

配合LCR表使用DC1000A – 扫描软件演示

Voltech

简化LCR表的磁化饱和测试

适用于所有DC1000A用户的免费软件，自动测量偏流电感

Voltech很荣幸地宣布推出DC1000A控制软件

该免费软件简化了测试过程，便于分析电感器在一个偏置电流范围内的特性

/软件可自动设定直流电流值并读取LCR数据，消除人为误差

软件目前支持以下主流的LCR表-是德科技E4980AL（USB或GPIB）-安捷伦HP4284A（GPIB）-同惠TH2830/31/32（USB）

软件同时支持旧款的DC1000和改进的DC1000A

简单设置

该软件同时控制LCR表和DC1000A，可以快速查看和了解在设定的电流范围内产品的磁饱和特性

用户只需设置LCR表的测试电压和频率，直流偏流的最小值和最大值，以及电流从最小值到最大值之间的间隔

软件内置的补偿功能可提高精度，简化了LCR表开路和短路补偿的过程

软件还可以控制多台叠加的DC1000A，可实现25A以上的偏流测试

有关并联多台DC1000A的快速指南，请浏览我们的网站

www.voltech.com/Products/DC1000A/Stackable



完整数据+图形

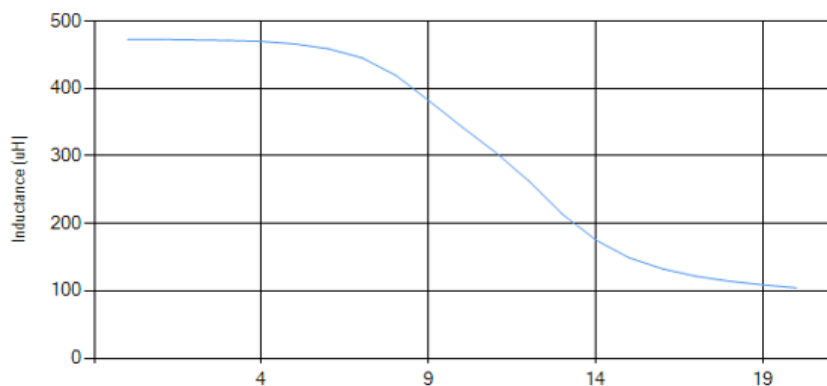
该软件会记录每个直流偏置电流状态下的交流电阻，电抗，串联等效电感和品质因数Q

结果存储为

A，一个EXCEL / CSV文件（见右图）

和

B，直观的串联等效电感VS偏置电流的曲线图（见下图）



	A	B	C	D	E	F
1	DC1000 Control Software Test Report					
2	Test Software: VPN: 28-362 Issue 1.10					
3	Test Date: 2019-07-30 11:22:31					
4	Test Time: 11:22:31					
5	Test Voltage: 1V					
6	Test Frequency: 1kHz					
7	LCR Meter: E4980AL					
8	Integration: Medium					
9						
10	Step	Current (Amps)	R (ohms)	X (ohms)	Inductance (uH)	Q
11	1	0	0.141	2.967	472.379	21.114
12	2	1	0.142	2.968	472.623	20.871
13	3	2	0.139	2.964	471.890	21.341
14	4	3	0.143	2.959	471.134	20.706
15	5	4	0.143	2.950	469.702	20.630
16	6	5	0.140	2.927	466.105	20.851
17	7	6	0.143	2.882	458.898	20.216
18	8	7	0.138	2.797	445.427	20.326
19	9	8	0.140	2.638	420.064	18.854
20	10	9	0.144	2.400	382.205	16.705
21	11	10	0.142	2.153	342.882	15.121
22	12	11	0.145	1.917	305.271	13.197

立即下载

从下载页面免费获取

www.voltech.com/Support/Downloads

观看此软件的简短视频。

www.voltech.com/Products/DC1000A/Software

如果软件当前不支持您的LCR表，请告知我们LCR的品牌和型号，以备将来软件升级扩展

DEMO KIT - QUICK START GUIDE

If you have a DC1000A Demo kit from Voltech, and have one of the supported LCR Meters, then you can use the following steps to set up the software and perform quick sweep on the sample inductor we have provided.

1, INSTALL

Install the DC1000 /DC1000A Control Software on your PC from our downloads page..

If using GPIB/IEEE , please note that the software only supports National Instruments (NI) USB-IEEE adapters.

The DC1000 software will install and then automatically install the NI-VISA software immediately afterwards.

