



Juzisound Total SOLO Sampler 2

Breath Controller Settings

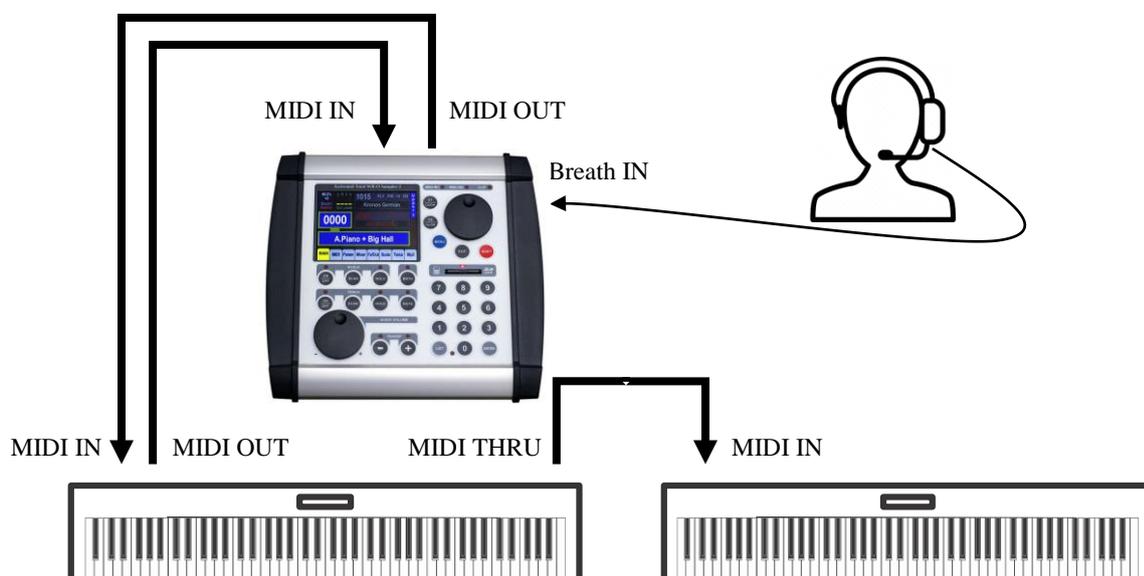
Version: 1.1

Breath controller input



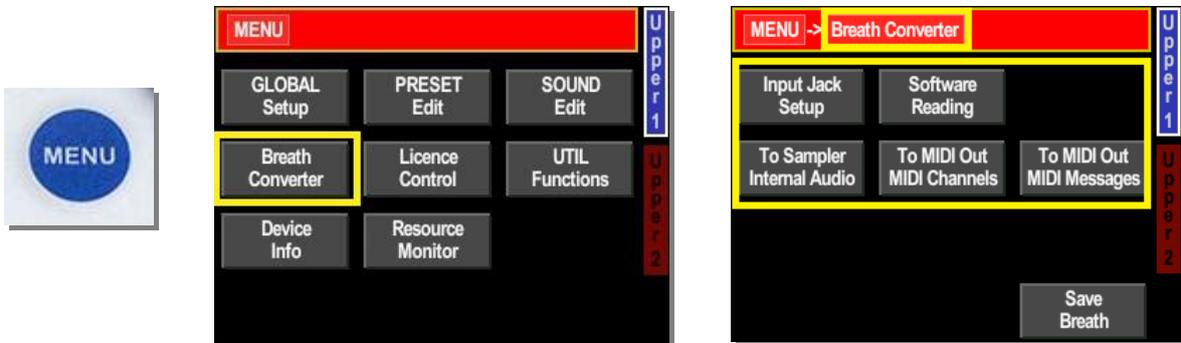
[BC] connector is on the rear end of the panel of the sampler and is used for connecting an analog controller. Analog controller means the following: controller, pedal, potentiometer or any other type of device which produces an analog signal. This connector provides power of +5 volt direct current (DC) and the input signal must also be between 0 to +5 volts. In this input most often are plugged breath controllers from Juzisound or Yamaha model BC-3.

