



VEBKO ONLINE HELP

Test View Window in Synchronizer Room

Category	tester
Section	AMT Synchronizer Module
Language	English
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“Shot test” is the first test that can be performed on “Synchronizer”.

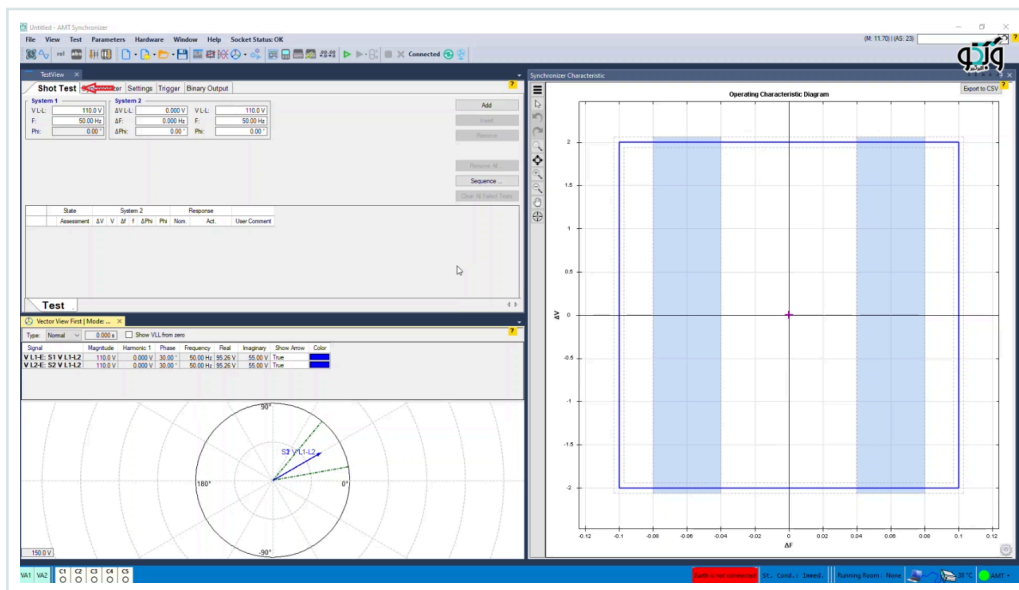


Figure 1

To perform this test, first you need to enter the system (1) characteristics which is a simulator of the infinite bus and the system (2) characteristics which is a simulator of the generator.

