

# MLC500 LC Meter User Guide

## MLC500 LC 测试仪說明書



MLC500 LC meter is auto-ranging component tester, can drive up to 500 KHz, suitable for small value capacitor and inductor measurement. It provides very stable and high resolution measurement up to 5 digits. Meter can measure 0.00pF to 100.00mF capacitance and 0.000uH to 100.00H This meter is using two technique measurement, LC oscillation and RC oscillation. LC is much suitable for small value measurement and RC for high value capacitance.

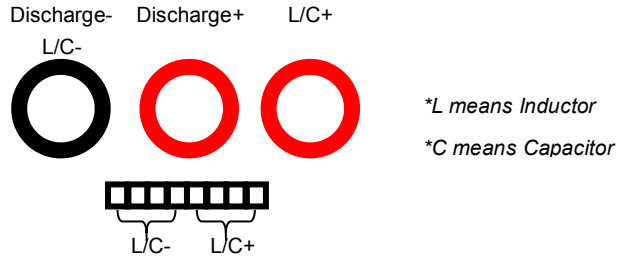
**\*Discharge Capacitor before Testing!!**

**\* Please don't connect under testing device during power on, it will affect the initialization.**

### **Features:**

- Fully auto-ranging designed
- High resolution, up to 5 digit display, most finest resolution: 0.01pF, 0.001uH
- High stability and measurement range for L/ C
- Large LCD display with backlight
- USB PC program, can take record and pass and fail component sorting function.
- Capacitor discharge terminal and capacitor storage voltage display.

## Terminal:



## Button:

**ON/OFF:** Press and release to ON/OFF

**Zero:** Press and release to set zero, **\*If the zero is not success, please try again, or restart the unit**

Inductor: Need to short circuit the test leads during zero

Capacitor: Open circuit during zero

**Mode/Range:** Press and release to switch between L inductor. C capacitor

**Up/Down:** Switch to Auto/ Small/ Large range of measurement

**Enter:** (Reserved button) will show the current version number

## Inductor Measurement:

Test lead plug to black and red (right side) socket. Press Mode/Range button to select inductor mode

**Capacitor Measurement:**

Test lead plug to black and red (right side) socket, capacitor with polarity please follow the – and + sign. Press Mode/Range button to select capacitor mode

**USB External Power:**

USB 5V, you can use standard 500mA USB charger or PC port for external power, suggest to power off before plug in or remove USB cable

**Discharge:**

Display the current capacitor's voltage; please discharge the capacitor below 1 V before you put it to measuring terminal.

**Frequency:**

Display the current measurement frequency, frequency is not tunable by user, and it change automatically according the under testing component

**RC Time:**

One RC constant for the current testing mode

**PC Connection:**

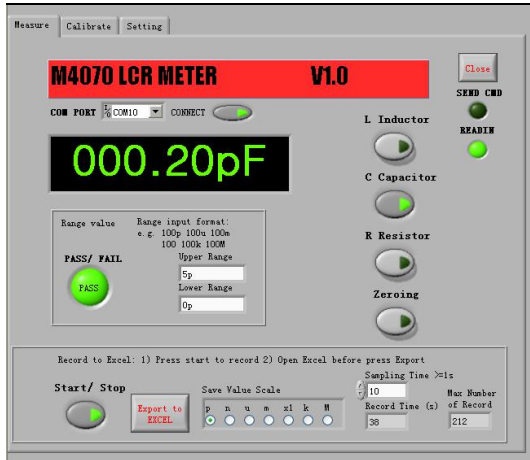
- 1) Install the USB driver
- 2) Install the PC program
- 3) Connect USB Cable between MLC500 and PC
- 4) Check which port is assigned: The device name is USB-SERIAL CH340, example is showing COM10  
Window XP: Control Panel -> Hardware Device -> COM & LPT  
Window 7: My Computer (right click Mouse) -> Properties -> Hardware Device -> COM & LPT

## MLC500 LC Meter User Guide 2013 V1.0



5) Open the PC Program

## MLC500 LC Meter User Guide 2013 V1.0



- 6) Select the right COM number, press “ Connect”
- 7) PASS/FAIL Sorting Function: can set the boundary of the target value of under test component to sort.
- 8) Sampling and record to EXCEL function, maximum point is 4000, and settable sampling period is from 1s to 1000s

