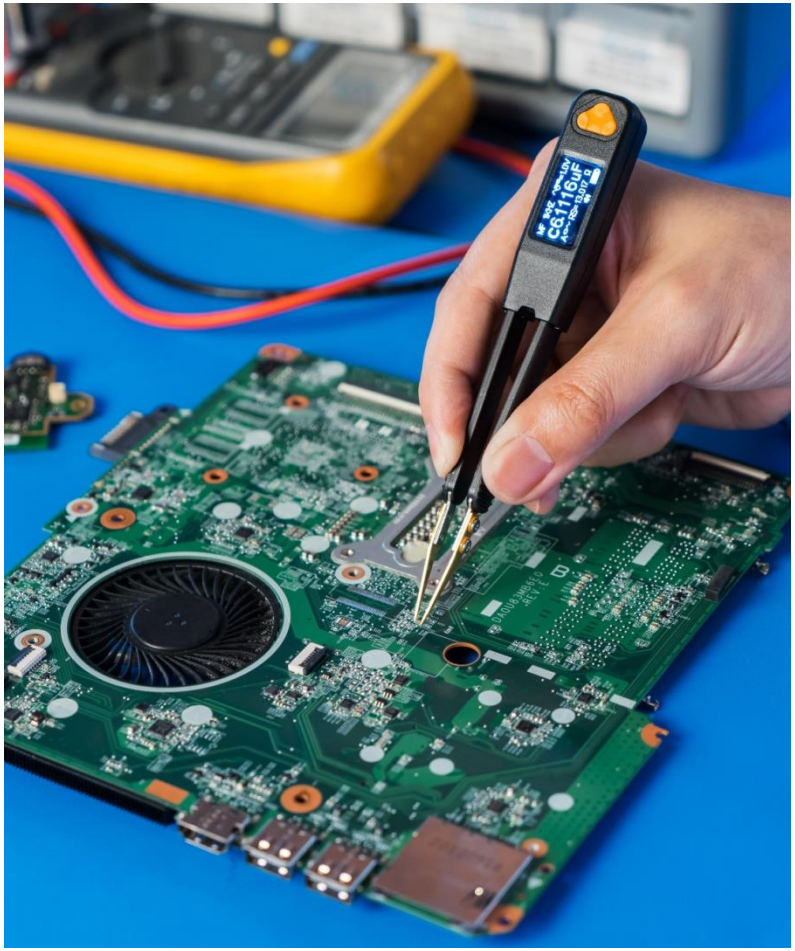
LCR Pro1 / LCR Pro1 Plus

Introduction and Application Guide

Made in Canada

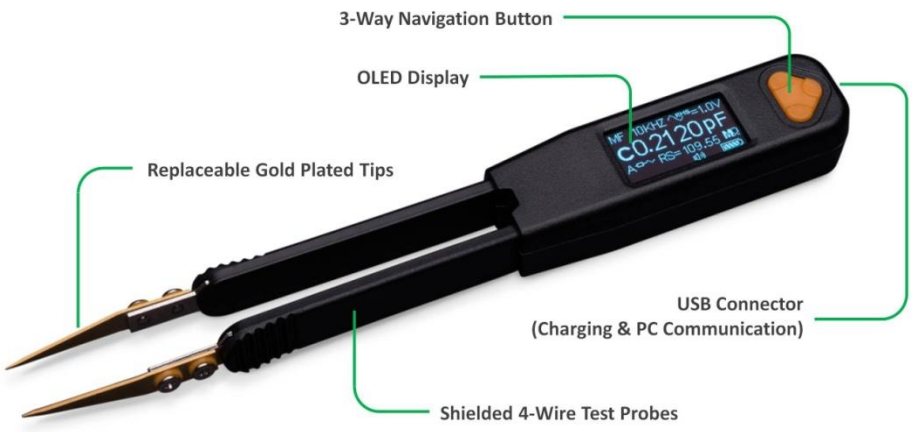
A Highly Integrated Device



The LCR Pro1 integrates a pair of tweezers like probes and a LCR meter into one compact, lightweight, battery powered device. It is an all-in-one miniature device that provides a simple and efficient solution for not only measuring SMD components, but also making in-circuit debugging.

