C. Bechstein Vario

« High Definition Sensor Technology »

# User Manual

C. BECHSTEIN

1 Contents

2 Getting Started

2.1 Installation

Congratulations on choosing the C. Bechstein Vario system! We hope you enjoy using your new device.

The C. Bechstein Vario system is only installed by the manufacturer or certified specialists. Once the transformer and headphones are connected, the system is ready to use.

Please only use the power cable and transformer supplied for mains power connection.
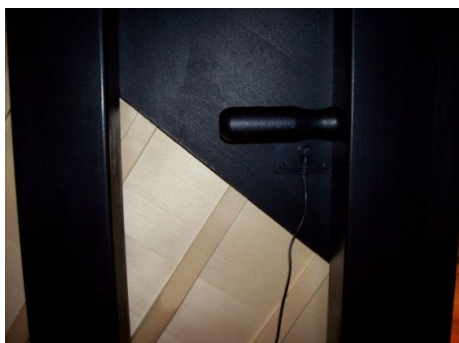
Transformer on upright piano

Transformer on grand piano

2.2 Mute

You will see a lever under the keyboard to activate the hammer bar that puts your piano in mute mode.

Moving this lever forwards on a grand piano or backwards on an upright makes the hammers strike the strings normally, causing them to vibrate. Pulling the lever backwards on a grand piano, or forwards on an upright puts the instrument in mute mode.

2.3 Switching On

Connect the headphones to one of the two jacks on the front of the control unit. Pull the unit to its final position.

The system switches on as you slide out the control unit. A click is audible through the headphones, and the blue LED light up.

The system switches off and the blue LED fades when you push back the control unit to its original position. Partially sliding the unit back does not switch off the system.

3   Operation

3.1 Display

When you have pulled out the control unit as far as it will go, the screen lights up and displays a welcome message, and then the Main Menu with an overview of all functions.

Please note: to facilitate easy reading of the User Manual, all functions are described below using graphics.
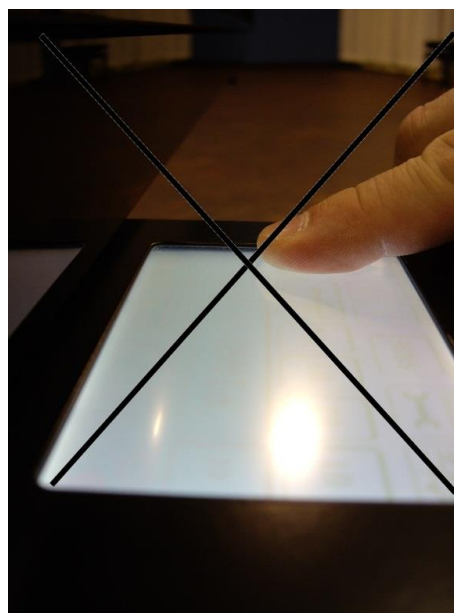
3.2 Working with the Display

A touchscreen display allows you to control all system functions.

For best results, use your fingertips to touch the display screen. If you use the pad of your finger, the system cannot identify the exact position and may run a wrong command.
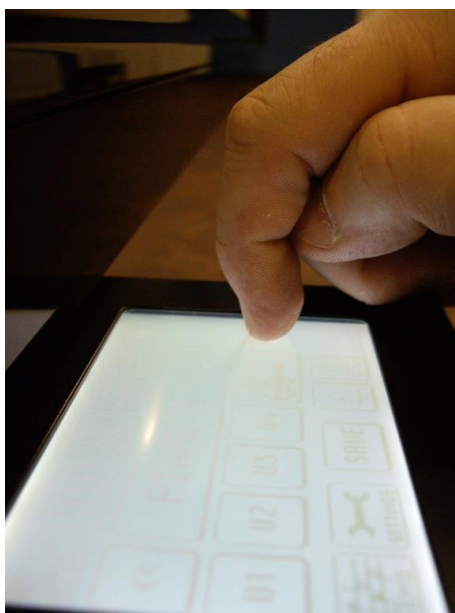
Correct

Incorrect

3.3 Volume Adjustment

You can practise using the touch screen, for example, by adjusting the volume. In the Main Menu, you will find the volume control as a column topped with a loudspeaker symbol.

The black bar inside the column indicates the volume level.

To adjust the volume, please touch any area just above or below this bar. The bar will move to the exact point you touched inside the column.

