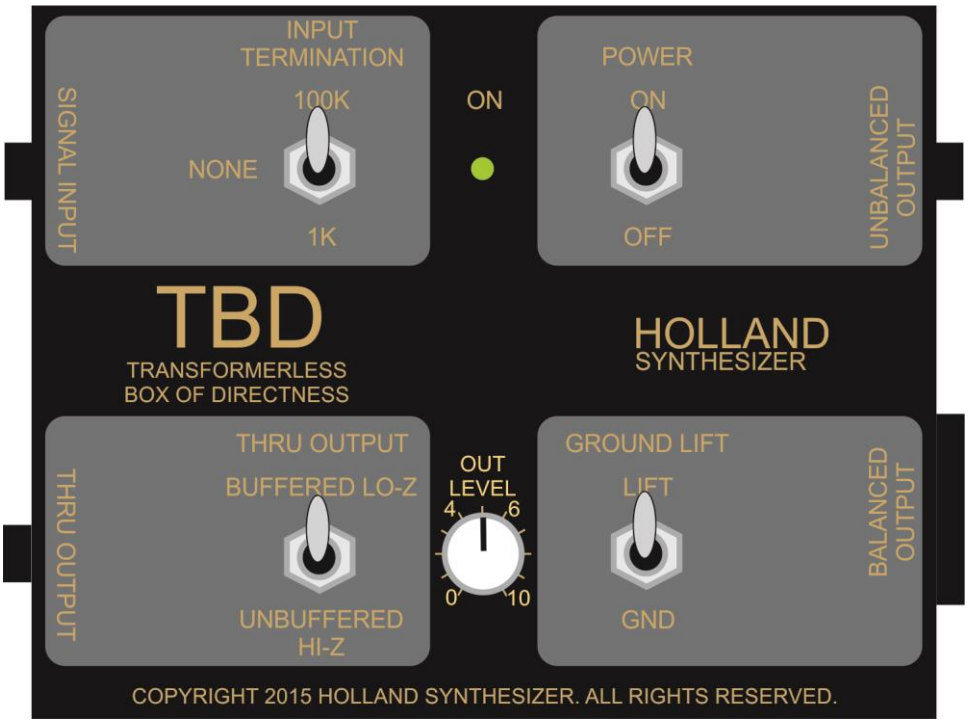
TBD

(Transformerless Box of Directness)

Active Noise Optimizing Direct Box, Re-amp Box and Signal Splitter



PLEASE READ BEFORE USE!!

