

TUNING TABLE

AKKOLE
modular **tune**

Instruction Manual

AKKO
Thielmann **fixx**
Akkordeon - Service

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BlowBox
front



Rear
side



Control Panel 1
ATmLE



Control Panel 2
ATmLE

Content

Page

6	The spirit and purpose of the system
7	The BlowBox
8	The BlowBox Control Panel
9	Reverse, LEDs, ON/OFF, DC Input, Fuse
10	Connector for remote control panels
11	BlowBox and examples how to control it
12	ATmLE: Control Panels 1 &2, Foot Switch 1
13	ATmLE Foot Switch 2, Foot Controller
13	Tuning Table
14	Optional Accessories
17	Scope of Work
18	Sounds from the BlowBox
19	Notes

AKKOfune modular LE Version 1.0

Tuning Table for Squeeze Boxes



Operation Manual

The spirit and purpose of the system

Many accordion or squeezebox workshops replace reed plates or want to change the sound character of an instrument. You always need a tuning table for this purpose and of course to check the tuning of the instrument and eventually correct some reeds.

With options the AKKOfune modular LE (ATm_LE) tuning table offers possibilities for testing and tuning complete treble or bass „halves“ of an accordion; also complete reed blocks taken out of the instrument and single reed plates.

Using a tuning device (as e.g. the Accordion-Tuner from Dirk's Projects) you may easily tune the instrument. This description of works is limited to the accordion – other squeeze boxes may be handled accordingly.

Advantages: simple usage and reproducibility of measurements.

The ATm_LE system enables you to build your own tuning work space or to upgrade your existing tuning table with state-of-the-art equipment. You can replace bellows with the BlowBox and control it electronically with easy play wind pressure adjustment as well as start and reverse the wind by pushing a button. Together with the optional AKKOfune Desk or Desk+ you have a complete system with swappable different blow holes and built-in microphones and USB output (Desk+).

The needed air stream is generated by a special radial blower and may be switched instantly from PUSH to PULL and vice versa and STOP.

The blower speed is electronically controlled and can be adjusted by a rotary knob that also switches the system ON.

The pressure ranges from approx. 0.5 mbar to nearly 10 mbar.

10 mbar = 1000 Pascal are equivalent to the max normal playing pressure for an accordion.

Because of the air pressure's influence on the tone pitch it is very important to keep the pressure at a constant level.

When the system is switched ON, the blower runs for a short moment and then waits for the commands of the pushbuttons  or .

BlowBox

The BlowBox contains the main electronic control system and a local control panel on the rear (see next page). The front shows only an air flange of 50mm / 2" diameter. On the rear is another air flange of same size. Both flanges can be used for air push or air suction.

The system can be delivered with optional air hoses of 80 / 100 / 120 / 150 cm lengths (equals approx. 2.6 / 3.3 / 4 / 5 ft). The air hoses have a sleeve on both ends that fits tight on the air flanges without extra measures for clamping. The air hose (pond tubing) has an inner diameter of 50mm.

The air hose connects the BlowBox with the wortop. For this purpose a flange is screwed under the worktop where there is an air hole in the plate. The wind will blow out of this hole or sucked in.

The BlowBox Control Panel on the rear side



Reverse Switch

LED 5V control voltage

LED 8.4 V servo voltage

ON/OFF switch (parallel to ON-Switch on *Control Panel ATmLE 1 + 2*)

Connector for remote control panels:

X11/X12 *Control Panel ATmLE 1/ 2*

X14/X15 *Foot Switch ATmLE 1 / 2*

X16 *Foot Controller ATmLE*

DC Input

from 12V DC power supply unit

Fuse holder for main power supply

Reverse Switch

Sometimes it is convenient to have the air input and output reversed. For example: if you test a “halved” instrument on the worktop PUSH  means the same as if you play the instrument and push the bellow.

If you test solely a reed block on the worktop the air stream is going reversed through the reeds. For this case you may put the switch in the Reverse-position and you can use the PUSH button  as if you play the instrument.

