nABC - USER MANUAL

SUONOBUONO

Foreword

SUONOBUONO is my personal attempt to share new ways of creating music with other music enthusiasts like myself. All the work, passion and energy that I laid into this Company would have been void without the early supporters who dared to believe in it before anyone else. My biggest appreciation goes to all the backers who contributed to funding the nABC on Kickstarter, and particularly to Ricardo Blasco, Paola Oliviero, Marus Klang, Casey Neiditch, Darren Ziesing, Joe Manton, Bach Pham, Martin Szepannek, Marius Bjornstad, Lasse Turunen, Dave Loomis, Kent Iverson, Eric Harder, Seiichiro Nagai, Kenjiro Tabata, Marco Belleschi, Simon Porter, Eric Segalstad (Sabi Sound), Jörg Ockel, Tom Toepper, Derek Duke, Buck Sanders, Joshua Toland, Bill Groves, Matthew Zavakos, Nick Watson, Alcides Rodriguez, Allen Fernandez, Laura Baranella, Luigi Tondo, Marco Forzati, Marijke Sachweh, Olga Buchenko, Felicia Drougge, O-P, Sofia Jagbrant. And of course, my Family.

I really hope that you will enjoy your new nABC! I also recommend reading this short manual to familiarize with nABC's many and sometimes unusual functionalities. I did all my best to deliver a good product and I look forward to your comments and suggestions.

To all of you: thank YOU!

Stefano Sorrentino, founder

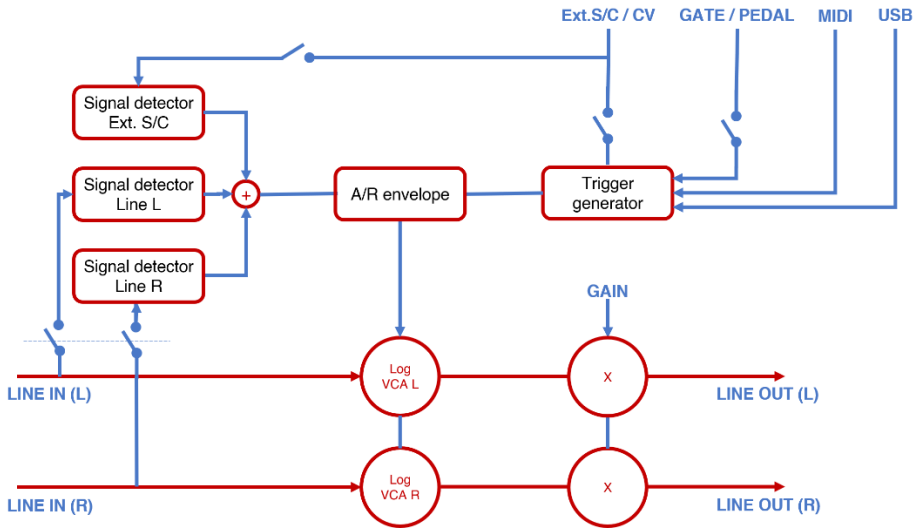
1. Contents and functional overview

The nABC original package includes the following items:

- 1 x nABC
- 1 x TRS to DIN MIDI cable
- 1 x USB 2.0 cable
- 2 x mini stands
- 1 x User manual

The nABC is a stereo sidechain compressor, where sidechain can be triggered in multiple ways. Depending on the selected Operation Mode, one or more sidechain triggers can be simultaneously used.

Even though the response of the compressor has been optimized for sidechain use, the nABC may even be used as a “traditional” compressor without sidechain. The analog signal path has been calibrated for low distortion and to give a smooth dynamic response that resembles that of an analog synthesizer VCA rather than that of a limiting amplifier.



The touch-based control panel allows adjusting all audio parameters with a single finger, by use of the rotary encoder. Audio parameters may even be adjusted USB/MIDI or stored in user-defined presets.

Power is provided via a USB 2.0 port, which may be connected to a power bank or any other suitable USB host.

Two mini stands are provided to tilt the unit for desktop use. To mount them, screw them to the nABC using the provided washers, as shown in the figure. If not needed, simply unscrew them and use the same screws to lock the nABC tightly, without the washers.

⚠ Always use the provided washers when mounting the mini stands and don't tighten them too hard. Not doing so will likely crack the mini stands.