As a result of the input analog value, the sampler can generate simultaneously up to 3 different types of MIDI messages. They can be targeted both internally (to the engine of the sampler) and externally (via MIDI output of the sampler). When messages are sent out, they can be simultaneously sent in 3 different MIDI channels to be used to control other external MIDI devices. An example for this is a breath controller which controls simultaneously the sampler, and the keyboard that controls the sampler. MIDI output of the sampler along with the analog input can be considered as separate and independent of the sampler device for converting analog to MIDI signal. To use the built-in analog converter to drive an external device, you should use another MIDI cable that is connected from MIDI OUT of the sampler to MIDI IN of the synthesizer, you want to control. If you want to control more than one external MIDI synthesizers, you need to connect MIDI THRU on the first controlled MIDI synthesizer with MIDI IN on the second. If the external synthesizers are more than two, then you need to connect MIDI THRU on the second to MIDI IN on the third and so on, till the end of the chain.



Breath Converter

There's a whole section on the main menu for managing and performance tuning of the breath controller. This section is called **Breath Converter**. To get to this menu first enter the Main menu and then click on **Breath Converter** button.



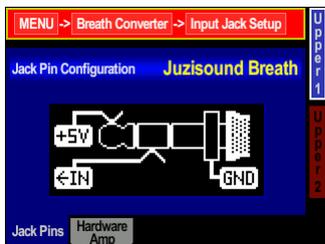
On the **Breath Converter's** menu there are also several submenus, each oriented to a particular aspect of the analog input settings.

Let's look at each submenu individually:

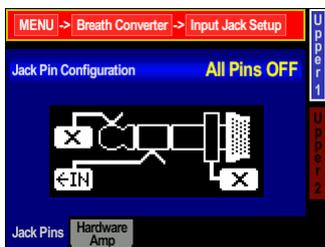
Input Jack Setup

The section of the menu **Breath IN Setup** is used to configure the analog input jack pins polarity and hardware amplifier's settings.

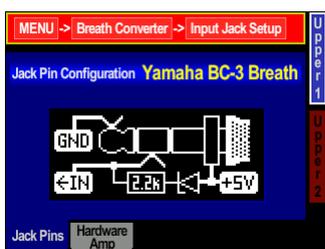
The first tab **Jack Pins** is for configuring (**polarity**) the power of the analog controller. Jack pins have three possible configurations:



This is the STANDARD configuration. In this configuration the TIP of the inserted jack is supplied with a positive voltage + 5V, while the SLEEVE of the jack is the ground of the supply voltage. The RING of the jack is the input signal to the sampler. This configuration is used when working with breath controller Juzisound or with an external pedal or potentiometer.



OFF! In this configuration, the supply voltage on the jack connector is turned off. This is the default configuration and the lack of power both protects the connected external device and the sampler itself.



This is the so-called INVERTED configuration. In this configuration, the TIP of the inserted jack is ground, while the SLEEVE of the jack fed by +5V. The RING of the jack again is input signal to the sampler, but in addition to it, a Pull Up resistor value 2.2k is connected to the positive pole of the supply voltage. This configuration is used when operating with a breath controller Yamaha BC-3 or with an external Expression pedal.

Troubleshooting/ Breath IN Jack power supply problems

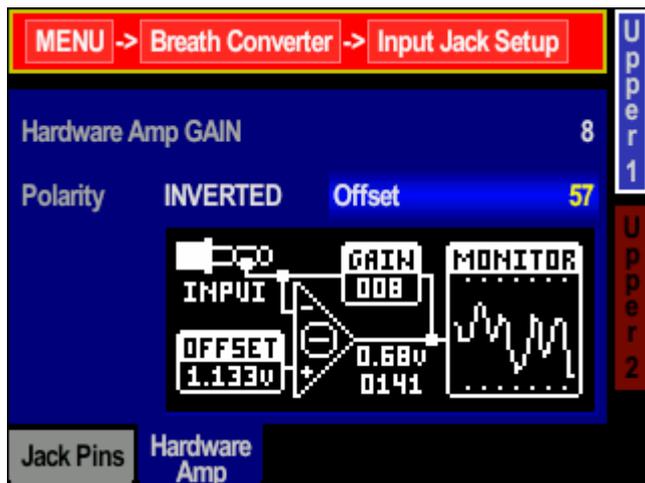
If there is a problem with the power supply of the analog controller, cable short-circuit or something else fails, the sampler will automatically shut off power to the analog controller and will alert you with an appropriate message. After removing the problem you can restore the power again - from the same menu. You have 2 options if the message shown here appears: to leave breath jack power OFF and return to previous screen or quickly go to Breath Jack Pins settings menu to change pins configuration.



