



VEBKO ONLINE HELP

Drawing the Load Encroachment Characteristic

Category	tester
Section	Testing of relays protection functions
Language	English
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A region may be defined as Load Encroachment, along with the graphical distance characteristic. The Load Encroachment scheme prevents the impedance area from entering the distance characteristic and finally prevents unwanted trip. This area usually overlaps with the trip area and is often activated only for three-phase fault loops.

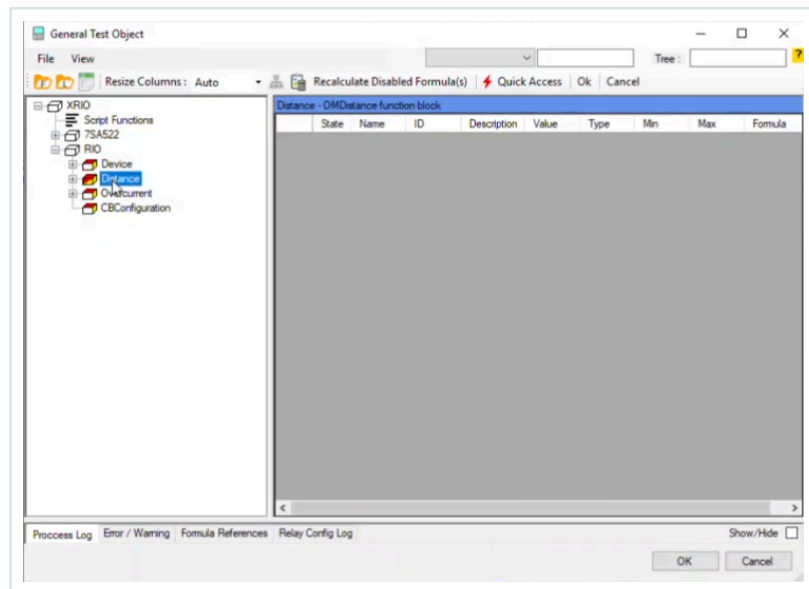


Figure 1

For this purpose, after adding the protection zones, add two more zones to be used as Load Encroachment Blinder. We place these zones on "Non tripping" and fault loop on L1-L2-L3.

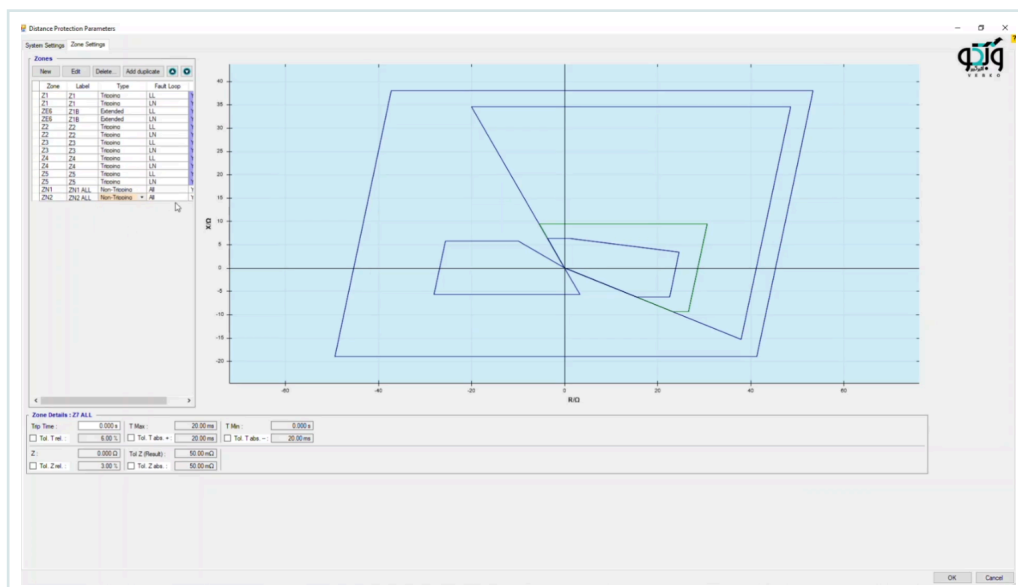


Figure 2

Figure 3

This characteristic requires three elements that can be Line Cartesian, Arc Cartesian or Arc Polar type. For each element, just hit add Element and select its type.

