Select this picture on the display with Sip and Puff (or use the display buttons) and start playing. You can see on the display which notes you play.



That's all. Enjoy!!

***MIDI** (short for **Musical Instrument Digital Interface**) is a music industry standard communications protocol that lets MIDI instruments and sequencers (or computers running sequencer software) talk to each other to play and record music.

**Keyboard, sound module, sampler, synthesiser, MIDI organ, a software synthesiser or sampler on a computer.

Getting into details -

 When you power up the Magic Flute you'll see this hourglass. Make sure the flute is in a fixed position. It must be steady during the turn-on sequence so that the internal gyroscope can initialise. If the flute is moved during the turn-on sequence it will not function correctly and the notes will "drift" rapidly. This symbol tells you that you have to keep the Magic Flute still for 45 seconds. If 45 seconds looks long then beware of the fact that the Magic Flute is using new technology and stands really on the edge of what is possible today.

User settings.

One very important aspect of the Magic Flute is that you can adjust the flute to your own personal needs.

You can set the following parameters:

▶ Sensitivity (1-8) - The sensitivity determines the amount of angular movement necessary to choose a different note in the scale. This is the most important setting. Sensitivity 8 is so fine that only a **very little head movement is required to play the magic flute.**

▶ In breath (strong, normal, light, none) - 4 different settings for the sip function. "None" allows you to disable the Sip.

▶ Attack (200 100 or 50 milliseconds) - 3 different settings for breath action.

▶ Note changes (slow, normal, fast) - 3 different setting for note behaviour.

▶ Correct drift (yes, no) - Best set to "Yes"

▶ Transpose (-12 ~ + 12) Transposes the pitch down or up in semitone steps over a range of two octaves. "No Transpose" corresponds to standard pitch. This is a global setting, meaning that it will affect all scales including "Chords" and "Drum kit". You can think of it as a kind of "master tune".

Using an overall transpose won't affect the scale letters in the display. This allows you to learn a song in a simple key and then transpose it to any key you want to.

▶ Semitone (-5 -3 -2 -1 +1 +2) - This enables you to use a switch to transpose a scale to a different key. NB. Chords and Drum kit are excluded from this transpose.

The "Semitone" switch transpose *will* affect the scale letter in the display. When you press the switch you will notice that the displayed scale letter will change to the new note.

N.B To use this switch option you'll have to select "Semitone" in the 'switch behaviour' settings (see below).

To play the flute:



You can start playing the flute after you have selected this picto. You blow into the mouth piece to play a note. The harder you blow the harder the sound will be. This is because the magic flute sends breath control* data.



To select a different note rotate the flute up or down and blow into the mouth piece again. In the display you'll see a bar and a letter which visualise the note you are playing.



A dot will give you info on how close you are to the centre of each note.



To keep the flute well centred you have to breathe in now and then. It's best to have the flute horizontal, and take a light sip till you see 2 arrows on the display. The best way is to take a light sip frequently while keeping the flute horizontal. That way it will quickly become part of your playing skill.

There is also a second way to achieve this. Therapists can use the "up" button.



There are 19 default scales and 4 memories for recording your own scales - from simple (5 notes) to more complex and even a nice chord scale. For every individual scale you can also program its MIDI channel number (1-16)** and its (external) switch behaviour. These settings are memorised so the next time you turn the flute on all your settings are kept.



You can plug in any external switch with a 1/8 mini jack. For every scale you can set the switch behaviour.

The options are:

- Sharps/Flats
- Transpose Up
- Transpose Down
- Semitone
- Extra note +5

- Extra note +7
- Change to Memory 1 scale
- Change to Memory 2 scale
- Play Memory 3 notes
- Play Memory 4 notes

Example

Let's say you play the note *G* within a *C* Major scale (*C D E F G A B C*)

If you select "Sharps/Flats", then pressing a switch will turn it in a *G* flat (*G#*).

If instead you select "Extra note +5", then pressing a switch will add an extra note.

If you select "Memory 4" then you play the recorded notes (in a sequence) from Memory 4 by tapping on the switch. This way you could play a small bass line or a simple melody, note for note by using a single switch. Or trigger some drum sounds and play on top of it with the flute. And of course it is a nice extra in a therapy environment to have an option like this available.

The option "Change to Memory 1 or 2" is a powerful one, letting you toggle between two completely different scales. For example you could first play a melody in *C* major, then do a solo in a pentatonic blues scale.

This switch has a toggle action, ie pressing the switch once shifts every note, then pressing it a second time sets everything back to normal.

NB. Each scale has its own setting for the switch action. Thus you first choose the scale and then select the switch action you want for that scale (you can also select a MIDI channel and instrument).

