



VEBKO ONLINE HELP

CT Ratio and Polarity Test (with Voltage)

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1 Imported Content

To perform ratio test you can use the “Ratio and Polarity Test (With Voltage)” tab too. In this tab, tests including turns ratio, polarity and phase movement between “CT” primary and secondary with voltage are performed. In performing these tests, “AC” voltage is applied to “CT” secondary and the primary voltage is measured through “Analog Input”. To perform this test, you need to enter test voltage and time in “V_{test}” and “State Time” fields in “State Setting” respectively. Note that this test must be performed after excitation test because the applied voltage must be in the “CT” linear areas. Before starting the test, some points must be taken into account. First: in this test, the voltage is applied from the secondary and measured from the primary. Two: if you wish to remove the noise from the result, check “At Calibration State” option. By checking this option in a “State” before the test, the “Input” voltage is measured and deducted from the result.

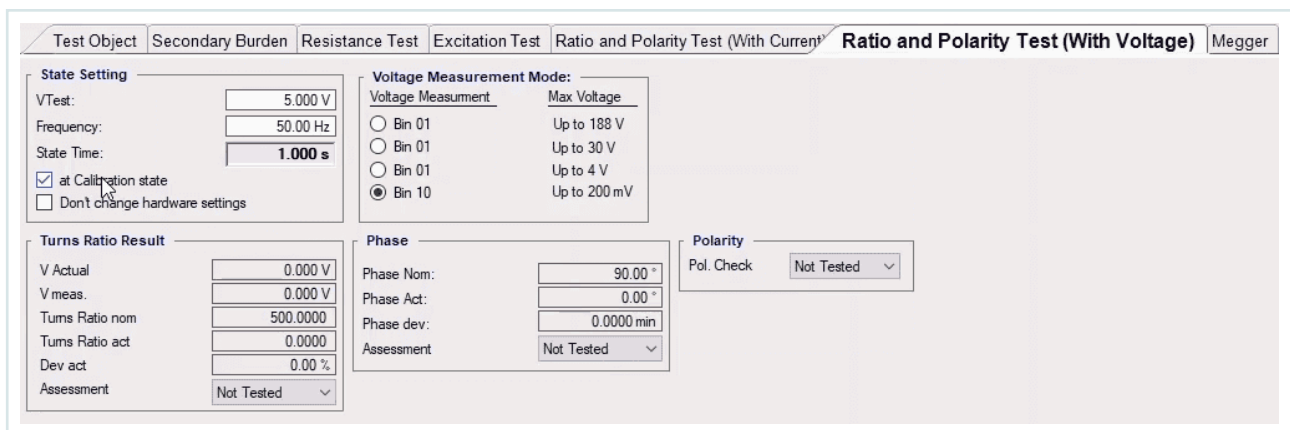
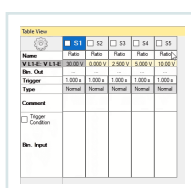


Figure 1

Generally, in “Table View” you can view the “States” that are created by the software. As you can see 5 “States” are created. In the first “State” 30 volts is applied, the “Actual” is measured and calibration factor is obtained from the difference between these two so that the test voltage is more accurate during the test. Note that while applying this voltage, the switches are open and no voltage is applied to the “CT”. The second “State” is related to “At Calibration State”. The fourth “State” is the specified test voltage and the third and fifth “States” are half and double the test voltage respectively which are created to measure the best state of the primary voltage. Note that this is why the maximum voltage limit is 220 volts. In “Voltage Measurement Mode”, the “Input” specified to measure the voltage. Note that this item changes automatically according to the test voltage and the turns ratio specified in “Test Object”.