## Specification:

Model :	MLC500
LC Meter Series	
LCR Testing Parameter	Main Parameter: L / C
Testing frequency	C: 10 to 500Khz L: 10 to 360Khz
Testing Method	Auto select LC and RC Oscillation
Calibration	Power on auto calibrate with internal reference capacitor
Testing voltage	~1.5Vrms
Best Tolerance	L: 1% +1 Digit C: 1% +1 Digit
LCD update or Testing time (* vary on component value)	<3/s , (e.g. 100mF Capacitor <30s)
Range Selection	Automatically
Zeroing	Open / short circuit



MLC500 LC Meter User Guide 2013 V1.0

Terminal		Mini-USB(Virtual Com Port)
Display Range	C	0.00pF ~ 100.000mF (pF/nF/uF/mF)
	L	0.000uH ~ 100.000H (uH/mH/H)
	Hz (LC Oscillation Frequency)	0 to 900000Hz
	(s) (RC Constant Time)	0.000 to 99.999
LCD Display		128X64 Dot Matrix, with backlight
Fuse Protection		No
Battery		2XAA 1.5V battery
Number of Testing Terminal		Main 3, Secondary 2
Reading Display		Max. 99999

<b>Capacitor</b>				
<b>Scale</b>	<b>Range</b>	<b>Display Range</b>	<b>Accuracy</b>	<b>Testing Frequency/ RC Time</b>
Small	1000pF	0.00pF to 999.99pF	1%+1	500KHz to 360KHz
	10nF	1000.0pF to 9999.9pF	1%+1	360KHz to 140KHz
	100nF	10.000nF to 99.999nF	1%+1	140KHz to 50KHz
<300nF Small	1000nF	100.00nF to 999.99nF	1%+1	30KHz / RC Time <0.2mS
Large	10uF	1000.0nF to 9999.9nF	2%+1	RC Time <2mS
	100uF	10.000uF to 99.999uF	2%+1	RC Time <0.02S
	1000uF	100.00uF to 999.99uF	2%+1	RC Time <0.2S
	10mF	1000.0uF to 9999.9uF	2%+1	RC Time <2s
	100mF	10.000mF to 99.999mF	3%+1	RC Time <20s

\* Small Capacitor using LC oscillation mode

\* Large Capacitor using RC charging time constant measurement

Inductor				
Scale	Range	Display Range	Accuracy	Testing Frequency/ RC Time
Small	100uH	0.000uH to 99.999uH	1%+1	360KHz to 252KHz
	1000uH	100.00uH to 999.99uH	1%+1	252KHz to 107KHz
	10mH	1000.0uH to 9999.9uH	1%+1	107KHz to 35.4KHz
	100mH	10.000mH to 99.999mH	1%+1	35.4KHz to 11.3KHz
Large	1000mH	100.00mH to 999.99mH	2%+1	500Hz to 159Hz
	10H	1000.0mH to 9999.99mH	2%+1	159Hz to 50Hz
	100H	10.000H to 99.999H	3%+1	50Hz to 16Hz

\* Inductance reading is frequency dependence, especially large parasitic capacitor type inductor, and also different in Q meter or impedance meter

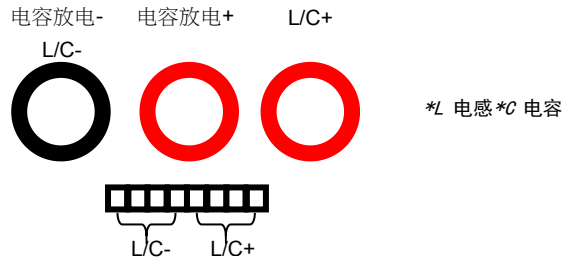
MLC500 LR 测试仪是全自动量程元件测试仪，测量高达 500kHz，适用于小容值的电容和电感测量。它提供了非常稳定和高分辨率测量，显示 5 位数字分辨率。测试仪可以测量 0.00pF 至 100.00mF 电容，0.000uH 至 100.00H 电感。该表使用两个技术测量，LC 振荡和 RC 振荡。LC 更适合小容值电容和电感的测量，RC 适合大容量测量。

