



VEBKO ONLINE HELP

Secondary Burden Test

Category	tester
Section	Current Transformer Module
Language	English
Generated	2026-10-18

In this test, the "Burden" connected to the secondary "CT" is measured. In this test, by injecting the AC current, and measuring "AC" voltage by using the "Binary/Analog Input" and dividing voltage by current, the value of "Z" and impedance angle and consequently "R" and "X" of the secondary route are achieved. To perform this test, the time and current of the test are entered in "State setting" section, in "I test" and "State Time" fields respectively. The specified current limitation for this field is "32" amps but a "5" amps current for "5"amp "CTs" and a maximum "1" amp current for "1"amp "CTs" would be enough. After entering the "State Setting" information, the wiring should be done in accordance with the illustration shown. Note that by double-clicking on the picture you can maximize it. To perform this test, first, you need to disconnect the "CT" from all parts that connect the current to measurement equipment. In this wiring, you should short circuit "Ia1" and "Ib1" current output phases and connect "Ia2" and "Ib2" phases to the route through which the "CT" current is transferred.

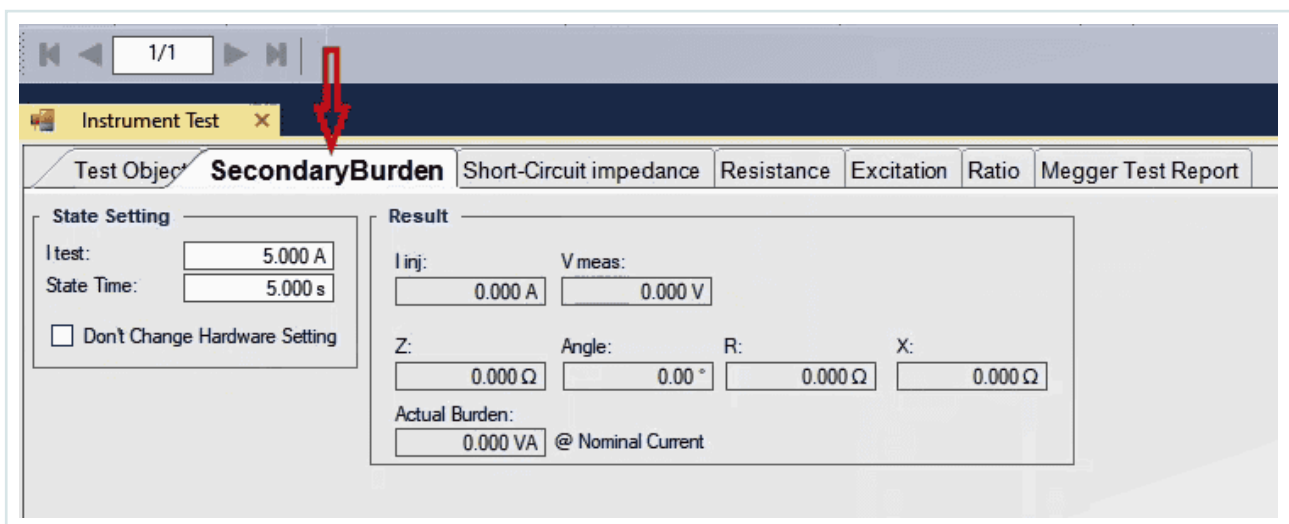


Figure 1

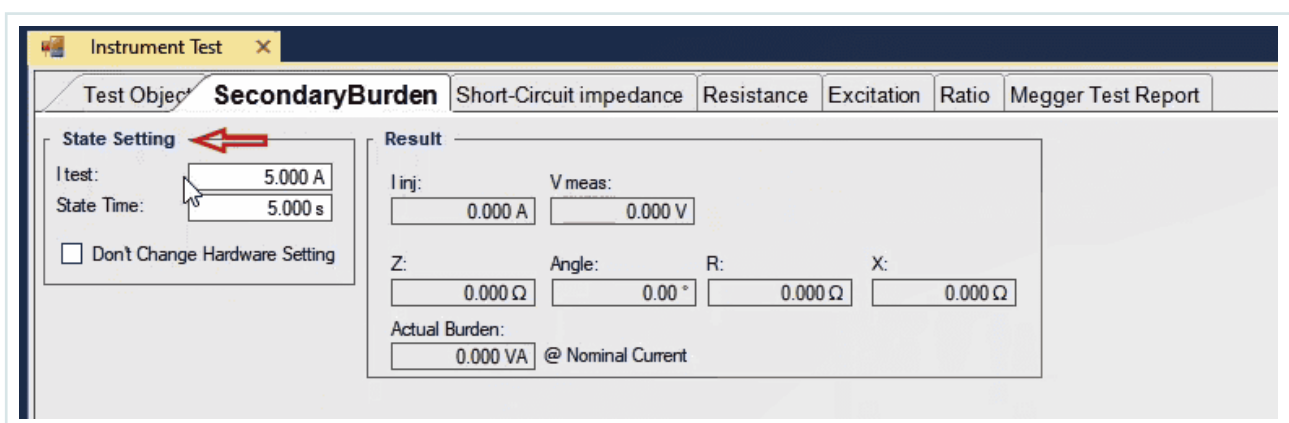


Figure 2



Figure 3

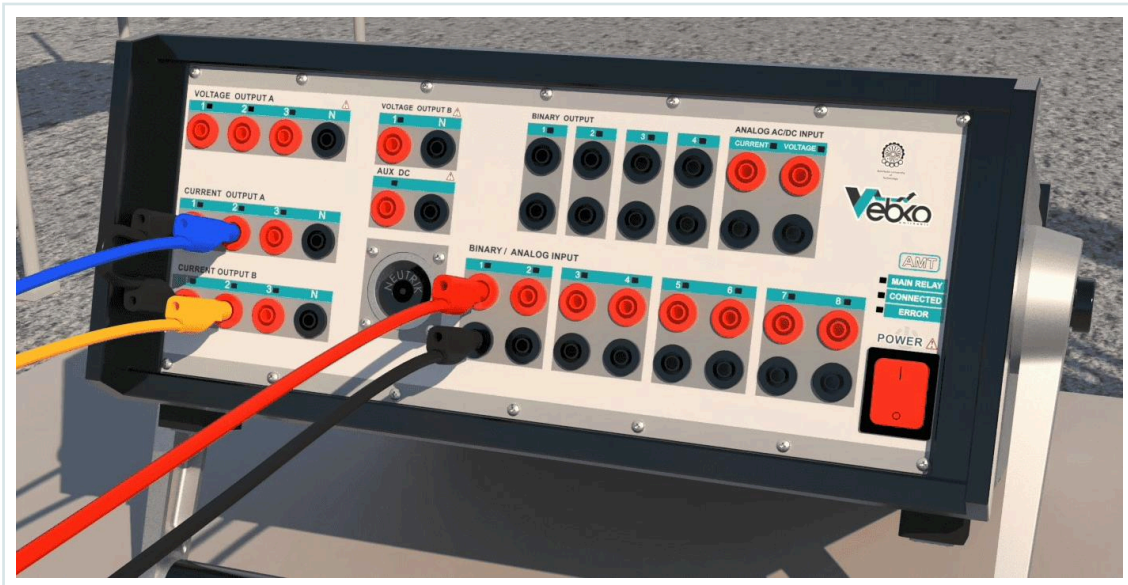


Figure 4

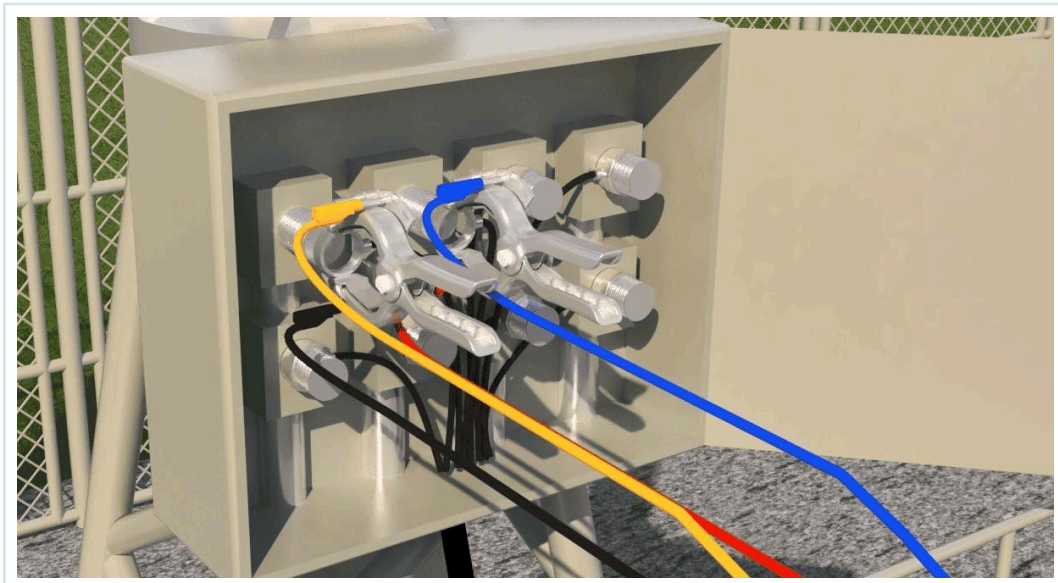


Figure 5

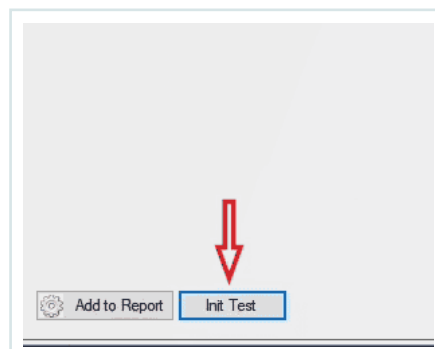


Figure 6

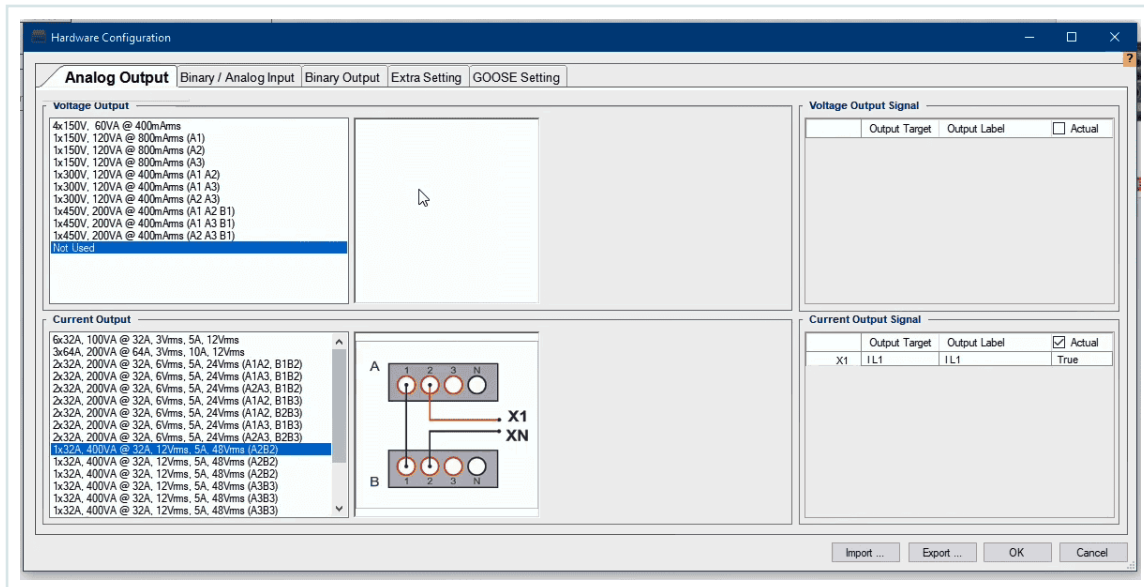


Figure 7

Also, to measure the “AC” voltage, you should connect the “Binary/Analog input”1 to the test route and further than the current injection connectors. Note that before performing the test it is necessary to press “Init Test” so that the device is configured automatically. By clicking on this option, the current and time settings of