




## Sencore LC103 Calibration Tips?

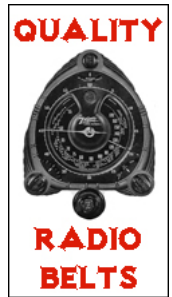
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Author	Message
<p><b>mr.fabe</b></p> <p>Member</p> <p>Joined: Mar Thu 15, 2018 2:23 pm Posts: 421</p>	<p><b>Post subject:</b> Sencore LC103 Calibration Tips? <span style="float:right">📅 Posted: Feb Sun 03, 2019 9:10 pm</span></p> <p>I recently repaired my LC103 that had multiple issues with capacitance, ESR, and a few others. Although the measurements are comparable to my other meters, I know calibration is in the near future. Does anyone have insight into calibrating this beast?</p> <p>Thank you in advance.</p> <p><a href="#">Top</a> <a href="#">PROFILE</a></p>
<p><b>Vin Tageman</b></p> <p>Member</p> <p>Joined: Aug Fri 12, 2016 1:49 am Posts: 1506 Location: Houston area, TX</p>	<p><b>Post subject:</b> Re: Sencore LC103 Calibration Tips? <span style="float:right">📅 Posted: Feb Sun 03, 2019 10:40 pm</span></p> <p>Skimming over the schemo sheets, I only saw 3 trimmer pots – R5 and R144, that connect to the non-inverting input of U35 (a LM306 comparator), in the ringer measuring circuit, and R45 for the 10V reference (U1, LM2941C) on the main board.</p> <p>It seems the LC103, having a RS-232 port, is software-calibrated, like their gear that uses the IB72 &amp; IB78 interfaces.</p> <p>You may find a helpful tech at Sencore who could at least tell you the command to bring up the cal menu, but I doubt anyone working there now knows anything about it.</p> <p>I don't trust 3rd-party metrology labs to properly cal the later Sencore gear that must be done via software, but what can ya do? Sencore won't do it, and, according to them, they never shared their cal software with outside labs, so it's pot luck. Maybe there are honest labs that have designed their own procedures for this unit or maybe they'll just lie and fudge the numbers. 😊</p> <p><a href="#">Top</a> <a href="#">PROFILE</a></p>
<p><b>mr.fabe</b></p> <p>Member</p> <p>Joined: Mar Thu 15, 2018 2:23 pm Posts: 421</p>	<p><b>Post subject:</b> Re: Sencore LC103 Calibration Tips? <span style="float:right">📅 Posted: Feb Mon 04, 2019 4:07 pm</span></p> <p>I was afraid of the little information available for the calibration of this unit which is one reason I still keep my LC75. I guess I'll have to start by backing up the FW chip and the XILINX PROM on U30 for starters. There may be a way to play around with some of the xilinx settings and see how they affect the calibration.</p> <p><a href="#">Top</a> <a href="#">PROFILE</a></p>
<p><b>pixellany</b></p> <p>Member</p>  <p>Joined: Jul Mon 26, 2010 8:30 pm Posts: 29027 Location: Annapolis, MD</p>	<p><b>Post subject:</b> Re: Sencore LC103 Calibration Tips? <span style="float:right">📅 Posted: Feb Mon 04, 2019 4:22 pm</span></p> <p>my ancient LCR bridge uses a "standard" capacitor in the bridge circuit. I assume one can still buy these, but I've never looked.</p> <p>For ESR, how about creating a standard by paralleling some appropriate capacitors to create something with a very low ESR, and then adding a precision resistor in series.</p> <p>The really big question in calibration is how good it needs to be. I'm not sure if I would EVER need to know ESR to better than 5-10%</p> <p>----- -Mark "Voltage is fun to watch, but it's the CURRENT that does the work."</p> <p><a href="#">Top</a> <a href="#">PROFILE</a></p>
<p><b>mr.fabe</b></p> <p>Member</p> <p>Joined: Mar Thu 15, 2018 2:23 pm Posts: 421</p>	<p><b>Post subject:</b> Re: Sencore LC103 Calibration Tips? <span style="float:right">📅 Posted: Feb Mon 04, 2019 5:48 pm</span></p> <p>I agree with you on all counts...</p> <p>The accuracy levels for me should just be close enough for me to trust it. I just want to know if the caps are close to being out of spec to conduct further testing. Before repairs, my unit was reading 99uf for everything and ESR tests would all fail.</p>



I always miss my old IT-28.. simple bridge design.. easy to repair and calibrate. It was good enough if used with the can method to determine if caps were faulty.