LEDs

The voltage supplies for the control electronics are generated in the internal control electronic board. The LEDs indicate their presence.

ON/OFF Switch

The 12 V DC input is connected directly to the internal control card. This switch actuates a relay that switches the power supply through. The remote ATmLE Control Panels 1 and 2 have a rotary knob which can also switched ON in parallel.

DC Input

Co-axial socket with 2.5mm pin. Matches the PSU included in delivery.

Fuse holder

Max. 10 amps fuse 5x20mm (6,3 A is acceptable)

Connector for remote control panels

The remote control panels *X11/X12 ATmLE Control Panel 1 / 2* have a rotary knob for adjustment of the blower speed. At the left stop the system will be switch OFF. They have pushbuttons for wind control:

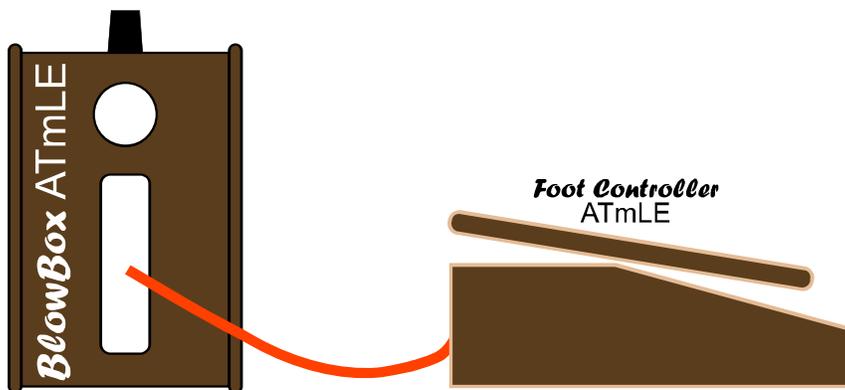
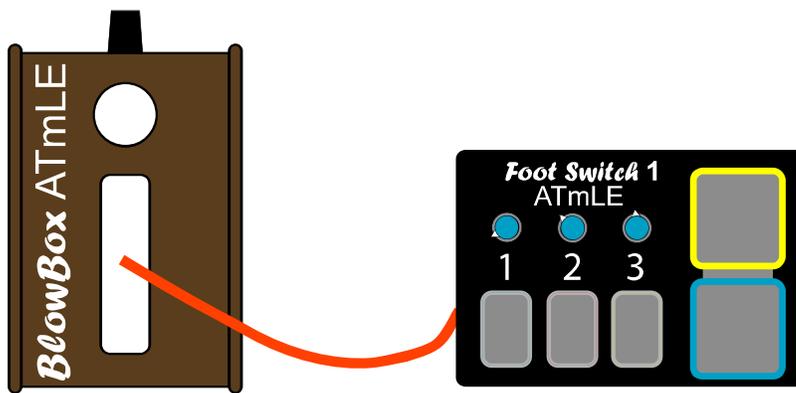
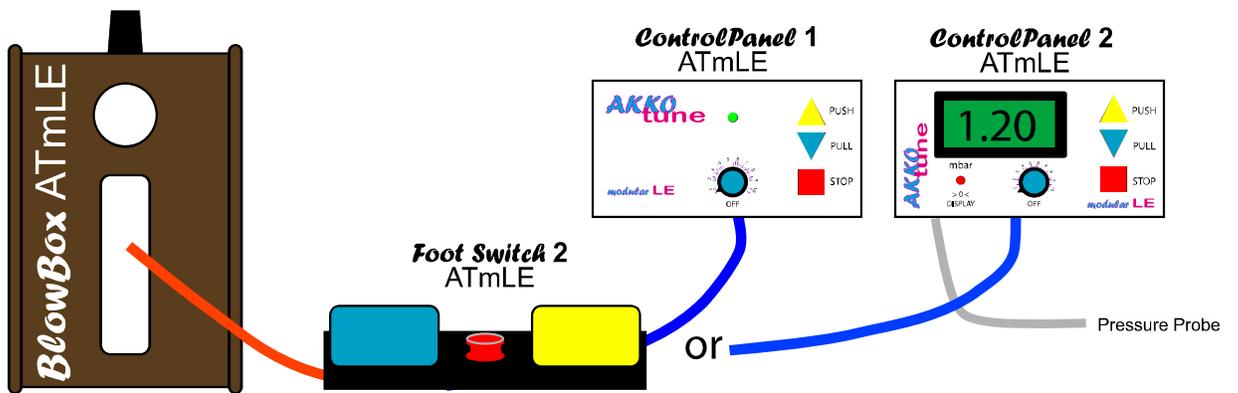
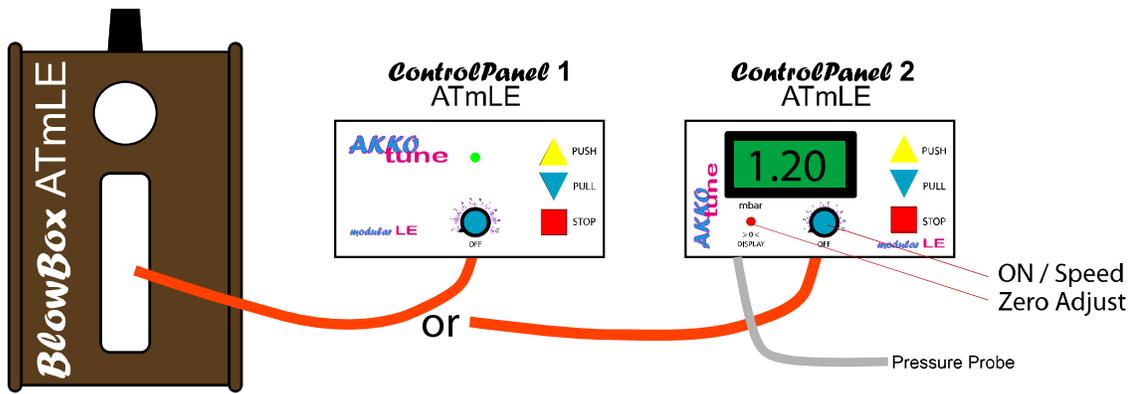
 for PUSH,  for PULL and  for STOP.