Holland Synthesizer
PO Box 1479
Lake Elsinore, CA 92531-1479

www.hollandsynth.com

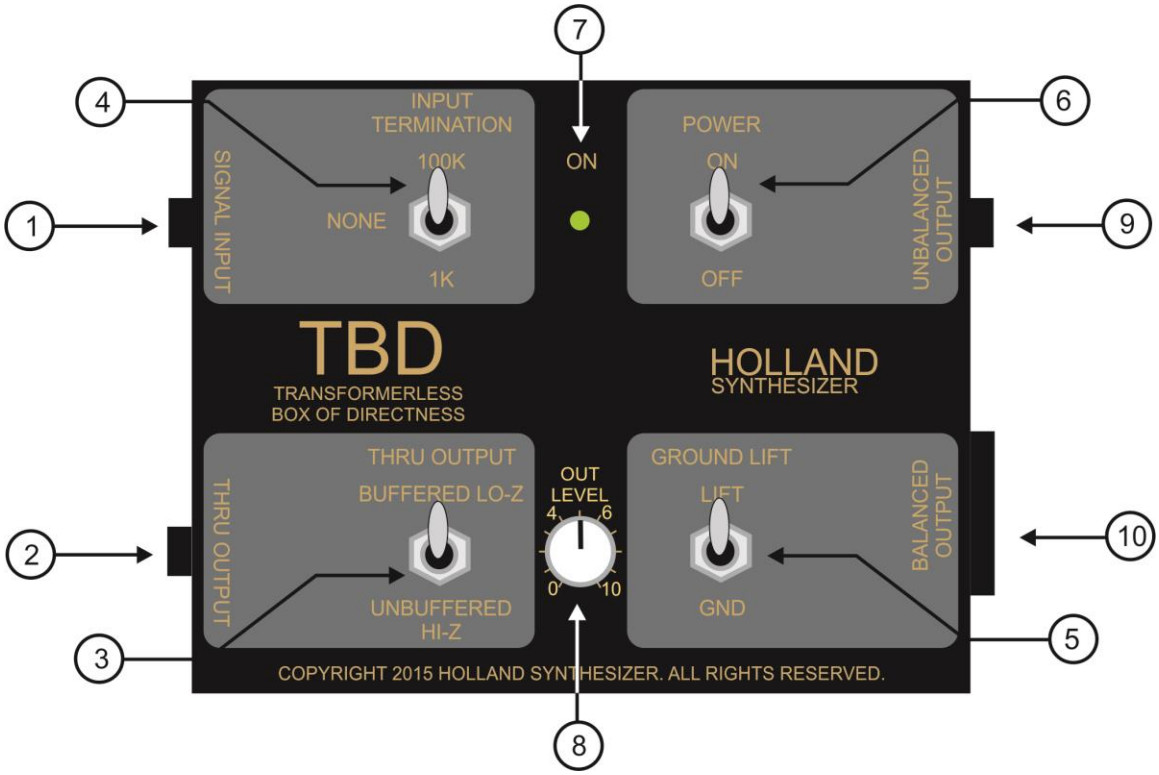
The TBD is a multifunctional studio interface device. It can perform several commonly required tasks such as single-ended to differential conversion, direct injection or DI Box, signal splitting, buffering, gain control, impedance matching and “re-amping”.

The TDB is designed with no input or output transformers in order to minimize hum pick-up, maintain flat frequency response and provide flexible impedances and loading capabilities.

It is designed to be audibly superior, dead quiet, flexible and of course to possess the legendary reliability for which Holland Synthesizer equipment is known.

WARNINGS: Always start with the output level at the minimum setting! The TBD can put out enough level to hurt something! Do not use the TBD for speaker outputs! Always use a passive direct box for speaker driven applications.

Description of Controls



1. **Input-** This ¼” jack is the signal input. Plug in your guitar or keyboard here. The TBD circuitry places virtually no load on the input source with the input

termination switch in the “None” or “100K” positions. This way, the sound of your instrument is not colored by input loading.

2. **Thru Out-** This ¼” jack is an output, which supplies an exact copy of your input signal. The signal has two possibilities, it can be a high impedance parallel copy of the signal, or a low impedance buffered version of the signal. The choice is determined by the position of the Buffer Switch. Choose whichever position gives you the lowest noise, and best quality signal and tone. The thru output is used when you want to plug your guitar into an amp and also send a copy to the console. In that example, plug your guitar into the input jack of the TDB. Plug the thru output into your amp.
3. **Buffer Switch-** Selects whether the thru output is un-buffered hi-impedance or buffered lo-impedance. Choose whichever position gives you the lowest noise, and best quality signal and tone.
4. **Input Termination Switch-** Some types of inputs, prefer some termination at the non- driven end of the cable. The input termination switch determines what load is presented to the input source. The switch has 3 positions: Lo impedance (1Kohm), No Load, and Hi-Impedance (100Kohms). For guitars, use 100K or none. The 1K load may change your tone. For keyboards or higher level inputs, try the 1K position. Listen very carefully for the best noise and tone when you make the selection. The “none” position places no termination on the input.
5. **Ground Lift Switch-** This switch opens or closes the DC ground to pin 1 of the XLR connector of the balanced output. Pin 1 always has an AC ground present to prevent RF noise, but lifting the DC ground will break any ground loops that may cause hum.
6. **Power Switch- The power switch is a locking type to prevent accidental turn on or off. Activate the switch by pulling the handle up, then moving the switch! Do not force the switch!!** The TBD is powered by two 9 Volt batteries, to maintain the exceptional low noise levels. The battery life is about 50 hours of normal use. We recommend the use of Duracell batteries, but any alkaline or rechargeable batteries should be fine. Do not attempt to power the unit from other power supplies as this will reduce performance and possibly damage the unit. The batteries are replaced by removing the 4 screws in the top cover, and carefully opening the box. They are located under the foam. **Do not operate with only one battery attached, you may damage the unit!**
7. **Power on LED-** The power LED lights up green to indicate that the power switch is turned on. Turn off the power switch when the TBD is not in use, to preserve battery life.
8. **Output Level Knob-** The TBD has a maximum gain of 4.75 at the unbalanced output, and a maximum gain of 9.5 at the balanced output. The output level control allows you to set the gain anywhere between zero and the maximum gain. Always start with the output level at the minimum setting! The TBD can put out enough level to hurt something!
9. **Unbalanced Output-** The unbalanced output is a ¼” tip/sleeve output. The level on this output is adjusted with the Output level knob. It is not recommended that the balanced and unbalanced outputs be used simultaneously. However, it is fine to use the balanced output or the unbalanced output along with the thru output.