2A, USB - to LCR Meter (E4980AL)

Connect your E4980AL to the PC using the USB lead provided in the DC1000 box (**77-083**)

OR

2B, GPIB to LCR Meter (E4980 or HP4284A)

Connect the LCR meter using a GPIB cable to your IEEE port- NOTE: The software ONLY support National Instruments GPIB card.

3, RS232 - DC1000

Connect the DC1000 RS232 IN port to the PC using the RS232 cable (**77-045**) and RS232- USB adapter (**77-084**) provided.

4 On initial connection, the USB-RS232 adapter will automatically install its drivers. You will need to be connected to the internet for Windows to do this. **(see Right).**

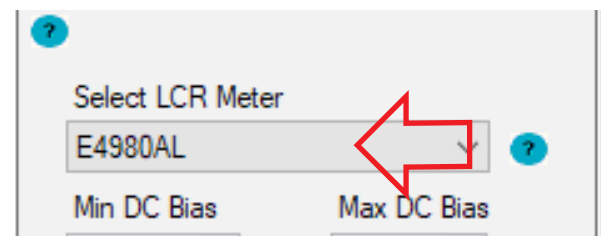
5 Once installed, the USB-RS232 adapter will appear in Windows Device Manager as a valid COM PORT (in this case COM 3, but the com port number may be different on your PC) **(see Far Right)**

6 POWER ON

Turn on the DC1000 AND E4980AL and run the DC1000 Control software on your PC

7 SELECT LCR

On the software, select the LCR meter on the Test Set up Tab

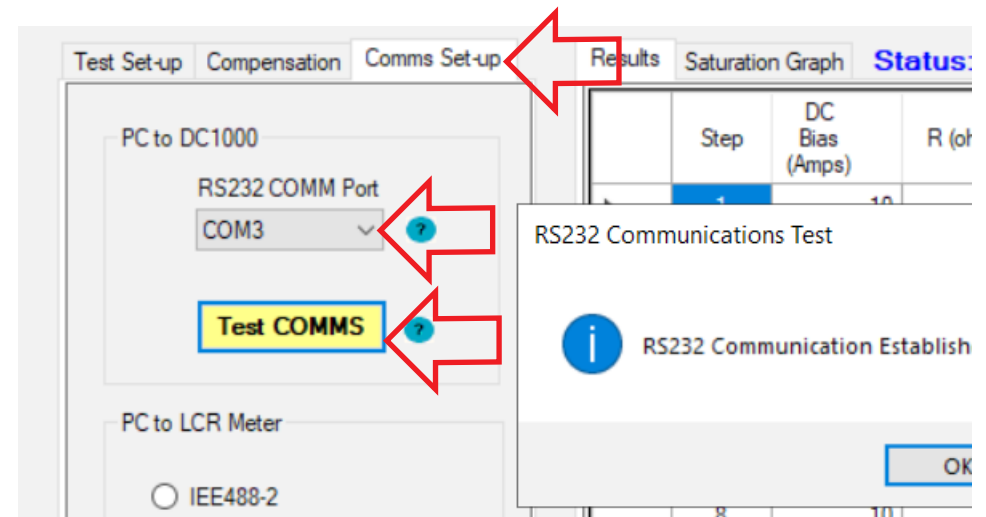


Next we will check the communications between software and E4980AL and software and DC1000.

8 TEST COMMS to DC1000 (RS232)

Click on the **Comm Set-Up**,
Select the PC -DC1000 **COM PORT** (here COM 3)
Click **Test COMMS**

If all is OK you will get a confirmation (see right)