the test as well as the hardware settings related to “Hardware Configuration” including the device outputs and “Binary/Analog Inputs” are configured by the software automatically. In “Analog Output” tab in “Hardware Configuration” section, you can see that the wiring of the device is set at “32A” with the maximum “Burden” of “400VA” and the “Binary/Analog” inputs 1 is activated for measuring the voltage. 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 frequency of “50Hz” and in accordance with the entered information is made in “State Setting” section. If you wish to view a more complete set of information of “Table View”, you need to use “Detail View” window.

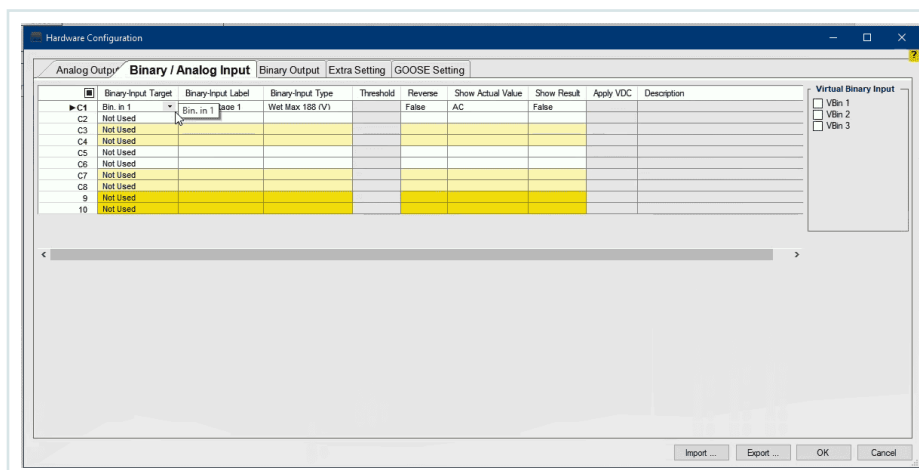


Figure 8

Table View			
	☐ S1	Normal General: Direct	
Name	Secondary Burden		
IL1: IL1	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

Detail View: (S1: Secondary Burden)

Analog Out Binary Out Trigger Serial Report Setting ?