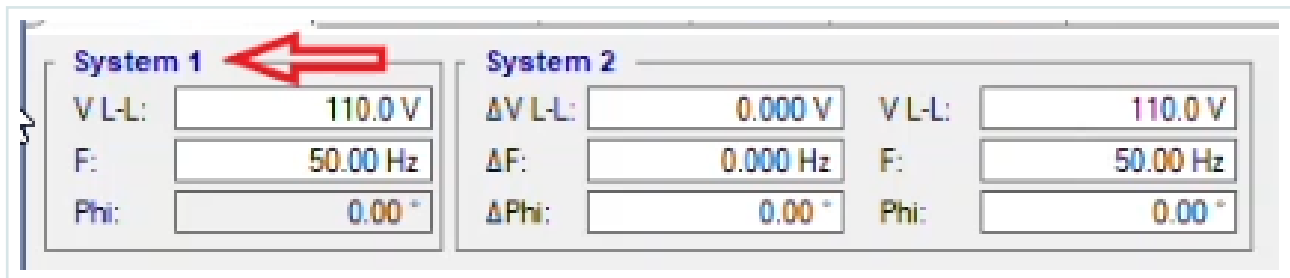


Figure 2

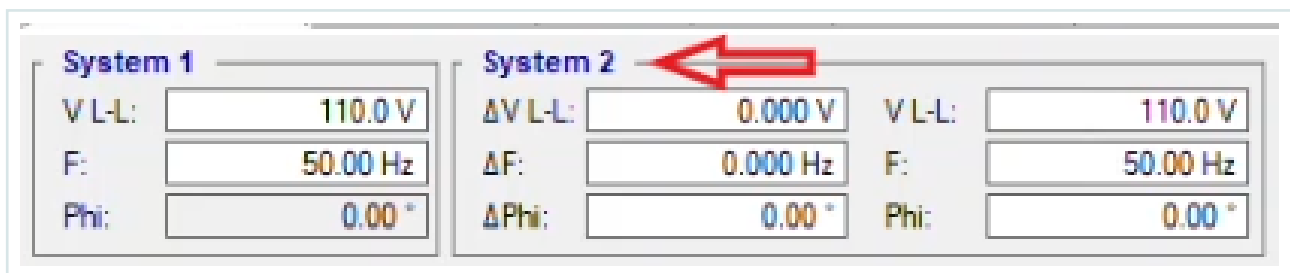


Figure 3

The amount of voltage difference, frequency and angle of systems (1) and (2) are entered in “DeltaV_{L-L}”, “delta F” and “delta Phi” respectively. The amounts of voltage, frequency and angle are specified in the column at the right side of this box. Note that it is possible to directly specify the voltage, frequency and phase values of the system (2) in which case the amount of difference between the

specified values with their nominal values is displayed in the column on the left side of this box.

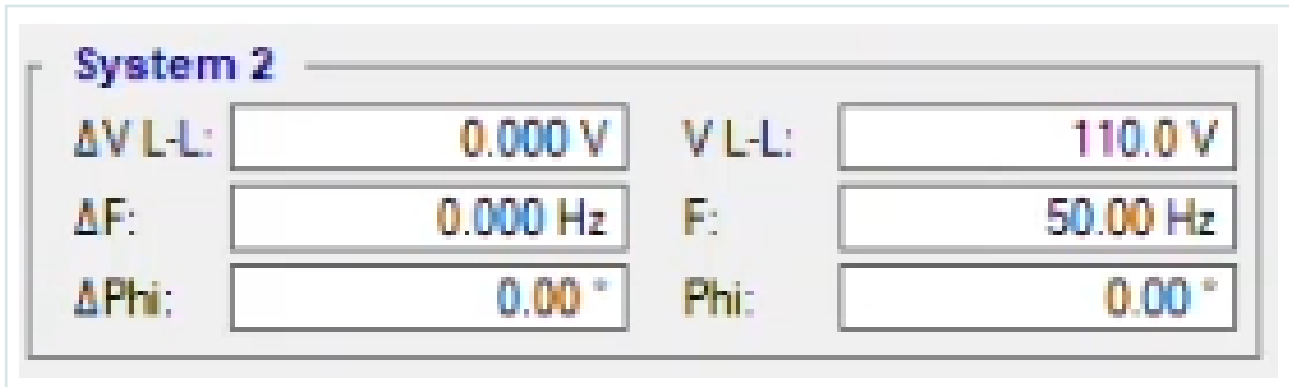


Figure 4

In performing this test, the characteristics of system (1) is fixed and for every test point, the characteristics of system (2) change. Other methods to add test points include clicking on the characteristic curve and selecting "Add" or holding the ctrl key and clicking on the intended point on the characteristic curve. Finally, after specifying the test point, the test is performed and in accordance with that whether the test point is inside the characteristic or outside it, the relay issues connect or disconnect command.