Alternatively, you can push the bar to adjust the volume. Use your fingertips to move the black bar upwards and downwards. The volume increases or decreases accordingly.

Congratulations! You have mastered the touch screen, and we now invite you to find out more about your C. Bechstein Vario system.

4 Main Menu

The Main Menu displays all the key settings at a glance.

4.1 Select Instrument
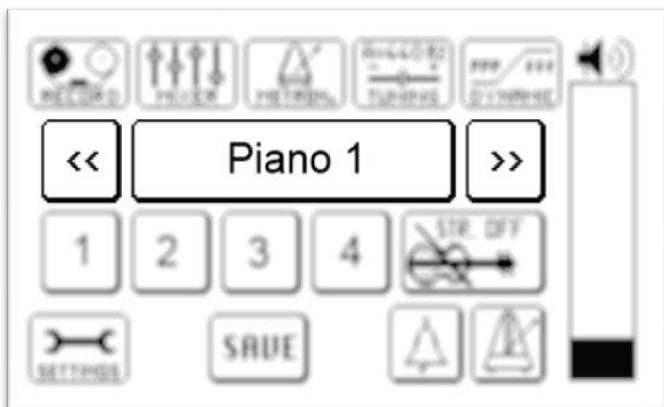
You can select an instrument in the second row of the Main Menu.

Touch ⟩⟩ or ⟨⟨ to select an instrument.

In this case, a piano was selected: Piano 1 .

4.2 Background Strings

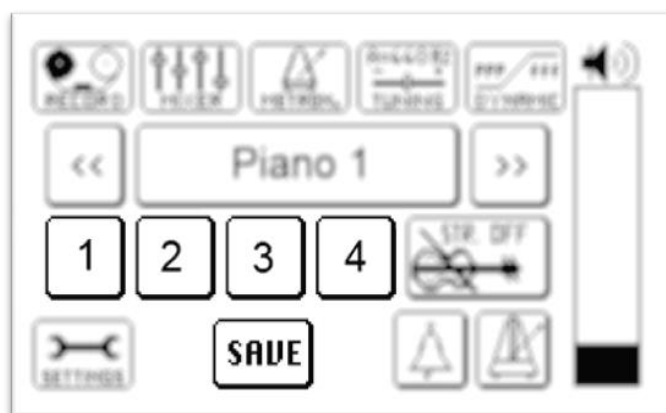In the third row, you will find a button STR. OFF.

Touch this button once or twice to select one of the two strings that will play in the background.

Simply touch the button again to deactivate this function.

Please note that selecting a background string decreases the polyphony.

4.3 Memory Settings

Still in the third row, you will see four buttons numbered 1 to 4.

Here, you can save the currently selected instrument and your custom settings.

First, touch SAVE, and then one of the buttons 1, 2, 3 or 4.

You can change the memory settings at any time to store new custom settings. The previous memory settings will be deleted, however.

The following settings will be saved:

- Instrument (⮌ 4.1)
- Background Strings (⮌ 4.2)
- Effects (Reverb, Chorus) (⮌ 6.2)
- Equalizer (High and Low Frequencies) (⮌ 6.3)
- Strings Volume (⮌ 6.4)
- Dynamics/Touch Sensitivity (⮌ 9)

You can store further general parameters using the Save Global Settings function (⮌ 10.4)

4.4 Metronome
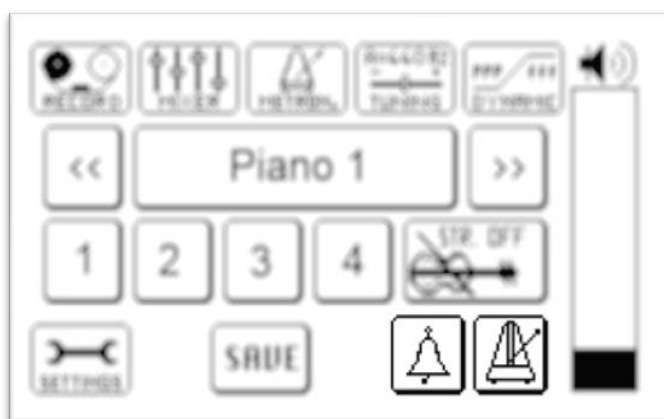
On the last row of the menu, you can switch the metronome on or off by touching the corresponding button.

This button activates a bell on the first beat of every measure. Touch the button again to switch off the bell.

You can change the tempo, measure and volume in the Metronome Menu (see Chapter 7).