	State 1	State 2	State 3	State 4	State 5
Name	WELDING	WELDING	WELDING	WELDING	WELDING
Voltage	30.000 V	30.000 V	30.000 V	30.000 V	30.000 V
Turns Ratio	1.000 x	1.000 x	1.000 x	1.000 x	1.000 x
Dev	0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Polarity	Not Tested	Not Tested	Not Tested	Not Tested	Not Tested
Phase	90.00 °	90.00 °	90.00 °	90.00 °	90.00 °
Assessment	Not Tested	Not Tested	Not Tested	Not Tested	Not Tested
Trigger					
Trigger Condition					
Dev Input					

Figure 2

Voltage Measurement Mode:

Voltage Measurement	Max Voltage
☐ Bin 01	Up to 188 V
☐ Bin 01	Up to 30 V
☐ Bin 01	Up to 4 V
☒ Bin 10	Up to 200 mV

Figure 3

After entering the "State Setting" information, you need to do the wiring according to the picture. Note that by double-clicking on it you can maximize it. In this wiring, "Va1" must be connected to "S1" while "N" must be connected to "S2" and then a wire must be connected to "Input10" for measurement after passing through the "CT". After doing the wiring, 50 volts and 1 second are entered as test voltage and test time for "CT Protection 500/1" and after pressing "Init Test", the test starts. In "Signal View", the waveform of the voltage along with its "Actual" value and the measured voltage can be viewed. After the test is finished, the results can be viewed in "Turns Ratio Result". "V_{actual}", "V_{meas}" and "Turns Ratio Nom" are the actual value of the fed voltage, the measured voltage and the "CT" nominal turns ratio respectively. Also, "Turns Ratio Act" is measured by comparing "V_{meas}" and "V_{actual}" and finally, the assessment is recorded in assessment field in accordance with the difference between "Turns Ratio Act" and "Turns Ratio Nom". If the difference is less than the allowed value in the standard, the test passes otherwise it fails. Here, since the error percentage is less than the specified value in the standard, the test is passed. This test is assessed in the way that when you specify a test voltage, the current is measured according to the "Burden" entered in "Test Object" and after performing the test and measuring the turns ratio error percentage, the result is compared with the current standards table and assessed.

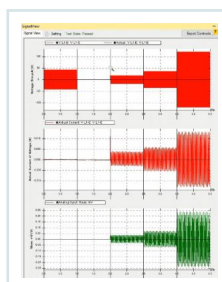


Figure 4

Turns Ratio Result	
V Actual	12.50 V
V meas.	24.94 mV
Turns Ratio nom	500.0000
Turns Ratio act	500.9885
Dev act	0.20 %
Assessment	Passed 

Figure 5

In "Phase Nom" field in "Phase" section, the phase and in "Phase Act", the measured phase are specified. In "Phase Dev" by comparing "Phase act" and "Phase nom", the error is calculated *in* minute and the assessment is specified in "Assessment" field. "Pol.Check" field in "Polarity" section checks the correctness of the polarity. Finally, after the test is performed, it is necessary to add the assessment to the report which is done by pressing "Add to Report". Also, if you wish to add some specified parts to the report or delete the report you can use "Add to Report" cog. Note that if the test has been performed using inputs and outputs other than the default settings, first you need to click on "Init Test" and then check "Don't Change Hardware Setting" and by going to "Hardware Configuration", in "Analog Output", activate phases of the intended voltage group and deactivate the rest and perform the test using the intended voltage group. Here voltage group A is deactivated and voltage group B is activated and instead of "Input 10", "Input 8" is selected and the necessary settings is adjusted.

Phase		Polarity	
Phase Nom:	90.00 °	Pol. Check	Not Tested 
Phase Act:	0.00 °		
Phase dev:	0.0000 min		
Assessment	Not Tested 		