2. Connections

Line In – Connect one (for mono) or two (for stereo) ¼” line jacks. In case of balanced connections, a TRS jack should be used, with hot signal on tip.

Line Out – Connect one (for mono) or two (for stereo) ¼” line jacks. In case of balanced connections, a TRS jack should be used, with hot signal on tip.

USB – this connection is needed to power the nABC from any suitable USB host using the provided USB cable. Additionally, you may use the USB port to exchange MIDI-over-USB messages with a DAW.

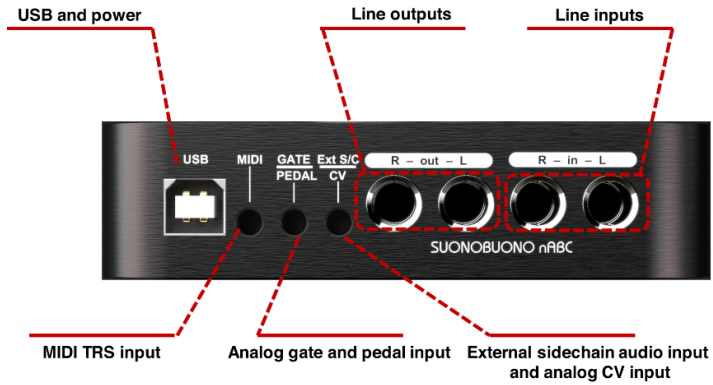
MIDI – use this port when MIDI from a sequencer or DAW is used.

The TRS to DIN MIDI cable should only be connected to the MIDI input on the rear of the nABC. The DIN side of the cable should be connected with a MIDI cable leading to a MIDI OUT interface.

⚠ Use the included TRS to DIN cable to connect the nABC to a suitable MIDI OUT port, using a MIDI extension cable if needed.

GATE/PEDAL – use a 1/8” TS jack to optionally connect an analog gate OUT or alternatively a footswitch.

External S/C / CV – use a 1/8” TS jack to optionally connect an analog CV OUT or alternatively a sidechain audio signal.



3. Panel, menus and settings

The panel is managed by 6 touch pads and one encoder with pushbutton. It is recommended to use the pads with flat fingertips to maximize sensitivity.

Power On/Off/Bypass

When power is received over USB, the nABC automatically turns on. The Power/bypass indicator LED will be lit.

To turn the nABC off, press the knob pushbutton for 3 seconds. The Power/bypass indicator LED will turn off. The nABC automatically turns off

even when receiving a “power off” command over USB, typically when a host is turned off.

To turn it on again, press the knob pushbutton once more. The nABC will reuse the same audio settings from the last time it was regularly turned off.

To toggle bypass, press momentarily the knob pushbutton.

⚠ Even when turned off, the nABC still consumes a certain small amount of power in order to monitor a potential turn on command. To maximize the nABC lifetime and reduce energy waste, it is recommended to detach the power supply or the USB cable when the nABC is not going to be used for several hours.

Normal Mode

During normal mode all *Menu pads and indicator* LEDs are turned off. The next section explains how to manage the nABC menus to adjust parameters.

During normal mode, the LEDs ring visualizes the LINE IN signal level (left semi-circle, green) and the amount of gain reduction (right semi-circle, red).

⚠ In case of input or output signal overload, the Power/Bypass indicator momentarily turns red.

Menu Mode

Menus are selected using the Menu pads. The menus allow to adjust all audio parameters and configuration settings.

There is a main menu (ATTACK, RELEASE, THRESH, RATIO, GAIN) and a submenu (COMP KNEE, MIDI CH, S/C DEPTH, LOAD, STORE).

To access a parameter in the main menu from the normal mode, press the corresponding pad and adjust the parameter turning the knob, and press the pad again to exit the menu.

To access a parameter in the submenu, press the corresponding pad for one second. Once the corresponding pad led blinks, adjust the parameter turning the knob, and press the pad again to exit the menu.

