

7SG16 Ohmega 406

Distance Protection Relays

Document Release History

This document is issue 2010/02. The list of revisions up to and including this issue is:
Pre release

2010/02	Document reformat due to rebrand

Software Revision History

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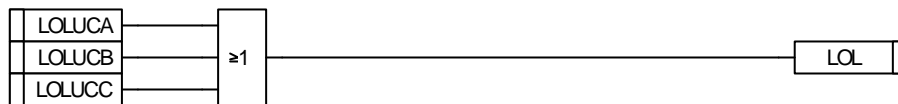
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1 Loss of Load Protection

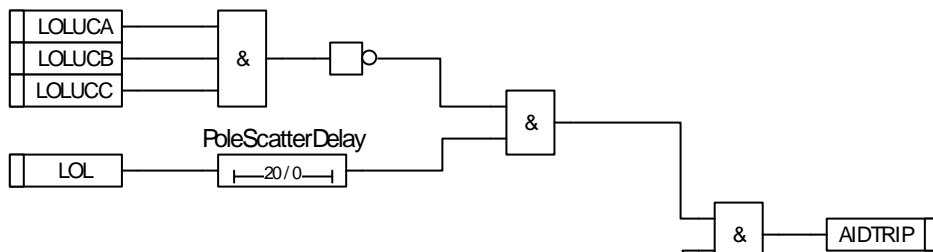
The Loss of Load protection scheme in the relay is used to give faster fault clearance time for an end zone fault (i.e between the Zone 1 boundary and the line end) when there is no signalling channel available. This allows a faster clearance time than waiting for the operation of the zone 2 elements. The logic diagram for this scheme is shown below;

For a Loss Of Load trip to occur:

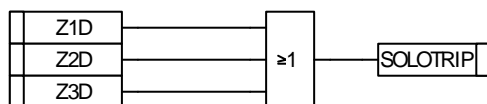
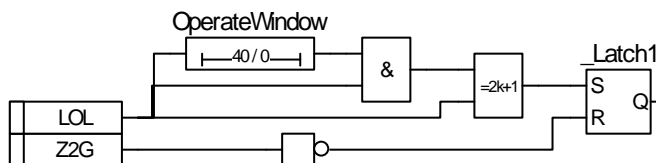
There must be a loss of load current in at least one phase.



Fault current must continue to flow in at least one other phase for at least 20ms after the loss of load, to allow time for all the poles of the breaker at the start of the next line to open.



The Zone 2 protection must pickup within 40ms of the loss of load.



Consider a fault occurring near to the remote end, i.e outside of the Zone 1 reach, but within the line length. In a normal time stepped distance scheme, the remote end relay would trip in Zone 1 time, and the local end relay would trip after the Zone 2 time delay. The Loss of Load scheme monitors the current in the healthy phases and can remove the Zone 2 time delay, speeding up the local end trip, when the remote end trip occurs.

If the relay detects a drop in current in one or two phases below the *Loss of Load Level*, with the current on the remaining phases above this level, it will remove the time delay from zone 2, for a fixed time delay (the *LOL Time Limit*) to allow the relay to trip instantaneously. This will allow the relay to trip more quickly for single or double phase faults, but will not affect operation for three phase faults.

A short time delay (typically 20ms), known as the *Loss of Load Pole Scatter Delay* or the *LOL CB Op Delay* is introduced to prevent the Loss of Load feature picking up during normal breaker operation.

2 Settings

The Loss Of Load function (LOL) is made active by selecting the scheme in the scheme selection menu. If a conventional scheme is selected and a communications failure occurs then a group setting change could be used to switch the scheme on until the communications is restored.

LOL Level [0.50 xIn]

The current setting can be selected between 10 – 90% of In.

LOL CB Op Delay or LOL Pole Scatter Delay [20 ms]

The pole discrepancy timer setting is between 0 and 50ms.

LOL Time Limit [40 ms]

The alarm function can be mapped to any of the output contacts. The trip function will operate whichever contact(s), has been set to cause a trip.