4.5 Sub Menus
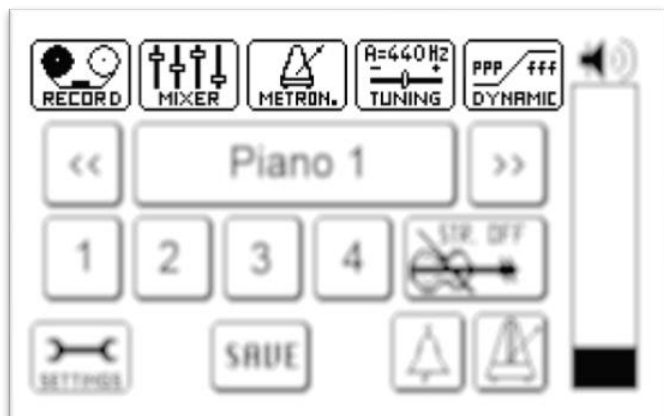
The buttons in the first row of the Main Menu control the following sub menus:

1. Record
2. Mixer
3. Metronome
4. Tuning
5. Dynamics/Touch Sensitivity

The instructions for using these sub menus are set out below.

5 Recorder
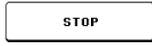
Touch in the Main Menu to open the Record Sub Menu:
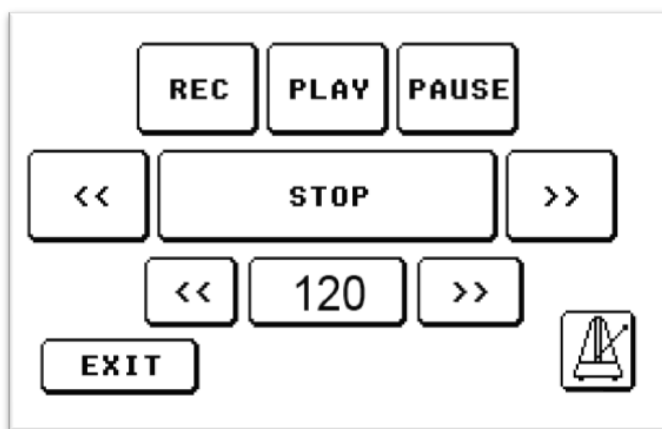
This sub menu enables you to record and play back your music on the C. Bechstein Vario system.

5.1 Record

The button [REC] flashes when you touch it. Upon touching [PLAY] recording begins and the counter is activated.

Touch [STOP] to end the recording.

You can switch on the metronome while you are recording: the recorder will ignore the beats. The button in the third row ([120] in this case) displays the tempo of the metronome and the playback. You can increase or decrease the tempo by touching [<<] or [>>].

5.2 Playback

Touch [PLAY] to listen to your recording. Use [>>] to fast forward and [<<] to rewind.

Touch [PAUSE] to interrupt, and touch [PAUSE] again to resume playback. Use [STOP] to end the playback of your recording.

Touch [EXIT] to exit the sub menu.

6 Mixer

Touch [MIXER] in the Main Menu to open the Mixer Sub Menu:
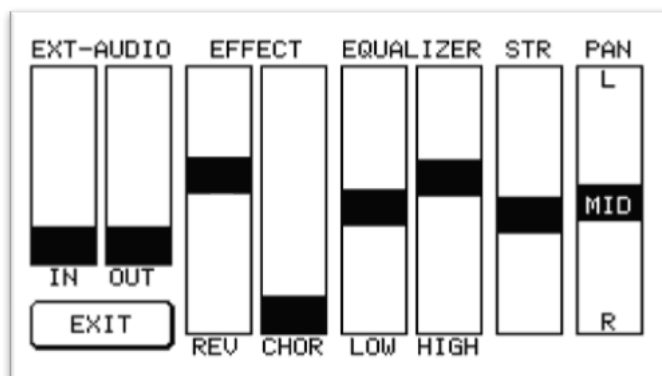
6.1 Audio In/Out

The left pot (IN) controls the volume of a device connected to the Audio In socket at the back of the system.

The right put (OUT) controls the output signal.

6.2 Effects
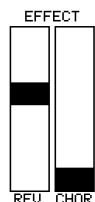
The left pot (REV) controls the reverb effect.

The right pot (CHOR) controls the chorus effect.

6.3 Equalizer
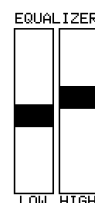
The left pot (LOW) controls the low frequencies intensity.

The right pot (HIGH) controls the high frequencies intensity.