Figure 6

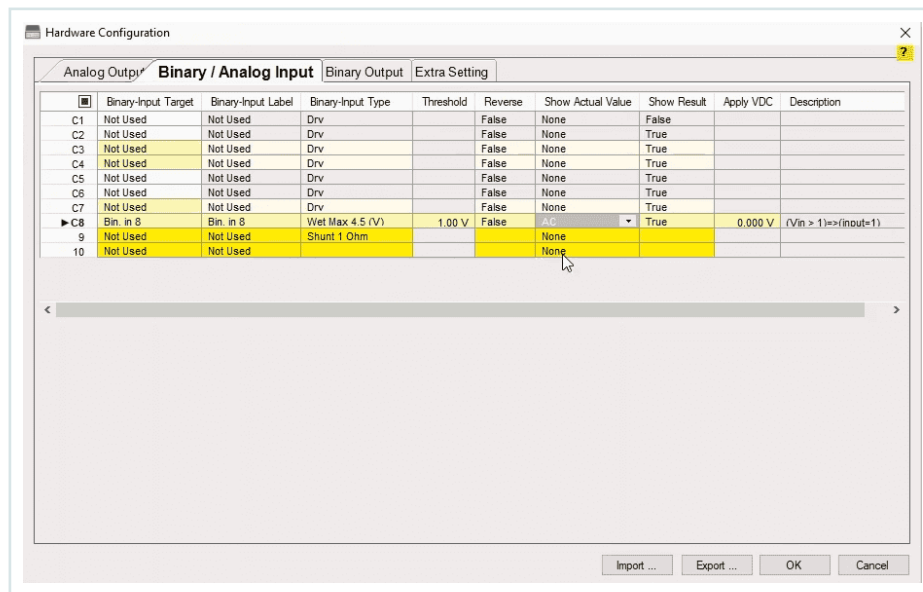


Figure 7

Megger tab

No test is performed in “Megger” tab. This section is designed so that you can enter “Megger” test result and gather all results in one report. You can enter the number of rows and columns that you need in “Rows” and “Column” fields respectively and by clicking on “Insert”, make your intended table and the results are added to the inserted fields. Also, in “Title” field you can enter a title for your test.

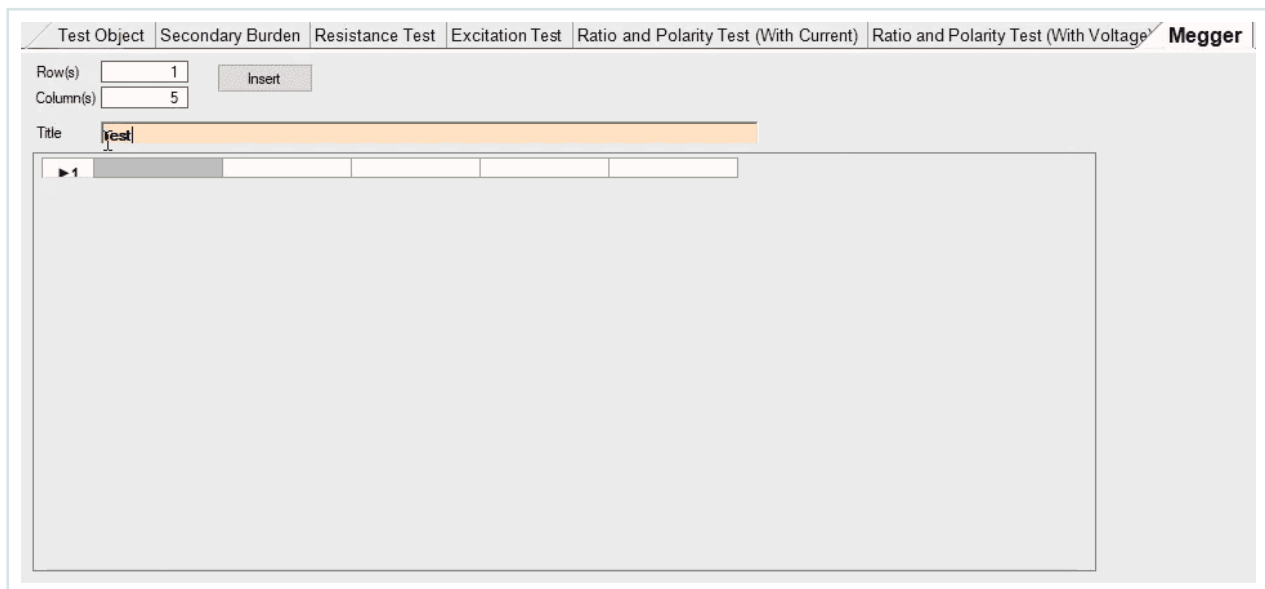


Figure 8

Finally, after all the tests are performed and the results are added to the report, in “Report View” it is possible to view the report as a whole. By right-clicking and selecting “Reorder Reports”, it is possible to change the arrangement of different test results. To do this, you need to select your intended report

and by using “Up” and “Down” keys move the report or by using “Delete”, delete it. Furthermore, if you wish to delete the added report, or edit the entered information, you can use the blue option named “Edit & Delete Report”.

