



VEBKO ONLINE HELP

Secondary Burden Test

Category	tester
Section	capacitor voltage transformer
Language	English
Generated	2026-10-18

In this test, the "Burden" connected to the "CVT" secondary is measured. In this test, by injecting "AC" current and measuring the "AC" voltage by "Binary/Analog Input" and dividing voltage by current, "Z" and its angle and consequently "R" and "X" values are obtained. To do this test, after going to "State Setting" section, the current and time of the test must be entered in "I test" and "State Time" fields, respectively. The current limitation specified for this field is "32" amperes. After entering the "State Setting" information, the wiring must be done in accordance with the instructions picture. It should be noted that by double-clicking on the picture, it is possible to magnify it. To perform this test, in the first step, the "CVT" must be separated from all elements that are used for transferring voltage to measurement devices. In this wiring "Jumper" "Ia1" and "Ib1" current outputs and connect "Ia2" and "Ib2" to the "CVT" voltage transmission path.

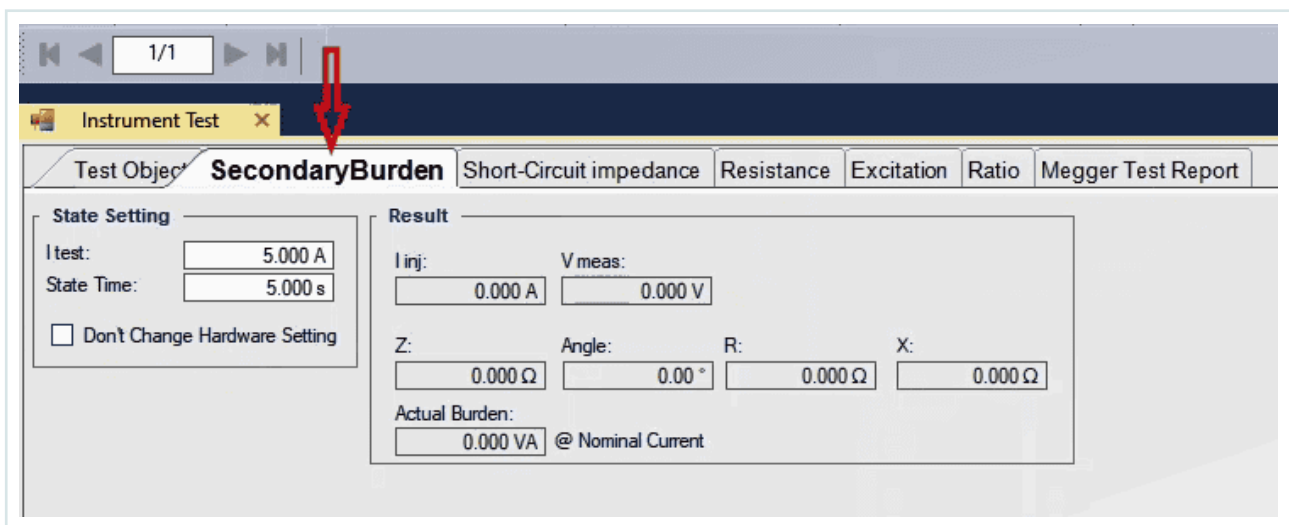


Figure 1

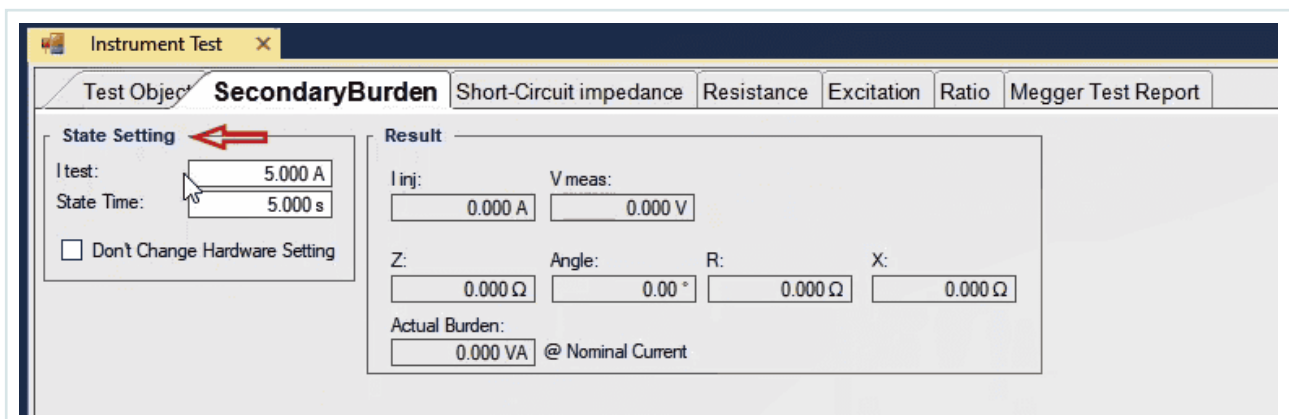


Figure 2