You can also use the unbalanced output to overdrive your amp input, but **BE CAREFUL!** Start with the level control all the way down. Then just crack the level knob, until it drives the amp input. Even though excessive overdrive sounds sweet, please be responsible with high output levels driving instrument inputs! **YOU CAN HURT SOMETHING!**

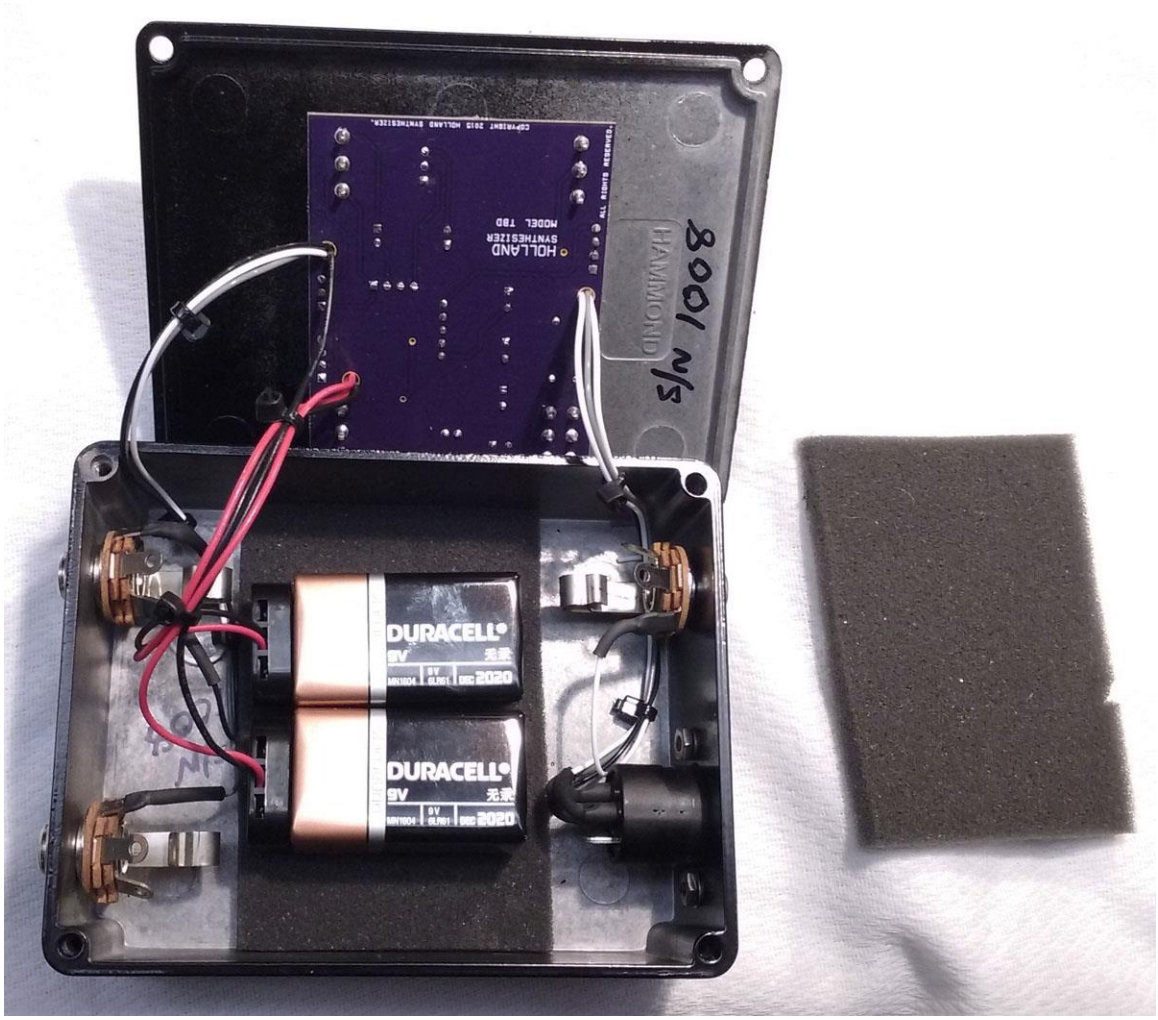
10. **Balanced Output-** The balanced output is a 3 pin male XLR output. The level on this output is adjusted with the Output level knob. It is not recommended that the balanced and unbalanced outputs be used simultaneously. However, it is fine to use the balanced output or the unbalanced output along with the thru output.