The Pro1 is an ideal device for many applications including components verification and sorting, production lines, laboratory and service center, in-field repair and more.

Pro1 / Pro1 Plus Key Features



- **Easy operation**
  - One hand use, full set of shortcuts
- **Fully auto/manual selection**
- **Multiple measurement functions**
  - R, L, C, Z, ESR, DCR, D, Q, θ, diode
- **High accuracy**
  - R: 0.1% , L: 0.2%, C: 0.2%
- **Wide measurement range**
  - R: 20mΩ to 10MΩ; C: 0.2pF to 10mF; L: 10nH to 1H
- **5 test frequencies**
  - 100Hz, 120Hz, 1kHz, 10kHz, 100kHz
- **3 test voltages**
  - 0.2Vrms, 0.5Vrms, 1.0Vrms
- **Small size**
  - L*W*H: 151 x 19 x 15mm
- **Large OLED display**
  - 0.96”, 128*64 resolution
- **Ultra precise gold plated tips**
- **Rechargeable LiPO battery with USB charging**
  - 2.5 hours charging time, all day battery life
- **PC remote control for data logging and programming***
  - * Require USB communication dongle (purchase separately)

Pro1 Plus Key Features

- **Automatic LED testing**
  - Display LED polarity, voltage and current
- **Ultra sensitivity to very small inductors**
  - Be able to sense inductors down to several nHs.
- **All Pro1 features**
  - Please see page 3 for details.

A Breakthrough in Accuracy

The Pro1 delivers high accuracy once found only in high-end desktop LCR meters. It provides basic accuracy 0.1% for resistance and 0.2% for capacitance and inductance with 5-digit resolution.

Each device is fully calibrated on production and shipped with NIST (National Institute of Standards and Technology) traceable calibration certificate.

The test frequencies can be selected from 100Hz to 100kHz. 100kHz is ideal for measuring small inductance under 1uH.

The test voltage can be selected from 0.2Vrms to 1.0Vrms. 1.0Vrms allows precision measurements of ceramic capacitors with high dielectric constant (K), such as X5R type. 0.2Vrms is specially designed for in-circuit debugging because it is low enough to prevent the silicon chips from being active during measurement.