The *ATmLE Foot Switches 1 and 2 (X14 / X15)* can give these commands with two pedals. *Foot Switch 1* has controls for blower speed as well. *Foot Switch 2* allows to connect *Control Panel ATmL 2* for adjusting the blower speed.

The *Foot Controller ATmLE (X16)* is a special device to control wind direction and speed with one single rocker pedal. The rocker pedal has a middle position without wind. Tilting it forward will start a pushing wind with proportionally increasing strength; tilting it reverse will start the wind pulling with proportionally increasing strength.

See the next page for illustrated connections.

BlowBox and examples how to control it



Control Panel 1 ATmLE

The simple control provides:

- System Power ON
- Setting the wind strength
- Starting the Wind UP or DOWN and STOP
- Power supply for optional external pressure gauge AKKOmbar

Control Panel 2 ATmLE

The advanced control provides:

- System Power ON
- Setting the wind strength
- Starting the Wind UP or DOWN and STOP
- Integrated pressure gauge and illuminated display with zero adjust knob below display
- Connection nipple for pressure probe flexible tube

The pressure probe needs to be placed near to the air outlet in the worktop. The optional under-table flange places the probe in the middle of the air flow. When replacing the bellow with a hard box the pressure probe can be placed in the wall of the box.

Foot Switch 1 ATmLE

The advanced foot switch provides:

- 3 pedals to select wind strength
- 3 rotary knobs to pre-select wind strength
- 1 rocker pedal to start PUSH/PULL and STOP

Tilting the rocker pedal forward starts the wind upwards, tilting it reverse starts the wind downwards. In the middle position the wind stops. With the reverse switch the other way round.