State Type

State Type: Normal
State Name: Secondary Burden

Set Mode and Fault Type

Set Mode: General: Direct

Analog Output Channels

Signal	Amplitude	Phase	Frequ...
I L1: I L1	5 000 A	0.00 °	50.00 Hz

Binary Outputs

Binary Inputs ☐ Trigger Condition

☒ Show Time from This State ☐ Show Only Last Change

C1 Trip

Other Setting

☐ Disable Error Other
☐ Disable Error Overvoltage of Binary
☐ Disable Get Actual

Trigger Setting

Comment

State Termination

☒ Timeout: 5.000 s
☐ Space Key Press

☐ Use Binary Trigger Condition as Specified Below

Binary Trigger Condition

Trigger Logic: ☐ AND ☒ OR

N...	I/G	Target	Label	State
C1	Normal	Bin in 1	Meas. Voltage 1	X

Trigger Logic Minimum Time: 0.000 s
 Delay after Binary Trigger: 0.000 s

Error/Trigger Recurrent

☐ Overcurrent Trigger

☐ Overcurrent Trigger Percent Threshold: 0.00 %

☒ Synchronizer Mode

Figure 10

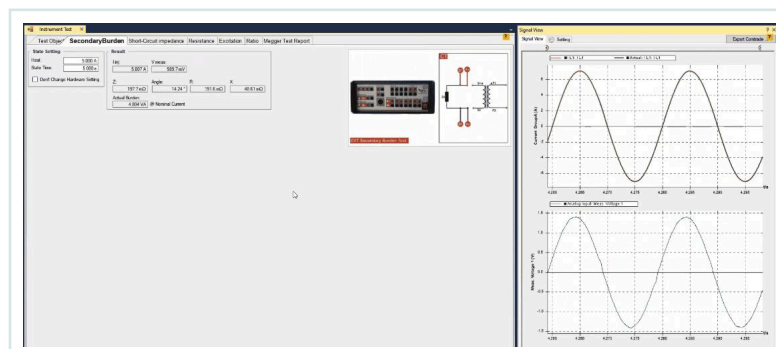


Figure 11

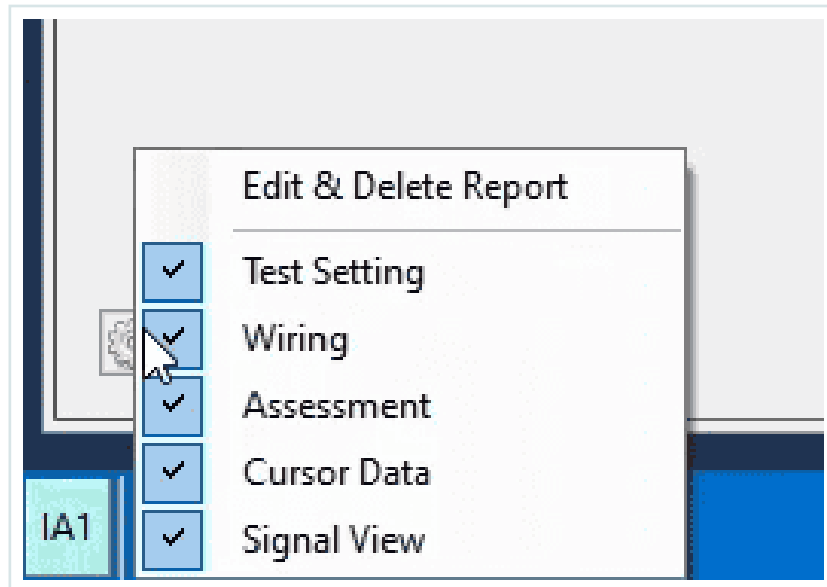


Figure 12

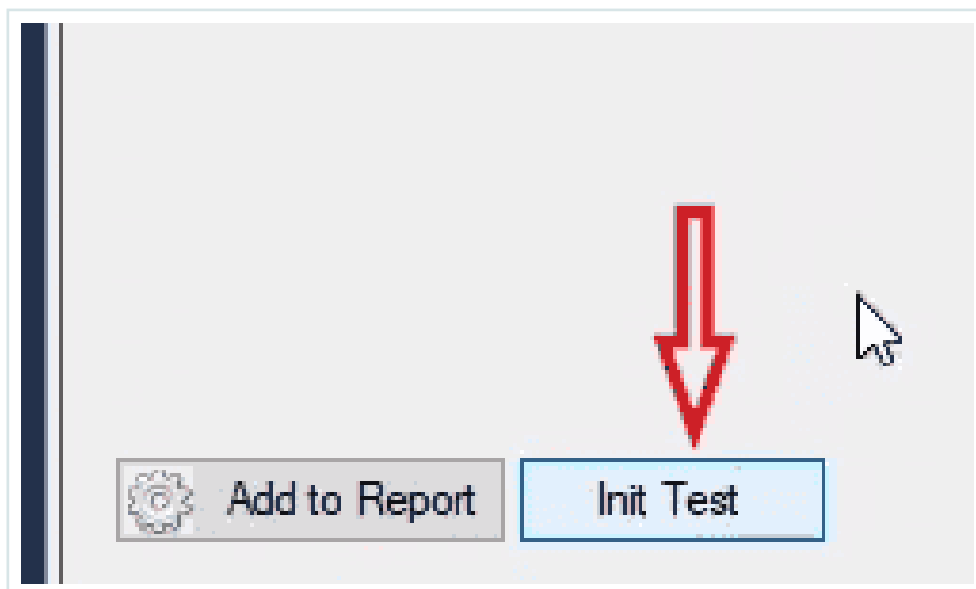


Figure 13

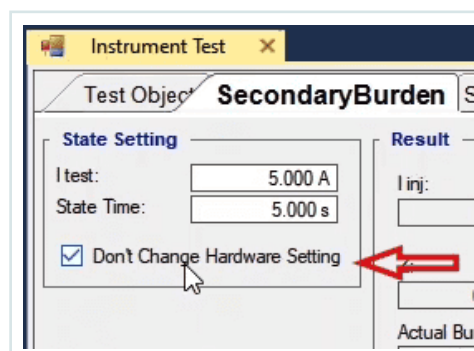


Figure 14

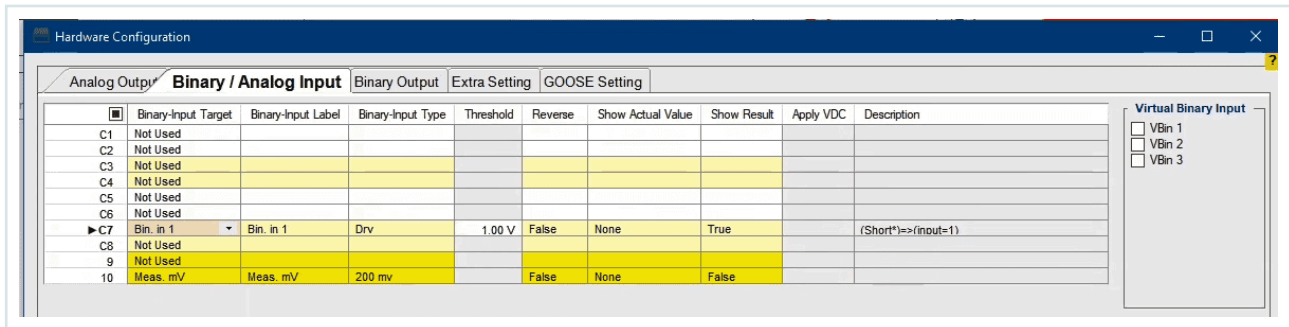


Figure 15

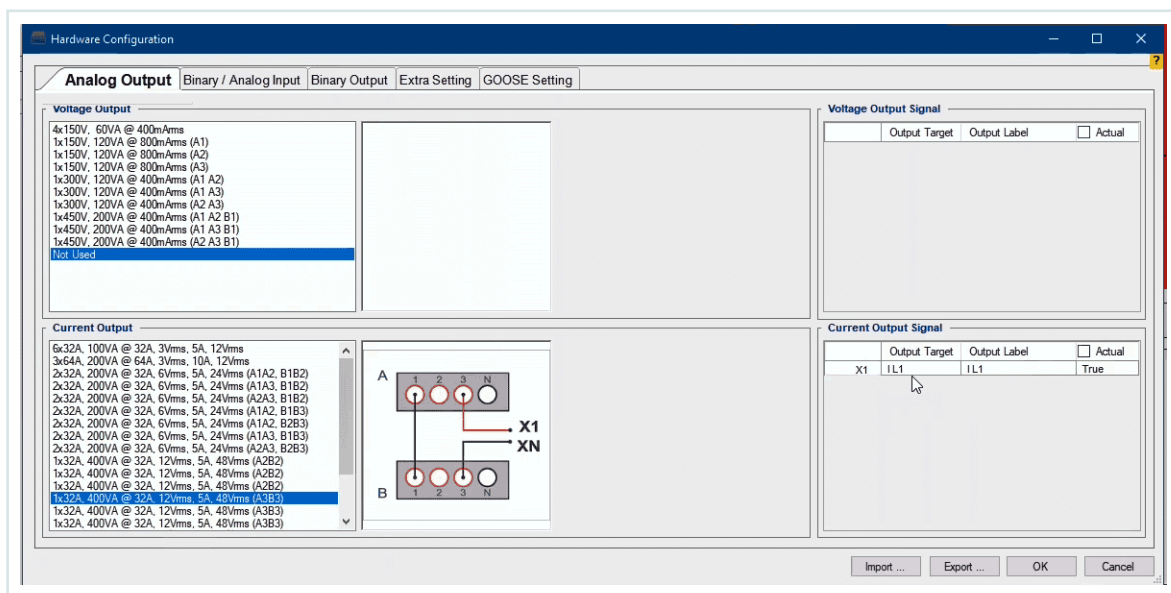


Figure 16