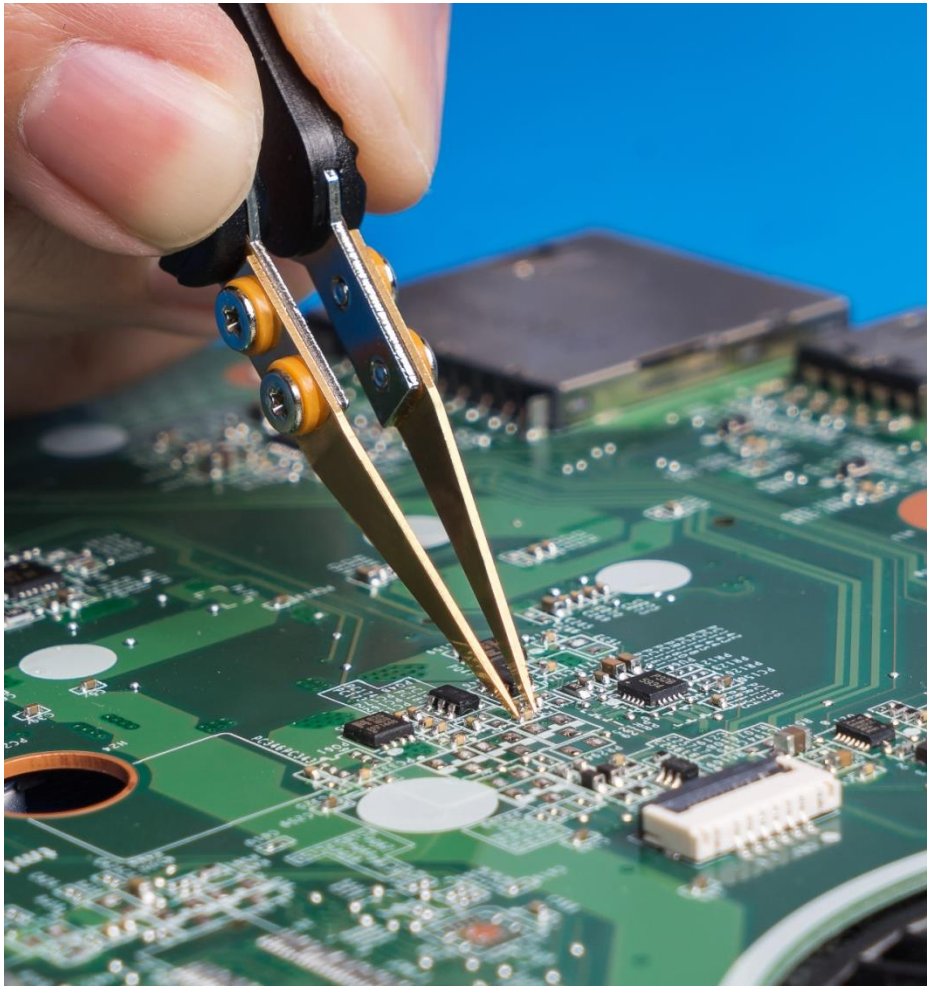
Very Wide Measurement Range

Pro1 measures 100nH inductor: Accuracy: 1.3%

- **Provides wide measurement range that covers almost all the SMD components:**
  - R: 20mΩ to 10MΩ;
  - C: 0.2pF to 10mF;
  - L: 10nH to 1H.

- **Significantly improves the accuracy for very small inductors, which are from a couple of nHs to hundreds of nHs.**
  - This is a very important advantage of the Pro1 as these small inductors are widely used in the RF industry, but usually only expensive desktop LCR meters are able to measure such small values.
  - The left two pictures show the measurement result of a 100nH Murata LQW series RF inductor:
    - Desktop meter: 113.44nH
    - Pro1: 114.94nH, accuracy: 1.3%