6.4 Strings/Panorama

The left pot (STR) controls the volume of the background strings.

The right pot (PAN) balances the sound between the right and left channels.

Equalizer and Effect settings only influence the currently selected instrument. You can save your settings using the buttons 1–4 of the Main Menu (see 4.3).

Touch [EXIT] to exit the sub menu.

7 Metronome

Touch ⬚ in the Main Menu to open the Metronome Sub Menu:
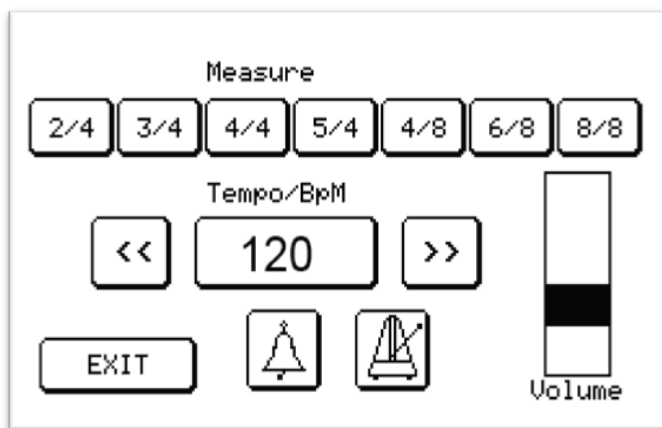
7.1 Measure

[4/4] Use one of the buttons in the top row to select a measure.

7.2 Tempo/Beats per Minute

[120] Displays the tempo.

[<<] Reduces the tempo.

[>>] Increases the tempo.

7.3 Activation, Bell, Volume

[△] Activates a bell on the first beat of every measure. Touch the button again to deactivate the bell.

[⧖] Starts the metronome function. Touch the button again to stop the function.

Controls the metronome's volume.

Touch [EXIT] to exit the sub menu.

8 Tuning

Touch ⊞ in the Main Menu to open the Tuning Sub Menu:
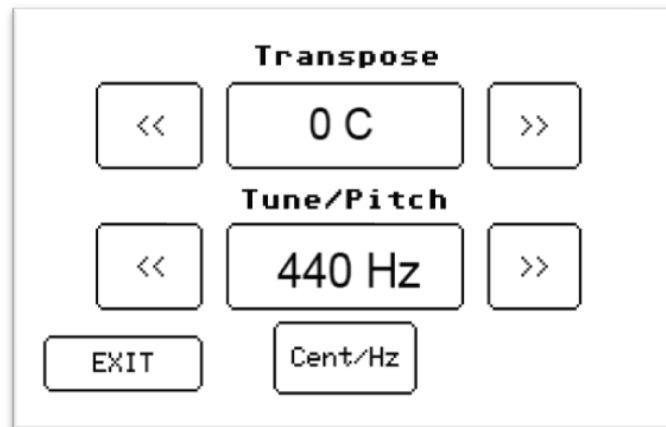
8.1 Transposing

⊞ >> Raises the key in semi-tone intervals.

⊞ << Lowers the key in semi-tone intervals.

⊞ 0 C Reverts to the original key.

8.2 Tune/Pitch

⊞ >> Raises the pitch in 0.25 Hertz or cent intervals.

⊞ << Lowers the pitch in 0.25 Hz or cent intervals.

⊞ Cent/Hz Switches between Hz and cent.

⊞ 440 Hz Reverts to the original pitch (a[1] at 440 Hz).

Touch ⊞ EXIT to exit the sub menu.

9 Dynamics/Touch Sensitivity

Touch ⟨PPP/fff DYNAMIC⟩ in the Main Menu to open the Dynamics Sub Menu:
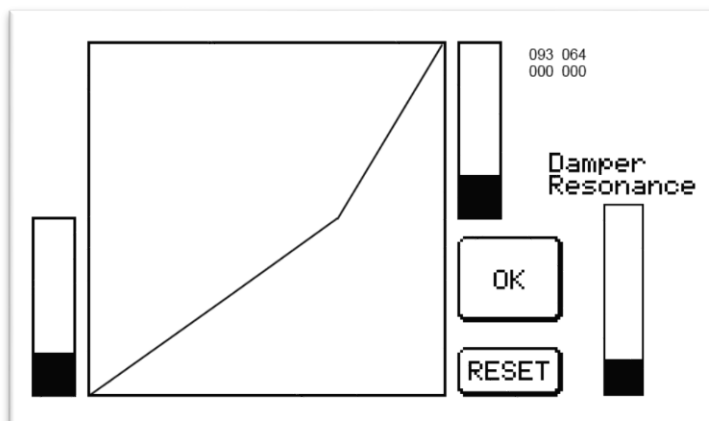
This menu allows you to design your personal touch curve, allowing you to control in which way the volume increases in relation to the power or speed with which you play the keys. The diagonal line shows the designed touch curve in a simplified way.