These parameters and settings are controlled in menu mode:

Panel parameter	Functionality	Notes
ATTACK	Compressor attack time	
RELEASE	Compressor release time	
THRESH	Compressor threshold	Applicable only when sidechain is triggered by audio signals
RATIO	Compressor ratio	Applicable only when sidechain is triggered by audio signals
GAIN	Make-up gain	
COMP KNEE (submenu)	Selection between hard/soft/linear/delayed compression slope	With hard and soft knee, the release follows a typical exponential decay. When linear is selected, release decays linearly (in dB). When delayed is selected, exponential release starts approximately 50ms later than with the other settings.
MIDI CH (submenu)	MIDI channel	For USB and MIDI inputs
S/C DEPTH (submenu)	Compressor maximum gain reduction	Applicable only when sidechain is triggered by GATE/ USB/ MIDI/ Pedal
LOAD (submenu)	Select a preset to be loaded	Once the preset is selected, press the knob pushbutton to actually load it. The led ring will blink.
STORE (submenu)	Select a preset to be overridden	Once the preset is selected, press the knob pushbutton to actually store it and override the previous preset. The led ring will blink.

⚠ Press the knob pushbutton to actually load/store a selected preset, or exit the menu by touching the load/store pad again

4. Sidechain selection and operation

The nABC operates in four different Operation Modes that are sequentially selected with the S/C SELECT pad.

	Operation Mode			
	MIDI/ USB/ PEDAL	**GATE/ CV**	**EXT/ MIDI/ USB**	**INT/ MIDI/ USB**
USB sidechain trigger, control change and program change	✓	✓	✓	✓
MIDI sidechain trigger, control change and program change	✓	✓	✓	✓
Analog GATE and CV		✓		
External audio sidechain trigger			✓	
Internal audio sidechain trigger				✓
Pedal sidechain trigger	✓			
USB MIDI OUT sidechain signal level threshold			✓	✓

Depending on the selected Operation Mode, sidechain is triggered whenever a note is received via MIDI, USB, when a positive voltage is detected on the analog GATE input or when the PEDAL is pressed. Compression may even be engaged when the audio signal level exceeds a set threshold on either the External sidechain audio input or the Line signal input, depending on the Operation Mode. The sidechain trigger is released as soon as the corresponding triggering conditions are removed. More details in the following.

1. USB/MIDI/PEDAL

   The compression depth is determined by the latest incoming note velocity, with incremental steps (in dB scale) from 0 to 127, where 127 corresponds to the value of the S/C DEPTH parameter. When the pedal is used, the compression depth is exactly S/C DEPTH.

   The compression attack and release times are determined by the ATTACK and RELEASE parameters.

   Whenever this configuration is selected, the nABC automatically detects the type of pedal (normally open or normally closed). Ensure to connect the pedal without pushing it while selecting this Operation Mode. Reselect this Operation Mode to perform pedal detection again.

2. GATE/CV

   Active sidechain inputs:

   - USB (via USB port)
   - MIDI (via MIDI port)
   - Analog GATE (via GATE/PEDAL port)
   - Analog CV (via S/C / CV port)

   Sidechain is triggered whenever a positive voltage is provided on the GATE/PEDAL port and it is released as soon as the voltage drops to zero.

   The compression depth is determined by the S/C DEPTH parameter. The compression depth can also be linearly controlled (in dB) by applying a control voltage to the CV port, where 0 Volt (or no connection) give compression equal to the S/C DEPTH parameter and 5 Volt give no compression.

⚠ Applying positive voltage on the CV input reduces the amount of gain reduction.

   Sidechain is also triggered whenever a note is received via MIDI or USB, similarly to configuration 1).

3. EXT S/C / MIDI / PEDAL

   Active sidechain inputs:

   - USB (via USB port)
   - MIDI (via MIDI port)
   - External audio (via S/C / CV port)

   Sidechain is triggered whenever a note is received via MIDI or USB, similarly to configuration 1).

   Additionally, sidechain is triggered whenever an audio signal is provided on the S/C input and its level exceeds the THRESH parameter. The amount of compression is determined by the RATIO parameters. Note that the depth of compression triggered by the External Audio is determined by the combination of the THRESH and RATIO parameters and by the audio signal level applied to the External Audio input, while the depth of compression triggered by USB/MIDI is determined by the S/C DEPTH parameter and by the note velocity.

   Attack and release times are respectively determined by the parameters ATTACK and RELEASE.

   Whenever the sidechain audio signal exceeds the threshold, a note on is sent over USB MIDI. This is useful to automatically sequence and post-process audio events. When soft-knee is selected, 2dB hysteresis is applied to the USB MIDI notes trigger.