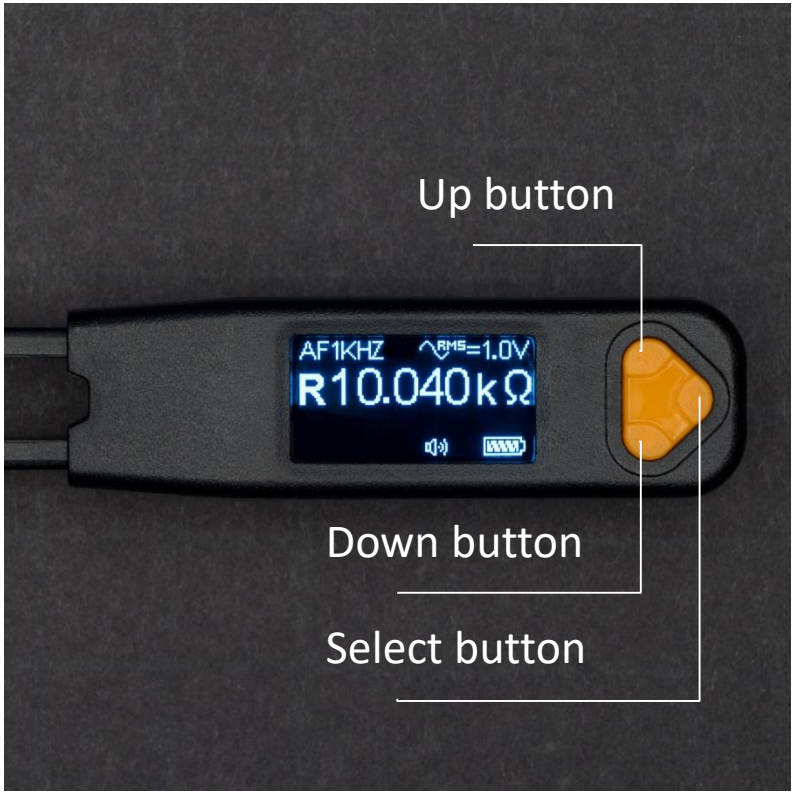
Ultra-Precise Tips



The redesigned gold-plated tips are more precise than ever. You can use them to pick up and measure SMD components quickly and reliably, even for the most tiny parts with 01005 size.

Thanks to the sharp tips, you can easily reach the component under test without touching the adjacent components