So in a blues scale, for example, the switch could be used to make a Semitone, but in another scale it could be used to play the 5ths. This gives you great flexibility when performing.



This part is for more advanced users. Most of the time MIDI channel 1 will be selected but not necessarily

The keyboard MIDI channel 10 is often used for drums. You can give every scale its own MIDI channel from 1 - 16 , meaning that you could give every scale a different sound!



You can program your own scales! It sounds difficult but it is not. You need a music keyboard that has **MIDI out**. You connect that to the **MIDI in** of the Control Module. Then you select one of the 4 memories and play up to 15 notes on your musical keyboard.  After you're finished you return to Scale Select. Now go to the memory scale that you just programmed.

Cleaning the mouthpiece

If the Magic Flute is being used by more than one person then you have to clean the mouthpiece after every session.

First use an alcohol-based hand sanitiser that contains at least 60% alcohol to clean your own hands.



Press on the blue ring of the mouthpiece holder and take out the white mouthpiece.

Clean the white mouthpiece with boiling water.

I use an electric kettle to boil water.

Do not clean the mouthpiece holder with water!



It is best to clean the mouthpiece holder with a cotton bud and a little bit of alcohol solution (70%) which you can pick up at your local chemist.

* The Magic Flute always transmits Breath Controller (cc#2) messages in response to how hard you blow. It samples your breath pressure at some set sampling rate. It digitizes that breath pressure to a value between 1 and 127.

** In most cases you will use MIDI channel 1 !

Display - The Magic Flute

 The Magic Flute Menu.



▶ Go



- ▶ Select one of the 30 Default scales or
- ▶ Select one of the 4 Memory scales



▶ Select one of the instruments from the internal soundcard



▶ Select MIDI channel (1-16)



- ▶ Play Memory 4
- ▶ Play Memory 3
- ▶ Change to Memory 2
- ▶ Change to Memory 1
- ▶ Extra note +7
- ▶ Extra note +5
- ▶ Semitone
- ▶ Transpose Down
- ▶ Transpose Up
- ▶ Sharps / Flats
- ▶ None



- ▶ Chancel
- ▶ Reset memory
- ▶ Reset giro



- ▶ Chancel
- ▶ Semitone
- ▶ Transpose
- ▶ Correct Drift
 - ▶ Yes
 - ▶ No
- ▶ Attack
 - ▶ 200 MS (milliseconds)
 - ▶ 100 MS
 - ▶ 50 MS
- ▶ Note changes
 - ▶ slow
 - ▶ normal
 - ▶ fast
- ▶ In breath
 - ▶ None
 - ▶ strong
 - ▶ normal
 - ▶ light
- ▶ Sensitivity (1-8)



- ▶ Memory 4
- ▶ Memory 3
- ▶ Memory 2
- ▶ Memory 1



Software version info



- ▶ Shut down

A selection of useful TIPS from users www.mybreathmymusic.com

Setups - The Magic Flute

Which equipment to use with the Magic Flute

A keyboard, sound module, sampler, synthesiser, MIDI organ, a software synthesiser or sampler on a computer - it can all be used as a sound source for the Magic Flute. As long as it has got a MIDI input, you're in business.

This is a selection of gear that we use with the Magic Flute.

The simplest solution: use the Internal sound card that is fitted in the Control Module.



For

With this set up you only need a set of small computer speakers and you can start playing.

But you can also plug the Magic Flute "AUDIO out" direct into a mixer. No other equipment is needed!

"TIP" small computer monitors: Behringer MS16

"TIP" use a heavy music stand for your Control Module

KEYBOARD



A regular keyboard with build-in speakers. In this scenario you don't need any other equipment.

"TIP" With my pupils I work a lot with a Yamaha DJX 2 Dance/Techno keyboard. This old model has a hundred solo sounds and a lot of drum & sound loops. It is easy to use and you can buy this keyboard for very little on eBay.

SOUND MODULE



A sound module (sometimes referred to as **tone generator**) is an electronic musical instrument without a human-playable interface such as a keyboard. Sound modules have to be "played" using an externally connected device. You also need speakers with an amplifier. ("**TIP**" small computer monitors: Behringer MS16).

"**TIP**" the Yamaha VL70-m is perhaps the most expressive synth ever made when coupled to a wind controller like the Magic Flute. It provides computer-based "physical modeling" technology which accurately simulates the complex vibrations, resonances, reflections and other acoustic phenomena that occur in real wind or string instruments- to produce high quality monophonic (stereo but with 1 note polyphony) voices. Of course, it responds very well to the breath control* that the Magic Flute provides.

