



VEBKO ONLINE HELP

Introducing “VI Starting” Room

Category	tester
Section	AMT VI STARTING Module
Language	English
Generated	2026-10-18

"VI Starting" room is designed to test "51V" function. In this function, the pickup of overcurrent unit depends on the voltage drop. In fact, "VI Starting" is a current function whose "Pickup" is linked to voltage. Note that in "51V" function test, evaluation of detecting or not detecting fault is performed based on the test voltage and current amount which can be "Voltage-Controlled" or "Voltage-Restrained" and is used as generator-differential protection backup as well as for coordinating high-current relays in power systems. To explain the difference between these two functions, characteristic curve and examples are used.

If the "51V" function is "Voltage-Controlled", its characteristic curve will look like what you can see in this picture. For a relay with this characteristic curve, the relay performs the pickup in currents higher than "5A" and for currents lower than "4A" the relay does not perform the pickup. But if the current is between "4A" and "5A", the relay performs the pickup only if the voltage is lower than "50V". In the settings of this function, "4A" and "5A" currents are specified as "I>" and "I>>" respectively.

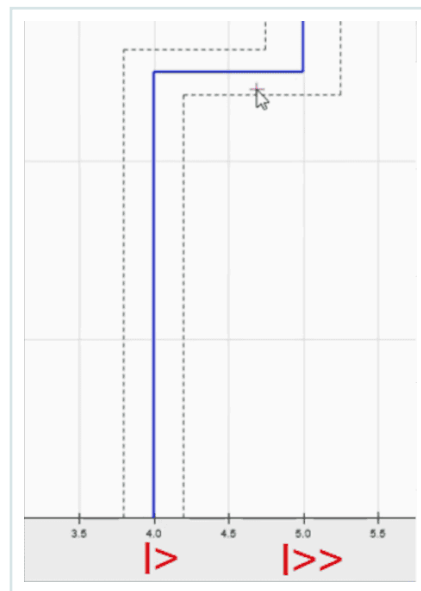


Figure 1

In the second mode, if the characteristic curve is "Voltage-Restrained", like the previous mode, the relay detects a fault if the current is higher than "5A" and in currents lower than "4A" it does not perform the pickup. The difference is that between "4A" and "5A", the pickup voltage value has a linear increase.

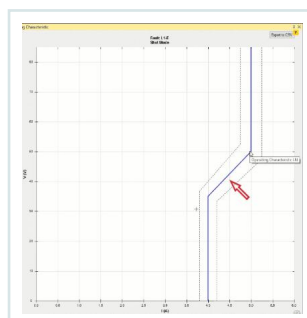


Figure 2

In this function, it is possible to specify the settings for phase to phase and phase to earth voltage faults separately. This is also considered in the characteristic curve page of this function so that if you add a shot on the characteristic curve in single-phase "Fault Type", the specified voltage is the voltage of the phase and if you select two-phase or three-phase "Fault Type", the specified voltage is line-to-line voltage in which case the device produces the corresponding voltage to produce the line-to-line voltage.

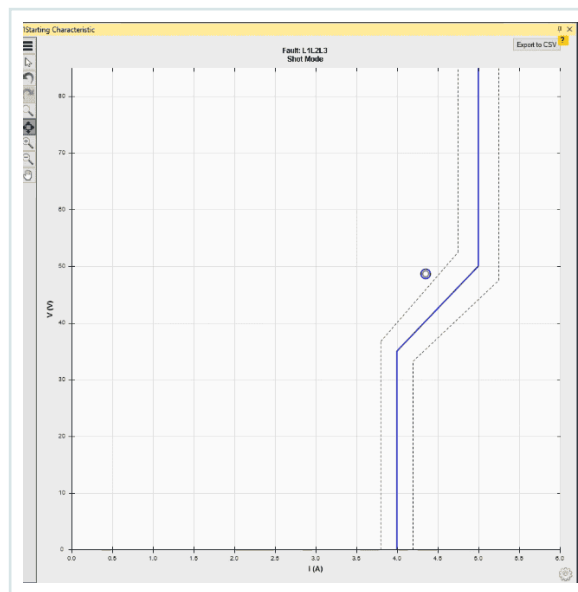


Figure 3

TestView

Shot Test (2/0/0/0/2)

