Digital Multimeter LCR-Reader-MPA-BT Bluetooth Data Acquisition Tool

User's Manual

Version 2.1

Firmware Version 40

Contents

1. Introduction

The Data Logger for the LCR-Reader-MPA-BT multimeter is an application program that provides a graphical user interface for controlling test parameters and recording data from the LCR-Reader-MPA-BT multimeter. You can download it on the website http://www.lcr-reader.com/downloads/MPA.

2. System requirements

• Operating system: 32bit Windows XP or higher.
• RAM: 512 MB or more.
• Mandatory accessories: USB Bluetooth adapter (LCR-MPA-BTA), Digital Multimeter LCR-Reader-MPA-BT with Bluetooth module.
• Additional programs: Microsoft Excel 2007 or higher.

3. Software installation

1. Download the program installer from http://www.lcr-reader.com/downloads/MPA
2. Download and run the LCR-MPA-BT_Logger.exe as an Administrator. You have to run it as Administrator because the Bluetooth dongle drivers need to be copied into the Windows directory.
3. ⛵ LCR-MPA-BT Logger program is added to your Start Program list and ⛵ LCR-Logger shortcut is created on the desktop
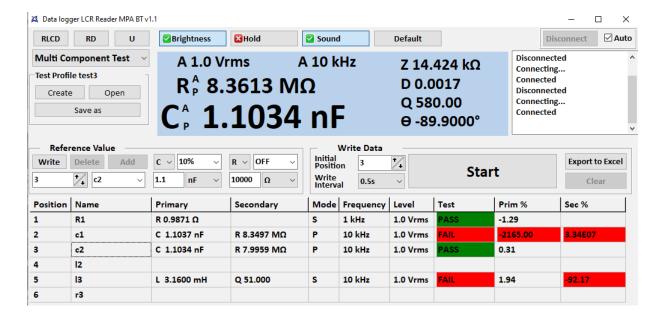
4. Connection

Before starting LCR-MPA-BT Logger, connect the USB Bluetooth adapter to the PC and turn on LCR-Reader-MPA-BT.
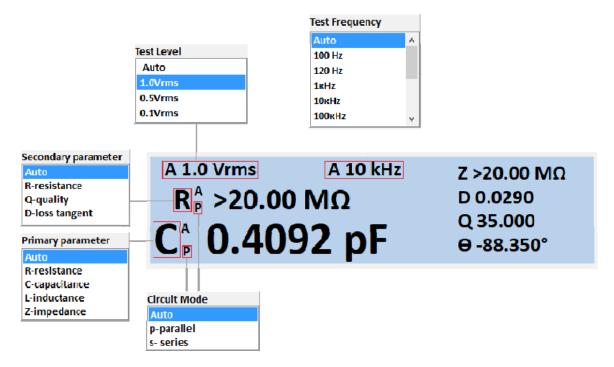
If you start the program first and and only then connect the dongle and turn on the device, it may not connect. If no connection is established, uncheck 'Auto' in the top right corner of the screen and click 'Connect' to the left of the 'Auto' button to initiate the connection.

Please note: it may need a few Connect and Disconnect clicks to activate the bluetooth connection.

Once the connection is established the following screen will appear. It has a few sections playing different roles. The main section of the screen, shown in blue below, presents the measurement results and test parameters. Some areas of this central section are "clickable"; when the mouse hovers over a displayed parameter a box around the parameter appears, left-click may be used to reveal a settings menu allowing to change the measurement setting.

Detailed layout of the clickable parameters is shown below.

5. Buttons on the screen:

1. *RLCD*: Turns on RLCD regime for measuring LCR and Diodes using AC
2. *RD*: DC measurement regime for C, R Diodes and LEDs
3. *U*: AC/DC Voltage regime
4. *Brightness*: turns on / off the backlight of the LCR-Reader-MPA-BT device screen.
5. *Hold:* Enables/disables Hold mode.
6. *Sound:* Turns on/off the sound.
7. *Default:* Restores Default Settings.
8. *Connect/Auto:* Automatic or Manual BT connection.
9. *Clickable areas*: As shown above Primary Parameter, Secondary Parameter, Test Frequency, Test Signal Level, and Circuit Mode open setting menus

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6. Setting measurement profiles

This is the most important feature of LCR-MPA-BT Logger. Since components are not ideal, they exhibit different values at different test conditions, e.g. amplitude of the test signal or its frequency. Therefore, when testing a component, we must keep in mind what conditions should be used in every case. LCR-MPA-BT Logger makes it very easy by allowing to create test profiles and saving them in different files. Every file can be used to test any number of components with specific test conditions for every one of the components.

For testing a component, put in the reference component values in the Reference Value window and select the test parameters using clickable setting parameters as was described previously. The first number is the record number in the test profile, then the component name, primary and secondary component value, and in the row above, primary, and secondary component type and respective tolerances. If you wish to save the test settings, click on Write to write the settings in the Test Profile.