Foot Switch 2 ATmLE

- The simple foot switch provides:
- Two pedals to start PUSH wind or PULL wind or switch between them.

As an addon to *the Control Panel 1 or 2* you may connect first the foot switch to the BlowBox and then the control panel to the foot switch (two connectors, two cables).

Foot Controller ATmLE

The foot controller has been developed for a handicapped player of a diatonic accordion. As this person cannot use his left arm for bellows movement he needed a foot switch that could control push and pull with one foot as the left foot also was damaged after an accident. To make it complete also the wind strength control was combined with the forth and back tilting of the rocker pedal.

The Foot Controller can be connected to the BlowBox in parallel to one of the Control Panels ATmLE.

Tuning Table

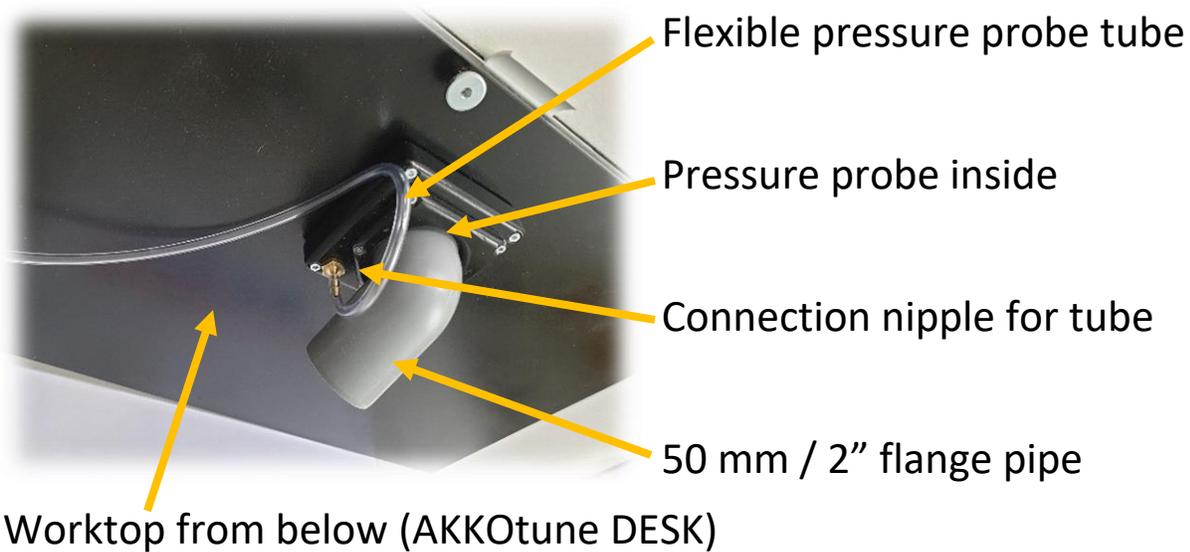
Using one of these configurations together with a worktop providing an air flow through a hole (blow hole) you will have a tuning table that enables you to blow reed plates, reed block and complete instruments with a continuous air stream and steady pressure. The optional DESK and DESK + worktops offer a first-class solution for this task with exchangeable blow holes and a number of accessories.

ACCESSORIES optional

Under-table air hose flange

The wind connection to the worktop and blow hole

- 50mm flange for air hose can be turned to required direction
- Pressure probe in middle of air stream
- 4mm flexible silicone pipe for connection of the pressure probe to the control unit
- Flange plate for mounting below existing work bench or under the optional AKKOtune Desk plate.