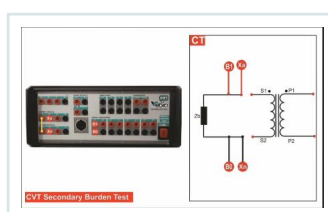


Figure 3

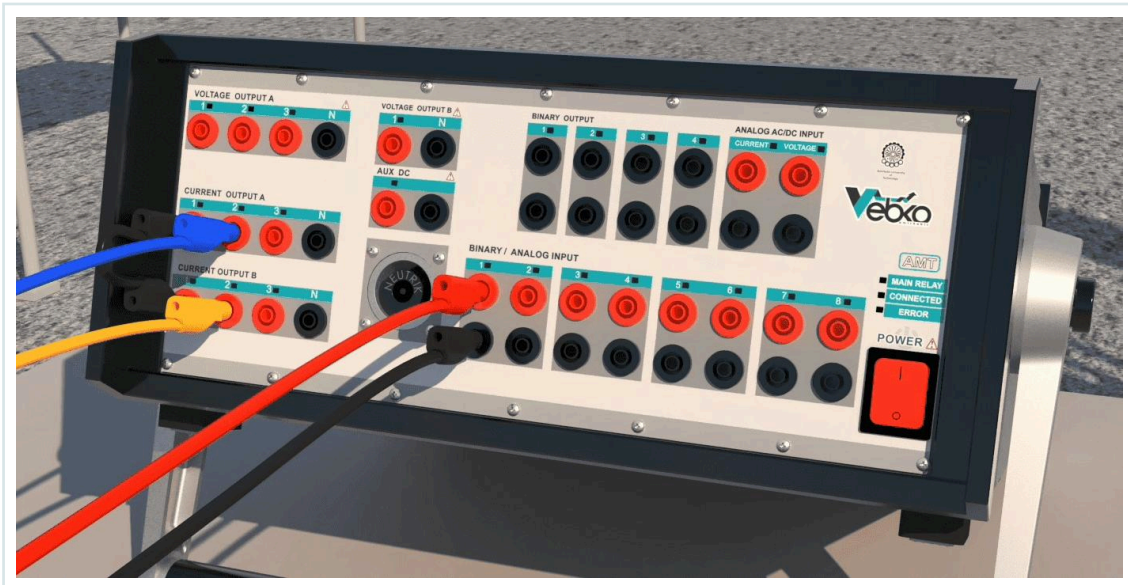


Figure 4

Also, to measure the “AC” voltage, “Binary/Analog Input1” must be connected to the test path a little further from the current injection connectors. This should be noted that before performing the test, it is necessary to press “Init Test” so that the device is automatically “Configured”. By selecting this option, the settings including current and test time as well as hardware settings related to “Hardware Configuration” including the outputs of the device and “Binary/Analog Inputs” are adjusted by the device automatically. In “Analog Output” tab in “Hardware Configuration” section, we can see that the wiring of the device is set at “32A” with the maximum “Burden” of 400 Volts ampere and the “Binary/Analog Input1” is activated for voltage measurement. To better analyze the test, “Table View”, “Detail View” and “Signal View” windows can be used. After opening “Table View” window, you can see that a “State” with the “50Hz” frequency and in accordance with the entered information in “State Setting” section is created. If you wish to view the information more thoroughly, use “Detail View” window instead.