4. INT S/C / MIDI / PEDAL

   Active sidechain inputs:

   - USB (via USB port)
   - MIDI (via MIDI port)
   - Line audio (via LINE IN L/R port)

   Sidechain is triggered whenever a note is received via MIDI or USB, similarly to configuration 1).

   Additionally, sidechain is triggered whenever an audio signal is provided on the LINE IN input and its level exceeds the THRESH parameter. The amount of compression is determined by the RATIO parameters. Note that

the depth of compression triggered by the LINE IN audio is determined by the combination of the THRESH and RATIO parameters and by the audio signal level, while the depth of compression triggered by USB/MIDI is determined by the S/C DEPTH parameter and by the note velocity.

Attack and release times are respectively determined by the parameters ATTACK and RELEASE.

The signal level is determined as the maximum between the L and R channels.

Whenever the sidechain audio signal exceeds the threshold, a note on is sent over USB MIDI. This is useful to automatically sequence and post-process audio events. When soft-knee is selected, 2dB hysteresis is applied to the USB MIDI notes trigger, which is useful to limit false triggers.

⚠ The nABC receives and transmits USB/MIDI in any of the above configurations. Thus, audio parameters and programs can be remotely adjusted in real-time for all Operation Modes.

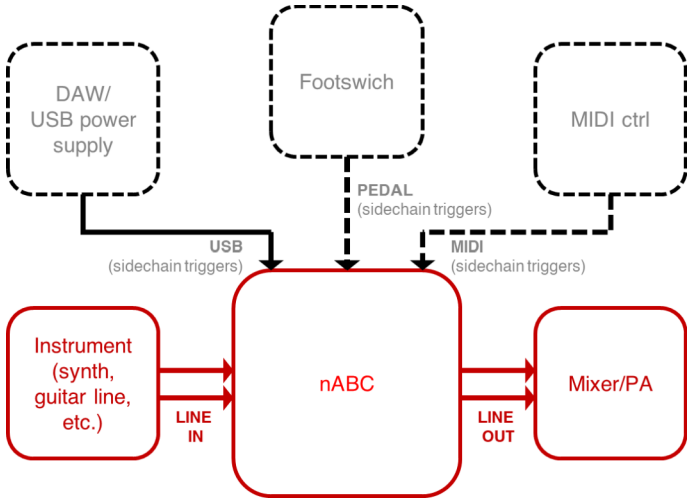
⚠ Sending an analog gate signal when the nABC is configured for using a pedal on the GATE/PEDAL port will generate unexpected results, and vice versa. It's advised to disconnect the gate/pedal cable when not used.

5. Typical use scenarios

Triggering the nABC using a DAW and/or digital sequencer/controller and/or a pedal

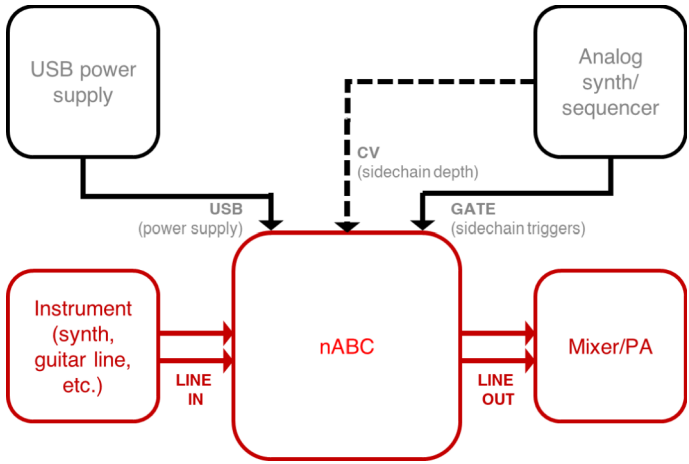
When triggering the nABC with digital signals, the USB/MIDI/Pedal Operation Mode should be selected using S/C SELECT.

> ⚠ If a USB host is not used, the nABC should be powered with a good stable USB power supply capable of at least 1A.