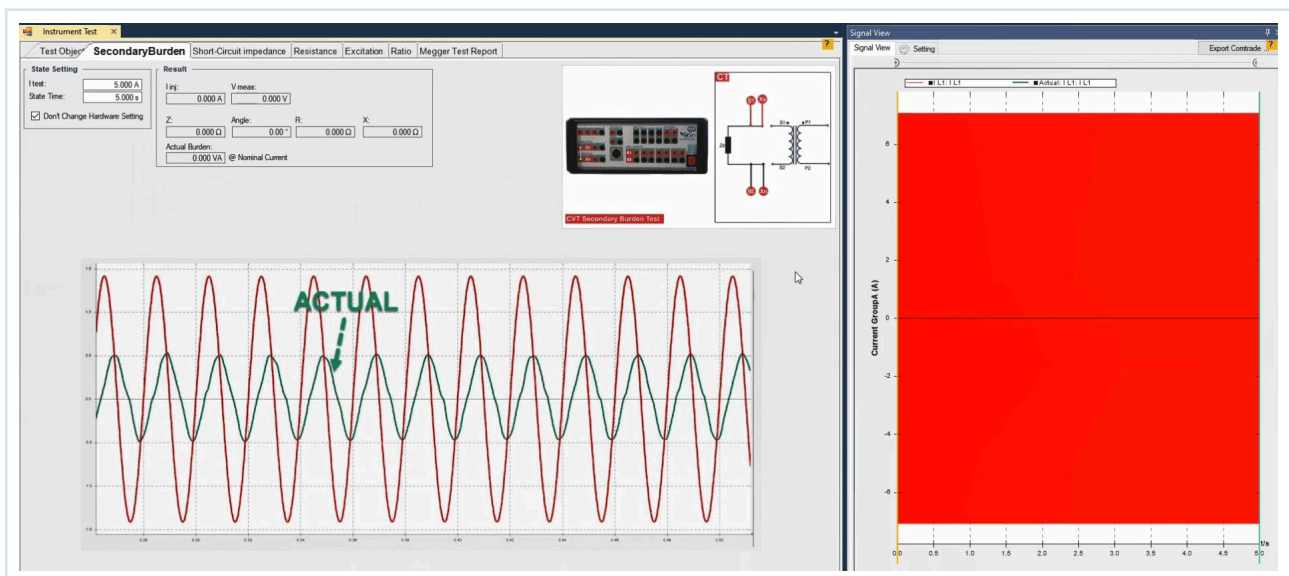


Figure 17

1 Performing the test and analyzing the results

After doing the wirings, here, “1” amp and “2” seconds are entered as the current and time of the test respectively and after pressing “Init Test” the test will run. In “Signal View”, it is possible to view the actual current waveform and the voltage measured by “Binary Input”. By using the “Actual” values waveforms and the voltages recorded in “Signal View” it is possible to check the connections of the connectors. The results of the test can be viewed in “Result” section after the test is finished. The results include “Iinj”, the amount of injected current, “Vmeas”, the measured voltage, the impedance of the route, angle of the impedance and finally the values of “R” and “X” are displayed using “Z Cos (phi)” and “Z Sin (phi)” relations. In “Actual Burden” field, the amount of power which can be provided by the “CT” secondary in nominal current is measured and the result is displayed in this field by the software. In the end, after the test is finished, it is necessary to add the results of the evaluation to the report, which is done by selecting “Add to Report” in equipment test.

