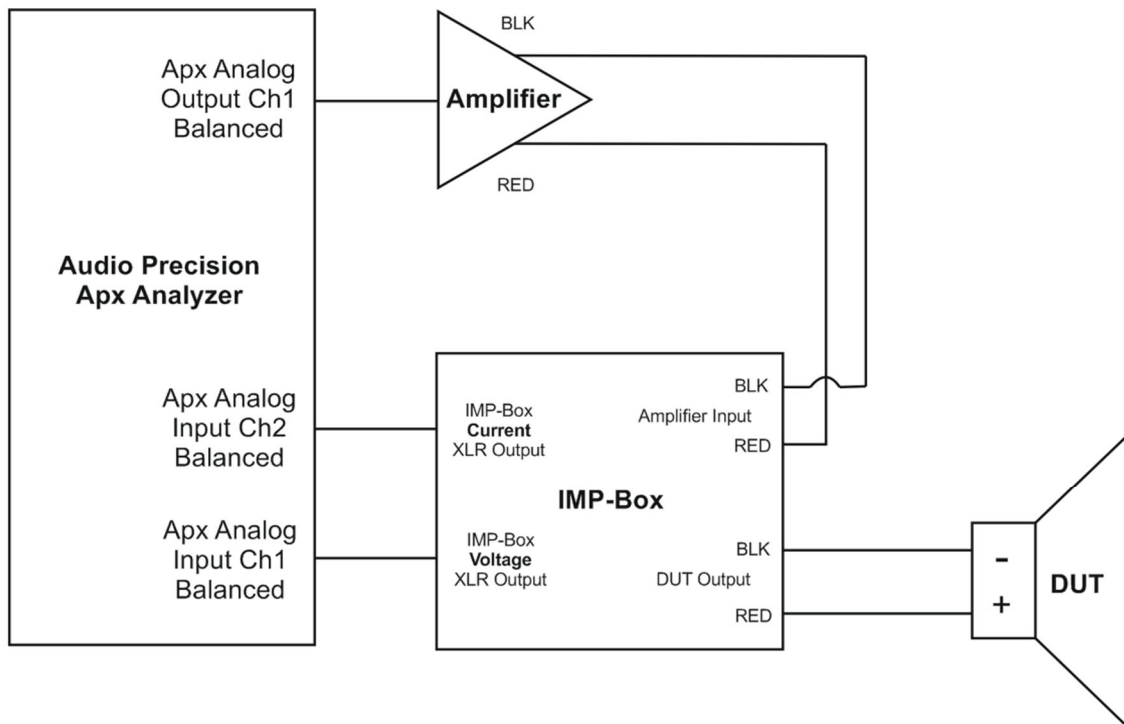


Application Note

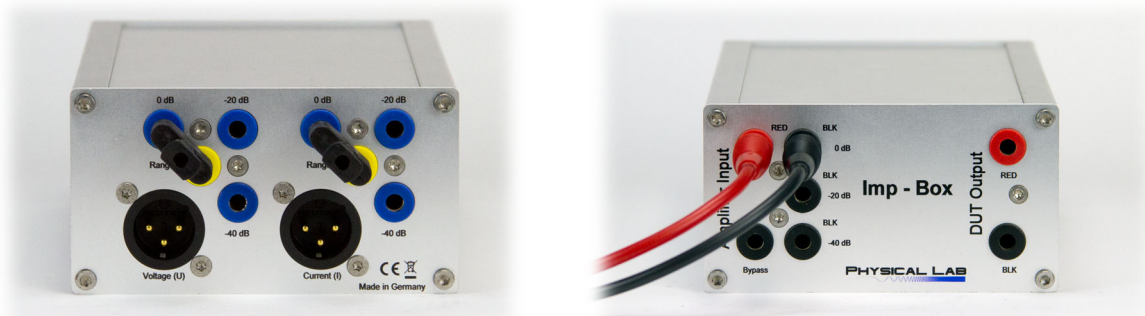
Using the IMP-Box with Audio Precision APx Analyzers

The Imp-Box is the perfect utility for precise impedance measurements using an Audio Precision APx analyzer. For voltage and current measurements with higher levels, an amplifier is needed. Please note that it should not be a bridged mode one. For very low levels you can use the APx generator output directly without an external amplifier.



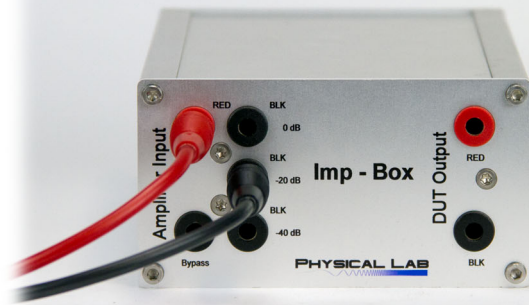
Typical setup

As you can see on the scheme above the connection is really easy. Simply connect your amplifier outputs to the red and black (select your attenuation on the black input) inputs of the IMP-Box. You should use the same attenuation on the outputs of the IMP-Box. This can simply be done by using the dual test plugs provided with your IMP-Box.