during in-circuit troubleshooting even in a very crowded area.

Handy Shortcuts



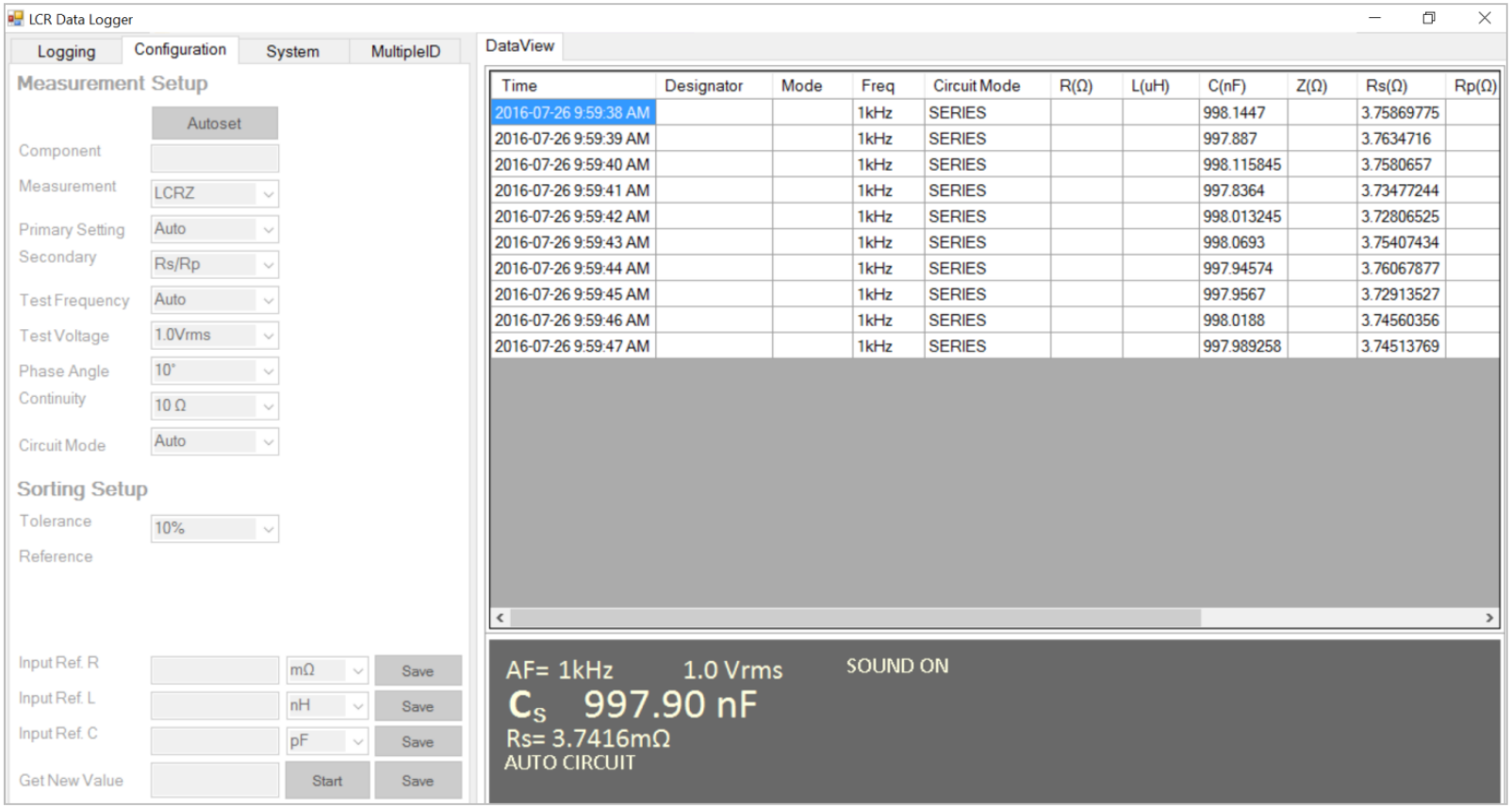
The Pro1 is full of handy shortcuts to help you switch all kinds of parameters faster and easier. During the measurement, you can quickly select different settings by single clicking, double clicking or holding the navigation button.