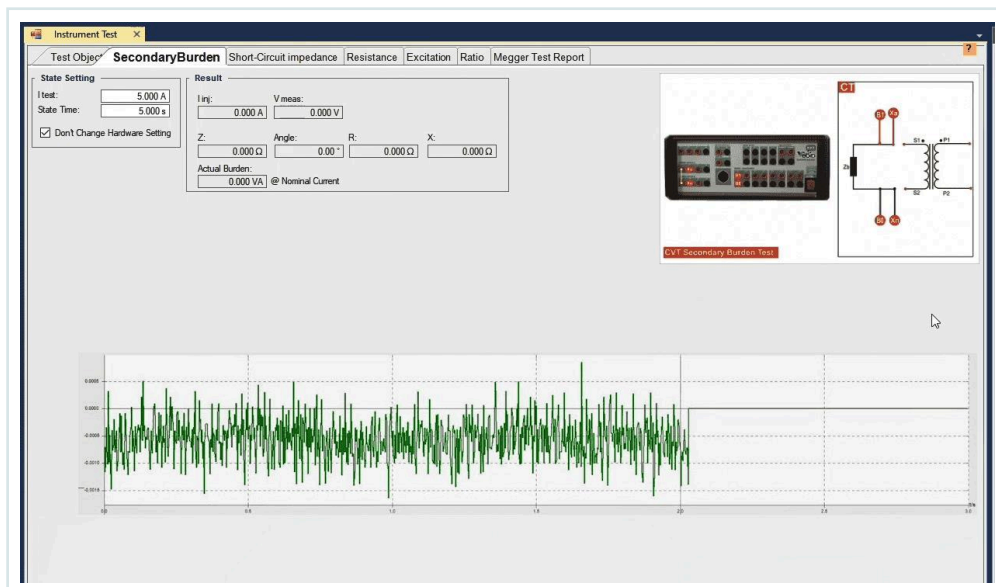


Figure 18

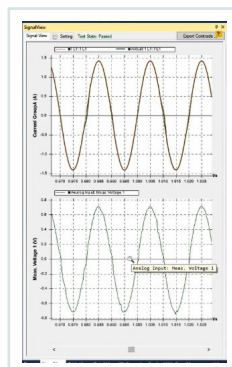


Figure 19

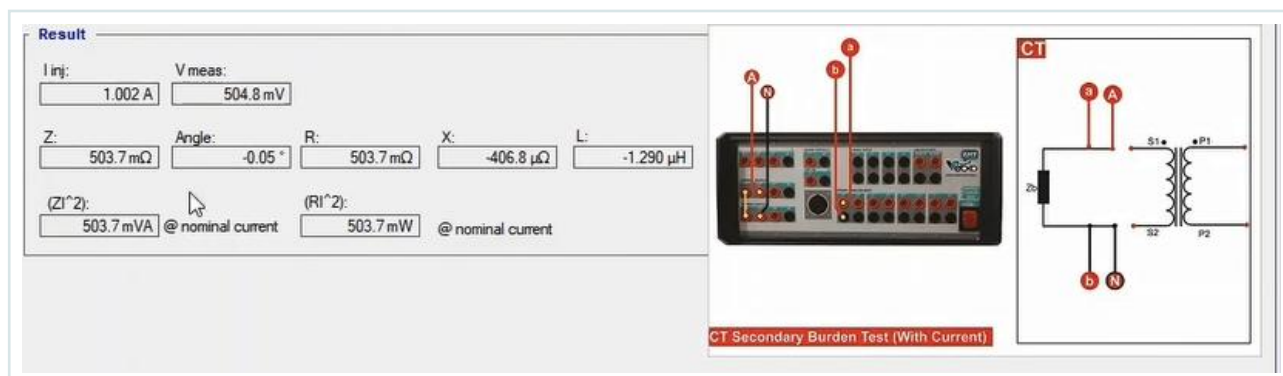


Figure 20

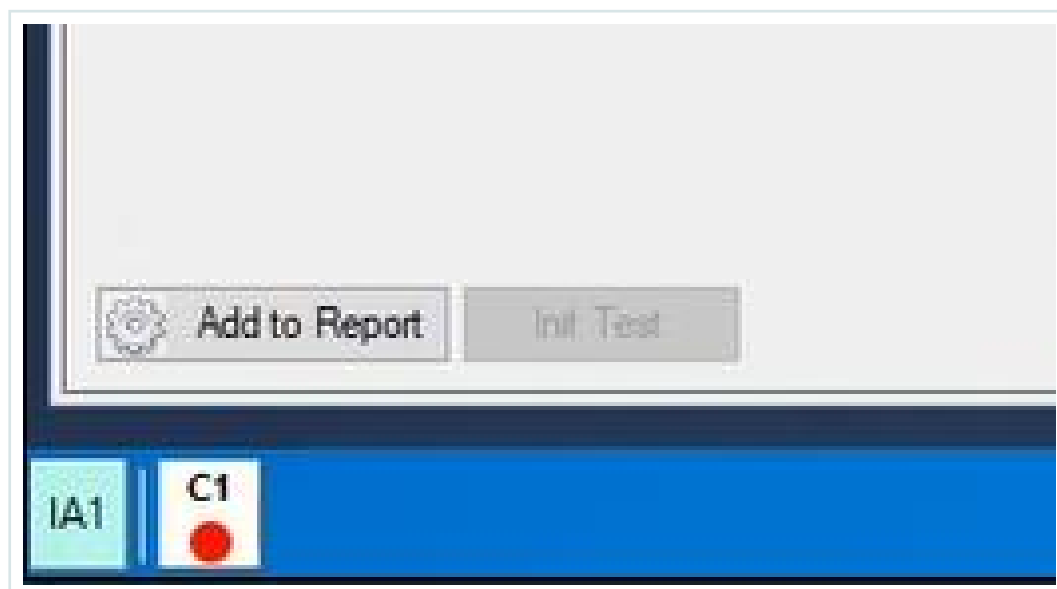


Figure 21

Also, if you wish to add specific parts of the evaluation to the report or edit the report, you need to use “Add to Report” cog. By clicking on this cog, the items that can be added to the “Report” are displayed and you can simply uncheck whichever you wish to remove from the report. Note that after each test, the results are not added to the report automatically and it is necessary to add the results of the performed test to the output report by selecting “Add to Report” after each test and before clearing the Test. Note that if the “Burden” of the route is low and you wish to have a more precise measurement or the “Binary Inputs” number 1 and 2 are faulty, it is necessary to change the specified “Binary/Analog Input”. To do this, first press “Init Test”, then check “Don’t Change Hardware Setting” option and go to “Hardware Configuration” window, specify a different binary for the measurement in “Binary/Analog Input” tab. Here, as an example “Input” number 10 is selected and after adjusting the required settings, the test is performed and the results are viewed. If you wish to select one of the binaries “1” to “8”, it is necessary to enter their “Binary Input Target” in accordance with the number of the intended binary. For example, to use the binary number “7”, “Bin7” should be selected as “Binary