Precautions when there is a problem with the power of Breath IN

	<p>WARNING! If you see this error message, immediately turn off whatever is plugged in the Breath IN connector and try to identify the reason for the fault. If you are sure that the port is configured correctly, but nevertheless the message persists, do not connect this device again, as this may cause damage to the connector or the connected device. Contact Juzisound Ltd to resolve the problem.</p>
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The second tab “**Hardware Amp**” is for full control of the hardware amplifier to form a proper signal from the connected analogue input. Here you can set:



The overall **Gain** of the input amplifier

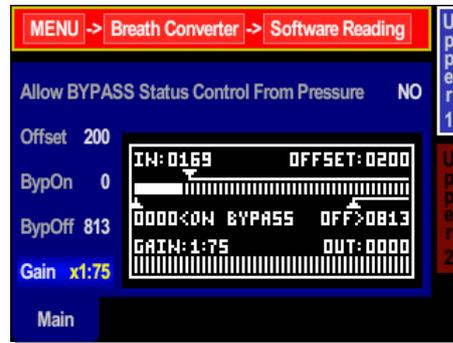
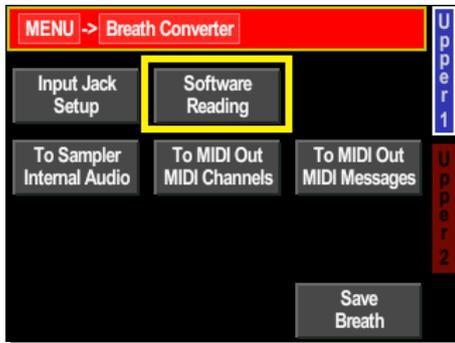
The **Polarity** of the amplifier (it can set the output to be in the same or opposite direction of the signal from the analog controller)

The **Offset** – This is displacement amplification (which sets the equilibrium point of the input amplifier hardware)

There is also a graphical representation of each value and the output (in the "Monitor"). In this page you can set the analog input so that it meets your requirements. For example: if you use breath controller you can adjust the sensitivity, making a lighter breath produce a bigger value change. Or to define the start and end point of pedal movement, etc.

Software Reading

On the **Software Reading** menu are the parameters for the final shaping of the output signal. On this page you can see all parameters and both the input and the output signal from the controller. The parameters are as follow:



Allow BYPASS Status Control From Pressure	With this parameter you can enable or disable functions for SWITCH Breath BYPASS On or OFF with pressure from breath controller. If parameter is NO, then enabling and disabling of breath controller is made only by the button on the sampler
Offset	With this parameter, you should set the value that is considered zero (e.g. the value which gives the breath controller when you ARE NOT breathing in it). This parameter has no effect when the above parameter is the interpretation of type (X).
Bypass On	Threshold for switching to Bypass mode. When the input level drops below this value the analog input is switched to Bypass Mode. Take for example a breath controller. Suction (creating a partial vacuum in the mouthpiece) drives the breath controller to a value below the threshold and the analog in module of the sampler enters BYPASS mode until the moment that you blow into the mouthpiece and the value produced by the controller jumps over another threshold, set by the Bypass OFF parameter.
Bypass Off	Threshold for leaving (exit) Bypass mode. If the controller sends a value above the set in this parameter, the "analog IN" module exits bypass mode. Using a separate and higher value prevents the controller from activation in case of accidental lighter breath. The idea is that in order to activate the controller again, you have to blow once a little bit harder.
Gain	This is a software amplification of the signal from the controller. Using a step of 0.25 in range from 1.00 to 10.00. This gain is duplicated as a function of the hardware gain from the third page, and if your hardware configuration has hardware gain, it is better to use it instead of this one. If you do not have hardware gain it is not a problem to set this parameter high enough until you reach the needed input sensitivity.

In this menu, you have 2 horizontal indicators.