PC Communication

The Pro1 is able to make measurement and charge battery simultaneously when it connects to PC via the LCR Link1, a USB dongle style communication module.

The Link1 is built with a fully integrated isolation technology for delivering power and data safely and blocking the noise from PC effectively. Therefore it ensures that the device performance and accuracy don’t get degraded when it is connected to PC.

Intuitive LCR Data Logger Software



The LCR Data Logger is an easy-to-use Windows based software that is downloadable for free from our website. It provides an intuitive user interface on PC to remote control the Pro1 that is connected to PC via the LCR Link1. It configures the Pro1 parameters and logs the measurement results to an Excel spreadsheet.

LCR Visual Measurement

How it works:

Visual measurement is a unique feature that indicates the test points on the picture of the board you are testing. When running visual measurement, LCR Data Logger displays both GUI and PCB picture. It can:

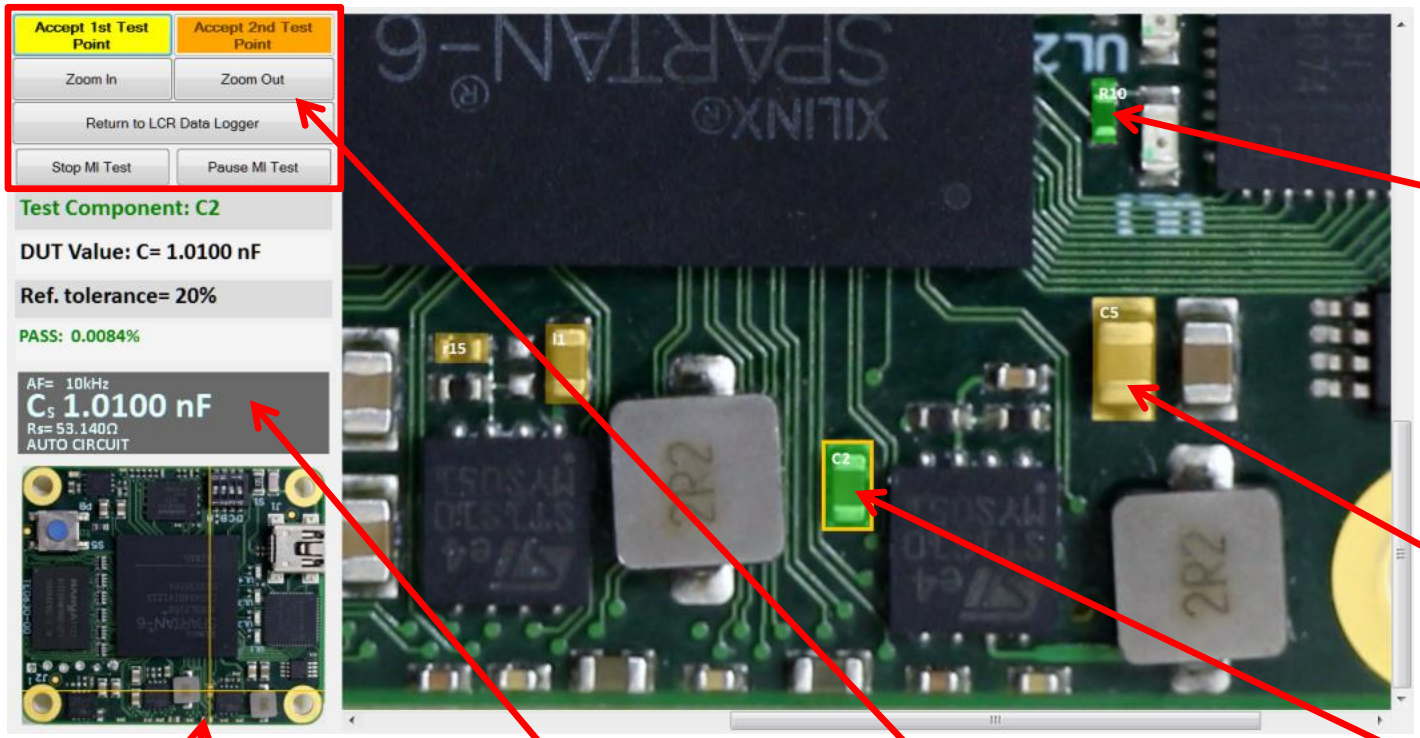
- Automatically set up device parameters for each component for testing.
- Indicate the component location on the picture.
- Once the test is completed, display the test result on both GUI and picture.
- Record all the test parameters and results to a Excel spreadsheet.

