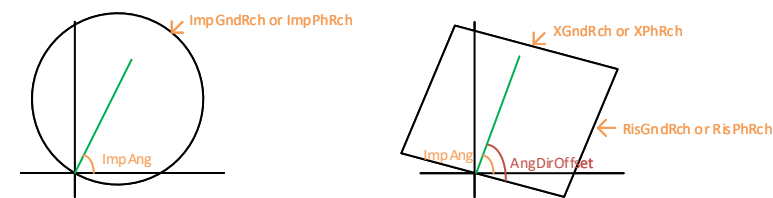Short HV Line

Busbar   Transformer   MV Line

R

Protected zone :
MV Line + Transformer + Short HV Line + Busbar -> Backup

Use case: The main objective of PIMP is the protection of the transformer, the MV line, the HV Busbar and the Short HV Line as a backup.

The protection is composed of 6 impedance loops. To compute the phase-to-neutral impedance loops, the following computations are performed : $Za = Va/Ia$, $Zb = Vb/Ib$, $Zc = Vc/Ic$. By contrast, the phase-to-neutral impedance loops of a PDIS element are computed as : $Za = Va/(Ia+k0*Ir)$, $Zb = Vb/(Ib+k0*Ir)$, $Zc = Vc/(Ic+k0*Ir)$. And thus, depends on the k0 factor ($k0 = (Z0-Z1)/(3*Z1)$) and the residual current Ir.

To set the threshold, the impedance taken into consideration consists of the MV line, the transformer and the short HV line.

The PIMP function has an intrinsic logic to detect all voltage measurement failure based on a fuse failure element. In case a fuse failure is detected by the logic, the PIMP function is immediately locked to avoid false tripping.

ImpGndRch or ImpPhRch

Imp Ang

XGndRch or XPhRch

RisGndRch or RisPhRch

Imp Ang   AngDirOffset

1 characteristic for phase-to-neutral fault
1 characteristic for phase-to-phase fault

*DirMod to configure the characteristic
in « forward » or « reverse »*

Multiple instance possible