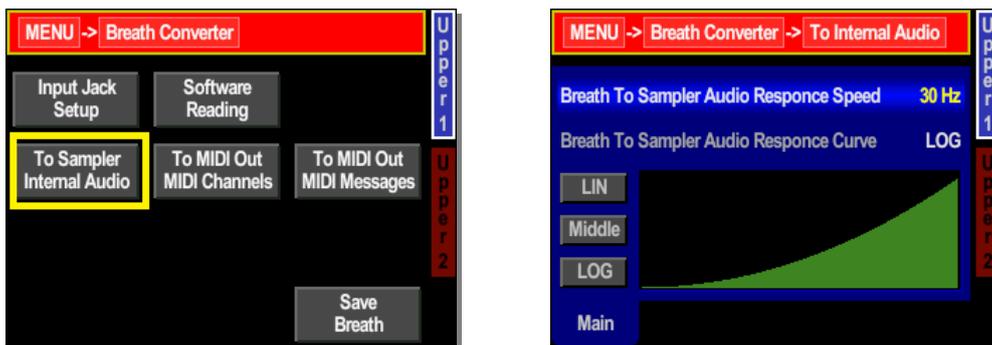
First (upper) indicator is for raw value, read from breath controller headset, after hardware amplification and offsets have been applied.

Second (lower) indicator is for final output value from breath controller, used for control same parameters in next stages.

IMPORTANT!

1. Value **OFFSET**, shown on this page may vary from breath controllers. For this purpose, with plugged breath controller and **without blowing**, you should note the value of the previous parameter (shown on the left on the same row and the same page). Then, the value of **OFFSET** is adjusted with 10 units more than the previous value. The value of **GAIN** on the same page defines the necessary breath pressure to fill the entire scale. Increasing **GAIN** makes lighter breath produce biggest signal changes. Set **GAIN** high enough until you become comfortable. Do not set the value of **GAIN** too high, because it leads to loss of control in the middle range. This happens because the breath controller at the lighter breath "sticks" to the highest value and thus its use loses its meaning. For this purpose, look at the indicator on the main screen from time to time. If it stays constantly at a minimum or maximum, probably you set **GAIN** too high. In this case reduce it to a few units and try again.

To Sampler Internal Audio

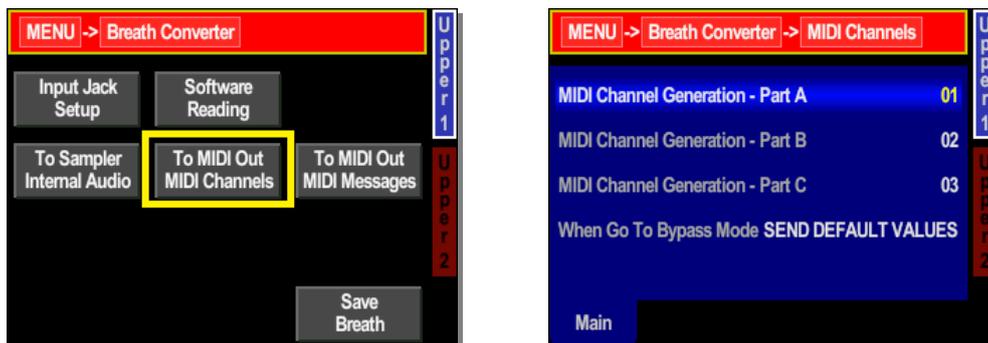


From this menu, you select effect of breath controller value to sampler internal audio path. Have 2 parameters: Response speed and Response Curve.

Response Speed This parameter control response speed of breath headset value to internal sampler audio volume. Values are in Hertz, and available range is from 1Hz to 256Hz. Big values are fast response. We recommend to use values around 30Hz.

Response Curve This is curve of dependence of sampler audio from breath headset values. Possible full LINEAR curve, full LOGARITMIC curve and 32 values between them. We recommend to use LOG curve, because this is near to physic of sound volume.

To MIDI Out MIDI Channels



Here you can define the output channels through which to send MIDI messages, resulting from the operation of the analog input. And what happens to the values already sent via MIDI when the controller enters Bypass mode.