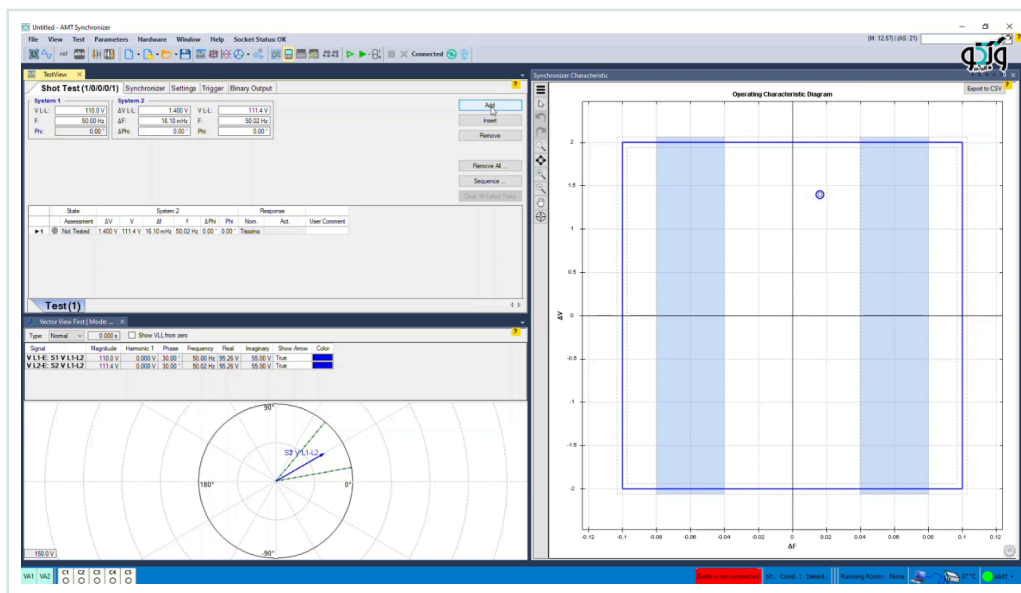


Figure 5

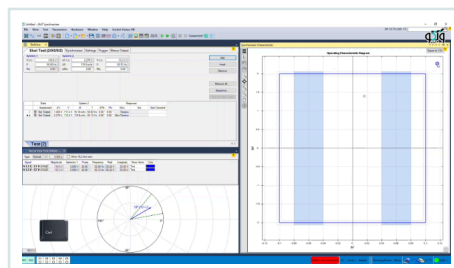


Figure 6

The test point assessment is done in accordance with synchrony or non-synchrony of “Nom” and “Act” columns in “Assessment” section in the test point table. The characteristics of system (2) / the test point is specified in “System2” section. Other options of this section are the same as those of the other previously mentioned rooms.

	State	System 2						Response		
	Assessment	ΔV	V	Δf	f	$\Delta \Phi$	Φ	Nom.	Act.	User Comment
1	Passed	1.400 V	111.4 V	16.10 mHz	50.02 Hz	0.00 °	0.00 °	Triboina	217.2 ms	
2	Not Tested	2.276 V	112.3 V	115.9 mHz	50.12 Hz	0.00 °	0.00 °	Non-Triboina		

Figure 7

As an example, a point inside the connection zone and another point outside this zone are selected. By performing the test you will see that the relay gives a close command inside the zone and does not connect outside this zone.

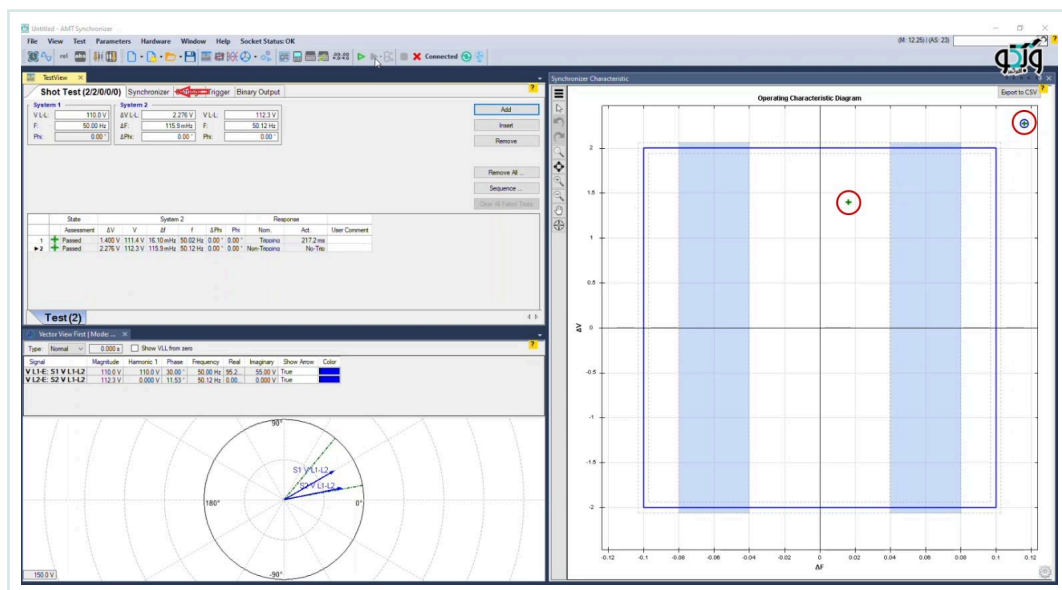


Figure 8

The second and the most important performable test is “Synchronizer”. To perform this test you need 5 outputs from the relay. In fact, this relay has 5 main outputs and by giving the raiser or lower command for voltage and frequency, the act of “Synchronizing” and connecting the unit to the network is done. These outputs, which should be connected to the device for the test, include “V>”, “VM<”, “F>”, “F<” which are used to raise voltage, lower voltage, raise frequency and lower frequency respectively. In “Trigger” tab in “Binary Setting” section, the settings of related “Inputs” can be specified.