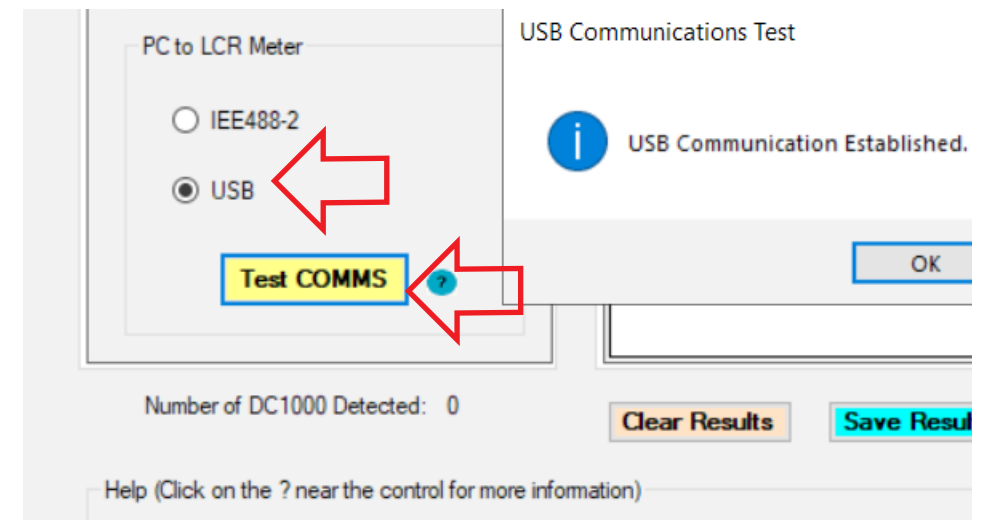


9 TEST COMMS to LCR (USB OR IEEE)

For the LCR-PC USB comms test
Select **USB**
Click on **Test COMMS**

If using GPIB, then
Select **IEE488-2** and enter the **GPIB address**
Then press TEST COMMS.

If all is OK you will get a confirmation (see right)



RUNNING A TEST SWEEP

10 INTERLOCK

Fit the provided Interlock override plug into the rear of the DC1000A in the port marked **Safety Interlock IN**

11 CONNECT SAMPLE

Connect the LCR test leads to the LCR terminals and connect to one of the sample **MURATA 1447385C** inductors provided in the box.

Connect the **DC1000 test leads** to the **DC1000 output sockets** and the other ends across the **inductor**.

Make sure that the **POLARITY of both is the SAME**.

The LCR HI side should be connected to the same point on the inductor as the DC1000 HI side (**HI = RED + YELLOW** and **LO = BLACK-BLACK** - see picture)

Note ; For a quick first run, we recommend running the sweep without compensation. The topic of compensation will be returned to at the end of this document.

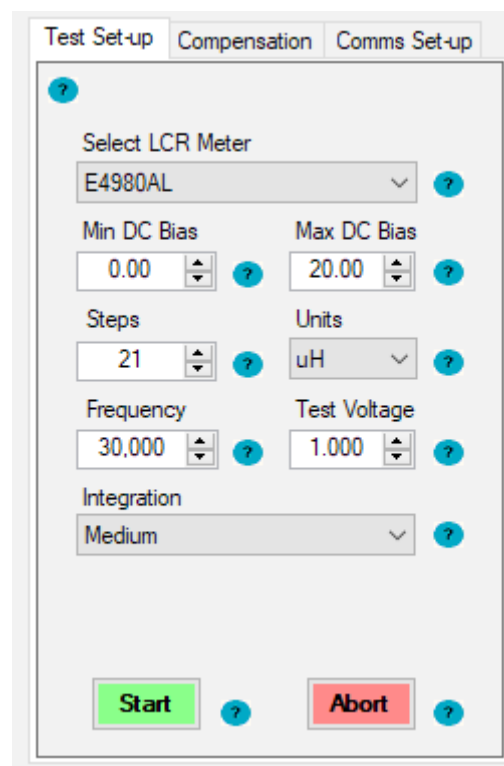
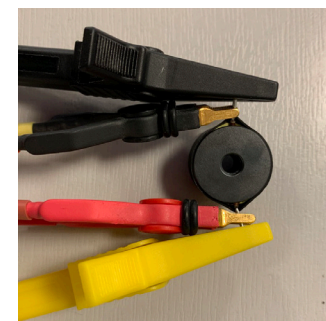
12 Program SWEEP conditions

Return to the software TEST SET UP and select the following

MIN DC	= 0 A
MAX DC	= 20 A
STEPS	= 21
FREQUENCY	= 30,000 Hz
TEST VOLTAGE	= 2.0 V
UNITS	=uH

(see right)

Press the **GREEN Start Button** to begin the measurements.
The 21 measurements should take around 70 seconds.



