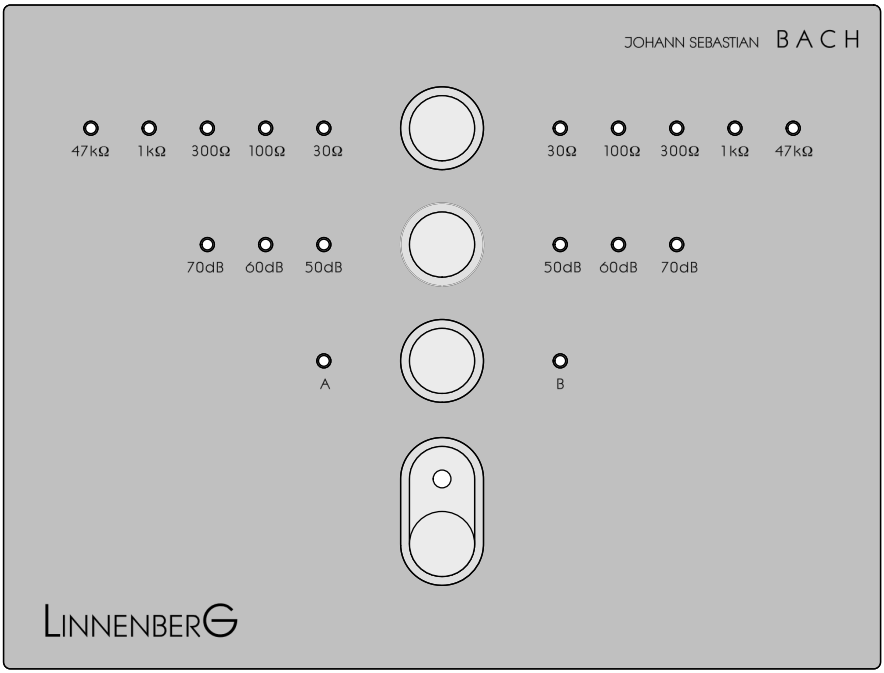
LINNENBERG

JOHANN SEBASTIAN BACH

PHONO STAGE

Owner's Manual



For many music lovers, the playback of vinyl records is the most important medium in their music collection. This is supported by the unmistakable character of the analogue sound, as well as the fact that the playback quality has improved considerably in recent times.

The BACH phono stage achieves the perfect analog sound through the use of a fully symmetrical circuit that suppresses noise and leaves the sensitive signal of a phono cartridge in the symmetrical mode.

Basic operation

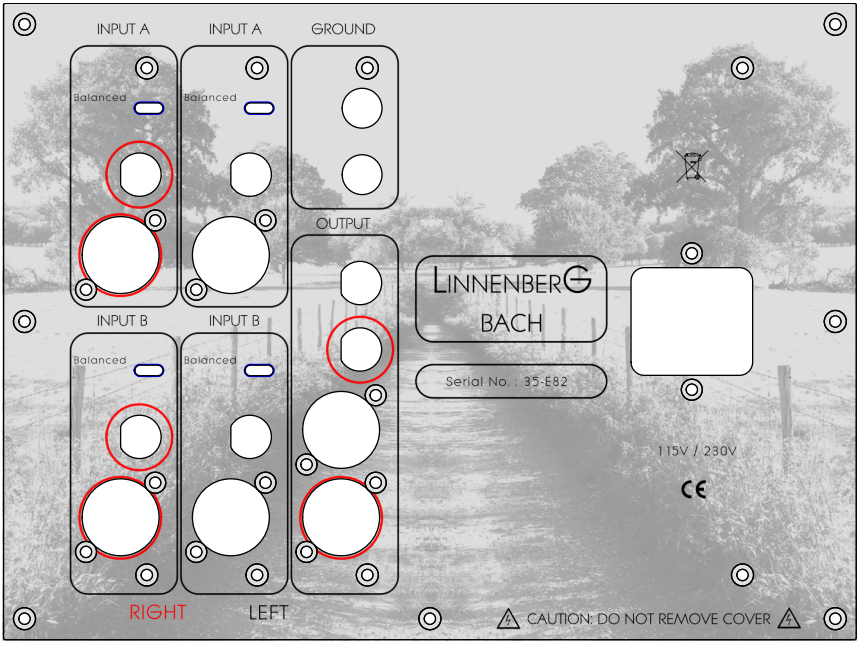
Room temperatures over 30 degrees Celsius (86 degrees Fahrenheit) and / or extreme humidity should be avoided. !