## **\*测试前将电容器放电！**

### **产品特点：**

- 全自动量程设计
- 高分辨率，5 位显示，最高的分辨率：0.01pF，0.001uH，0.01R
- 高稳定性和大测量范围 L / C
- 128X64 大屏幕液晶显示，带背光
- USB 电脑程序，电脑记录功能。
- 电容器放电端口和电压显示

**端口:**



**按钮:**

ON / OFF: 按下并松开切换 ON / OFF

Zero: 按下和释放置零

电感器: 需要短路黑和红(右)测试线置零

电容: 需要开路测试线置零

Mode/Range : 按下并松开切换 L 电感 (INDUCTOR), C 电容 (CAPACITOR)

Up/Down: 切换自动 (AUTO) / 手动小量程 (SMALL) / 手动大量程 (LARGE)

Enter: (保留按钮) 会显示当前版本号

**电感测量：**

测试线插头连接到黑和红(右)插座。按 Mode/Range 按钮来选择电感器模式 (Inductor)

**电容测量：**

测试线插头插入黑和红(右)插座，请遵循电容的极性。按 LCR 按钮选择电容器模式

**USB 外接电：**

USB 5V，你可以使用标准的 500mA 的 USB 充电器或电脑 USB 端口供电，请关电才转换电源

**Frequency 频率：**

显示当前测量的频率，频率不可调，它会根据测试元件自动改变

**Discharge 电容放电：**

电容放电时的电压，少于 1 V 便适合测量

**RC Time RC 时间：**

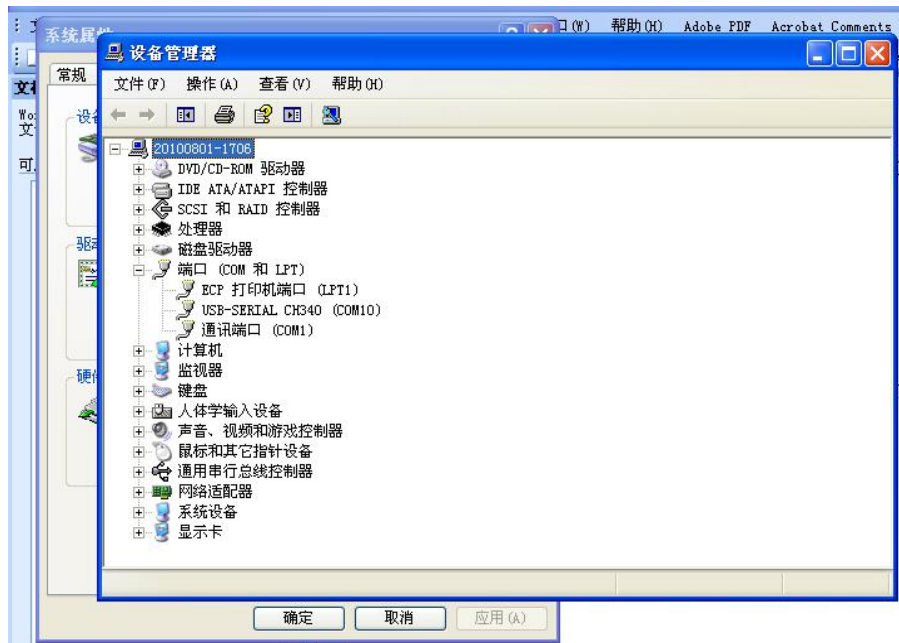
RC 常数，目前的测试模式

**PC 连接:**

- 1) 安装 USB 驱动程序
- 2) 安装电脑程序
- 3) MLC500 和 PC 之间的 USB 电缆连接
- 4) 检查所分配的端口: 设备名称是 USB-SERIAL CH340, 例子是 COM10