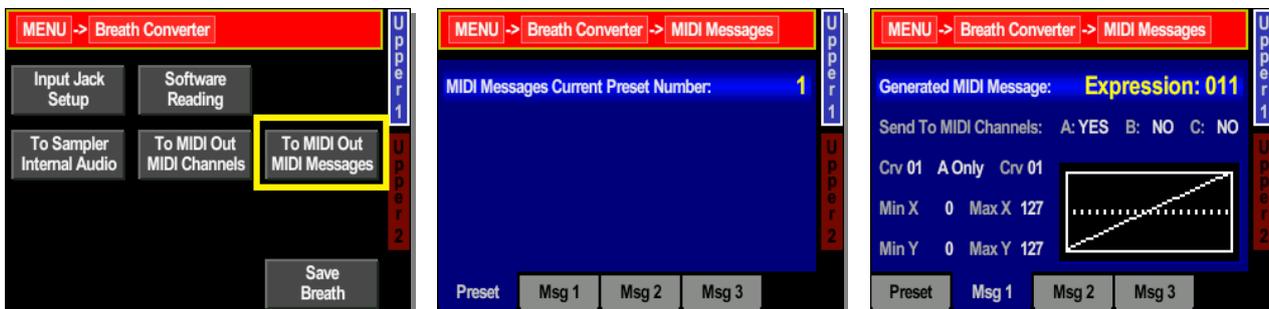
It is possible to send MIDI messages via 3 MIDI channels simultaneously. These MIDI channels are labeled A, B and C. For each generated MIDI message, you may choose a MIDI channels to be sent.

The last parameter (as mentioned above) defines what to happen to the values of the sent messages when the controller enters into BYPASS mode. There are two options:

- **Send Default Values** – to send the default values for these MIDI controllers;
- **Stop Generation** – Interrupt further transmission of these MIDI messages without sending the default values. Values remain as they were at the time of entry into BYPASS mode.

To MIDI Out Messages

This menu has 4 different tabs. In the first tab “Preset”, possible to select the six different presets to be used for generating MIDI messages. For each preset you can remember up to 3 MIDI messages with all their parameters.



This menu selects which of the six different presets to be used for generating MIDI messages. For each preset you can remember up to 3 MIDI messages with all their parameters.

Tabs: **Msg 1**, **Msg 2** and **Msg 3**

There are 3 separate and identical tabs. Each of these tree menus defines the generation of a single MIDI message, together with its associated parameters. We will discuss only the first menu - the others are the same.

This menu determines what to be the generated MIDI message and what parameters to be used for generation

The first parameter defines the MIDI message - which MIDI controller to be. If there is no MIDI controller selected, this section is not used and does not generate any MIDI message.

Next you have 3 characters (ABC). They define the target of already generated MIDI message. Characters A, B and C are to direct MIDI message to the MIDI output on the rear panel of the sampler. Each letter corresponds to one of the already selected MIDI channels. Thus, activation of any or all of these letters, you can send the generated MIDI message to the 3 MIDI channels simultaneously.

Next you have 2 numbers for choice the curves that shape a MIDI message, and an opportunity to make a mix of the two selected curves. Curves themselves represent pre-adjusted relationships that shape the output value relative to the input value. The use of different curves for different parameters gives many great features. You can try it.

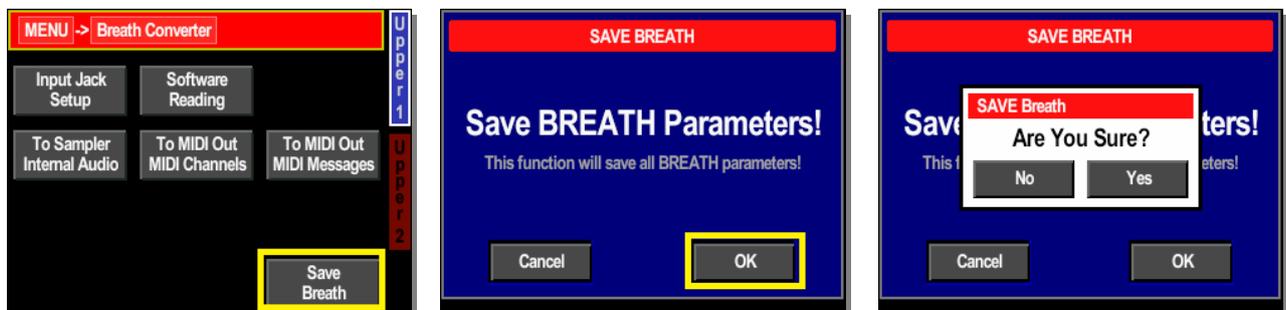
Next parameter sets the lowest level of input that is accepted as valid. Values above this threshold starts to generate a MIDI signal. All values of the input signal below this minimum value is considered zero and the output does not change. The next number on the same line sets the highest value of the input signal to be considered valid. All values of the input signal higher than this threshold are ignored and the output does not change.