Place the unit on a solid, flat level surface such as a shelf where it is convenient to operate. Choose a location where the connecting cable to the tonearm is short (less than 1.5m). Furthermore, make sure that no other devices with powerful mains supplies (power amplifier) are in the immediate vicinity, as the risk of picking up hum is likely. !

As it is common practice, disconnect BACH from the mains during a thunderstorm or when going on vacation.

Once the power cord is connected, the blue indicator LED should light up and blink when the front panel push button is operated. Turn off the unit by pushing the front button again and do the signal connections. If everything is connected, turn on again and have fun!

Connections



Connecting the Analog Output

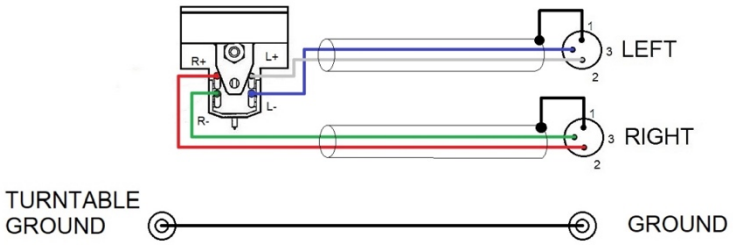
Connect the left and right interconnect cables from the BACH's outputs to your preamplifier left and right inputs. To maintain best sound quality, it is strongly recommended that balanced audio connections to be used. This is not only for the reason of the best possible performance; it is also important for getting the desired overall gain. The indicated gain values refer to symmetric in -> symmetric out operation. Unbalanced operation will result in a 6dB gain loss.

Connecting a Turntable

BACH has two independent inputs for use with two separate tonearms / turntables. These inputs are labelled input A and input B.

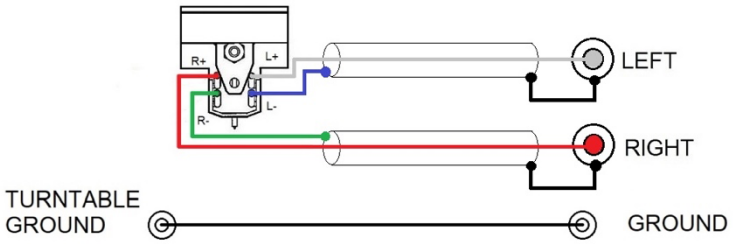
Turntable Connection Types

For start listening, you only need to connect a turntable to the BACH as you would do to any other phono preamplifier. Nevertheless, please take note of the following: BACH can be connected to many different types of turntables. To fully realize the sonic potential, use balanced cable connections with XLR terminations whenever possible. Balanced XLR cables minimize interference from magnetic, hum, and RF sources.



Wiring #1

A phono cartridge is actually a true balanced source, a balanced input is provided. Connect the output cables from your turntable to the left and right channel XLR input. Do not short pin 1 (chassis/ground) to either pin 2 or 3 of the XLR connector at any point in the cable, turntable chassis, or tonearm. This will cause hum in the system. Pins 2 and 3 must only be connected directly to the cartridge pins. If your turntable does not have XLR connections, use the Cinch (RCA) input instead.



Wiring #2

The Cinch (RCA) is mainly there for convenience reasons. It will work very fine for Moving Coil cartridges as the source impedance of such transducers is very low. Please note that in this case you swap the cable shield with the function of the second signal conductor. Due to the high common mode rejection of the balanced inputs, hum pick up will not occur, as long as the cable shields of the left and right channels are not connected to each other, or to the chassis ground.

In order to further increase flexibility, the BACH inputs (channel A, left and right and channel B, left and right) can be switched from symmetrical to asymmetrical mode. This comes effective from September 2021. Four toggle switches positioned on the rear panel are used for the task.

Changing the mode has no effect on the outputs! The XLR output still delivers a symmetric signal, even when the switches are in the unbalanced position.