You can adjust the curve in three different ways.

1. **Pianisimo offset:** By moving the controller at the lower left side of the graph upwards, the lower left end of the curve moves upwards. By doing so, you increase the minimal achievable volume level.

2. **Fortissimo offset:** By moving the controller at the upper right of the graph upwards, the right end of the curve moves to the left. By doing so, you will need less power to play fortissimo.

3. By moving a random part between the two ends of the curve in any direction, left, right, up or down or tapping on a random position within the diagram, you change the form of the curve by positioning the inflexion point of the curve.

   A gentle incline of the curve's lower left part indicates a slower increase of loudness from pianissimo to piano. The steeper the curve, the faster the volume increases.

   By pulling the inflexion point more to the right, you need more power to reach higher volume levels. The more you pull the inflexion point to the left, the easier you will access higher volume levels.

   Please note that compared to the simplified angled graph the resulting curve is smoothed.

⟨OK⟩ Accepts your settings and exits the menu.

⟨RESET⟩ Reverts to the original dynamics curve.

☞   The setting only influences the currently selected instrument. You can save your settings using the buttons 1–4 of the Main Menu (see 4.3).

Damper Resonance

When pressing the right pedal, all dampers lift off the strings, allowing all strings to vibrate, when you play, not only the string of the tone you play. You can adjust the intensity of this effect with the controller at the lower right of the display.

By moving the controller upwards, you increase the effect intensity.

10 Settings

Touch ⊡ in the Main Menu to open the Settings Sub Menu:
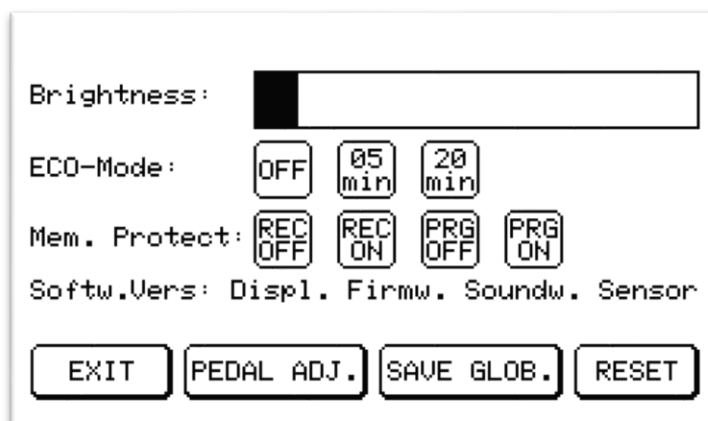
10.1 Brightness

You can control the screen's brightness using the top bar. You can control the brightness in exactly the same way as volume or mixer functions. Moving the bar further to the right increases the brightness of the display screen.

10.2 Energy Saving Mode (ECO-mode)

In the ECO mode, the display backlighting switches off after a preset inactivity time (20 minutes, 5 minutes, always on).

Please note that the control unit remains switched on and the display screen is still active even if the backlighting is switched off. Lightly touching the display screen will immediately restore the screen backlighting to its original brightness.

10.3 Memory Protect

You can protect settings from involuntary deleting.

⊡ Switches off the memory protect function so any content stored in the system can be overwritten at any time.

⊡ Enables recording after touching ⊡ and overwrites the memory content.

⊡ Overwrites the settings stored under the buttons 1 to 4 of the Main Menu.

⊡ Protects the settings stored under the buttons 1 to 4 of the Main Menu. Touch ⊡ to save new settings.

10.4 Save Global Settings

`SAVE GLOB.` saves general settings of the system and enables you to customize your system.

