**From ST5 Smart Tweezers LCR-meter to LCR-Reader**

**Smart Tweezers Alternative = LCR-Reader**

The new developed device offers a sleeker LCR- and ESR-meter, with a lower price and size with a 1% basic accuracy. LCR-meter is very similar to Smart Tweezers in terms of usage.

The world first handheld LCR-meter, Smart Tweezers LCR-meter is a small and light tool designed for use in Surface Mount Technology (SMT). This design combining a set of tweezers tips, an LCD and an LCR-meter completely transformed the way to evaluate components. Easy one hand operation leaves the other free for other tools. This design has been proven as a successful concept from the beginning, and is currently used by thousands of customers worldwide, and many leading high-tech companies.

LCR-Reader is twice as light as Smart Tweezers ST-5 and also powered by Li-Ion rechargeable battery with a micro-USB charger connector. Basic accuracy of the new device is about 1% which is not as good as that of Smart Tweezers ST5 (0.2%) but about exceeds that of previous models of Smart Tweezers ST-1, ST-2 and ST-3. It also has gold-plated stainless steel tweezers tips. There is just one button that turns the device on and allows to change the measurement mode by a single button push: A (automatic), L (inductance), C (capacitance), R (resistance), and ESR (equivalent series resistance). All measurements are done automatically, test signal amplitude is fixed at 0.5 Volts, test frequency is automatically adjusted according to the component type and value. Similarly to Smart Tweezers, LCR-Reader in addition to the the main impedance component L, C or R it will also show the parasitics, such as R for L, C and C for R.

One of the problems with Smart Tweezers LCR-meter has been the price point. Depending on the region and resellers, Smart Tweezers can be from $300 to $700. Criticism about the screen being crowded has also been sounded on the ST5 model. For companies and professionals using Smart Tweezers, there are few issues, but for the everyday hobbyist, the price point is far too high. We have attempted creating a new device with a lower price (not featuring a 1 Volt test signal) but the price cut was only 20%, and would not affect the overall market.

Around a year ago, development of the LCR-Reader began, based on the availability of new microchips and ideas on how to simplify the circuit without losing much of the accuracy. The result evolved into the prototype pictured (Fig 1.), a physically smaller and lighter device and cheaper manufacturing cost (compared to the Smart Tweezers LCR-meter).

The new LCR-Reader is powered by a Li-Ion battery, rechargeable via micro-USB. The device features a lower weight, with about 1% basic accuracy.

Similarities to the Smart Tweezers models include the gold-plated tweezers tips that have attributed to Smart Tweezers identifiable design, a one-button navigation, and a Li-Ion battery that charges via micro-USB. The new device features a 1% basic accuracy, which is slightly

lower than the ST5 model, but the same as the ST2 model. The button navigation provides a simple touch solution to switching modes of operation; A (Automatic component recognition), R (Resistance), L (Inductance), C (Capacitance), and ESR (Equivalent Series Resistance). All measurements are automatic, test signal amplitude is 0.5Vrms, test frequency is automatically selected according to the component type and value.



Figure 2 shows an example of the device’s screen while measuring. AM shows that the LCR-Reader is measuring in Automatic Mode, Rs is the parasitic series resistance of the non-ideal inductor, 10 kHz is the test frequency being used, L shows that the component under evaluation is an inductance and 104.8 uH shows the inductance value in micro-Henries, the battery icon shows its charge level.

Planned for a summer launch, the new device’s estimated sales is four-fold compared to the ST5 model sales.

The Smart Tweezers’ Blog features all the latest news about Smart Tweezers LCR-meter and the LCR-Reader.

A comparison of LCR-Reader and previous models of Smart Tweezers is given in a Comparison Table below.

**Feature Summary**

* Automatic measurement of L-C-R and ESR
* Basic Accuracy of 1%
* Automatic best range
* Li-Ion rechargeable battery, Optional USB Charger
* 28 grams (1oz) weight

[**LCR-Reader detailed info is on:**](LCR-Reader%20detailed%20info%20is%20on:%20)  **http://www.bomir.com/online/index,686,LCR-Reader.html**