Input Target" while for binary number "5", "Bin5" should be selected.

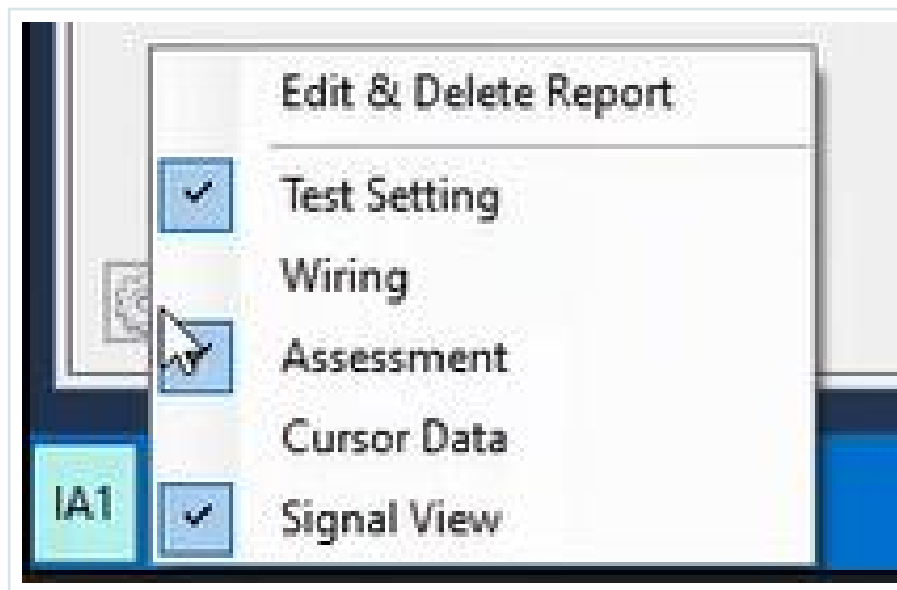


Figure 22

Report
Export Report HTML PDF 1.1.3 Get Report Image Or Signal View - call Get Image of Signal

AMPro Current Transformer:

1) Abstract:

1-1) Date and Time

Type	Date	Time
Report Date and Time(Present)	13/06/2023	10:13:31 AM

1-2) Test Module

Name:	AMT Sequencer	Version:	99021001
User Name:	BP	Computer Name:	DESKTOP-87WREJ2
Equipment:	AMT1105	Serial Number:	26

[Go to Report](#)

2) Test Object:

Tested By:

Date	Tested By	Approved By
09/05/2023	AAA	AAA

Company	Country	Station	Manufacturer	Type	CT Serial Number	Feeder Bay	Phase	EC ID	Core number	Tap	Additional Data
Vebko	IRAN	AAA	Vebko	Protection	11111-11111-11111-11111	AAA	A		1	1	AAAA

Test Setting:

Core Type	Class	Class Multiplier	Applied Standard
Protection	10P or 10 R	0.0001	IEC 60044-1

Nominal Values:

Primary Current:	800.0 A	Actual Burden:	10.00 VA
Secondary Current:	1.000 A	Ambient Temperature:	25.00 °C
Frequency:	50.00 Hz		
burden:	10.00 VA		
Max Rct:	4.000 Ω		
ALF:	10.000		
Coef(phi):	0.0000		

Test Conditions:

Winding Material	Winding Temp.	Reference Temp.	Correction Factor
Aluminum	0.00 °C	0.00 °C	1.0000

Report Signalview Table View Detail View (D1: Secondary Burden(With Current)) Measurement View

