



VEBKO ONLINE HELP

“Setting” Tab

Category	tester
Section	AMT Diff Harmonics Module
Language	English
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In this tab it is possible to manage some settings related to running the tests. In “Supply Direction” section, it is possible to determine the direction of injection and fault at the two sides of the protective device for the test. To better understand this, open “Vector View”; here you can see that if “Fault_Primary_Supply_Secondary” is selected, three primary currents of the transformer are displayed in “Vector View” while by selecting “Fault_Secondary_Supply_Primary”, three secondary currents of the transformer are displayed. Note that for “Inrush Blocking” test, three primary currents need to be injected.

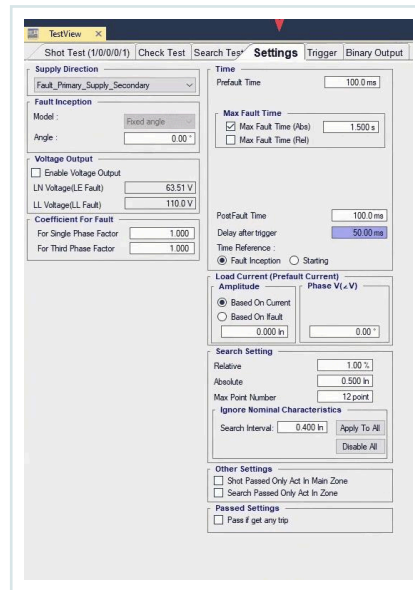


Figure 1

In “Fault Inception” section, the angle where the fault occurs is specified that this angle shifts currents of the both sides equally. To better understand this, select “Signal View” from the toolbar and check “Voltage group A” from “Setting” and by changing the value of “Angle”, view the voltage and current signal changes. If for any reason you wish to enable the voltages, you can do so by checking “Enable Voltage Output” from “Voltage Output” section and then you can enter the value of the voltage in the intended field. In “Coefficient for Fault” section it is possible to specify a coefficient for fault current values. “For Single Phase Factor” and “For three Phase Factor” fields are the fault current coefficients for single-phase and three-phase faults. By changing the fault current coefficient, it is possible to view the changes in “Vector View”.

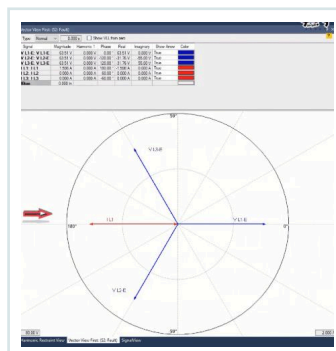
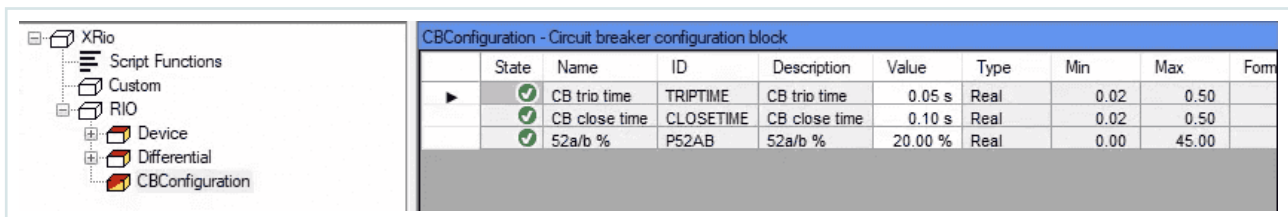


Figure 2

In "Time" section, first, the injection time before the fault is entered in "PreFault Time". In "Max Fault Time" the maximum fault injection time is specified in two forms of "Abs" or "Rel" which consist of three parts themselves. About this time note that if in a "Shot" point the "Max Fault Time" is shorter than "Pick up" time, the result of the evaluation will be wrong. If you are using the "Max Fault Time (Abs)" field, you need to enter a time in terms of seconds for the maximum fault signal injection time (for all of the points) but to accelerate the test, you can use the "Max Fault Time (Rel)" option.

By checking this option, three other options appear. By entering a number in "Add %of Tnom", the fault signal injection time in any point, equals the test point nominal time plus a percentage of the nominal time entered in this field. This means that if the test point nominal time is 10 seconds and 5 percent is entered in this field, the maximum fault injection time is 105 percent of the test nominal time which is 10.5 seconds. But in "Add Absolute" field, the fault injection time equals the sum of the nominal time of the test point trip plus the time entered in this field. If all these three fields are filled, the software picks the longest time entered. For points that are located at the "No Trip" zone, it is possible to enter a separate time in "No-Trip Time" field.