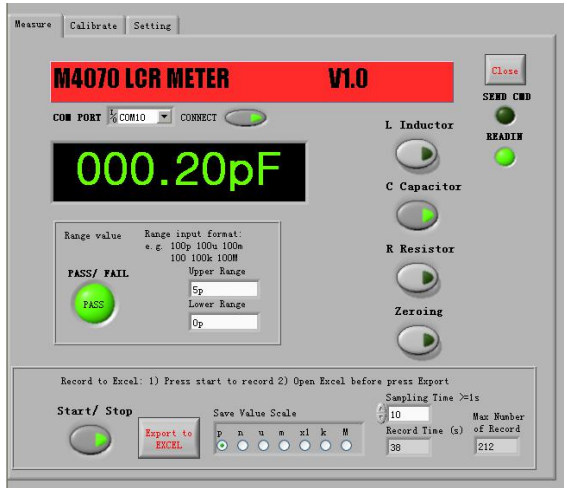
视窗 XP: 控制面板 -> 硬件设备 -> COM 和 LPT

窗口 7: “我的电脑” (点击鼠标右键) -> 属性 -> 硬件设备 -> COM 和 LPT



5) 打开 PC 程序





- 6) 选择正确的 COM 编号，按“连接”
- 7) PASS/ FAIL 功能
- 8) 采集和记录到 EXCEL 功能，最多 4000 点，可设置采样周期为 1 至 1000 秒

**产品规格:**

产品型号:	MLC500	
LC 测试仪系列		
LC 测量参数	主参数: L / C	
测试频率	C: 10 to 500Khz	
	L: 10 to 360Khz	
测试方法	自动 LC 和 RC 振动	
校准	开机自校准内部标准电容	
测试电平范围	~1.5Vrms	
最好准确度	L: 1% +1 字	
	C: 1% +1 字	
测量速度或测试时间	<3 次/秒, (100mF 大电容<30 秒)	
量程方式	自动	
清零功能	开路 / 短路扫频清零	
接口	Micro-USB (虚拟串口)	
显示范围	C	0.00pF ~100.000mF (pF/nF/uF/mF)

## MLC500 LC Meter User Guide 2013 V1.0

	L	0.000uH ~ 100.000H (uH/mH/H)
	Hz (LC 测试频率)	0 to 900000Hz
	(s) (RC 测试时间)	0.000 to 99.999
显示器	128X64 点陣 LCD 主、副参数同时显示 带背光	
保险丝保护	沒有	
电池	2X 5号 (AA) 1.5V	
测试端	主 3 端、副 2 端	
读数	主参数最大读数 99999 字	

电容				
量程	范围	显示范围	精度	测试频率/ RC 时间
小量程	1000pF	0.00pF to 999.99pF	1%+1	500KHz to 360KHz
	10nF	1000.0pF to 9999.9pF	1%+1	360KHz to 140KHz
	100nF	10.000nF to 99.999nF	1%+1	140KHz to 50KHz
<300nF 小量程	1000nF	100.00nF to 999.99nF	1%+1	30KHz / RC Time <0.2mS
大量程	10uF	1000.0nF to 9999.9nF	2%+1	RC Time <2mS
	100uF	10.000uF to 99.999uF	2%+1	RC Time <0.02S
	1000uF	100.00uF to 999.99uF	2%+1	RC Time <0.2S
	10mF	1000.0uF to 9999.9uF	2%+1	RC Time <2s
	100mF	10.000mF to 99.999mF	3%+1	RC Time <20s

\*小电容使用 LC 振荡模式

\*大电容使用 RC 充电时间常数

电感				
量程	范围	显示范围	精度	测试频率/ RC 时间
小量程	100uH	0.000uH to 99.999uH	1%+1	360KHz to 252KHz
	1000uH	100.00uH to 999.99uH	1%+1	252KHz to 107KHz
	10mH	1000.0uH to 9999.9uH	1%+1	107KHz to 35.4KHz
	100mH	10.000mH to 99.999mH	1%+1	35.4KHz to 11.3KHz
大量程	1000mH	100.00mH to 999.99mH	2%+1	500Hz to 159Hz
	10H	1000.0mH to 9999.99mH	2%+1	159Hz to 50Hz
	100H	10.000H to 99.999H	2%+1	50Hz to 16Hz

\*电感是测试频率依赖性