Figure 23

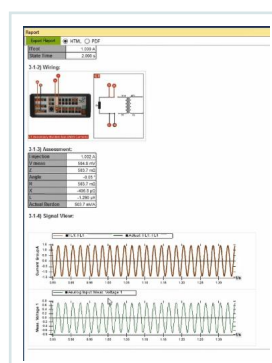


Figure 24

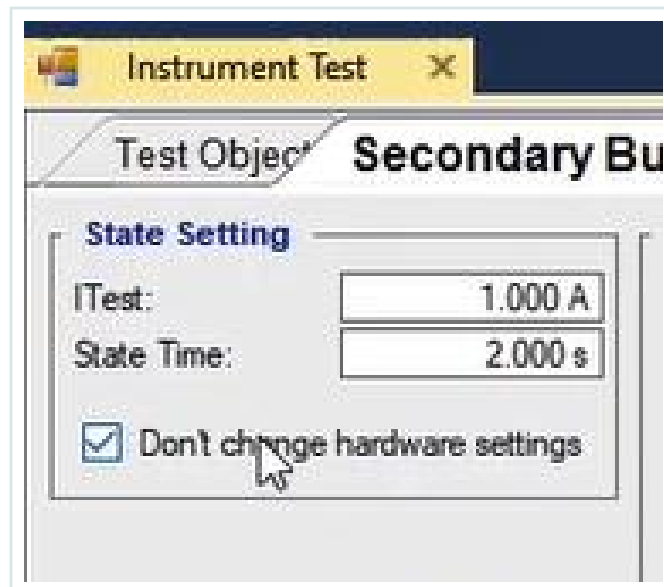


Figure 25

Hardware Configuration									
Analog Output Binary / Analog Input Binary Output Extra Setting									
	Binary-Input Target	Binary-Input Label	Binary-Input Type	Threshold	Reverse	Show Actual Value	Show Result	Apply VDC	Description
C1	Bin. in 1	Meas. Voltage 1	Wet Max 30 (V)	30.00 V	False	AC	False	0.000 V	(Vin > 30)=>(input=1)
C2	Not Used	Not Used	Dry		False	None	False		
C3	Not Used	Not Used	Dry		False	None	True		
C4	Not Used	Not Used	Dry		False	None	True		
C5	Not Used	Not Used	Dry		False	None	True		
C6	Not Used	Not Used	Dry		False	None	True		
C7	Not Used	Not Used	Dry		False	None	True		
C8	Not Used	Not Used	Dry		False	None	True		
9	Not Used	Not Used	Shunt 1 Ohm			None			
10	Meas. mV	Meas. mV				AC			

Figure 26

Hardware Configuration									
Analog Output Binary / Analog Input Binary Output Extra Setting									
	Binary-Input Target	Binary-Input Label	Binary-Input Type	Threshold	Reverse	Show Actual Value	Show Result	Apply VDC	Description
C1	Not Used	Not Used	Dry		False	None	False		
C2	Bin. in 2	Bin. in 2	Dry		False	None	False		(Short)=>(input=1)
C3	Not Used	Not Used	Dry		False	None	True		
C4	Not Used	Not Used	Dry		False	None	True		
C5	Bin. in 5	Bin. in 5	Dry		False	None	True		(Short)=>(input=1)
C6	Not Used	Not Used	Dry		False	None	True		
C7	Bin. in 7	Bin. in 7	Dry		False	None	True		(Short)=>(input=1)
C8	Not Used	Not Used	Dry		False	None	True		
9	Not Used	Not Used	Shunt 1 Ohm			None			
10	Meas. mV	Meas. mV				AC			

Figure 27

Two notable points in performing a test are that “Error Other” means that there is a problem in the connection of the wirings or the resistance of the current route is too high that the device is not able to provide the “Burden” needed to inject the current. Therefore, in case of facing this error, check the “Actual” value of the current from “Signal View”. If the current is injected from the device (“Actual Current”) but difference with the specified current is too high, the indicator of high resistance of the route and that the “Actual Current” equals zero indicates that the current injection route is open. If the route resistance is too high, the test current should be decreased and if the “Actual Current” equals zero, the connectors’ connection should be checked. The other point is that the voltage read by the binaries of the device need to have similar cycles. If the read values have a too high or zero tolerance, this means that the connectors are not connected correctly.

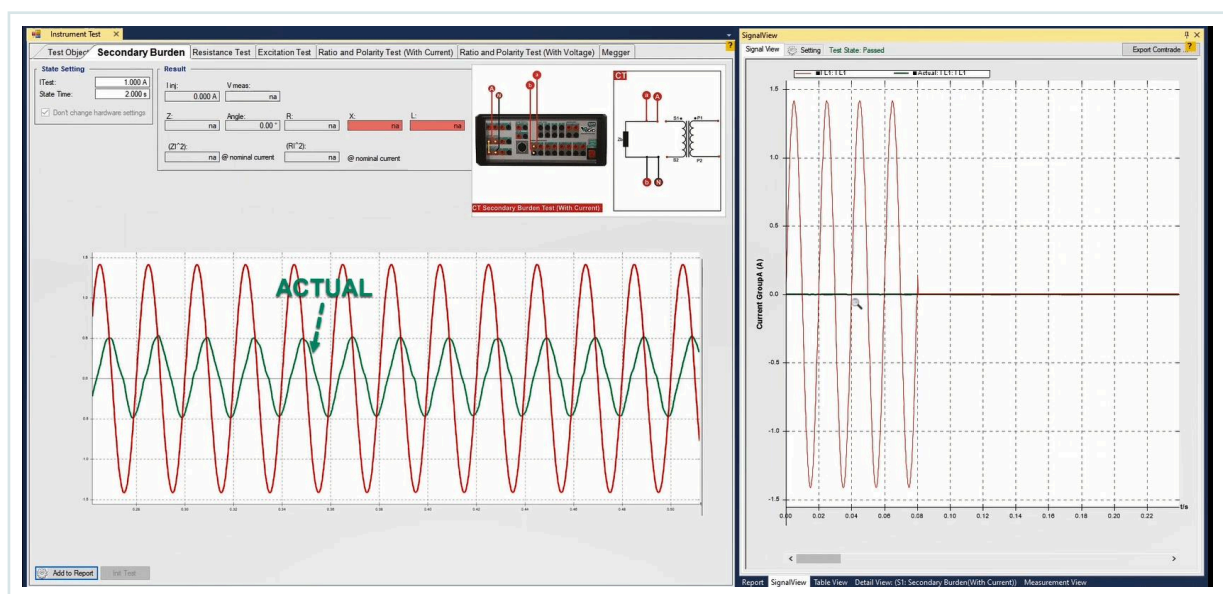


Figure 28

[jg1]Secondary_Burden_test