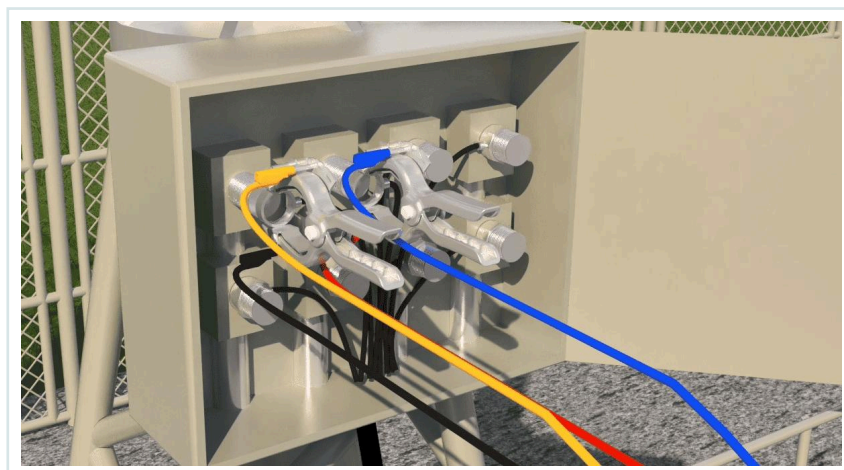


Figure 5



Figure 6

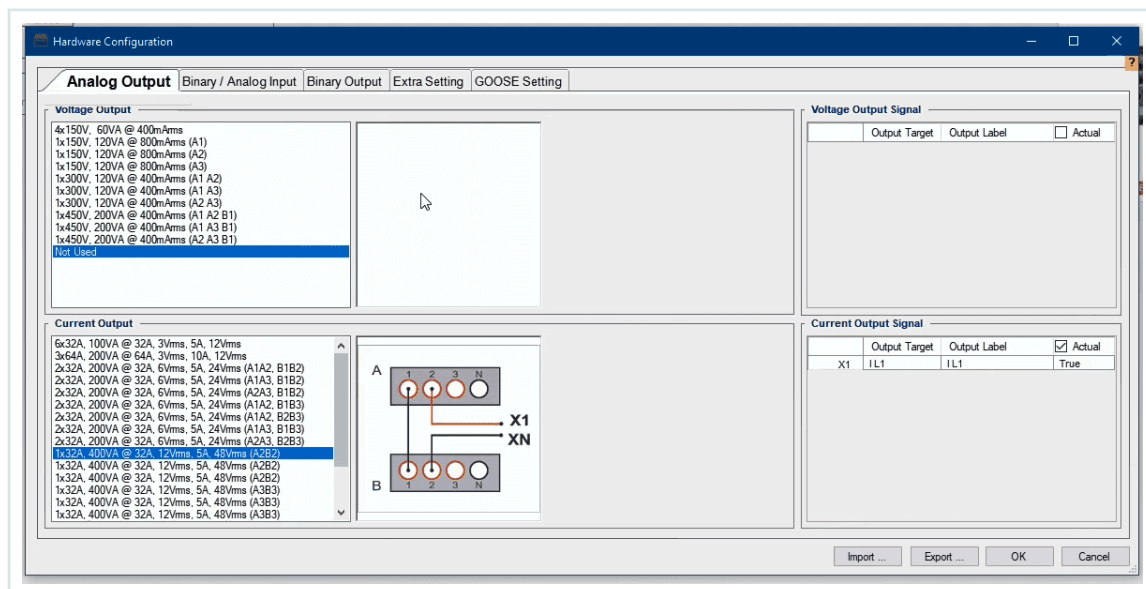


Figure 7

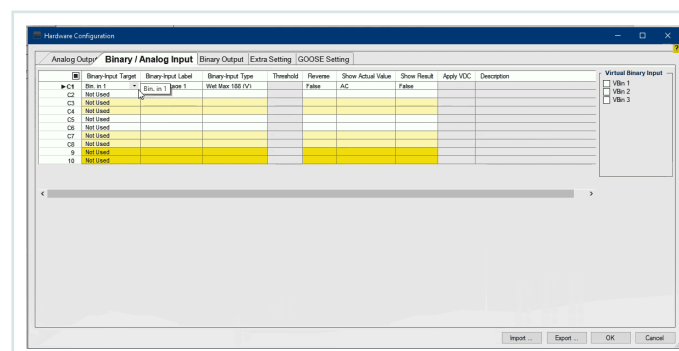


Figure 8

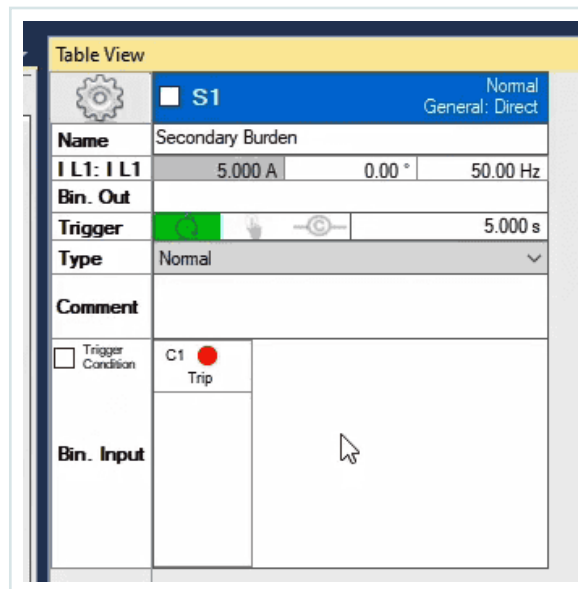


Figure 9 shows the 'Table View' configuration for a Secondary Burden test. The configuration is as follows:

Parameter	Value
Name	Secondary Burden
I L1: I L1	5.000 A, 0.00 °, 50.00 Hz
Bin. Out	
Trigger	5.000 s
Type	Normal
Comment	
Trigger Condition	C1 Trip
Bin. Input	

Figure 9

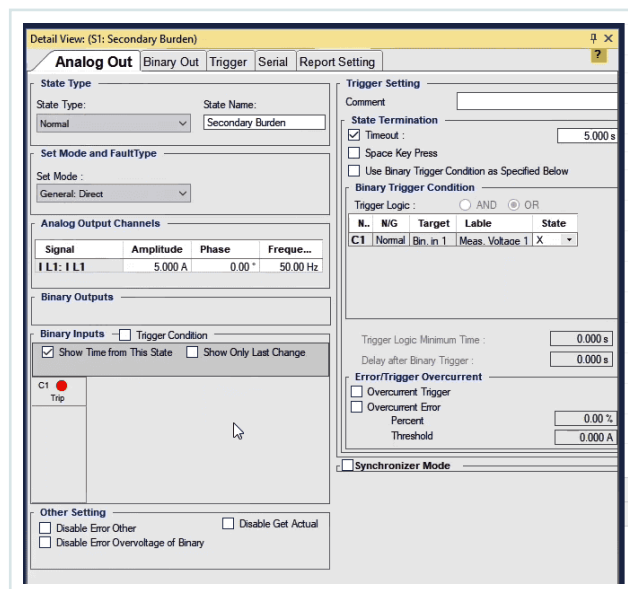


Figure 10 shows the 'Detail View' configuration for a Secondary Burden test. The configuration is as follows:

Section	Parameter	Value
State Type	State Type	Normal
	State Name	Secondary Burden
	Set Mode and FaultType	General: Direct
	Set Mode	General: Direct
Analog Output Channels	Signal	I L1: I L1
	Amplitude	5.000 A
	Phase	0.00 °
	Freque...	50.00 Hz
Binary Outputs	Bin. Out	
	Bin. Input	
Trigger Setting	Timeout	5.000 s
	Space Key Press	
Binary Trigger Condition	Trigger Logic	AND
	Trigger Logic	C1 Normal Bin. in 1 Meas. Voltage 1 X
Error/Trigger Overcurrent	Overcurrent Trigger	
	Overcurrent Error Percent Threshold	0.00 %
Other Setting	Disable Error Other	
	Disable Error Overvoltage of Binary	