Applications:

1. **Direct Injection or DI Box.** This function is used when you need to plug an electric guitar, acoustic guitar pickup, bass or a keyboard directly into a recording console. Turn the output level control all the way down (Counter Clock-Wise). Plug the instrument into the input jack, and take the output from either the balanced or unbalanced output. The selected output is connected to the console input, and the output level control is slowly raised to the appropriate level. The output can be connected to a balanced or unbalanced line input on the console, or a balanced microphone input. **Do not supply "Phantom" power to the TDB Box, or damage may result!** You should engage any microphone input pad on the console before cracking the output level on the TBD. See also signal splitting below.
2. **Signal Splitting.** Sometimes when you are using the TBD as a "Direct Box", you may want to send a copy of the input signal somewhere else also. One example would be to send the balanced output to the recording console, and the thru output to your guitar amp. You may also want to send one signal to the console "clean" and another copy to your effects loop, and then to the console. If you record both signals, you will have "your sound" on one channel, and a clean sound on another channel that can be used for re-amping later.
3. **"Re-amping".** Re-amping is a term that refers to recording a clean signal to tape, and later playing it back through various effects or amplifiers to get a perfect sound for the mix. The musician need not even be present for re-amping. To use the TBD for re-amping, plug an unbalanced output from the console into the input jack on the TBD. Turn the output level control all the way down (Counter Clock-Wise). Then plug the TBD unbalanced output jack into the input of the effects or guitar amp. Crack the output level on the TBD until you have the correct input level. Be careful with this so you don't overdrive the input and damage anything.
4. **Noise Optimizing Effect.** By correctly selecting the input termination, buffering and output level, you will most likely find that instrument noise is reduced dramatically. Consider it a bonus!

Changing the batteries:

1. Turn off the power switch, and carefully remove the four screws in the top cover.
2. Gently open the box like a clam shell with the opening facing toward you.
3. Lift off the top piece of foam, revealing the two 9 Volt batteries.
4. Carefully remove the battery clips and insert two new batteries.
5. Lay the new batteries on the bottom foam, with the clips facing the input and thru jacks, and replace the top foam.
6. Gently replace the top cover, being careful to tuck in any wires and not pinch any wires with the cover.
7. Replace the four screws firmly, but do not overtighten.



Specifications:

1. Power: 2 Batteries. Duracell 9 Volt.
2. Frequency response: Balanced or unbalanced outputs:
   +/- 0.5 dB 10 Hz to 150 KHz.
3. Noise : Greater than –115 dBm below signal.
4. Distortion: Less than 0.01 %.
5. Input impedance: Selectable 1K Ohm, 100K Ohms or greater than 1 Meg Ohm.
6. Output impedance: Unbal 50 Ohms, Bal 50 Ohms.
7. Gain: 0-4.75 at Unbalanced Out, 0-9.5 at Balanced Out.
8. Gold contacts on PCB, switches and XLR Connector.

Holland Synthesizer

PO Box 1479 Lake Elsinore, CA 92531-1479

www.hollandsynth.com