Unfortunately the VL70-m can only be bought outside Europe or on eBay.

Synthesiser



"**TIP**" I was looking for a good sound source for the Magic Flute and found it in the Korg Micro X, a compact music synthesiser packed with a full complement of wonderful sounds.

Computer with sound card & MIDI interface



The great thing about a computer is that you will have access to unlimited possibilities.

There is so much software available. I'm not going to explain a lot but I will present you the programs that I tried and use. I work on a Windows computer that has a sound card with a Low Latency Driver.

"**TIP**" I use a laptop with a USB audio/MIDI interface (EMU 0404)

"TIP" Reason is a very nice standalone software music workstation. It is consumer friendly and the sounds are very diverse and of an excellent quality.

There are a few standalone (+VST) soft synths that respond to breath control. There are demo versions.

In music programs like Cubase, Sonic, Acid etc you can set up **VST instruments** that can be played with the Magic Flute.

"TIP" Wallander Brass 1: the trial edition is a free download

<http://www.wallanderinstruments.com>



This is a must have plug in, it works really well with the Magic Flute.

It responds realistically to velocity and breath controller data.

The trial version has 3 instruments to try:

Trumpet - Tenor Trombone - French Horn

Magic Flute Workshops, Play along music and free sheet music:

Vist our webpages on www.mybreathmymusic.com

***The Magic Flute always transmits Breath Controller (cc#2) messages in response to how hard you blow. It samples your breath pressure at some set sampling rate. It digitizes that breath pressure to a value between 1 and 127. If you want to get the most out of the Magic Flute, you'll need your sound source tuned to understand these breath control messages. Some soft synths/MIDI sound modules can be programmed to work, others cannot, others can to a certain degree. If your sound source doesn't support breath control then it still will respond on the velocity, so you can play soft and loud notes. But you can't vary the sound level on a single played note.

The Magic Flute. Scales

The default pre-recorded scales.