The following parameters are stored at their current settings and immediately available when you restart the device:

- Volume (➲ 3.3)
- Instrument (system starts with the selected Instrument) (➲ 4.1)
- Recorder Tempo (➲ 5)
- Volume Audio IN / OUT (➲ 6.1)
- Panorama (➲ 6.4)
- Metronome, Measure (➲ 7.1)
- Metronome, Tempo (➲ 7.2)
- Metronome, Volume (➲ 7.3)
- Tune/Pitch (➲ 8.2)
- Energy Saving Mode settings (➲ 10.2)
- Memory Protect settings (➲ 10.3)

The screen displays the message "SAVE OK" to confirm that all the parameters are stored.

You can change and store the parameters or reset the default settings at any time. The previous memory settings will be deleted, however.

10.5 Reset

`RESET` restores the above Global Settings to their original default settings. Any custom settings will be permanently deleted.

10.6 Pedal Adjustment

`PEDAL ADJ.` opens the Pedal Adjustment Menu:
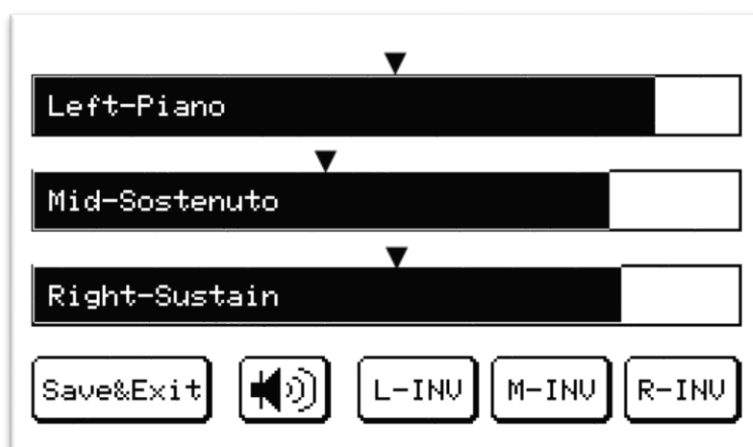
You can determine from which position the pedals will send a signal to the C. Bechstein Vario.

> Please note that a specialist adjusted these settings when the system was installed on your piano. You should only change them if you are certain that they need to be adjusted. The pre-installed settings will then be permanently deleted.

a)   Left (Piano)

This pedal lowers the timbre and reduces the volume. When you step on the pedal, the bar on the display screen indicates the pedal movement. When you have reached the right point, hold the pedal in position and touch the bar. The marker ▼ immediately moves and indicates the position at which the system will react to your step on the pedal. You can repeat this procedure as many times as required.

b)   Mid (Sostenuto)

The C. Bechstein Vario system also registers the movement of the sustain pedal. Stepping on the pedal dampens all notes except for those keys pressed down at the time. The adjustment procedure is the same than for the left pedal.

c)   Right (Sustain)

This pedal suspends the electronic mute. The adjustment procedure is the same than for the other pedals.

[◀))] Activates a sound when the pedal sends a signal to the system.
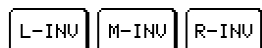
[L-INV] [M-INV] [R-INV] Invert the sensors from the ON/OFF to the OFF/ON position to facilitate the installation of the system.

Touch [Save&Exit] to save your settings and exit the Pedal Adjustment Menu.

11 Connectivity

11.1 Front

Two headphone sockets　　　　　ON/OFF LED

11.2 Back
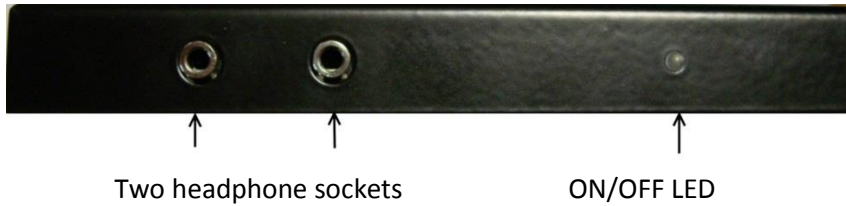
line in　　line out　　System　　　USB
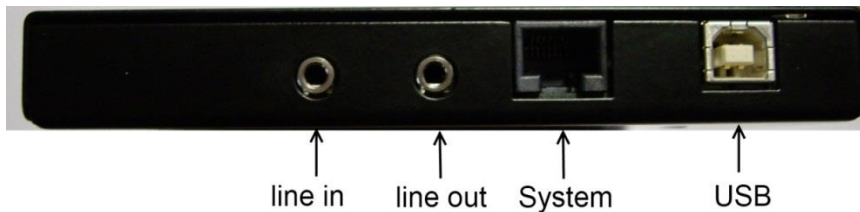
Line In

Input for devices such as stereos or MP3 players.