Benefits:

- Run test more conveniently as the test points can be easily found on the picture. It improves productivity especially for the applications that require duplicated measurements, such as production lines, repair center, etc.

- All the test parameters are programmed automatically according to the visual profile. After testing, the results are recorded in a Excel spreadsheet. It reduces the possible measurement errors due to manual setup mistakes by the operator.

PCB View in LCR Visual Measurement



Component has already been tested:

- Filled with green color indicates the result is PASS (red if FAIL).
- Component designator (R10) is also display.

Component hasn't been tested yet:

- Filled with yellow color indicates this component hasn't been tested yet.
- Component designator (C5) is also display.

Whole board view:

A pair of yellow cursors indicate where the current component is located.

Real time data:

Real time parameter settings and measurement results.

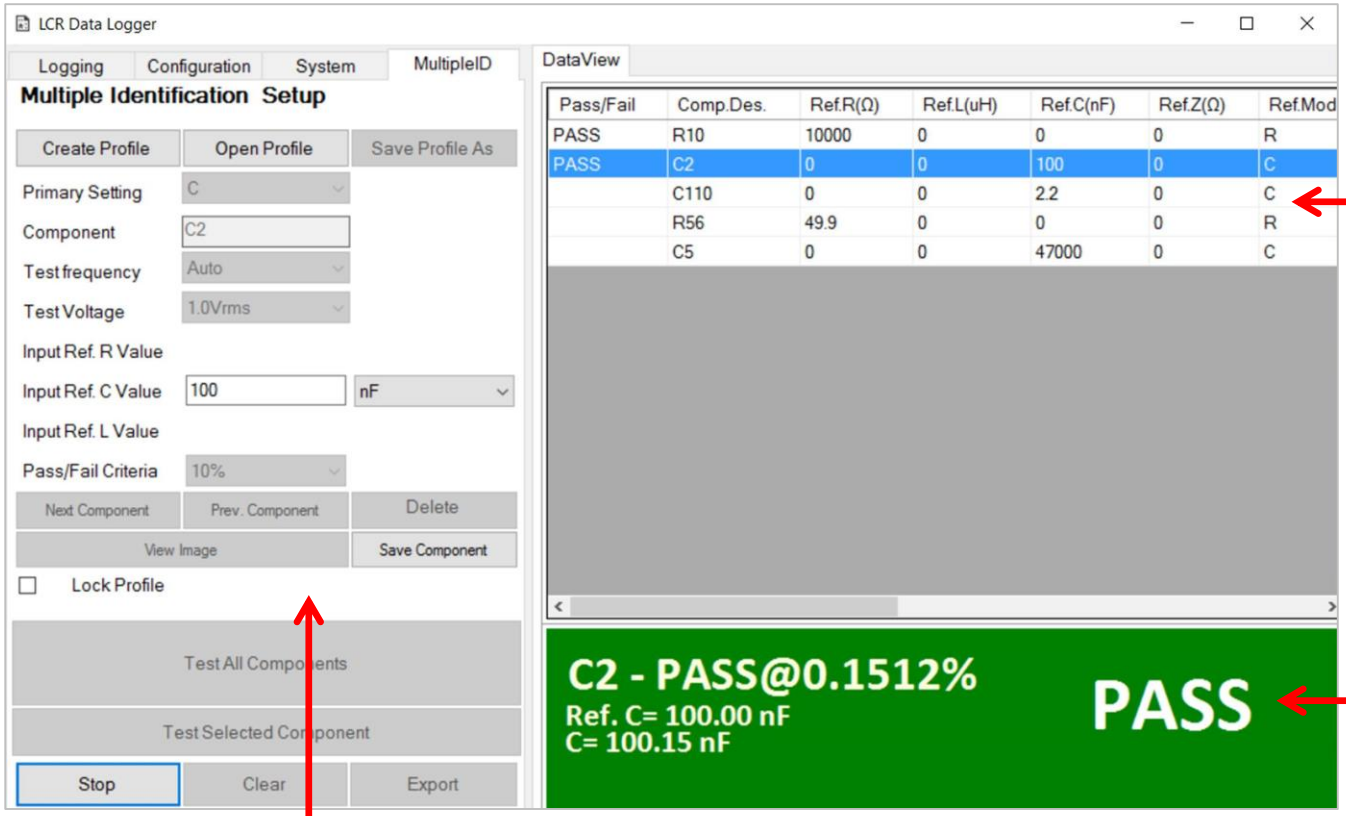
Control panel:

For selecting test points and zoom in/out picture.

Component under the testing now:

- Solid yellow line indicates the component under testing.
- Filled with green color indicates the result is PASS (red if FAIL).
- Component designator (C2) is also display.

GUI View in LCR Visual Measurement



DataView table:

- Record PASS or FAIL.
- Record test parameters (designator, reference value, test voltage, test frequency, etc).
- Record test results.

Test results for current component:

- Showing PASS or FAIL.
- Showing results (actual reading, reference value, error percentage).

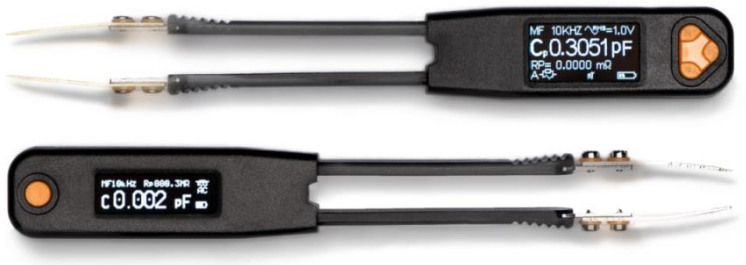
Control panel:

For selecting component designator, test parameters, reference value, tolerance, etc.

Where to Follow-up?

LCR Product List:

- LCR Pro1: high end LCR meter
- LCR Elite1: low end LCR meter
- LCR Link1: PC communication dongle
- LCR Data Logger: Windows-based software for data logging and programming



To learn a little more about our products, please check out our website at: www.lcrresearch.com

Contact us at sales@lcrresearch.com.