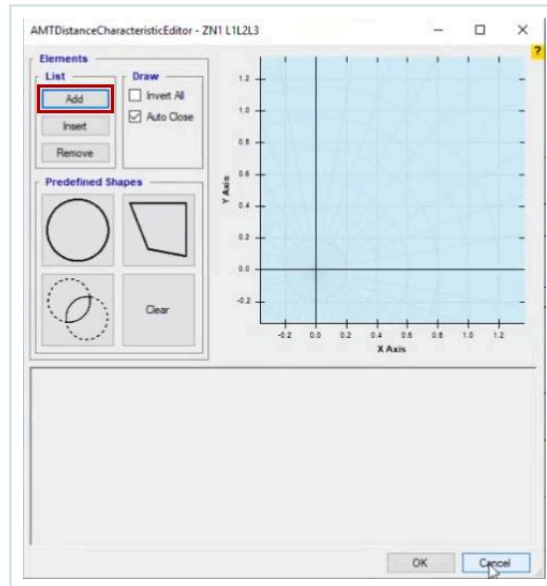


Figure 4

For example, in the Siemens 7SA522 relay, we drawing the specifications of Load Encroachment by using elements 1241, 1242, 1243 and 1244. For this purpose, we need three "Line Cartesian" components. The first component is a line that extends through the source, with coordinates $R=65.36$, $X=58.85$ and an angle of $42+180=222$ degrees. The second component with $R=65.36$ and $X=0$ has an angle of 270 degrees, perpendicular to the horizontal axis. The third component of the Cartesian have coordinates $R=65.36$, $X=-58.85$ and -42 degree angle.

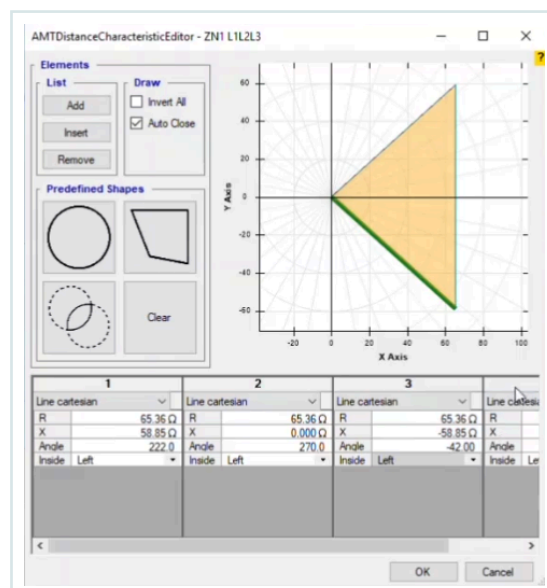


Figure 5

You can create the final characteristic by disabling the Auto Close option.

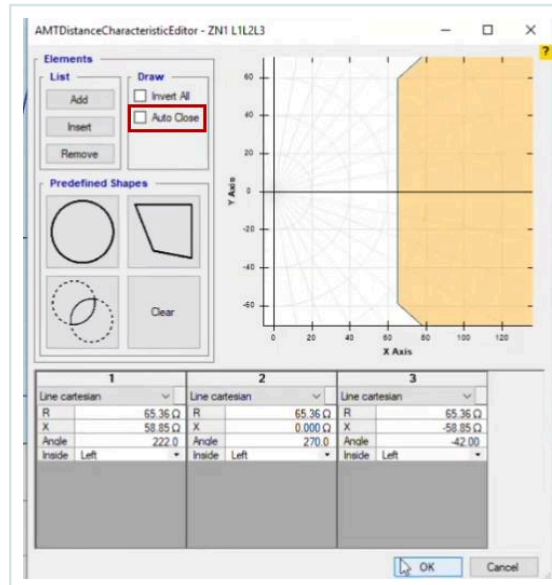


Figure 6

In order to draw the Load Encroachment characteristic on the left side of the Distance characteristic, we create three Cartesian components with specifications $R=-65.36$, $X=-58.85$ with an angle of 42 degrees, $R=-65.36$, $X=0$ with an angle of 90 degrees, and finally, $R=-65.36$, $X=58.85$ with an angle of 138 degrees. As mentioned above, during the test, we will not see trip issued in this area.

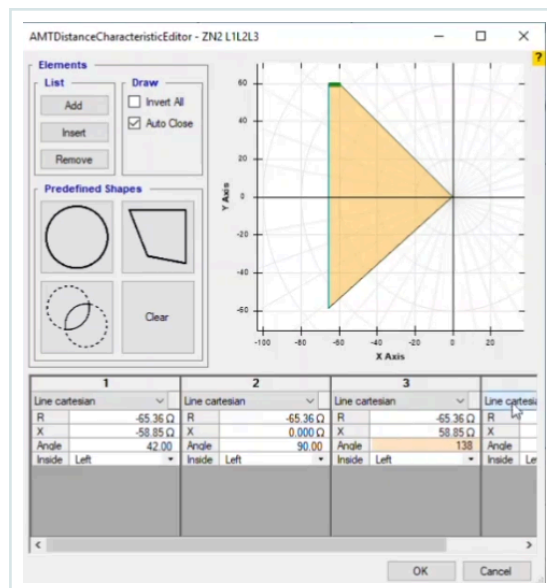


Figure 7

[jg1]Drawing_the_Load_encroachment_characteristic