

## User manual for the line test combination „The Toy“

No time for manuals? No problem, this will take only 3 minutes of your time to read it and you will have more fun and success with your new „Toy“. This Phasetester / Linetester combination is the logical consequence of the Phantom Line Tester.

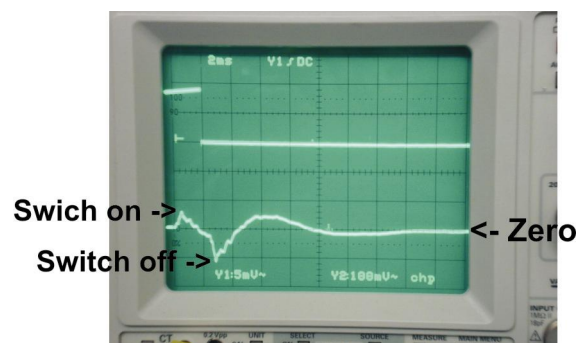
The xlr device is usable as an independent signal generator and linetester. Just connect the xlr device to the mixing console with the cable which need to be checked, switch on the phantom power and you get immediately the result:

- LED flashes 2 times: Pin 2 of XLR cable is defect
- LED flashes 3 times: Pin 3 of XLR cable is defect
- LED is off: Pin 1 of XLR or phantom power is defect
- LED is on, Square wave generator on: The cable might be ok.

Yes, you're right. The xlr device can only check if pin 2 and pin 3 of the xlr cable are connected to the console. The xlr device is not able to check the polarity. But this device will help you to find more than 90% of the well known faults on stage. But how about the other 10% ? For these 10 percent you got the polarity / phasetester device. This device will serve the xlr device with 9V phantom power and 2 implemented led will indicate the polarity of the received signal from the xlr device. With this device combination you will be able to check installed multicores and other mic cables without problems.

As additional gadget what I implemented was a mic preamp and a small condenser mic on the pcb in order to have the possibility to check the polarity of speaker systems. The first thing what I learned was: Never trust a polarity / phase checker unless you know what you do! The indicated results were quite different, depending on the trigger level and I was not able to find out clearly what's correct. After that I tested 2 well known polarity checker brands and found out that they also indicated different results, depending on the adjusted trigger level. What is happen? A polarity checker is a gate unit what will indicate the first signal what will be higher than the adjusted trigger level and will switch on the corresponding led. After the indication the phasechecker will wait for a while until the next impulse is be expected.

Here is a photo of a screenshot from the generatorsignal (upper signal) and the impulse response (lower signal) of a „real world speaker“:



You see that the switch off response in this case is almost the double amplitude, compared to the switch on response. So it is a good idea to start the measurement with the highest sensitivity of the receiver unit in order that the receiver will „see“ the switch on response and will indicate the correct polarity. Just turn the poti full clockwise and start the measurement with the highest sensitivity (lowest triggerlevel). This effect will be smaller when you check a midrange speaker due to the faster response of the smaller cone.

If you want to check high frequency drivers then I it is a good idea to use an external mic due to the reflections inside of the box what might disturb the result.

The receiver unit works with a 9V battery. The battery lifetime will be about 2 years. However if you need to change the battery, then just remove the outer 4 screws on the faceplate and remove the faceplate with the board. Please take care that the board will fit in the correct position when you assemble the faceplate again.

These devices were developed for use with professional equipment and should be used by professional trained system engineers and operators only . Please be aware that we are not responsible for any hazards, damages or disadvantages due to the use of these test devices. The test devices are registered under the number DE54933725 WEEE as B2B devices. We also declare that they conform to the CE and ROHS for the European market.

If you have further questions please don't hesitate to contact us at: [info@optogate.com](mailto:info@optogate.com).