Figure 10

1 Performing the test and analyzing the results

After adjusting the wiring, here, 5 amps and 5 seconds are entered as test current and test time, respectively, and after pressing "Init Test", the test starts. In "Signal View" it is possible to view the waveform of "Actual" and the voltage measured by "Binary/Analog Input". Also, in "Signal View" by using the waveforms of "Actual" and the voltages recorded in "Signal View" it is possible to examine

the connection of the connectors. In "Result" section, the user can view the results after the test is finished. The results include "Iinj", the amount of injected current, "Vmeas", the measured voltage, impedance, "impedance Angle" and finally the values of "R" and "X" are displayed using the " $Z \cos(\phi)$ " and " $Z \sin(\phi)$ " relations, respectively. In "Actual Burden" field, the amount of burden that the "CT" secondary can supply in the nominal current is calculated and the result is entered in this field by the software. In the end, after the test is finished, it is necessary to add the test results to the report which, in equipment test, is done by pressing "Add to Report".

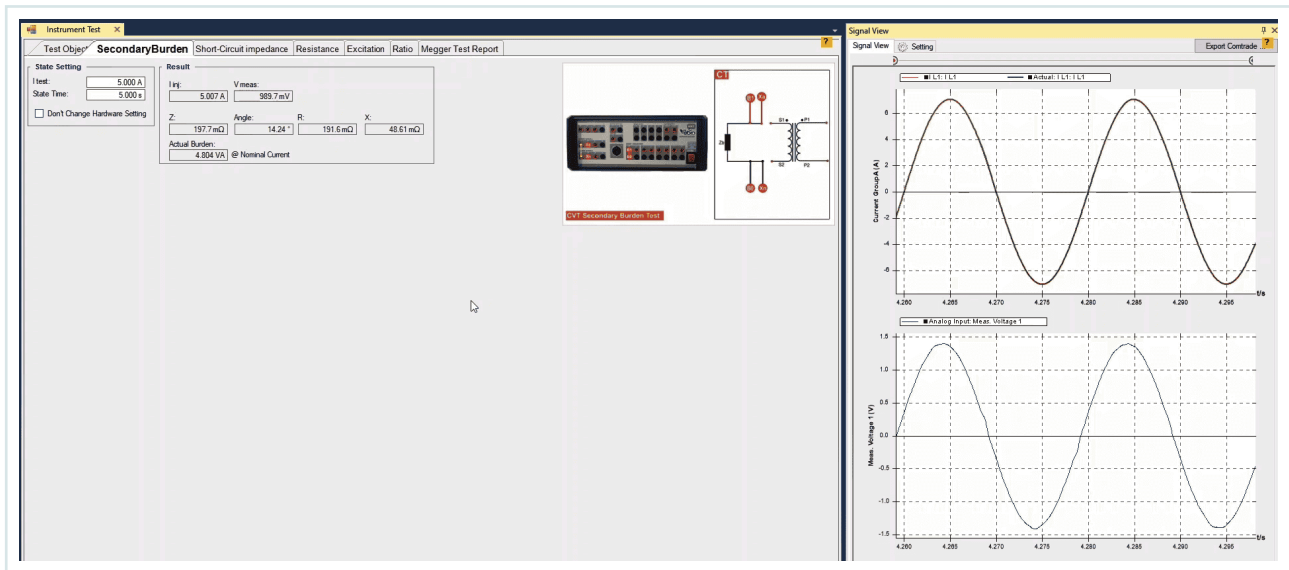


Figure 11

Also, if you wish to add certain parts of the evaluation to the report or to edit the report, use "Add to Report" cog. By clicking on this cog, the elements that can be added to the "Report" are displayed by checked checkboxes and you can uncheck any undesired elements. Note that after any test, the results are not automatically added to the report and it is necessary to add the results of the performed test to the output report by pressing "Add To Report" before "Clearing the test". It should also be noted that if the "Burden" of the path is low and the user wishes to have a more accurate measurement or "Binary/Analog Input1" is damaged, it is necessary to change the specified "Binary Input". To do this, after pressing "Init Test" and checking "Don't Change Hardware Setting" option, the user must enter "Hardware Configuration" window and specify a new input in "Binary/Analog Input" tab. Here, as an example, "Input10" is selected and after adjusting the necessary settings, the test is performed and the results are viewed. If you wish to select a binary between binaries "1" to "8", you have to enter the "Binary Input Target" in accordance with the default binary number. For example, to use "Input7", "Bin1" must be selected as the "Binary Input Target". For this, it is suggested to right-click on "Input1" row and "Cut" the information and "Paste" it in the intended row. To change the current wiring, it should be noted that the "Output Target" of the selected wiring must be "IL1".

