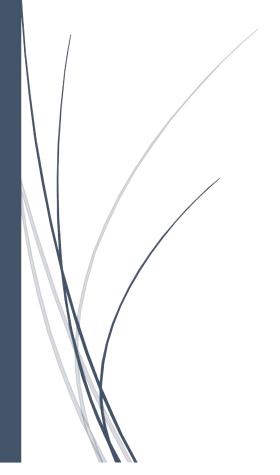4/13/2015

User Manual

[Interfacing Impedance Analyzer]

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SOFTWARE DESCRIPTION

The Software creates an interface of Impedance Analyzer for temperature controlled dielectric measurements.

Description :

This software is useful for conducting the experiments where we get the eleven different dielectric properties of a sample material (varied across temperature) as a result. The software plots the variations in values of these dielectric properties on separate graphs giving clear description of variation in properties of the material with respect to temperature. Software also stores the plotted graphs and collected values in host computer.
The customers need not incur any additional expenses to utilize the software such as customization,training ,purchasing a supporting program, user group fees, license fees , etc.

Benefits and Value

Value and benefits provided by this software are:
- With of help of this software , while we conduct experiment ,we get to know how the properties of the material behaves when it subjected to extreme temperatures.
- Hysteresis graph of the property of the material is obtained which is very important result concerning the material .Its important because the material is subjected to temperatures starting from low to high (or high to low) and reverse , how the property behaves is clearly depicted in the

graph.

Platform Requirements

This software is Platform independent. It runs on any Operating System without any difficulties.

The software is specially developed for Wayne Kerr 6500B Impedance Analyzer and CTC100 Temperature Controller by Stanford Research Systems. To use this software for other models may require change in resource location and remote commands inside the program.

MANDATORY SOFTWARE INSTALLATION INFORMATION

Installation of Software at Client Site

This software runs on various Operating systems.From the point of client the following instructions are mandatory .
Before Installing the software following drivers are required to be installed on computer.

- Installing the NI-VISA Driver .This can be installed from the following link. This driver is necessary for the connection of Impedance Analyzer and Temperature Controller with the Host Computer and software as well. http://pyvisa.readthedocs.org/en/master/getting_nivisa.html#getting-nivisa

- Installing the SRS USB Driver . This driver is necessary while using USB

cable to communicate with Temperature Controller.
NOTE: The software is developed to communicate via USB (A-B) Cable.
Select CTC100 USB Drivers from given link. Extract the zip file & Follow
the instructions given in readme file.
http://thinksrs.com/downloads/soft.htm

INSTALLING THE SOFTWARE:
The Software comes in direct .exe format, so the application runs directly.

USING THE SOFTWARE:
1) Setting up Temperature Controller:
    1) In the 'Settings' option in Menu bar, go to Temperature Controller
       Settings. A new window appears.
    2) Choose the input and output ports corresponding to the connections that
       you have made on temperature Controller.
       Ports are set to 'In1' and 'Out1' by default.

2) In the connect option in the Menubar Click on Connect Impedance analyzer.
A dialog box appears showing name and identification number of instrument if
it is successfully connected, else an error message appears.
    In case of an error please check the hardware connections and try to
reconnect. More details are given in Handling errors section.

3) Similarly click on Connect Temperature Controller to get it connected with
the software . Follow the above instruction given in point 2 in case on any error.

4) After both the instruments are connected. Fill in the input fields.
    • Select Method of approach for experiment.
      Method1 is based on accuracy in temperature values and plots data for
      fixed temperature intervals,
      where as method2 plots data in fixed time intervals.
      Hover on 'Method1'/ 'Method2' in software window for description
      of respective methods.
    • Provide the initial and final Temperature values and Temperature
      interval and Accuracy for Method1, and Time interval for Method2.
      NOTE: Time interval for method1 is set to 1.000 seconds by default

- The step size should be an absolute value, should not contain positive or negative signs.
- On the left side of window is the list of all properties that the software measures. Check on the properties you want to measure.
  NOTE: Atleast One property shoulf be checked.
- Select between One-way and Two-way.   Select One-way for only heating/cooling. Select Two-way for both heating and cooling.
- Software itself decides about the direction of process(heating or cooling) based on the values of initial and final temperature.
- Hit the start button after all the above fields are filled.
- The pause button stops the timer consequently program stops reading from temperature controller and impedance analyzer.
- Restart Button stops the running experiment and resets everything to null.
- Save graphs and save table buttons save all the plotted graphs in form on png image files and data is saved in excel file in same folder on desktop or as specified by the user.

HANDLING ERRORS

This software is platform independent but if any difficulties occur in accessing the application after installation on the concerned operation system , it is to be noted that all the required drivers have to be installed properly so that you get to access the setup for use. If problem cannot be resolved please contact the Developer Team(Husain Haidery @ 09630550898 Mail - cse130001017@iiti.ac.in)

Error in Connection with Impedance Analyzer or Temperature Controller:

1) Check the hardware connections, check if the usb cable is properly plugged at both the ends.

2) If above step does not solve the issue. In the search panel of your computer type 'visa interactive control'. A new window appears which show the name on connected ports. Check if these ports are same as the ones specified in the

software's settings panel, if not change the names according to visa interactive panel. If any of the port names do not appear in Visa interactive panel Contact the Developer of software.