Line Out

Output to devices such as stereos or active loudspeakers.

System

Connection of the control unit to the C. Bechstein Vario system.

USB

Connection to a computer or MIDI device.

12 Principle of the C. Bechstein Vario system

Mute rail

The mechanical components of the C. Bechstein Vario system prevent the hammers touching the strings and making them vibrate.

The mute components can be controlled with extreme precision and leave your acoustic piano's action assembly and sound properties virtually unchanged.

Sensors

Sensors beneath the keys (blue in the picture above) constantly measure the key movements via light signals (red arrows). The return signal enables the sensor to identify the speed of the key movement, which in turn determines the volume and timbre of the digital sound to be reproduced. This technology was exclusively developed for the C. Bechstein Vario system.

The sensors function purely optically and thus do not alter your strike.

Control Unit

A variety of sounds including the 88 notes of a grand piano and the notes from various other instruments were recorded and stored in the control unit as "samples". The control unit processes the data from the key sensors according to your custom settings (volume, timbre, tone length) and transfers them to the connected devices.

13 Piano Care, Use and Service

Cleaning

Please do not clean the control unit using liquids, as any moisture seeping in may damage the device. Please do not use aggressive cleaning agents or those with abrasive particles. A clean, dry microfibre cloth delivers bests results for cleaning the control unit.

You should only allow a well-trained piano technician to clean inside the piano. Ask your technician to dust the area beneath the keys. All electronic components (key sensors, etc.) should only be cleaned using a dry, soft brush. If you use a vacuum cleaner, avoid any contact with the electronic components.

Checking action, mute and sensors

Only a qualified piano technician should service and maintain your C. Bechstein Vario system. A good technician will not only tune your piano, but also check the instrument, especially the action assembly. Not performing this extensive servicing could impair your guarantee rights.

Please ask your piano technician to check the action assembly when the mute is switched on and to check in particular the key and pedal sensors.

Before removing the action assembly, it is vital to disconnect the cable of the key sensors and deactivate the hammer bar (no mute mode). On upright pianos, the hammer bar must be disconnected from the cable using the Allen key supplied with the system.

Volume adjustment

The C. Bechstein Vario system is supplied with a set of Sennheiser dynamic headphones that allows you to ear also surrounding noise. The output volume of the system matches the properties of the headphones. To prevent damage to the system, the headphones and your hearing, you should never use another set of headphones.

Please note that the system delivers high dynamics. Therefore, you should adjust the volume to prevent any damage to your hearing. Moreover, the different instruments have different dynamics, so that you should adjust the volume for each instrument.

You should also adjust the volume if you use the Audio Out function. C. Bechstein accepts no liability for damage caused to your hearing due to connected devices.

Avoid direct light onto the keyboard!

Intense light can impair the functioning of the key sensors.

Remove the headphones before leaving the piano!

Before you leave the piano, please remember to remove the headphones. Strong juddering movements on the headphones or control unit (especially the headphone jacks) can damage the system.

Safety instructions

Extra care was paid to the development of the C. Bechstein Vario to avoid any risks when the system is in operation. But please read and always follow the following safety instructions:

- Never operate the system near moisture and keep all liquids away.

- The control unit is designed to respond to light pressure with the fingertips. Avoid excessive pressure being caused by heavy objects, massive shocks or other pressure exceeding gentle movement of the fingertips.

- The control unit will protrude slightly when pulled out. Please make sure that nobody, especially young children, can injure himself or herself on the protruding control unit or headphones support. Please remember to slide the control unit back after use.

- Only use the supplied transformer and power cable.

- Only plug the system into a mains socket that corresponds to the information provided on the transformer.

- Please avoid damage to the power cable and do not stand any heavy objects on it. Avoid squashing, bending or clamping the power cable.

- Please make sure that nobody can trip over the power cable.

- Never open the control unit or the transformer and ensure that no modifications are made.

- Please make sure that no foreign objects (paper clips, nails, coins, liquids etc.) get inside the control unit or onto the key sensors.

- When used with an output device, the system can produce a noise level that may permanently damage your hearing or the connected device. Never use the system with the sound set at maximum level.

- Refrain from switching the system on or switch it immediately off if:
  - liquids or foreign objects get inside the control unit or the piano;
  - the transformer is damaged;
  - the system emits smoke or the smell of fumes;
  - the system comes from a damp, wet or cold place.
  - the system does not work as anticipated or stops performing.