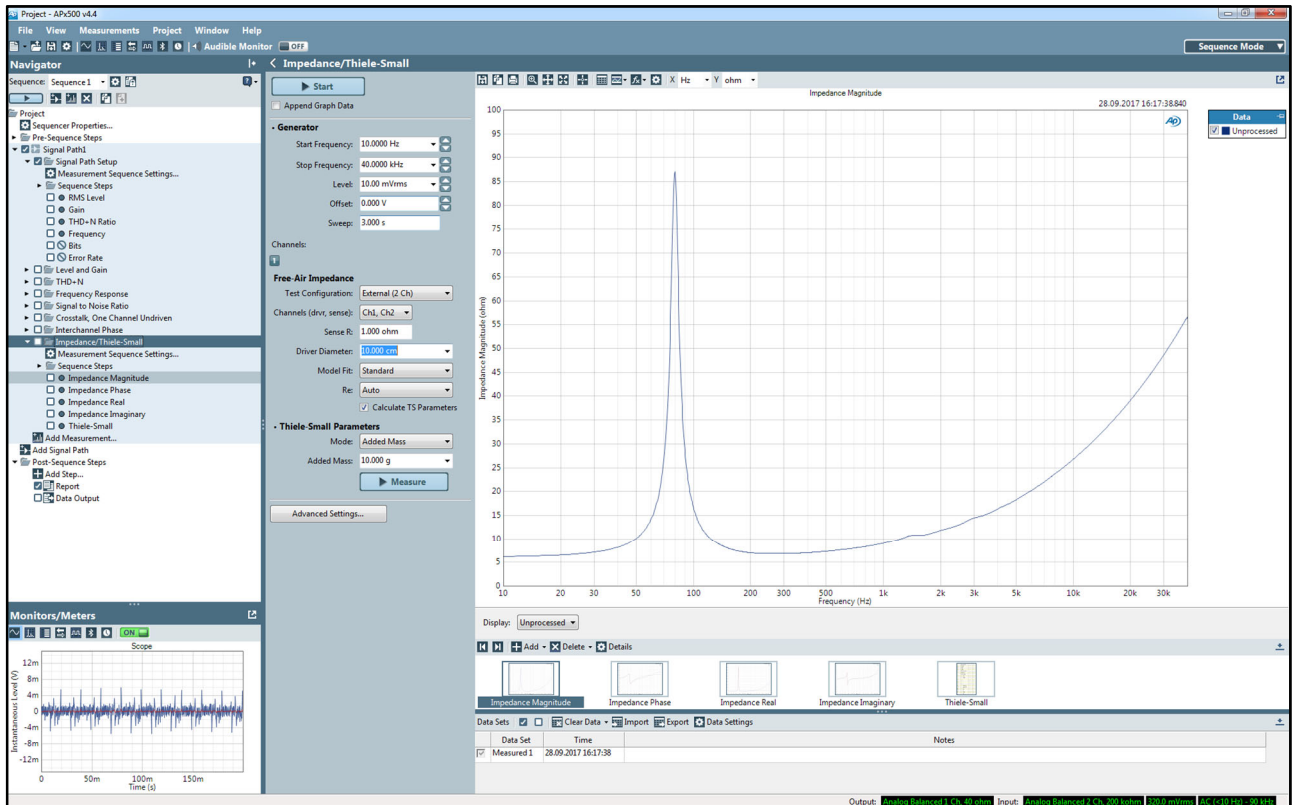
Example for 0dB Mode

IMP-Box



Example for -20dB Mode

Start your software and choose “Add Measurement”. Then select the “Impedance/Thiele-Small” mode. In the Generator setup you can enter the start and stop frequency as desired. The level of the measurement can also be selected here. Please note that you should use a long sweep (5s) with high resolution for subwoofers with low resonance frequencies.



IMP-Box

Before you run your measurement please be sure to correctly choose your “Sense R” resistor in the *Free-Air Impedance* setup. If you are using the same attenuations at the IMP-Box Inputs and XLR Outputs simply use 1Ω as value. For lower power levels you can also change your setup. For example you want to measure the impedance of a subwoofer with levels above 20W. You have two options now.

- You can use the -20dB amplifier input and the -20dB XLR Current Output. If you use the -20dB Voltage XLR Output choose 1Ω for “Sense R” in the software.
- You can use the -20dB amplifier input and the -20dB XLR Current Output. If you use the 0dB Voltage XLR Output choose 0.1Ω for “Sense R” in the software.

The 0dB Mode has a slightly better SNR, but this should not affect the impedance measurement when testing speakers. Please check the max analyzer input voltage if you want to use the -40dB mode with the 0dB voltage output (0.01Ω).