The last line is defined minimum and respectively maximum value of the output MIDI controller (signal) that can be generated. These are the lowest and highest output value generated as a result of the input signal.

The combination of all these parameters gives huge opportunities to achieve what you want in the best possible way. The remaining three sections are exactly the same as the first. Each section is independent of the others and they all can work together. There are a total of three sections, and it is possible to generate 3 different MIDI messages simultaneously from the same input analog signal.

Save Breath

All changes of breath settings need to be saved, before power of device. If you power OFF device without save breath settings, in next power ON, previous settings will be loaded.



To save breath settings, go to breath menu, click on “**Save Breath**” button. On next screen click on “**OK**” button. Confirm with “**Yes**”, and that is all. All breath settings will be saved.

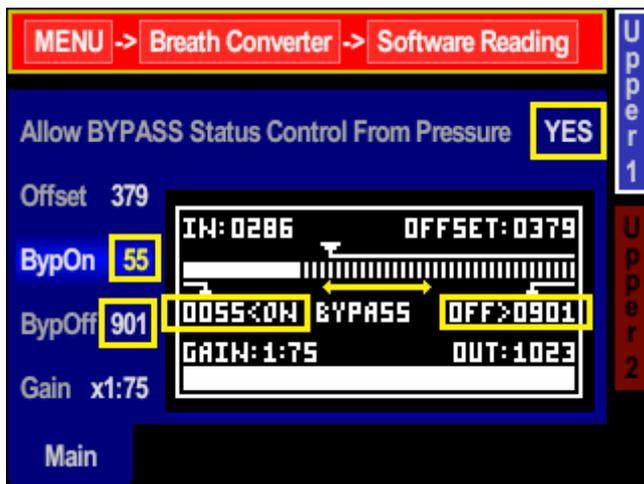
Enabling and disabling the Breath Controller – Bypass mode

When working with breath controller, usually there is no sound if you do not blowing in to the mouthpiece. To be able to work without breath controller you need to switch OFF breath controller. In this case although you do not blowing, the sampler works like if you apply maximum breath pressure or like if there is no breath controller at all.



Activation and deactivation of the breath controller can be controlled by the button [BRTH], and current status will be indicated with LED indicator.

When using **Juzisound Breath Controller**, the control of status (On/Off) of breath controller can be done from the breath controller itself. In this case to disable the breath controller (to enter BYPASS mode) you should shortly suck the mouthpiece (creating a partial vacuum). To enable it again (to exit BYPASS mode) you should blow a little harder for a moment, and this will be switch ON breath controller again. These two methods for managing the state of the breath controller (by mouth or by [BRTH] button) can be used together and simultaneously, without interfering.



Breath BYPASS settings

To enable activating and deactivating from breath controller, need to set first parameter to YES. Then set both values: BypOn and BypOff.

When native breath level is **more** that BypOn value, this will be **Switch ON** breath controller.

When native value is **bellow** BypOff value, this will be **Switch OFF** breath controller.