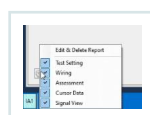


Figure 12

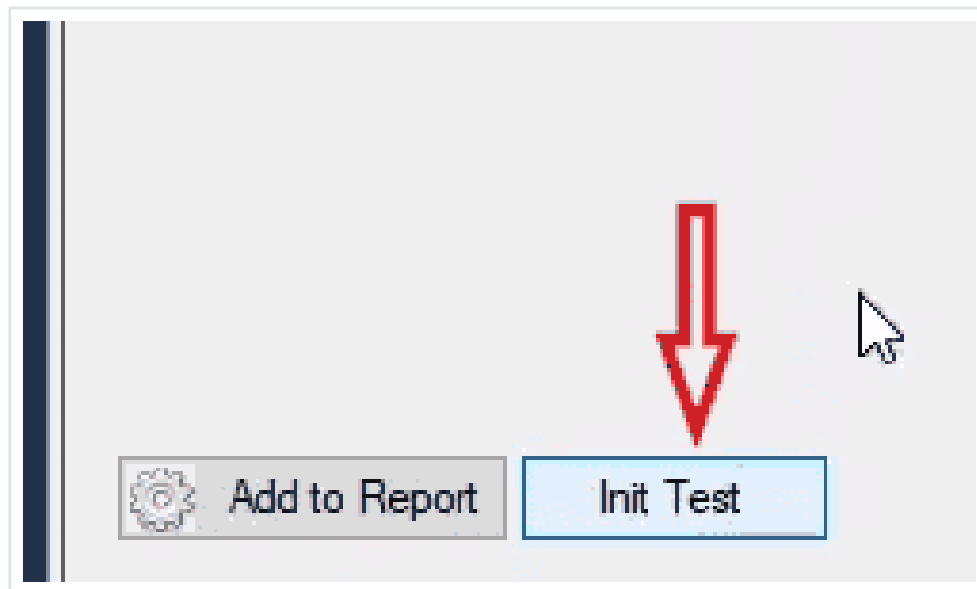


Figure 13

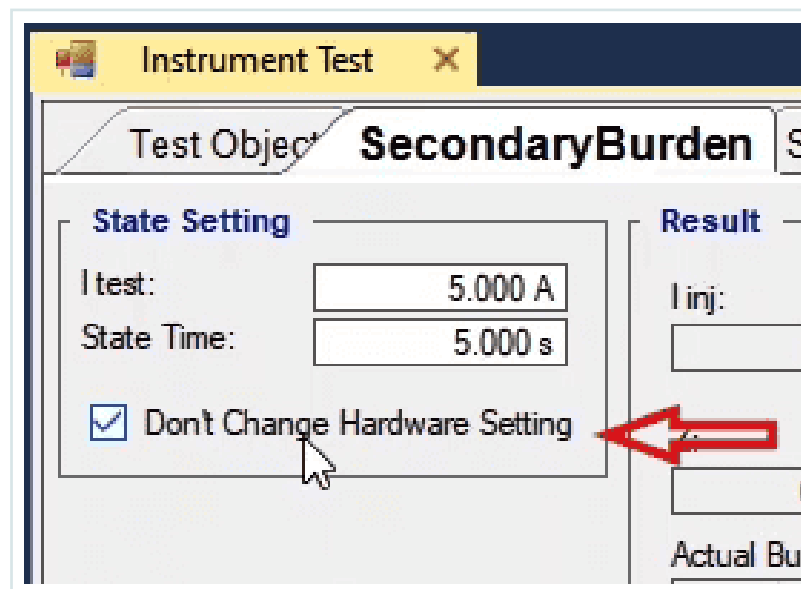


Figure 14

Hardware Configuration									
Binary / Analog Input									
	Binary-Input Target	Binary-Input Label	Binary-Input Type	Threshold	Reverse	Show Actual Value	Show Result	Apply VDC	Description
C1	Not Used								
C2	Not Used								
C3	Not Used								
C4	Not Used								
C5	Not Used								
C6	Not Used								
C7	Bin. in 1	Bin. in 1	Drv	1.00 V	False	None	True		(Short*)=>(inout=1)
C8	Not Used								
9	Not Used								
10	Meas. mV	Meas. mV	200 mv		False	None	False		

Figure 15

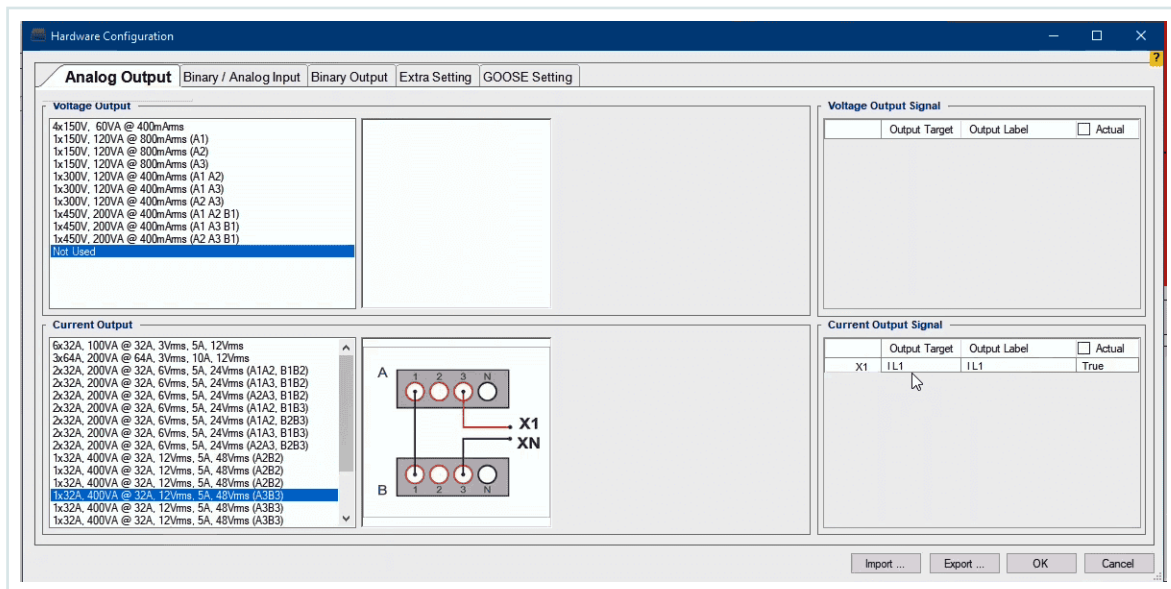


Figure 16

Two more notable points in performing the test are that first, "Error Other" in a test indicates that there is a problem in the connection of wirings of the current path or resistance is too high that the device is unable to provide the "Burden" needed for current injection. Therefore, in cases of facing this error, you can go to "Signal View" and examine the "Actual" value of the current. If the current is injected by the device ("Actual Current") but its difference with the specified current is high, this means that the path resistance is high and if the "Actual Current" is zero, it means that the current injection path is open. Where the path resistance is high, the test current must be decreased and in cases of a zero "Actual Current", the connection of connectors needs to be examined. The second point is that the voltage measured by the inputs of the device needs to have similar cycles. If the measured values have too big tolerances or they are zero it means that the connectors are not correctly connected.