Figure 9

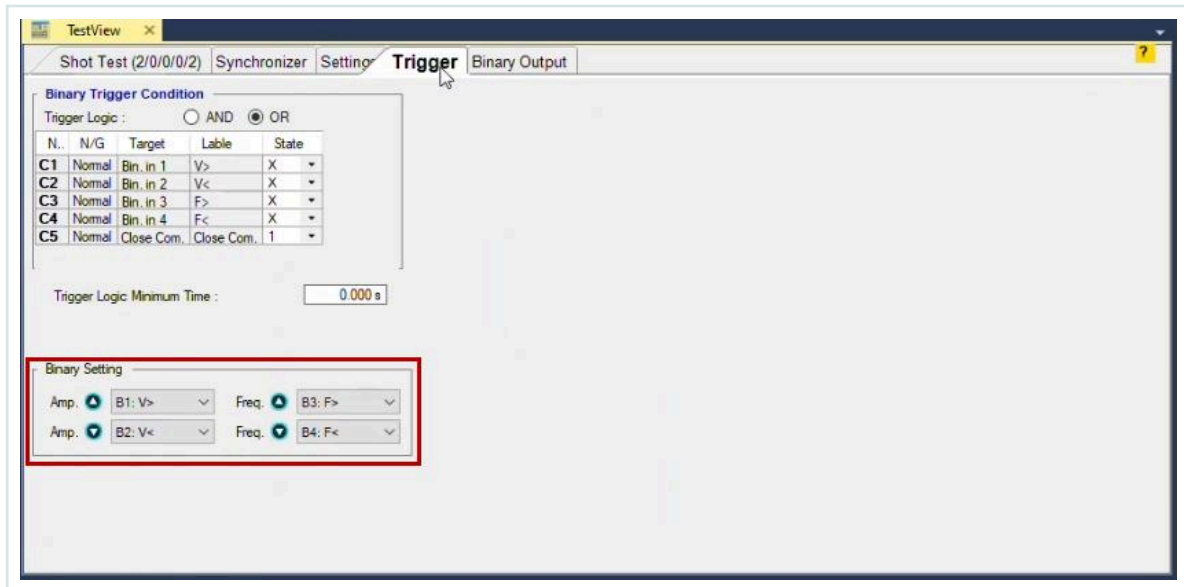


Figure 10

In this section, to receive the commands such as receive voltage raise command, receive voltage lower command, receive frequency raise command and receive frequency lower command, "B1:V>", "B2:V<", "B3:F>" and "B3:F<" are used respectively. Also "Close Command" is used to receive the close command from the relay. In performing this test, the inputs are simulators of governor and "AVR" which are commanded by the relay.



Figure 11

This test in this tab is done in the way that when you select a test point and run the test, the relay enters the voltage and frequency of system (2) to the closing zone by giving the voltage and frequency change commands and finally, gives the close command.

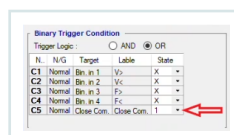


Figure 12

About performing this test it should be noted that it is necessary to enter “Generator Model” in accordance with the system characteristics because the changes in voltage and frequency are done in accordance with the pulses sent from the relay and the settings entered in this section. For example, if “0.1” is entered as “delta V/delta t”, if one one-second pulse is sent from the relay to decrease the voltage, the voltage decreases by 100 millivolts.