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**wazz** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Mon 04, 2019 7:01 pm



Sencores used to come with a little plastic box with individually calibrated standards to check your unit. They were not precision parts, they just measured the values of the components in the box with lab standard testers and wrote in the values you should see.

Reddy Kilowatt says; You smell smoke? Sorry about that!

Joined: Jun Wed 08, 2011 2:33 am  
Posts: 10849  
Location: Ohio 45177

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**mr.fabe** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Mon 04, 2019 10:22 pm

Member

Joined: Mar Thu 15, 2018 2:23 pm  
Posts: 421

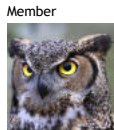
wazz wrote:

Sencores used to come with a little plastic box with individually calibrated standards to check your unit. They were not precision parts, they just measured the values of the components in the box with lab standard testers and wrote in the values you should see.

I have that little plastic box.. Sencore FC221 Field Calibrator. Sencore techs would put in the components, "calibrate" the readings, and charge you a leg for it. The design is so simple to make and if anyone is interested in building one, start a new thread and I'll pass on the information for it along with pictures.

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**pixellany** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Tue 05, 2019 2:02 am



Joined: Jul Mon 26, 2010 8:30 pm  
Posts: 29027  
Location: Annapolis, MD

Why do I think you already know more that most of us about calibrating that unit??..... 😊

-Mark  
"Voltage is fun to watch, but it's the CURRENT that does the work."

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**mr.fabe** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Tue 05, 2019 3:10 am

Member

Joined: Mar Thu 15, 2018 2:23 pm  
Posts: 421

pixellany wrote:

Why do I think you already know more that most of us about calibrating that unit??..... 😊

I might know a little more or less about this unit because I went through the LC103 schematics in detail while working on the repairs of this unit but I know that there are many who have more experience with this model. I've owned and calibrated a few of the LC units so I've learned what to expect. The LC103 is a different beast that I have zero information on other than schemos and op manual. I wouldn't be in this mess if I didn't listen to all the cap experts on this forum who steered me into the Sencore product line...

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**Vin Tageman** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Tue 05, 2019 3:30 am

Member

Joined: Aug Fri 12, 2016 1:49 am  
Posts: 1506  
Location: Houston area, TX

I speculated above that proprietary software may be required because Sencore enjoys making things difficult, and some of their gear that I do own is like that, so it wouldn't surprise me if said software (and specific hardware) is required.

But, just because that RS-232 interface is there doesn't necessarily mean it MUST be used for calibration.

I don't have an LC103 to experiment with, wish I did, but it's entirely possible that calibration control is accessible via the front panel, if you can find the correct sequence of button presses to get into that menu.

A lot of digital equipment is cal'd this way. Heck, even TV's and monitors have "secret" factory menus that the owner can royally screw up settings with. 😊

If someone at Sencore can't or won't tell you how to get in, then trial and error might yield success.

I've found that a common route to the verboten menu is to hold down a certain button (or two or three) with the unit off, and keep holding when the power is switched on. Sometimes, the menu will popup after 3-5 seconds or so.

This can be risky, though, because it can cause a system RESET to defaults in some products, and still may not take you to the cal menu, so you could end up with worse calibration than before you attempted to gain access. Fair warning.  
 Anyway, once in the menu, it's just a matter of finding which buttons are used to navigate and then which ones are used to change values.

Last edited by [Vin Tageman](#) on Feb Tue 05, 2019 3:41 am, edited 1 time in total.

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**mr.fabe** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Tue 05, 2019 3:37 am

Member  
 That's a good idea about using the front panel to access a special menu... where's Ctrl-Alt-Del when you need it?  
 Joined: Mar Thu 15, 2018 2:23 pm  
 Posts: 421

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**Vin Tageman** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Tue 05, 2019 3:43 am

Member  
 oops.. I apparently was still editing when you replied.  
 Anyway, good luck. I hope you figure it out.  
 Joined: Aug Fri 12, 2016 1:49 am  
 Posts: 1506  
 Location: Houston area, TX

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**mr.fabe** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Tue 05, 2019 4:17 am

Member  
 Worst case scenario would be to send it to a cal lab that can perform the calibration to fix what I broke.  
 I've seen the LC103 ROM's available on the net so there are folks that may know what to do since they are smart enough to backup their firmware.  
 Thanks.. Looks like I'll fix it when it's broken... not break it and pay to fix it.