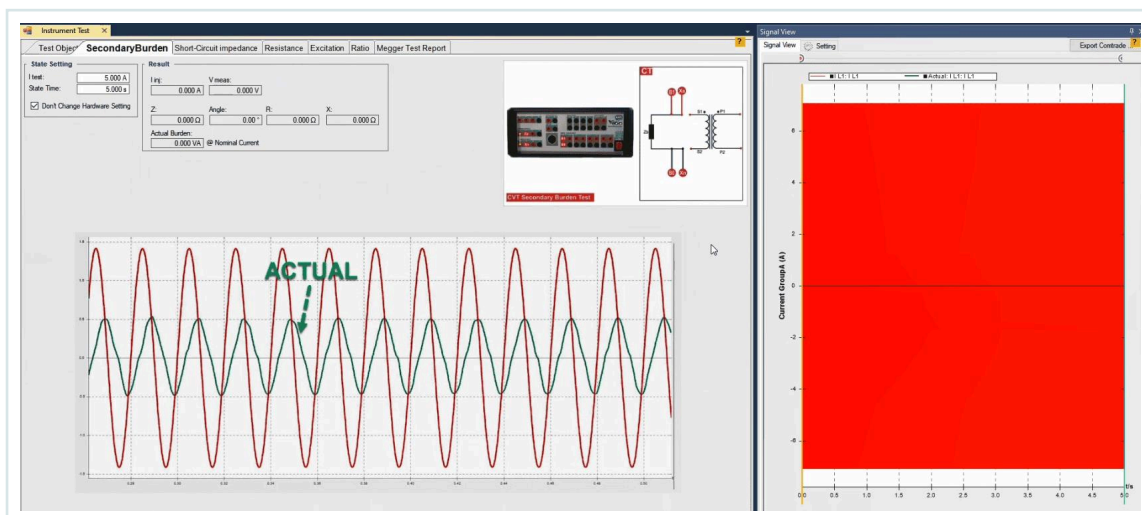


Figure 17

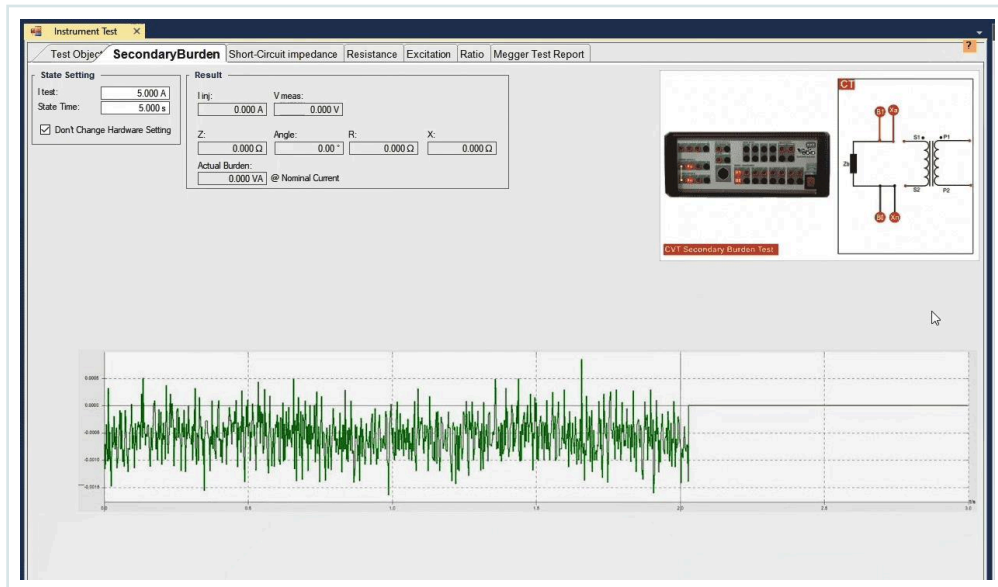


Figure 18

[ig1]Secondary_Burden_test