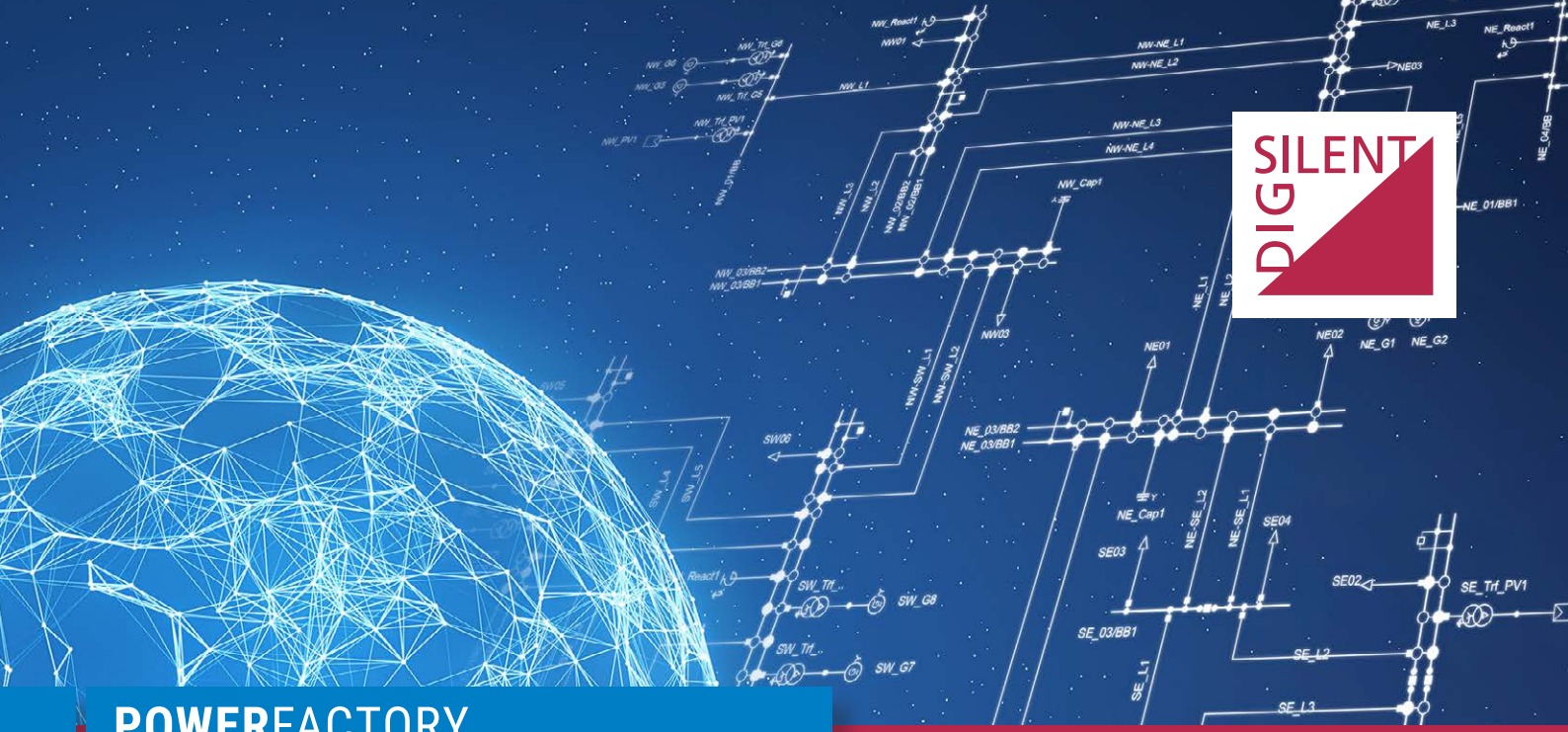

POWERFACTORY

PowerFactory 2021

Technical Reference

DIgSILENT F87L Line Differential (magnitude) Generic

PF2021

POWER SYSTEM SOLUTIONS

MADE IN GERMANY

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Contents

1 F87L Line Differential (magnitude)

1.1 Intent

To simulate the magnitude differential feature for line protection.

1.2 Functionality

The *F87L Line Differential (magnitude)* generic relay model simulates a 3 phase (segregated phase) current magnitude differential element with 2^{nd} harmonic restrain and differential threshold double bias restrain characteristic. An additional not restraint differential trip threshold is also available. The differential trip can beset with a configurable time delay.
The 2^{nd} harmonic restrain can be disabled by the user with a check box in the differential element dialog; the restrain can be also disabled if the current is greater than a given threshold.

1.3 Inputs

- Two 3 phase CTs (”Phase Ct”, and ”Phase Remote Ct” block, *StaCt* class).

1.4 Available Units

Measurement

- Two 3phase measurement elements (”Measurement”, and ”Remote Measurement” block, *RMS Calculation* enabled, *Filter* disabled [*RelMeasure* class]).
- One 3phase measurement element (”Differential RMS Meas” block, *RMS Calculation* enabled, *Filter* disabled [*RelMeasure* class]).

The remote line end measurement data are provided by the ”Phase Remote Ct” slot which contains the reference to a CT located at the other side of the line.

Protective elements

- A differential element with *Type* set equal to *3ph* (”Differential” block, [*RelBiasidiff* class]).

Output logic

- One relay trip element (”Output logic” block, *RelLogdip* class).

1.5 Outputs

- *yout* associated by default to the differential element trip (any phase).

- *y_s* associated by default to the differential element trip (any phase). Its behavior is identical to the *yout* signal and has been added to guarantee compatibility with the *F79 Recloser* generic relay.
- *y_A* associated by default to the phase A differential element trip.
- *y_B* associated by default to the phase B differential element trip.
- *y_C* associated by default to the phase C differential element trip.

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