In general, when using a balanced phono cable (wiring #1), the switches should remain in the balanced position. When using the RCA input jacks (wired to #2 or similar) the switches can help to eliminate a hum problem, especially when using an MM cartridge. In either case, please try "balanced" operation first.

Since there are numerous tonearm configurations on the market – mainly intended for unbalanced standard phono amplifiers – LINNENBERG AUDIO cannot guarantee that a configuration will automatically work properly. Sometimes experimenting with different ground schemes is inevitable. Your dealer will help you if a problem arises.

Channel A / B selection

BACH has two independent inputs. You can switch over from one to the other on the fly by pressing the push button located near the A/B indicators.

Gain Selection Adjustment

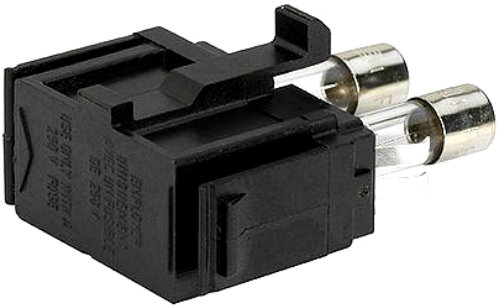
Each input has 3 gain settings. 50dB, 60dB or 70dB. The 50dB setting is intended for MM-cartridges or step-up transformers, whereas the 60dB/70dB gain is used for MC-cartridges. Again, you can switch over from one to another on the fly. When changing from A to B or vice versa, the chosen setting will be stored. If the gain setting is too high (e.g. 70dB for a high output MC) you may experience clipping. As a warning, the corresponding gain LED lights up during playback. There is now 6dB of headroom left, but reducing the gain is highly recommended.

Cartridge Loading Adjustment

Set the resistive load to 30Ω, 100Ω, 300Ω, 1kΩ or 47kΩ depending on the cartridge manufacturer's recommendations or by listening. The 47kΩ setting is for MM only and only works with the 50dB gain setting. It is disabled for the 60dB / 70dB gain setting. Once chosen, you can not increase gain from 50dB to 60/70dB. First, reduce the impedance to at least 1kΩ. For step up transformer operation it may be valuable to try to use the 50dB / 1kΩ setting.

BACH fuse replacement

Replacing the fuse



The fuse holder is located on the back of the unit; the fuse must be replaced by a 3.15AT type (5x20mm). Normally the fuse should never blow – if it has, it is a sign of a serious fault condition. Further investigation is needed.

Specifications

Gain: (sym. input -> sym. output)	50 – 60 – 70dB
Signal to noise ratio:	Gain = 50dB, @ U_{in} = 5mV: 96dB(A) Gain = 60dB, @ U_{in} = 500µV: 78dB(A) Gain = 70dB, @ U_{in} = 500µV: 77dB(A)
Equivalent Input Noise:	64nV = -144dBV
Input impedance:	30 – 100 – 300 – 1k – 47kΩ
Frequency response: RIAA equalization curve (75 µs /318 µs / 3180 µs)	+/- 0.2dB max.
Low cut filter:	5Hz, 12dB / octave
Distortion and Noise:	< 0.004% @ 0dBV (Gain = 50dB) < 0.015% @ 0dBV (Gain = 70dB)
Max. output level:	19V rms balanced
Output impedance:	10 Ω per phase

General:

Dimensions (H x W x D) :	210 x 256 x 442 mm
Weight:	15kg

Measurements taken in accordance to "stereophile" magazine, John Atkinson

CE declaration of conformity

Product Type: Phono preamplifier

Model: J. S. BACH

Linnenberg-Elektronik declares that this product complies with the Low Voltage Directive 2014/35/EU and the Electromagnetic Compatibility Directive 2014/30/EU as well as the Ecodesign Directive 2009/125/EC.

The unit meets all currently valid regulations only in its original condition. The original, unaltered factory serial number must be present on the outside of the unit and must be clearly legible! The serial number is an essential part of our conformity declaration and therefore of the approval for operation of the BACH. The serial numbers on the unit and in manual, must not be removed or modified, and must correspond.

Furthermore, the unit has been found to comply with the limits for a Class B digital device, pursuant to Part 15, subpart B (unintentional radiators) of the FCC rules.

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