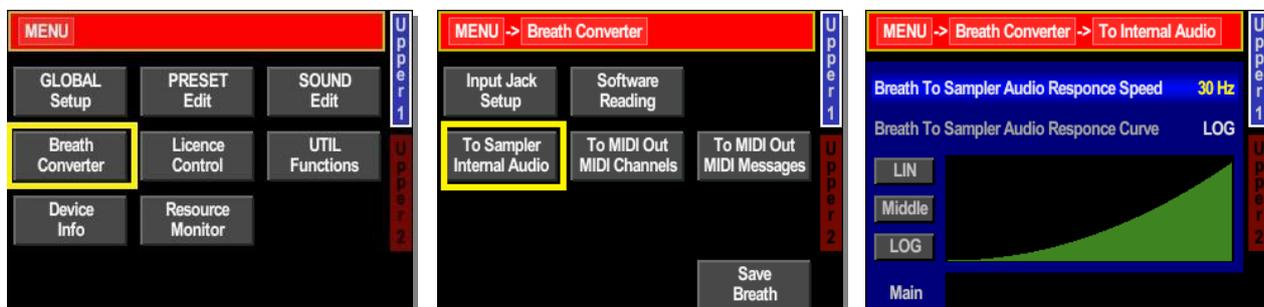
The current state of the breath controller is displayed on the main screen of the sampler. If the breath controller is disabled / if it is in BYPASS mode / on the main screen in the field for breath controller is displayed a string “bypass” in red color. If the breath controller is active - this field displays the strength of breath pressure.



Example of breath controller settings

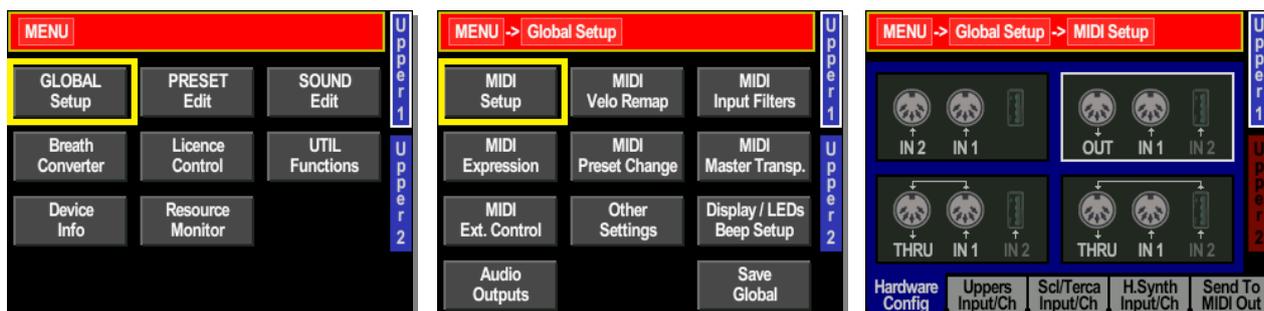
Common settings – for both types of breath controllers

Go to MENU->Breath Converter->To Sampler Internal Audio, and set both parameter to 30Hz and LOG like they are in image.

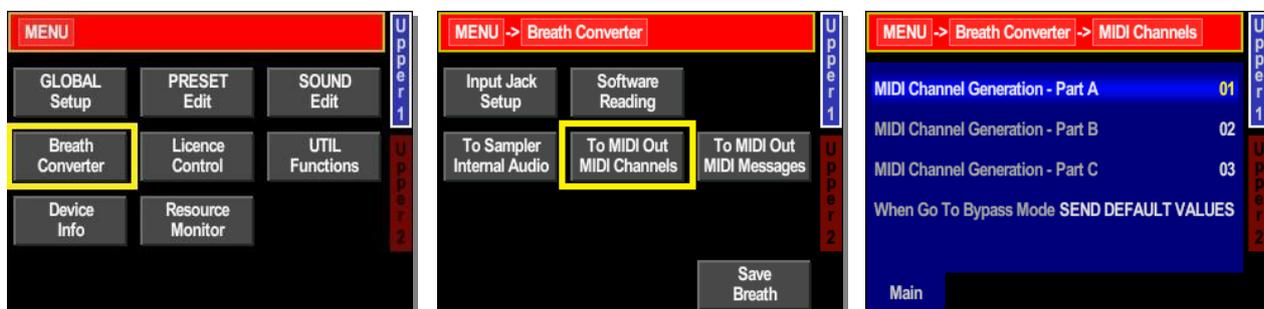


If plan to use Breath Controller to control **external MIDI device**, do this:

Go to MENU->GLOBAL Setup->MIDI Setup, and select second MIDI configuration, to enable second MIDI connector to work like MIDI OUT.



