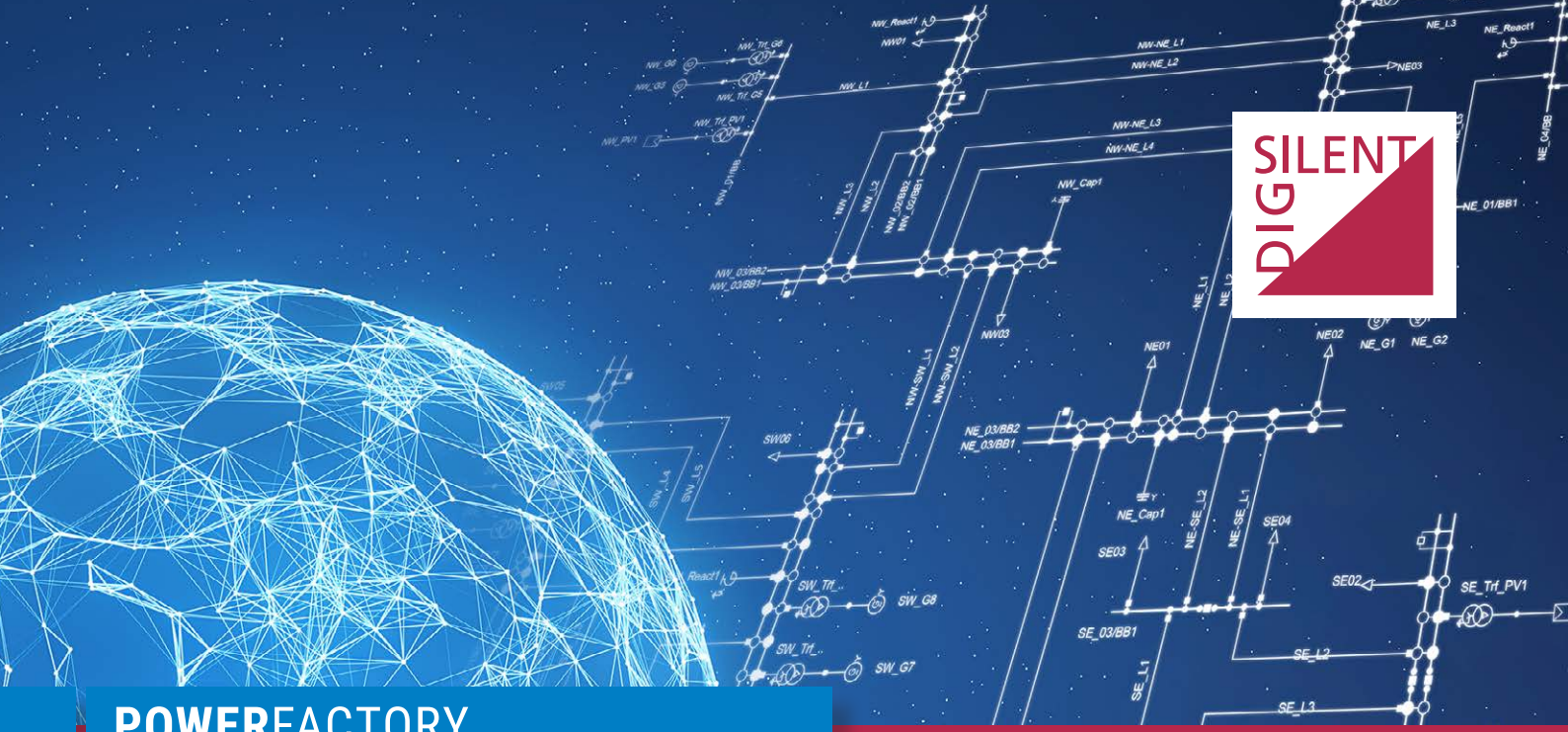

POWERFACTORY

PowerFactory 2021

Technical Reference

DIgSILENT F21 Distance Mho Generic Relay

PF2021

POWER SYSTEM SOLUTIONS

MADE IN GERMANY

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Contents

1 F21 Distance Mho

1.1 Intent

To simulate a set of distance phase and ground mho elements with overcurrent/voltage restraint overcurrent starting.

1.2 Functionality

The *F21 Distance Mho* generic relay models 5 phase mho and 5 ground mho, a polarizing element, an overcurrent starting element, one distance directional element and one load encroachment element. The starting element can trigger a delayed back up trip.
The polarizing method is user configurable; one of the following methods can be used:

- Self.
- Cross Quadrature.
- Cross (Quad L-L).
- Positive sequence.
- Self, Ground compensated.

The distance elements can operate a single phase (for phase-ground faults), a double phase (for phase-phase faults) or a 3 phase trip.
The POTT (Permissive Overreach Transfer Trip) and the PUTT (Permissive Underreach Transfer Trip) distance protection schemes are supported. The scheme can be activated setting uequal to *TRIP* the *PUTT* and the *POTT* variable in the ”Logic” tab page of the ”Output Logic” block.
The *F21 Distance Mho* generic relay can be associated to the following generic relays:

- F50BF Breaker failure.
- F68 OOS/Power Swing.
- F79 Recloser.

1.3 Inputs

- One 3 phase CT (”Phase Ct” block, [*StaCt* class]).
- One 3 phase VT (”Phase Vt” block, [*StaVt* class]).

1.4 Available Units

Measurement

- One 3phase measurement element (”Measurement” block, *RMS Calculation* enabled, *Filter* enabled [RelMeasure class]).

Protective elements

- One polarizing element (”Polarizing” block, [*RelZpol* class]).
- One starting element (”Starting” block, [*RelFdetect* class]).
- One directional element (”Directional” block, [*RelDisdir* class]).
- One load encroachment element (”Load encroachment”, [*RelDisloadenc* class]).
- Five 3 phase-phase loop mho elements (”Ph-Ph Mho 1”, ”Ph-Ph Mho 2”, ”Ph-Ph Mho 3”, ”Ph-Ph Mho 4” and ”Ph-Ph Mho 5” block, [*RelDismho* class]).
- Five 3 phase-ground loop mho elements (”Ph-Grnd Mho 1”, ”Ph-Grnd Mho 2”, ”Ph-Grnd Mho 3”, ”Ph-Grnd Mho 4” and ”Ph-Grnd Mho 5” block, [*RelDismho* class]).
- Five timers (”Mho 1 Delay”, ”Mho 2 Delay”, ”Mho 3 Delay”,”Mho 4 Delay”, and ”Mho 5 Delay”block, [*RelTimer* class]).
- One delayed trip timer triggered by to the starting signal (”Starting Backup trip delay” block , [*RelTimer* class]).

Output logic

- One output block (”Output logic”, *RelLogdip* class).

The output logic can be configured in the ”Logic” tab page of the ”Output Logic” block.

1.5 Outputs

- *yout* associated by default to any protective element trip trigs a 3 phase trip.
- *yout_A* associated by default to any protective element trip trigs a phase A trip (*single phase* and *two phase trip* only).
- *yout_B* associated by default to any protective element trip trigs a phase B trip (*single phase* and *two phase trip* only).
- *yout_C* associated by default to any protective element trip trigs a phase C trip (*single phase* and *two phase trip* only).