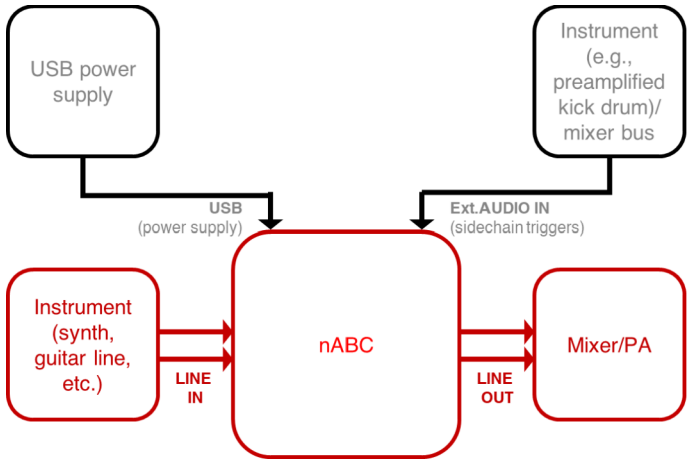
Triggering the nABC using an analog sequencer/controller/synth

When triggering the nABC with analog signals, the GATE/CV Operation Mode should be selected using S/C SELECT.



Triggering the nABC using a sidechain audio signal

When triggering the nABC with an external audio signal, the EXT/MIDI/USB Operation Mode should be selected using S/C SELECT.



The nABC sidechain can even be triggered with the input line audio signal itself, as a traditional compressor would do. The INT/MIDI/USB Operation Mode should be selected using S/C SELECT.

6. Connecting to a USB Host

When connected to a computer or other USB host, the nABC will appear as a MIDI device. For recent OS such as Microsoft Windows 10 and Apple OS X, the nABC should appear without the need to install any driver. For other OS, it may be necessary to install a generic USB MIDI driver, please refer to the documentation of your OS.

In order to exchange MIDI messages, the nABC must be selected as a MIDI device in the considered DAW. Please make sure that the MIDI channel matches the one configured on the nABC.

7. Quick tips

Because the nABC can also operate in different ways compared to traditional compressors, it offers new opportunities. We list some of them here and encourage you to find your own!

Ducking effect on beats

This is the classic ducking effect where a bass, synth, vocal, drums or even a bus is dynamically compressed during each beat. The most convenient way to do this is to trigger the sidechain using a sequencer or DAW (Operation Mode 1 or 2).

It is essential to adjust the trigger note length (in the DAW/sequencer) according to the desired compression duration, and to adjust the release time so that gain reduction vanishes between the beats. Short attack time are usually preferable. Adjust S/C DEPTH until the desired effect intensity is achieved.

> ⚠ A “trick” to obtain punchier ducking consists of triggering sidechain ahead of the beat, e.g., from just a few milliseconds up to a 1/16th step ahead. By playing with the attack time, one can progressively “empty” the sound ahead of the incoming beat, to create a subtle tension and maximize impact.

Arpeggios

Movement can be added to arpeggios and sequences by triggering sidechain on all or some of the steps. This is conveniently achieved by triggering the nABC with a DAW or sequencer (Operation Mode 1 or 2).

The time duration of the nABC sidechain trigger should be adjusted to be shorter or at most equal to the duration of the stepped note, which is easily achieved with a DAW and most sequencers. By playing with attack, release and trigger step duration times in the DAW/sequencer, a variety of effects are possible, from pseudo slap-delay to transient adjustments and syncopated effects.

To make the effect more interesting, sidechain can be triggered on a subset of the arpeggio steps, or sidechain parameters may be automated across steps using MIDI control change or CV to adjust gain reduction.

Reverb compression

An interesting effect is achieved by modulating the amplitude of a long tail reverb using the nABC. This can conveniently be achieved by modulating a wet reverb insert with the nABC, before mixing it back into the main mix. The actual modulation pattern can be programmed using a sequencer or DAW, to induce rhythmic movement in the reverb.

⚠ When applied to a stab or pad, the nABC can easily generate gated effects, typical of 90s electronic music.

CV modulation

Differently from most audio processors, the nABC is DC-coupled, which means that it can process continuous signals such as control voltage from analog synthesizers. This configuration could be used to modulate the envelope of a VCF and create a filter ducking effect. Similarly, an LFO modulation can be rhythmically “choked” with the nABC.

Sequenced audio compression

For specific sounds, such as drum hits, it is possible to program compression using the USB/MIDI/gate sidechain trigger rather than the traditional audio sidechain. Such unorthodox setup allows surprisingly effective results for example on kick drum, thanks to the very low distortion even with large gain reduction. Furthermore, the transient shape can be freely designed and even triggered slightly earlier than the actual hit, to achieve sharper attack profiles and unusual dynamics.