Go to MENU->Breath Converter->To MIDI Out MIDI Channels, and select MIDI Channels for Part A, B and C like in images.



Go to MENU->Breath Converter->To MIDI Out Messages, and set all tabs to be equal as shown on the images.

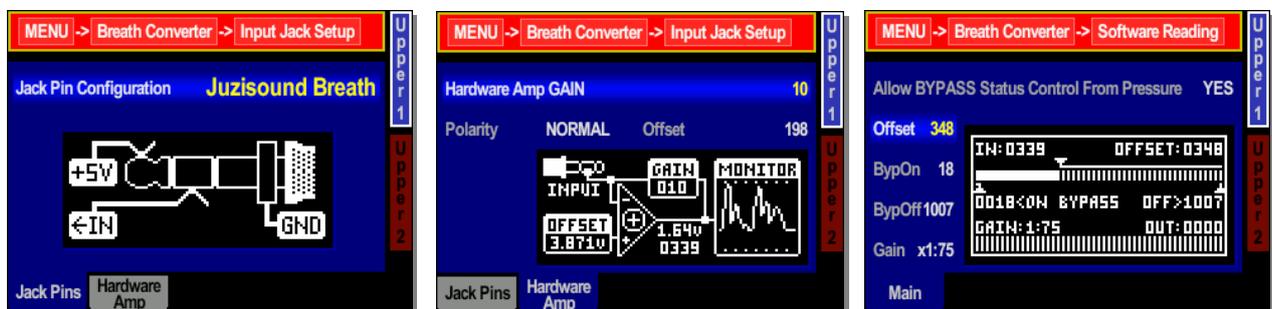


Settings for Juzisound Breath Controller



To use breath headset from Juzisound, need to set it up, as shown on the images bellow.

With this headset and default settings, it's possible to control breath BYPASS (Switch On / Switch Off) function, by applying positive and negative breath pressure.



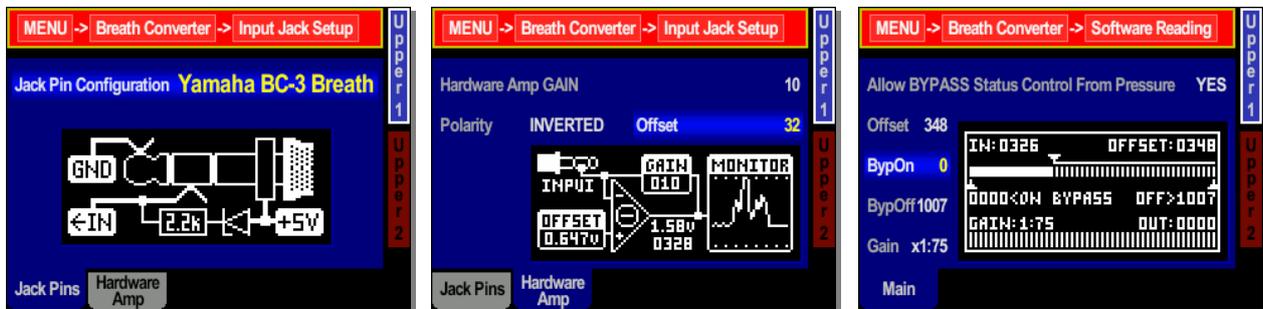
Settings for Yamaha BC-3 Breath Controller

Additionally, on the breath controller make the following settings:



- Increase GAIN to end.
- Do not inflate.
- With OFFSET knob find the position from which the screen "Analog In 2/4" start a change in the reading on the display - the one with the big numbers.
- Slightly return OFFSET knob backwards so that it stands in the position just before start changing.

Then make additional settings as shown bellow



With this model breath headset it is not possible to add negative pressure, and not possible to activate BYPASS (Switch Off breath headset) with negative pressure. Because this, in last image, parameter "ByOn" is set to 0. To switch Off breath controller, use button on sampler.

If breath headset is already deactivated, then no problem to re-activate again, with high positive pressure.



5897 Zgalevo
str. Bozhin Chulev 76
BULGARIA

Phone: 0887/69-47-09
Phone: 0887/69-47-10
E-mail: juzisound_ltd@abv.bg
Skype: Juzisound