VIEWING AND SAVING RESULTS

13 RESULTS

Once the sweep has finished, the results will be shown in the **Results** Grid (right)

Results		Saturation Graph	Status: Idle				
	Step	DC Bias (Amps)	R (ohms)	X (ohms)	Inductance (uH)	Q	DC1000 Status Code
▶	1	0	0.4150	8.0241	42.5907	19.3354	1
	2	1	0.4112	8.0241	42.5906	19.5161	1
	3	2	0.4110	8.0223	42.5809	19.5214	1
	4	3	0.4109	8.0222	42.5809	19.5244	1
	5	4	0.4111	8.0200	42.5689	19.5079	1
	6	5	0.4113	8.0146	42.5401	19.4879	1
	7	6	0.4107	8.0029	42.4780	19.4845	1
	8	7	0.4091	7.9832	42.3738	19.5158	1
	9	8	0.4064	7.9541	42.2191	19.5710	1
	10	9	0.4025	7.9114	41.9927	19.6565	1
	11	10	0.3953	7.8443	41.6366	19.8433	1
	12	11	0.3850	7.7439	41.1033	20.1152	1
	13	12	0.3685	7.5875	40.3735	20.5688	1

Results Folder: C:\Users\Voltech\Desktop\DC1000resu

Buttons: Clear Results, Save Results, Browse, Demo

14 GRAPH

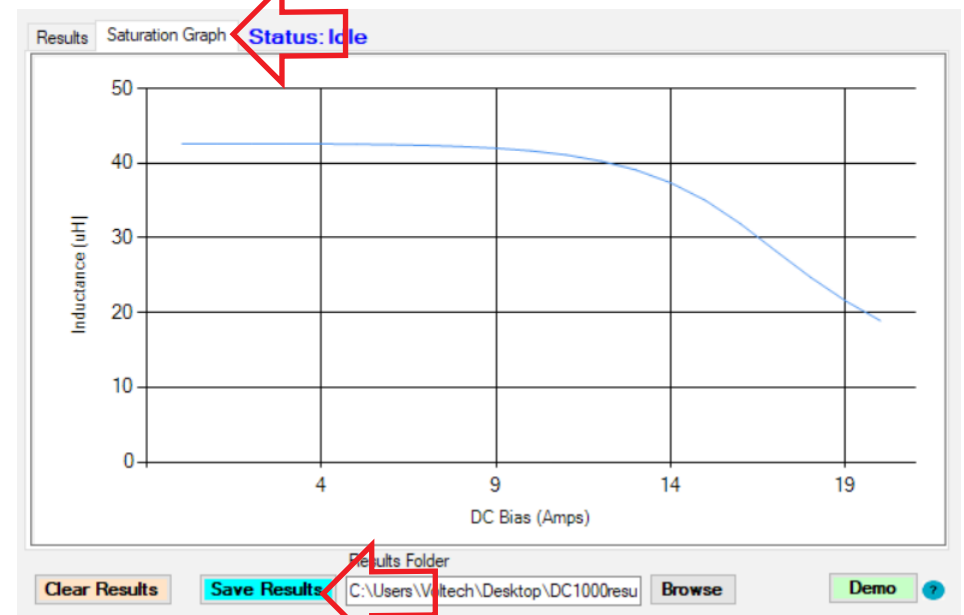
The SERIES INDUCTANCE Vs DC CURRENT graph can be seen by clicking on **Saturation Graph** (right)

15 SAVE

The results can be saved to your PC by clicking on **Save Results**

This will save

- A, a CSV results file containing all data
- B, a BMP graphics file of the graph.



16 Other Runs

Clicking Clear RESULTS will clear the data and allow you set another sweep, maybe over different DC currents, different number of steps and different Voltage and Frequency

17 Compensation

As with the Manual Demo Guide (see document 104-184), you can also use compensation to remove any effect of the test leads from the LCR measurement.

This is much easier with the DC1000 Sweep software, as it can be done totally from within the sweep software without the need to use the LCR front panel

To perform compensation before making measurements, do the following.

Ensure your **V and F settings** are as you require. The software will only compensate at the one frequency and Voltage.

Switch to the **COMPENSATION tab** (see right)

Short circuit compensation

Short all 4 connections together as shown. (below right)
Press the Green RUN button under short circuit compensation
The offset values will appear in the R and X fields when compensated

Open circuit compensation

Short the DC and LCR leads in pairs as shown
(HI to HI, LO to LO - see below far right))
Press the green RUN button under open circuit compensation.
The offset values will appear in the R and X fields when compensated

Once complete, return to the test Set-up tab and continue as normal.

Test Set-up Compensation Comms Set-up

Short Circuit Compensation

R 0

X 0

Run ?

Open Circuit Compensation

R INFINITE

X INFINITE

Run ?

Clear Compensation Values

**SHORT CIRCUIT
COMPENSATION**



**OPEN CIRCUIT
COMPENSATION**

