



VEBKO ONLINE HELP

Distance Protection Test in AMR Relay (Simple Test Using Templates)

Category	tester
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AMR modular relay of Vebko supports various protection functions. Explanations of the capabilities and software environment of this relay have already been presented in the film related to differential protection test.

After connecting to the AMR relay at first, simply load the device's hardware configuration from the Device menu by selecting the Read Hardware from Relay option. The default password is 123456 in order to receive elements. At this point, a message is given to remove the signal, which, if confirmed, the current hardware signals used in the VFC section will be deleted, if the current hardware is not the same as the relay hardware.

It should be noted that the settings for the conversion ratio of voltage and current transformers are determined in the related card. Here, the ratio of the current card conversion is 200A to 1A and the voltage card conversion ratio is 63,000 to 100V.

(First, enter the VFC page): As mentioned earlier in the AMR software, configuring some of the most widely used functions as examples are placed in the software and the user can send new settings to the relay by selecting each of them and applying the desired changes. For this purpose, a set of functions can be seen in the Relay VFC tab and in the Temp Functions section. It should be noted that by selecting each Temp Function, the blocks in the VFC are removed. Here the Distance function displayed with the name Dist is selected.

As can be seen in this Temp Function, the signals of analog relay cards are assigned to the inputs of the Distance block, as well as to calculate line-by-line voltages, voltage card signals are given to the Voltage Systems block and then assigned to the Distance Block. Finally, distance output signals are assigned to Binary Outputs and relay LEDs by Output and LED blocks. You can also access the settings of this function by double-clicking on the Distance block.

By scrolling on the signals of each block, more signals are displayed if available. Also visible from the Signals tab, the set of output signals assigned to the distance block.

After applying the desired changes, using the Ctrl+ E combination keys or by using the File menu and selecting the Export XRio option, the XRio file is downloaded from the software as an output containing the distance function settings.

Next, by running AMPro software and opening the AMT Distance room, simply upload the Xrio file you saved in the software environment in the previous step. By loading the relay distance characteristic, conduct the test based on the periodic testing system of Iran's power transmission network protection systems.

Firstly, shot test is performed, which aims to evaluate the time of different tripe zones. The Pre Fault value is at least 1 second and the Post Fault value is at least 500 milliseconds. In order to perform this test, we place points on 80% of the value of each zone in line with the real axis and also in line with the angle of the line.

In line with the real axis, the test will be performed for all phase-to-ground characteristics in the A-N and phase-to-phase fault loops in the B-C and ABC fault loops. In line angle, testing is performed for all phase-to-ground characteristics in the C-N and phase-to-phase fault loops in A-B and ABC fault loops. By performing the test, the performance time for the added points can be seen in different zones.

In the second step, the Test Check is performed to check the performance time and range of the zones in the upper and lower part of the Rich value by drawing the lines on the R, X axes and in line with the angle of the line. Here, in order to avoid prolonging the test process, the check test is performed only for three-phase fault type.

By performing of this test, the results of the studies will once again be visible. In the final step, search test is performed with the aim of searching the curve, detecting and evaluating the real range of each distance relay zones. For this purpose, search line should be selected in line with the R, X, angle of the line and the location of the collision of the sides.

This test is performed in line with the real axis and in a way that passes through all zones as a one-time repetition for each search line, for all phase-to-ground characteristics in the A-N and phase-by-phase fault loops in the B-C and ABC fault loops. Here, in order to avoid prolonging the test process, this test is only performed for the ABC fault loop.

In line angle and so that we cross all zones again, once repetition is performed for each line and for all phase-to-ground characteristics in the C-N and phase-by-phase fault loops in the A-B and ABC fault loops. Finally, at the collision site, a repeat is performed once for each search line for phase-to-ground characteristic in the A-N fault loop and phase to phase in the B-C fault loop.

As mentioned above, in order to prevent the prolongation of the test process, these tests are only performed for the ABC fault loop. When the test is finished, you can specify the elements in the report and save the output in different formats such as PDF.

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