50 mm air hose

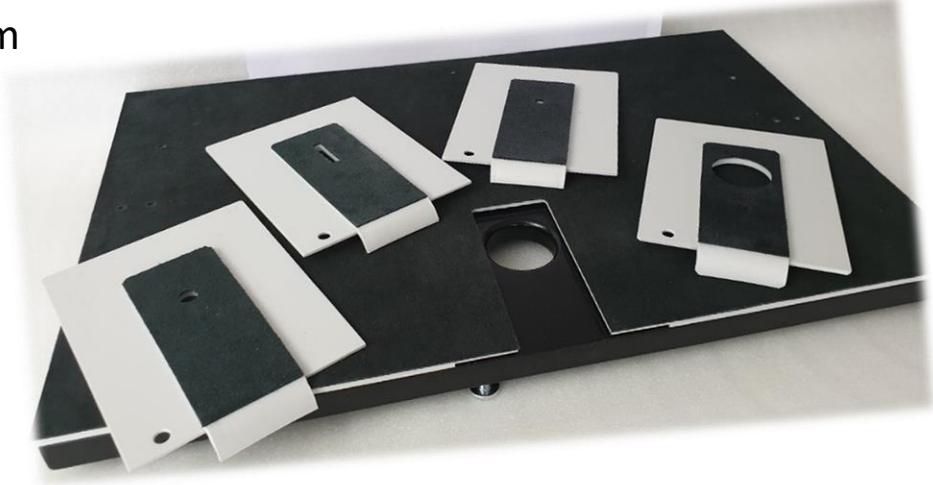
The flange pipes have 50 mm outer diameter. You can use any hose that is applicable for pressure and suction and has an inner diameter of 50 mm/2" (pond tubing). If it fits tight, you will not need a hose clip.

Optional AKKOtune air hoses have tight fitting sleeves on both ends not needing clamping.



AKKOfune Desk

Workplate with swappable blow hole inserts and leather cover, 60 x 38 x 3,2 cm



- 9 threaded sleeves M6 for fixation (2x fixation screws included)
- 4 blow hole inserts: 1x 8mm, 1x 14mm, 1x 45mm, 1x slot 8x35mm
- Locking pin for blowhole inserts
- Plain reed block guide, adjustable for sliding a reed block along over the blow hole or slot



- 2x fixation screws M6 with start grip (for reed block guide and side hold downs)
- 2x hold-down device and bracket for clamping instrument (halves)



- Foam mat for alignment of bellow's rim

***AKK*Otune Desk+**

Workplate with integrated microphones, including

- Microphone in blow hole
- Additional gooseneck microphone, to be mounted at the rear edge of the desk plate
- Microphones selectable on switch panel and USB output.
- All standard accessories as included with AKKOtune Desk.

Furthermore there are some accessories that will not be looked at in this user guide:

- Blowhole insert acc. to customer's specification.
- Blowhole insert with holder for **single reed plates** from 15-25 mm width and up to 95 mm length.
- Blowhole inserts with holders for reed plates from bandoneon, bayan and mouth harp

Scope of Work

- For testing a „complete instrument“ the air stream has to go through a large vent into the instrument’s belly.
- For testing a reed block you will need a small hole of 8-14 mm only (or a square shaped hole).
- For testing two rows of parallel aligned tone chambers or complete reed blocks you will need a slotted hole with 8 mm width and about 35 mm length: this would make the measurement of beat frequencies feasible. You can blow the base reed and the corresponding beat reed, which are mounted on two different reed blocks together.
- For testing a single reed plate one would use a special holder providing also a tone chamber to make the reed swinging correctly.

The AKKOtune Desk and Desk+ makes it possible to use different inserts providing various blow holes and e.g. a single reed plate holder.

For better illustration please also visit **YouTube.com** and view the video: **AKKOtune – operating the tuning table.**

Sounds from the BlowBox

The BlowBox uses one digital servo to move the air valves inside the box. When switching from one end position to the other servo makes some little noise.

The blower is a very powerful PWM controlled device that makes some noise from generating the air pressure and flow. For this reason the actual blower chamber is encapsulated in an extra housing with noise damping foam. With full power you may hear the sound coming from the blower.

It is much lower in volume than the generated tone from reeds.



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