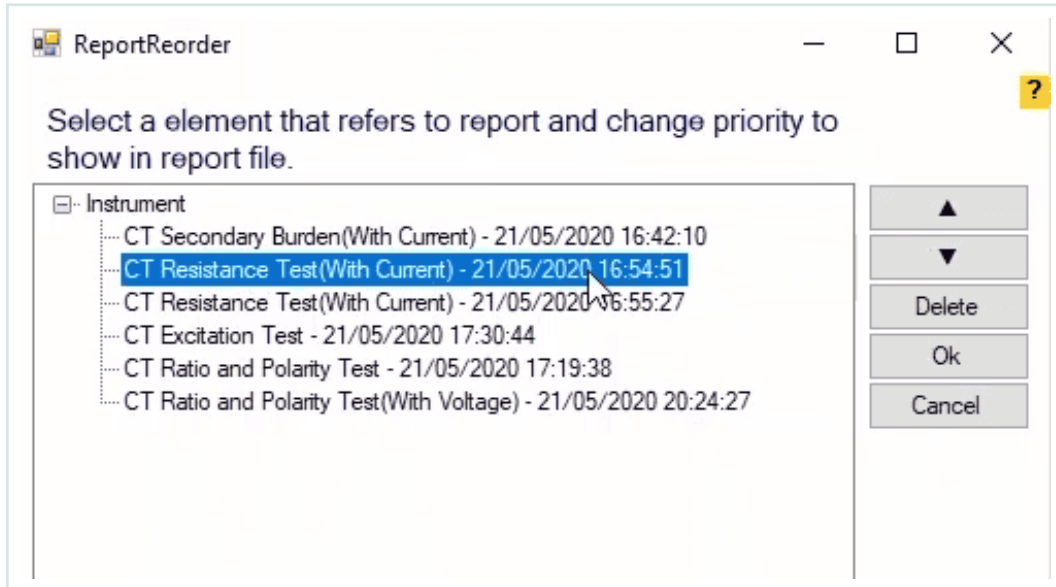


Figure 9

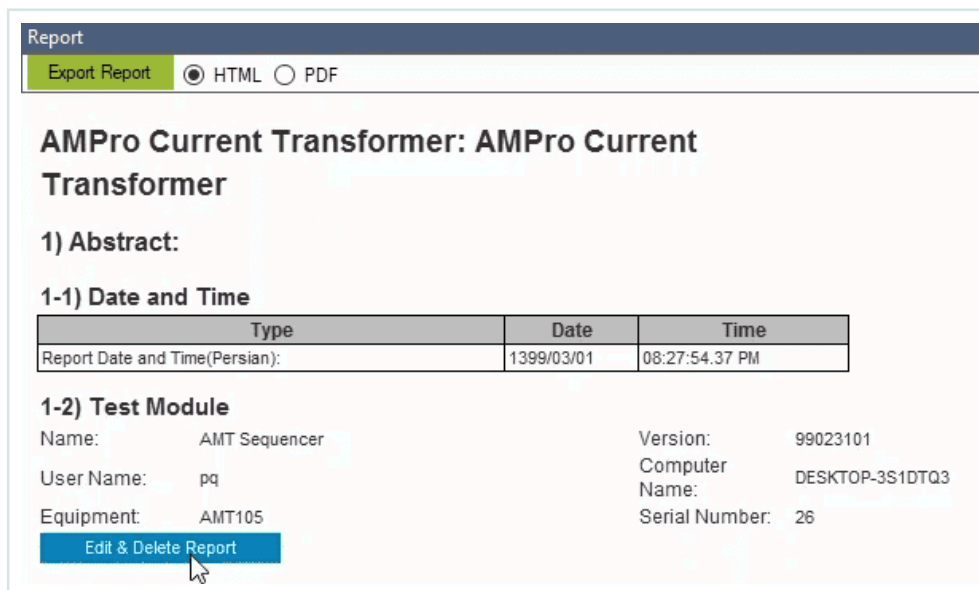


Figure 10

[jg1]CT_ratio_and_polarity_test_With_Voltage