Operation manual of the Mini Audio Lab.

Congratulations to your new Mini Audio Lab. This equipment have integrated the following functions:

- Precision sine wave generator from 16 Hz. up to 20 kHz in 1/3 octave ISO steps, switchable to burst and pink noise signal.
- Internally 0.5 Watts amplifier for the impedance test of loudspeaker boxes from 1 ohm to 20 ohms with the different ISO frequencies.
- Internal measuring microphone with a bargraph on the display for the level control with different frequencies for a (rough) EQ pre-setting. The display is divided in 1dB steps on the right side (10 bars) and in 3 dB/5dB steps on the left side (6 bars).
- Detection and display of feedback frequencies what need to be cut with the equalizer.

The function of the switches / potentiometer are:
On/Off: Main switch for the current supply of the equipment.
Amp/Imp: Input switch between impedance measurement and amplitude measurement with the build in microphone.
Gnd: Ground Lift switch.
NL4: Changes the output between 1+/1- / 2+/2- on the speakon socket.
Mic in: Sensitivity automatic controller for the level announcement.
XLR Out: Output level for the XLR connector as well as the speaker connector.
Down: Change over of the generator frequency to a lower ISO frequency
Up: Change over of the generator frequency to a higher ISO frequency.
Mode: Change over between sine wave -> burst -> pink noise -> feedback identification if the input switch is in left position otherwise sine wave -> burst -> pink noise

Frequency detection:
When switching on this menu the trigger level of the mic will be adjusted within 0,5 sec. In order to get a low threshold of the feedback amplitude it might sense to open the „Mic In“ poti and to be quiet when change to the „Feedback detection“ mode. The Mini Audio Lab will adjust itself within 0,3 sec to the best trigger level when be switched to this mode. Under normal ambient noise the display frequency values will change every 0,5 sec. When a feedback is occured, the relevant ISO frequency what need to be cut on the equalizer will be displayed on the lcd.
Pink noise on:
This menu item is a built in pink noise generator with a decrease of -3 dB / per octave.
Burst signal:
Here, the previously set as burst frequency sinusoidal signal to the outputs. This signal can can be use for reverberation times measurements as well as adjustements of delay speaker systems.
Amplitude Measurement:
In this menu item, the amplitude response of the speaker system at the different ISO frequencies will be indicated. Please note that the mini Audio Lab is not a replacement for a good ear training, such like the famous "Golden Ears" CD collection.
Impedance Measurement:
When measuring directly on the speaker is to be noted that an internal 8.2 ohm resistor on the speaker output is connected in series in order to provide a voltage measurement for the speaker impedance calculation. A direct amplitude measurement of a loudspeaker is not possible, because the voltages at the speaker logically changes by changing of the the impedance. Switch the „Amp/Imp“ switch to the right position. Please open the output poti full clockwise prior the measurement to ensure that a defined level of the speaker is present ! Please note that an empty battery or a wrong power supply will result in errors of the detected impedance. In this case please adjust the impedance with a known resistor and the small trimpot, located in the hole over the „Ground Lift“ switch.
Jack socket: This is an input for external signals, like a cd player or an instrument. The Mini Audio Lab detects an external connector and will change from test signals to the external source if a connector is plugged. The XLR output socket is balanced and the ground can be lifted in order that the Mini Aucio Lab could be used as di-box.

Technical data:
Dimensions: 162mm x 88mm x 45mm
Supply: 9V compound battery what can be changed by loosing the 4 screws on the botton.
External supply: Please take care that the polarity is correct and that the 9 V supply is stabilized.
Accuracy sinus-wave generator: Deviation 0.3 cycles per second/distortion factor < 0.1%
Accuracy amplitude measurement: 1.5 dB, +/- 1 digit (50 cycles per second - 12.5 kHz)
Accuracy impedance measurement: +/- 1 ohm, 1 digit (100 cycles per second - 12.5 kHz)
Pink Noise Accuracy: +/- 0,5 dB from 100 Hz to 12,5 kHz.
Connectors: 1 x 3 pin XLR, 1 x NL4, 1+/1

Legal references: Please note that these devices may be used only by trained technicians in combination with professional public-address systems. A responsibility of the manufacturer for possible damage or disadvantages of the user by the use of the devices is hereby expressly excluded. The respective laws over the enterprise of this kind of devices are to be kept by the user. The company Ohrwurm Showtechnik explained further that these devices are made under the applicable **CE**-standards and **ROHS** regulations, as well as the registration as b2b equipment under the number DE54933725 WEEE. Please feel free to contact us at info@optogate.com if you have further questions.