C₄ (060) = Middle C

Scale 1 Simple	G ₄ A ₄ B ₄ C ₅ D ₅ E ₅
Scale 2 C Major	G ₃ A ₃ B ₃ C ₄ D ₄ E ₄ F ₄ , G ₄ A ₄ B ₄ C ₅ D ₅ E ₅ F ₅ G ₅
Scale 3 D Minor	A ₃ B _{b3} C ₄ D ₄ E ₄ F ₄ , G ₄ A ₄ B _{b4} C ₅ D ₅ E ₅ F ₅ G ₅ A ₅
Scale 4 Blues 1	G ₃ A ₃ C ₄ D ₄ E ₄ G ₄ A ₄ C ₅ D ₅ E ₅ G ₅ A ₅
Scale 5 Blues 2	G ₃ A ₃ C ₄ D ₄ E _{b4} E ₄ G ₄ A ₄ C ₅ D ₅ E _{b5} E ₅ G ₅ A ₅
Scale 6 Recorder	C ₅ D ₅ E ₅ F ₅ , G ₅ A ₅ B ₅ C ₆ D ₆ E ₆ F ₆ , G ₆ A ₆ B ₆ C ₇
Scale 7 G Major	C ₄ D ₄ E ₄ F _{#4} G ₄ A ₄ B ₄ C ₅ D ₅ E ₅ F _{#5} G ₅ A ₅ B ₅ C ₆
Scale 8 Hava nagila	G ₄ A ₄ B _{b4} C ₅ D ₅ E _{b5} G _{b5} , G ₅ A ₅ B _{b5} C ₆ D ₆
Scale 9 Spanish	E ₄ F ₄ G ₄ A ₄ B ₄ C ₅ D ₅ E ₅ F ₅ G ₅ A ₅ B ₅ C ₆ D ₆ E ₆
Scale 10 Bass E Minor	E ₂ F _{#2} G ₂ A ₂ B ₂ C ₃ D ₃ E ₃ F _{#3} G ₃ A ₃ B ₃ C ₄ D ₄ E ₄
Scale 11 Bass E Major	E ₂ F _{#2} G _{#2} A ₂ B ₂ C _{#3} D _{#3} E ₃ F _{#3} G _{#3} A ₃ B ₃ C _{#4} D _{#4} E ₄
Scale 12 Whole step	C ₄ D ₄ E ₄ F _{#4} G _{#4} A _{#4} C ₅ D ₅ E ₅ F _{#5} G _{#5} A _{#5} C ₆
Scale 13 ½ whole step	C ₄ C _{#4} D _{#4} E ₄ F _{#4} G ₄ A ₄ A _{#4} C ₅ C _{#5} D ₅ D _{#5} E ₅ F _{#5} G ₅
Scale 14 Baritone Sax	E _{b2} F ₂ G ₂ A _{b2} B _{b2} C ₃ D ₃ E _{b3} F ₃ G ₃ A _{b3} B _{b3} C ₄ E _{b4}
Scale 15 Tenor Sax	B _{b2} C ₃ D ₃ E _{b3} F ₃ G ₃ A ₃ B _{b3} C ₄ D ₄ E _{b4} F ₄ G ₄ A ₄ B _{b4}
Scale 16 Alto Sax	E _{b3} F ₃ G ₃ A _{b3} B _{b3} C ₄ D ₄ E _{b4} F ₄ G ₄ A _{b4} B _{b4} C ₅ D ₅ E _{b5}
Scale 17 Soprano Sax	B _{b3} C ₄ D ₄ E _{b4} F ₄ G ₄ A ₄ B _{b4} C ₅ D ₅ E _{b5} F ₅ G ₅ A ₅ B _{b5}
Scale 18 Pent Minor 6	C ₃ D ₃ E ₃ F _{#3} A ₃ C ₄ D ₄ E ₄ F _{#4} A ₄ C ₅ D ₅ E ₅ F _{#5} A ₅
Scale 19 Pentatonic G	G ₃ A ₃ B ₃ D ₄ E ₄ G ₄ A ₄ B ₅ D ₅ E ₅ G ₅ A ₅ B ₅ D ₆ E ₆
Scale 20 Gypsy	D ₄ E ₄ F ₄ G _{#4} A ₄ A _{#4} C _{#5} D ₅ E ₅ F ₅ G _{#5} A ₅ A _{#5} B ₅ C _{#5}
Scale 21 Dm Melodic	A ₃ B ₃ C _{#4} D ₄ E ₄ F ₄ G ₄ A ₄ B ₅ C _{#5} D ₅ E ₅ F ₅ G ₅ A ₅
Scale 22 Raga Bhairav	C ₃ D _{b3} E ₃ F ₃ G ₃ A _{b3} B ₃ C ₄ D _{b4} E ₄ F ₄ G ₄ A _{b4} B ₄ C ₅
Scale 23 Raga Todi	C ₃ D _{b3} E _{b3} G _{b3} G ₃ A _{b3} B ₃ C ₄ D _{b4} E _{b4} G _{b4} G ₄ A _{b4} B ₄ C ₅
Scale 24 Japanese	C ₃ D _{b3} F ₃ G ₃ A _{b3} C ₄ D _{b4} F ₄ G ₄ A _{b4} C ₅ D _{b5} F ₅ G ₅ A _{b5}
Scale 25 Egypt	C ₃ D ₃ F ₃ G ₃ B _{b3} C ₄ D ₄ F ₄ G ₄ B _{b4} C ₅ D ₅ F ₅ G ₅ B _{b5}
Scale 26 Major Blues	C ₃ E _{b3} E ₃ G ₃ A ₃ B _{b3} C ₄ E _{b4} E ₄ G ₄ A ₄ B _{b4} C ₅
Scale 27 Fourth	C ₂ F ₂ B _{b2} C ₃ F ₃ B _{b3} C ₄ F ₄ B _{b4} C ₅ F ₅ B _{b5} C ₆ F ₆ B _{b6}
Scale 28 Augmented	C ₄ D _{#4} E ₄ G ₄ G _{#4} B ₄ C ₅ D _{#5} E ₅ G ₅ G _{#5} B ₅ C ₆
Scale 29 Drum Kit	C ₂ C _{#2} D ₂ D _{#2} F ₂ A _{#2} B ₂ D _{#3} F _{#3}
Scale 30 Chords	C Dm Em F G Am Bdim
Scale 31 Memory 1	

Scale 32 Memory 2

Scale 33 Memory 3

Scale 34 Memory 4

You can program your own scales!

Exsamples of other scales that you could program:

Black keys only $G_{b3} A_{b3} B_{b3} D_{b4} E_{b4} G_{b4} A_{b4} B_{b4} D_{b5} E_{b5} G_b A_{b5} B_{b5} D_{b6} E_{b6}$

Gypsy Em $E_3 G_4 A_4 A\#_4 B_4 C_5 D\#_5 E_5 F\#_5 G_5 A_5 A\#_5 B_5 C_6 D\#_6 E_6$

Additional accessories.

Mouth piece with Bacterial Filter

Tube extension mouth piece.

The Magic Flute stop.

The Magic Flute handles (designed for people with cerebral palsy).

Magic Flute High stand.

Improvisation Play along CD.