In "Post Fault time" the injection time is entered in the post-error mode. The "Delay After Trigger" field is used to calculate the key operation time. We can access it by right-clicking on the relevant field and selecting "Go To Linked Value". There is a link to "CB Trip Time". Then, you can select "Remove Link" and enter the value you want instead. In "Time Reference" by selecting "Fault Inception", the "Trip" time is calculated from the time the error was injected. However, by selecting "Starting", the "Trip" time is calculated from the time the "Pick-up" contact is received from the relay. In the "Load Current (Prefault Current)" section you can make the phase and current settings related to "Prefault". In the "Amplitude" section the current range in "Prefault" mode is entered according to the coefficient of the rated current and in the "Phase" section, the current angle is set to "Prefault" mode.



	State	Name	ID	Description	Value	Type	Min	Max	Form
	✓	CB trip time	TRIPTIME	CB trip time	0.05 s	Real	0.02	0.50	
	✓	CB close time	CLOSETIME	CB close time	0.10 s	Real	0.02	0.50	
	✓	52a/b %	P52AB	52a/b %	20.00 %	Real	0.00	45.00	

Figure 3

In "Search Setting" section, related to "Search Test" are specified. As mentioned before, a "Search Test" arrives at a conclusion only if one of the three conditions of this section is met. The first condition is "Relative" which means that if the difference between the test point value and the previous point is less than the percentage specified in this field, this very point is the result of the test. The second condition is "Absolute" which means that if the difference between the test point and the previous point is less than the value specified in this field, this very point is the result of the test. The third condition is "Max point number" which means that the test is to be performed as many

times as the number of points entered in this field at maximum and the last point is the result of the test. But if for any reason, the relay nominal characteristic is not available, you can use "Ignore Nominal Characteristic" section. By doing so, the software ignores the existing characteristic. Then, based on the step entered in "Search Interval", it adds shots on the "Search" line. For example, a line is drawn in "Search Test" section. Then, 0.5 is entered as the value for "Search Interval" and "Apply to all" is selected. You can see that some points with the same step are added on the "Search" line. By running the test, you can see that the test starts from the lowest point and once one of the three mentioned conditions is met, the test arrives at a result. Also, if necessary, you can ignore this option by selecting "Disable all".

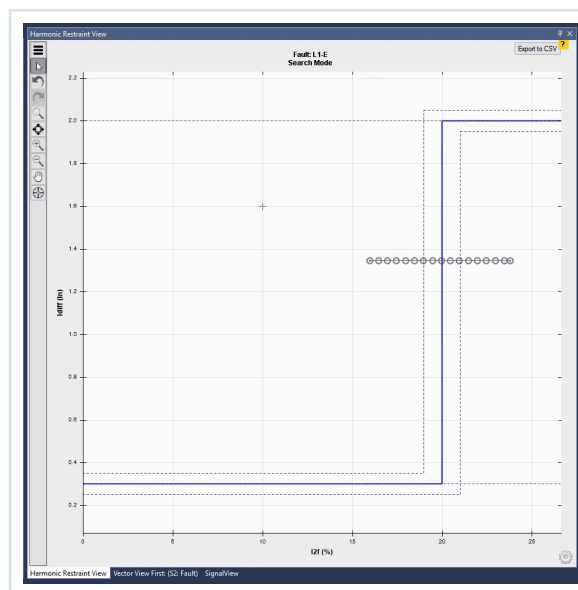


Figure 4

By selecting "Shot Passed Only Act In Main Zone" in "Other Setting" section, the test is passed only if the relay performance time in the shot point is somewhere in the allowed range of the main zone. This means that if this option is checked and a shot is added in the tolerance zone of the bottom of the characteristic curve and the relay does not give a trip, the test passes but if the relay gives a "Trip" the test fails. If the "Shot Passed Only Act In Main Zone" option is not checked, the performance time is between "20" milliseconds and "No Trip" and if the relay gives a "Trip" this point passes.

By selecting the "Test Passed Only Act In Main Zone" option, the "Shot", "Check" and "Search" tests will "Pass", only after the relay operation time is defined only in the allowed range; for example if the relay operation rated time is "0" to "30" milliseconds and between the operating zone and "No Trip" a point in the tolerance zone is selected, if „Test Passed Only Act In Main“ option is checked, that time test will „pass“ which relay function is set in one of each ranges. Therefore, If the relay time is, for example, "40" milliseconds, the test result will be "Fail". If this option is not checked, the test result will be "Pass". In the "Passed Setting" section, by checking "Pass If You Get Any Trip", regardless of the time of operation of the relay, if the relay works in the "Tripping" area, the test will "Pass" test.