- Keep products containing solvents (nail varnish, spray cans, alcohol, cosmetics etc.) away from the system.

- The control unit and transformer should always be operated in areas with adequate ventilation.

- When disconnecting external and internal cables, only pull on the plug and never on the cable. When disconnecting cables at the back of the control unit, the plug-in lock must simultaneously be held down.

- Never handle devices, cables and the transformer with wet or damp hands.

- Please make sure that all cables are properly reconnected after transporting the piano and that the system is neither damp nor cold.

- Please disconnect the system from power supply during a thunderstorm.

- Remove the headphones before leaving the instrument and hang them on the support.

14 Advantages of the C. Bechstein Vario system

An excellent device – made in Germany.

Dynamics
- Unique dynamics from pianissimo to fortissimo
- High definition recording of the key movement ("high definition sensor technology")
- Easily adjustable via graphics on a display screen

Sensor Technology
- Optical key and pedal sensors
- Continuous measurement and adjustment of the sensors
- High resolution technology
- No influence on the strike

Display
- Large touchscreen display
- All functions easily and clearly controlled in the Main Menu
- Clear graphics, easy to understand in all countries
- Various functions (Record, Metronome, Settings, etc.) controlled in sub menus with simple architecture and exit button
- Sub menus with required functions clearly visible at a glance and fully controllable
- No complicated keys, no buttons with dual or triple functions

Control unit
- Multifunctions
- Small, unobtrusive design, with large touchscreen display
- Purely functional case without superfluous details
- Clear and elegant front, with LED and headphone jacks only
- Connections on the back: USB, Line In/Out, power
- Easy, self-explanatory operation
- Easily operated from above
- Easily adjusted settings with option to save and revert to original settings using a reset button
- Automatic switch on when pulling out the control unit
- Display switch off
- Acoustically sampled metronome with optional bell
- Memory setting for four custom configurations
- Sounds: 6 pianos, 3 organs, 1 harpsichord, 3 digital pianos, 2 strings (in the background)
- Main Menu: Instrument, Volume, Metronome, Memory Settings, Sub Menus
- Sub Menus: Record, Mixer, Dynamics, Tuning, Metronome, Settings

International
- Graphic menus easily understandable the world over
- Transformer (100–240 V) with several plugs

Energy Saving
- Automatic switch off (no standby)

Headphones
- High-quality device (Sennheiser)
- Comfortable to wear (light-weight)
- Optimal sound
- Headphones support on the piano

Mute rail
- Heavy-duty, minimal influence on the action assembly
- Easy to operate
- Accurately adjustable using a hand lever and a Bowden cable with special interior coating
- Easy to install
- Compatible with moderator pedal (uprights)

Installation
- Electronic components extremely easy and quick to install and service
- High-end software delivers excellent results even without custom calibration
- User can perform custom calibration
- Single key calibration possible

C. BECHSTEIN
PIANOFORTEFABRIK AG

15 Technical Specifications

Polyphony	128-voice, effective 60-voice stereo
Front connections	2 headphone sockets for 3.5 mm stereo jacks
Back connections	Line In/Out (3.5-mm stereo jacks), USB, system
Dimensions of the control unit (incl. bracket)	175 mm x 143 mm x 23 mm
Sensors	Optical, high-definition technology
Pedals	3 pedals (piano, sostenuto, sustain)
	Optical sensors, continuous measuring, software for stepless control of activation points
Operation	Large touchscreen display with graphic menus
	Main Menu with all key functions
Sub menus	Mixer: volume in, volume out, reverb, choir, treble, strings, balance, all with stepless adjustment
	Record (approx. 20,000 notes)
	Tuning/Transposing (Hz or cent)
	Metronome (bell on the first beat of every measure, individual beat and tempo settings)
	Settings
Sounds	Piano1, Piano2, Piano3, Piano4, Piano5, Piano6, Digital Piano1, Digital Piano2, Digital Piano3, Organ1, Organ2, Organ3, Harpsichord, Strings1, Strings2
Memory settings	4 memory settings for customized instruments
Power supply	9 V / 100–240 V
Max. consumption	6.5 W
Standby	No standby (device automatically stores setting and switches off when control unit fully back in position).
Accessories incl.	Transformer (with international plugs)
	Headphones (with support on the control unit)
	User manual