If you wish to add a new component to the Test Profile, switch to the Multiple Component mode, input the parameters and click on Add. The new component will be added to the test profile above the current record pushing all subsequent records down. You may also delete a component from the test profile by clicking on Delete button.

Now the program is ready to start testing. Just connect your component to the test leads and click on the Start button to the right of the Reference Value window. Measured values will begin appearing in the rows below. Values fitting in the tolerance range will be shown in the "Test" column as "Pass" on a green background, otherwise it will be shown as "Fail" on a red background. If Fail is shown, it also shows what condition was not met, Primary or Secondary parameter tolerance.
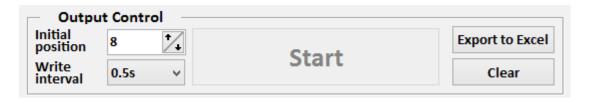
Position	Time	Primary	Secondary	Mode	Frequency	Level	Test	Prim %	Sec %
3	17.09.20 12:57:49	L 21.351 mH	R 58.260 Ω	S	1 kHz	1.0 Vrms	Pass	-2.95	0.45
4	17.09.20 12:57:51	L 21.357 mH	R 61.883 Ω	S	1 kHz	1.0 Vrms	Fail	-2.92	6.69

6.2 Single components test mode

In the single component mode, test measurement records are all displayed on the screen one after another with a Write interval that can be specified in the Output Control section of the screen. There you may also set the Initial position for the first record. On the right from the Start/Stop button you can see self explanatory "Export to Excel" and "Clear" buttons. Measurements start when you press the Start button and stop when you press the Stop button. Alternatively, you may press Space Bar on the keyboard to make a single measurement.

Single Component Test table:

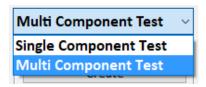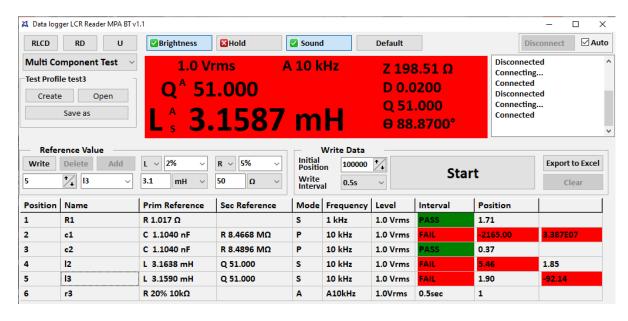| Position	Time	Primary	Secondary	Mode	Frequency	Level	Test	Prim %	Sec %
1	24.09.20 12:47:56	C 1.1037 nF	R 8.2847 MΩ	P	10 kHz	1.0 Vrms	PASS	0.34	
2	24.09.20 12:48:21	C 1.1039 nF	R 8.3050 MΩ	P	10 kHz	1.0 Vrms	PASS	0.35	
3	24.09.20 12:48:23	C 272.06 pF	R 4.7603 MΩ	P	10 kHz	1.0 Vrms	FAIL	-304.30	
4	24.09.20 12:48:30	C 1.1040 nF	R 8.1360 MΩ	P	10 kHz	1.0 Vrms	PASS	0.36	
5	24.09.20 12:49:03	C 1.1038 nF	R 8.3586 MΩ	P	10 kHz	1.0 Vrms	PASS	0.35	

6.2 Multiple Components Test Mode

In the Multi Component Test mode all the components included in the current Test Profile are shown on the screen. In this mode, measurements results are recorded in the same line corresponding to the tested component overwriting the previous result. Same as for the Single Component test mode, measurement starts when you click on the Start button and stop when you click on the Stop button. Alternatively, you may use Space Bar to make a single measurement.

Multi Component Test table:

Position	Name	Prim Reference	Sec Reference	Mode	Frequency	Level	Interval	Position	
1	R1	R 1.017 Ω		S	1 kHz	1.0 Vrms	PASS	1.71	
2	c1	C 1.1040 nF	R 8.4668 MΩ	P	10 kHz	1.0 Vrms	FAIL	-2165.00	3.387E07
3	c2	C 1.1040 nF	R 8.4896 MΩ	P	10 kHz	1.0 Vrms	PASS	0.37	
4	l2	L 3.1638 mH	Q 51.000	S	10 kHz	1.0 Vrms	FAIL	5.46	1.85
5	l3	L 3.1590 mH	Q 51.000	S	10 kHz	1.0 Vrms	FAIL	1.90	-92.14
6	r3	R 20% 10kΩ		A	A10kHz	1.0Vrms	0.5sec	1	

6.3 Data Exporting

To transfer data from the screen table to the EXCEL file, click the button Export to Excel file. The Clear button - clears the table.

7. Uninstall software

Go to the Windows Control Panel, Select Programs and components, Select LCR-MPA-BT-Logger and click the Uninstall.