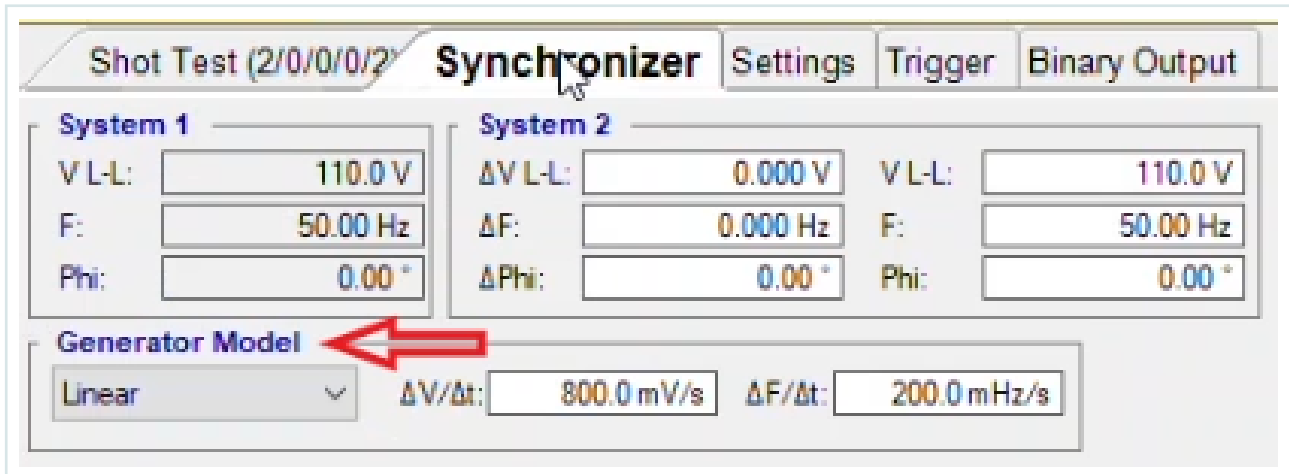


Figure 13

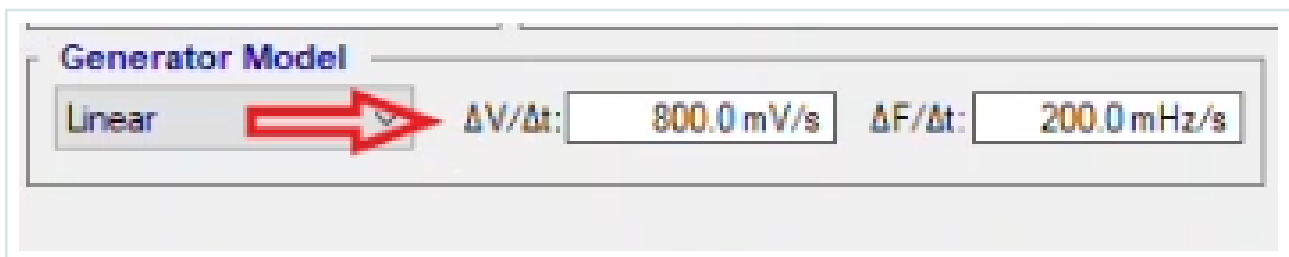


Figure 14

But if a 500-milliseconds pulse is sent, the voltage decreases by 500millivolts. As an example, here a test point is selected and “1v/s” and “100mHz/s” are entered as “delta V/delta t” and “delta F/delta t” respectively. By running the test you can see that based on the signals received by the inputs from the relay, the characteristic enters the connection zone from the outside.

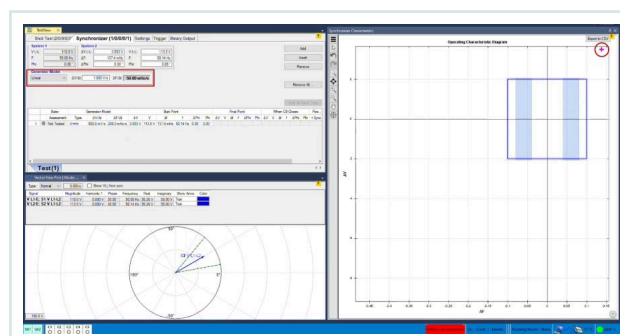


Figure 15

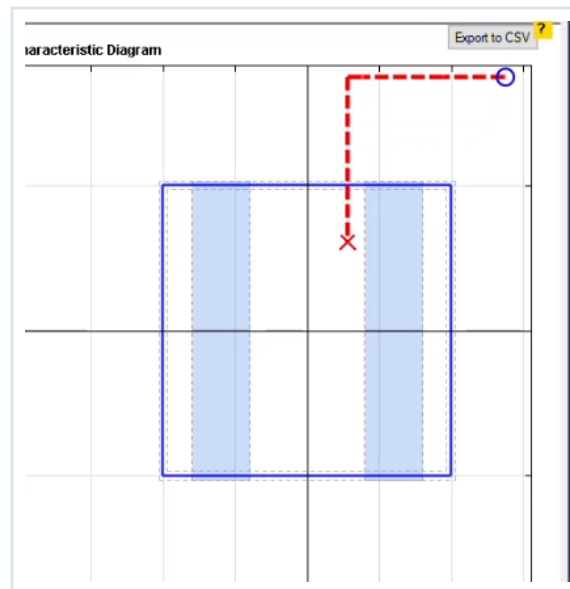


Figure 16

As the final point, it is necessary to know that the time of each of the tests is specified in "Fault Time" section in "Setting" which, if necessary, can be changed.



Figure 17

[jg1]Test_View_Window_in_Synchronizer_Room