In "Trigger" tab you can specify the desired binary to receive the "Pick up" and "Trip" signals of the relay as well as stopping the current injection. The settings and explanation of this section are exactly the same as mentioned for "Trigger" room and "Sequencer". In "Binary Output" tab, if it is necessary for the relay to view the conditions of the circuit breaker, it is possible to take any needed voltage to the "Binary Input" through "Binary Output" of the device by voltages of "A", "B" or "Aux Dc" groups. This tab has three modes of "Prefault", "Fault" and "Post Fault" and it is possible to manage each of them separately.

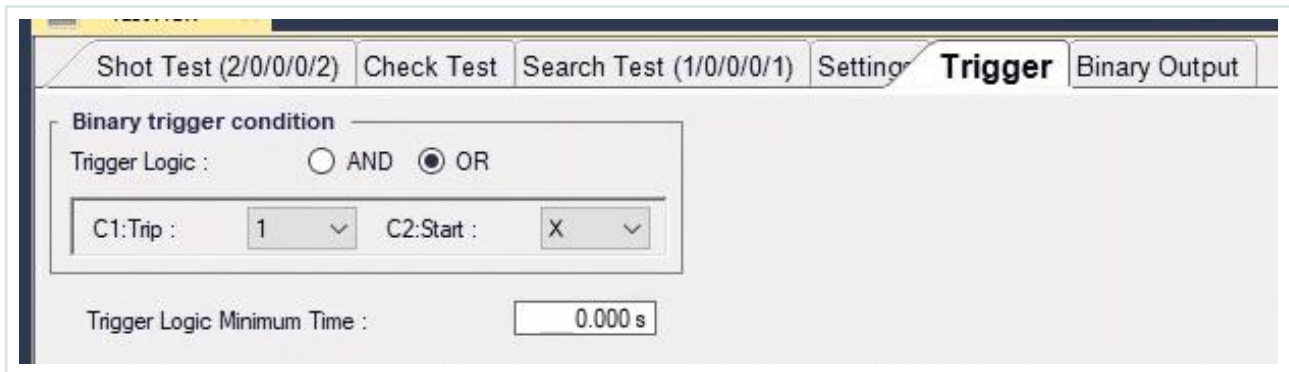


Figure 5

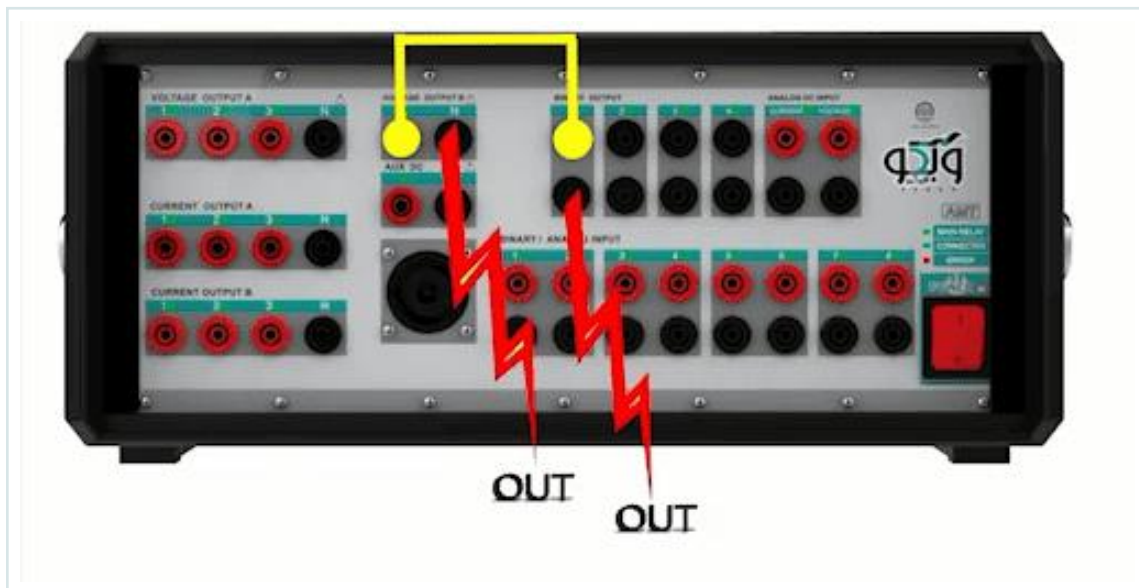


Figure 6

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