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**Alan S** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Tue 05, 2019 3:56 pm

Member  
 I send my LC-103 to sencore a couple of years ago and they calibrated it with NIST traceable standards for a reasonable fee. Try calling Sencore service:  
 Maggie Sturzenbecher  
 Service Administrative Assistant  
 3200 Sencore Drive  
 Sioux Falls, SD 57107  
 MAIN# 605-978-4600 EXT. 4727  
 DIRECT# 605-978-4727  
 FAX# 605-339-7032  
[www.sencore.com](http://www.sencore.com)

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**Vin Tageman** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Tue 05, 2019 6:14 pm

Member  
 Alan S wrote:  
 I send my LC-103 to sencore a couple of years ago and they calibrated it with NIST traceable standards for a reasonable fee.  
 I don't own an LC103, but I was curious after you posted that, so I emailed them this morning about support (including spare parts and calibration) for it and the LC102.  
 Ruth told me they no longer service either of these models, and she pointed me to Choice Electronics.  
 I've made my feelings about Lance known on ARF, so I won't go into that again, but suffice it to say I wouldn't send my gear to him. GOOD LUCK to anyone who does.

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**mr.fabe** **Post subject:** Re: Sencore LC103 Calibration Tips? **Posted:** Feb Wed 06, 2019 8:13 am

Member  
 Alan S wrote:  
 I send my LC-103 to sencore a couple of years ago and they calibrated it with NIST traceable standards for a reasonable fee. Try calling Sencore service:



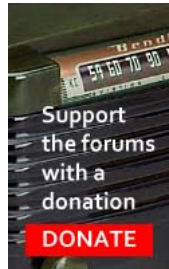
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Maggie Sturzenbecher

<http://www.sencore.com>

I appreciate the info you passed along. I also contacted Sencore months ago to see if they stocked any parts or if any servicing was available. I received the same answer as Vin. Contact Lance at Choice Electronics for parts and servicing.

In the meantime, I did a comparison with a few of my measuring tools and found the LC103 is reasonably close enough to keep me from have to use several instruments to read values.

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wazz

Post subject: Re: Sencore LC103 Calibration Tips?

Posted: Feb Wed 06, 2019 4:02 pm


Member



My friend traded me the 102 for a LC 53? but he had given me both units anyway. I gave him the box of Sencore standards back with the other tester as I recall. So I have two cap standards is all. A Genrad standard cap in a black box with banana posts that I payed 5 bucks for, and a 100 pF dipped silver mica that I hand selected from a lot with a lab grade tester, years ago. It might be a good idea to have it calibrated again with the matching test leads for those small cap values, but I sorta doubt that it is super critical for stuff like electrolytics. I have no inductance standard at all at this point.

Joined: Jun Wed 08, 2011 2:33 am  
Posts: 10849  
Location: Ohio 45177

Reddy Kilowatt says; You smell smoke? Sorry about that!

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mr.fabe

Post subject: Re: Sencore LC103 Calibration Tips?

Posted: Feb Sun 10, 2019 11:32 am

Member

Joined: Mar Thu 15, 2018 2:23 pm  
Posts: 421

wazz wrote:

My friend traded me the 102 for a LC 53? but he had given me both units anyway. I gave him the box of Sencore standards back with the other tester as I recall. So I have two cap standards is all. A Genrad standard cap in a black box with banana posts that I payed 5 bucks for, and a 100 pF dipped silver mica that I hand selected from a lot with a lab grade tester, years ago. It might be a good idea to have it calibrated again with the matching test leads for those small cap values, but I sorta doubt that it is super critical for stuff like electrolytics. I have no inductance standard at all at this point.

Getting reasonably close in accuracy is sufficient for me for my purposes. I just want to feel comfortable with the measurements taken and not second guess the results. Case in point, I recently had to send out one of my meters for repair and did not trust the readings I would get from another meter that I have. Although the backup meter was relatively new and shiny, I just didn't feel comfortable and kept repeating the measurements to be sure. I hate that...

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