8. MIDI implementation

Presets are loaded by sending a corresponding MIDI Program Change message within range [1, 8].

Audio parameters are controlled by MIDI using the following Control Change messages.

ATTACK	12
RELEASE	13
THRESH	14
RATIO	15
COMP KNEE	16
S/C DEPTH	17
GAIN	18
BYPASS	19

9. Technical specifications

Audio Input	2 x 1/4", impedance balanced, >100 kOhm
Max Audio Input	+19.5dBu
Audio Output	2 x ¼", impedance balanced, 400 Ohm
Max Audio Output	+19.5dBu
External Sidechain Audio Input:	1 x 1/8", max 20dBu, 50kOhm, unbalanced
External Control Voltage Input:	1 x 1/8", 0V-10V, unipolar, 50kOhm
Gate input:	1 x 1/8", 0V-5V, unipolar (10V is tolerated)
MIDI input	1 x 1/8" TRS (DIN to TRS cable is included)
USB	Type B
Frequency Response	20Hz-20kHz, +0.5, -0.5dB
THD+Noise	Typically <0.06%; @1kHz, 0dBu, 1:1
Compressor Threshold Range	-20dBu to +20dBu
Compressor Ratio	1:1 to Infinity:1
Make-up gain	0dB to +20dB
Maximum gain reduction	>30dB
Presets	8, user defined
Attack time	Adjustable
Release time	Adjustable
MIDI control	Sidechain, all audio parameters, preset selection
MIDI out	Sidechain signal level threshold, all audio parameters
Compression knee	Adjustable, hard, soft, linear slope, delayed release
Power	5V via USB, typical 500mA
Dimensions	125mm x 125mm x 40mm
Weigth	450g, excluding cables

10. Warnings and legal disclaimers

The nABC must be connected to a USB 2.0-compliant power supply generating stable, clean 5V and at least 1A current.

When the nABC is unused for several hours, disconnect the USB power connector.

The nABC, in combination with an external amplification system or headphones, may generate a high sound level, which could potentially damage your ears. Do not operate the nABC for a long period of time at a high volume level. It's safer to keep reasonable levels and start with low volume.

Before connecting and disconnecting the nABC to a power supply source, turn your amp's volume control all the way down to avoid damage due to on/off switching noise. The nABC produces a high level output signal. Please take care that the connected playback device is suitable for the high level of an electronic instrument. Never use the microphone or phono input of the connected amp.

Do not expose the nABC to rain, moisture, dust, sand or dirt. Do not pour liquids into the nABC. Never use or store the nABC near water, for example sea, swimming pool, bathtub, kitchen or bathroom sink. The nABC should be located away from high temperatures (> 35 degrees C), for example direct sunlight in a closed vehicle, radiators, heat registers, stoves or other heat sources. Only clean the nABC with a soft, dry cloth. Do not apply any liquids or alcohol. Do not apply excessive vibration forces to the nABC, do not drop it and always transport it in shock absorbing material. Never climb on top of, nor place heavy objects on the nABC. Some parts of the nABC are fragile (such as the housing and some electronic components), so dropping it might damage your nABC. Repair work resulting from dropped the nABC is not covered by the normal warranty of the product.

Do not leave small children alone with the nABC, and do not let them use the nABC unless they are capable of following all the rules for the safe operation of the nABC. Do not open (or modify in any way) the nABC. There are no userserviceable parts inside. Refer all servicing to qualifed personnel only. If you think your nABC needs repair, you can send us an e-mail at: info@suonobuono.rocks.

A very small percentage of individuals may experience epileptic seizures or blackouts when exposed to certain light patterns or flashing lights. If you have an epileptic condition or have had seizures of any kind, consult your physician before using the nABC.

Suonobuono AB is not liable for any erroneous information contained in this manual and the contents of this manual may be updated at any time without prior notice. Suonobuono extends no liabilities in regard to this manual other than those required by local law. This manual or any portion of it may not be reproduced in any form without the manufacturer's written consent.

Notes:

Notes:

SUONOBUONO AB, Hannebergsgatan 32, 17168, Solna, Sweden.
Document version: 1.02, Release date: 11/2/2020

Please visit our website and social media for further support and updates:

www.suonobuono.net

https://www.instagram.com/suonobuono_instruments/

https://www.facebook.com/suonobuonoab/


suonobuono