Check Test

Search Test

Settings

Trigger

Binary Output

Test Point

Voltage: 48.73 V

Current: 4.348 A

Phi: 0.00°

Detail

t nom.: No-Trip

t act:

t min.: No-Trip

t max.: No-Trip

State: Not Tested

Fault Type

L1-E 1/0/0/0/1

L2-E

L3-E

L1L2

L2L3

L3L1

☒ L1L2L3 1/0/0/0/1

	State	Assessment	Voltage	Current	Phi	User Comment
▶ 1		Not Tested	48.73 V	4.348 A	0.00°	

Figure 4



Figure 5

"Test View" and "VI Starting Characteristic" are the two main windows of this room. In "Test View" window, the three main tests of this function are performed in "Shot Test", "Check Test" and "Search Test" tabs which will be explained in future videos. In "VI Starting Characteristic" window, the characteristic curve of the function is displayed according to the current and voltage. To specify the settings of this function, select "Test Object" from the toolbar and double-click on "VI Starting" from the tree diagram and then enter your desired settings to be displayed in "VI Starting Characteristic" characteristic curve in "VI Starting Parameters" page.

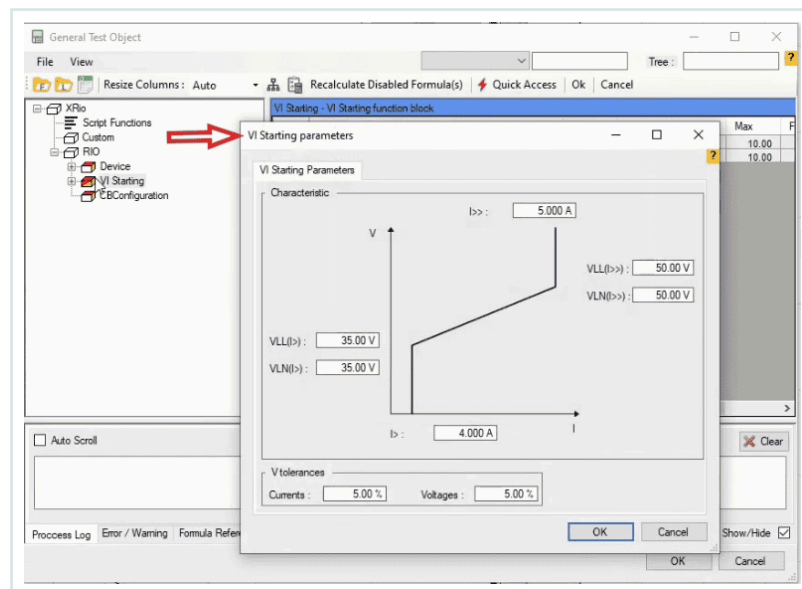


Figure 6

1 Relay settings in "VI Starting" Room

In VI Starting Parameters page, you can enter the characteristic curve information in characteristic section. In $I>$ and $I>>$ fields, the lower and upper limits of the pick-up current are entered. In this protection, for currents lower than $I>$, the function does not give a pick-up regardless of the voltage. Also, for current higher than $I>>$, this function gives a pick-up regardless of the voltage. The range between these two values is where the voltage value is influential for the performance of the function. Voltage settings of this function is entered in VLN and VLL fields. As mentioned before, this function needs different settings for phase to earth and phase to phase faults.

VLN is used for specifying phase to earth faults settings; VLN ($I>$) and VLN ($I>>$) are used for specifying the voltage value of lower and upper limits respectively. VLL ($I>$) and VLL ($I>>$) have the same function for phase to phase faults. Note that for VI Starting-Controlled function, the same value must be entered for the lower and upper limits of VLN and VLL. But for Restrained mode, the lower



limit must be lower than the upper limit. Also, current and voltage tolerances of this function are entered in "Tolerances" section.

[jg1]Introducing_VI_Starting_room