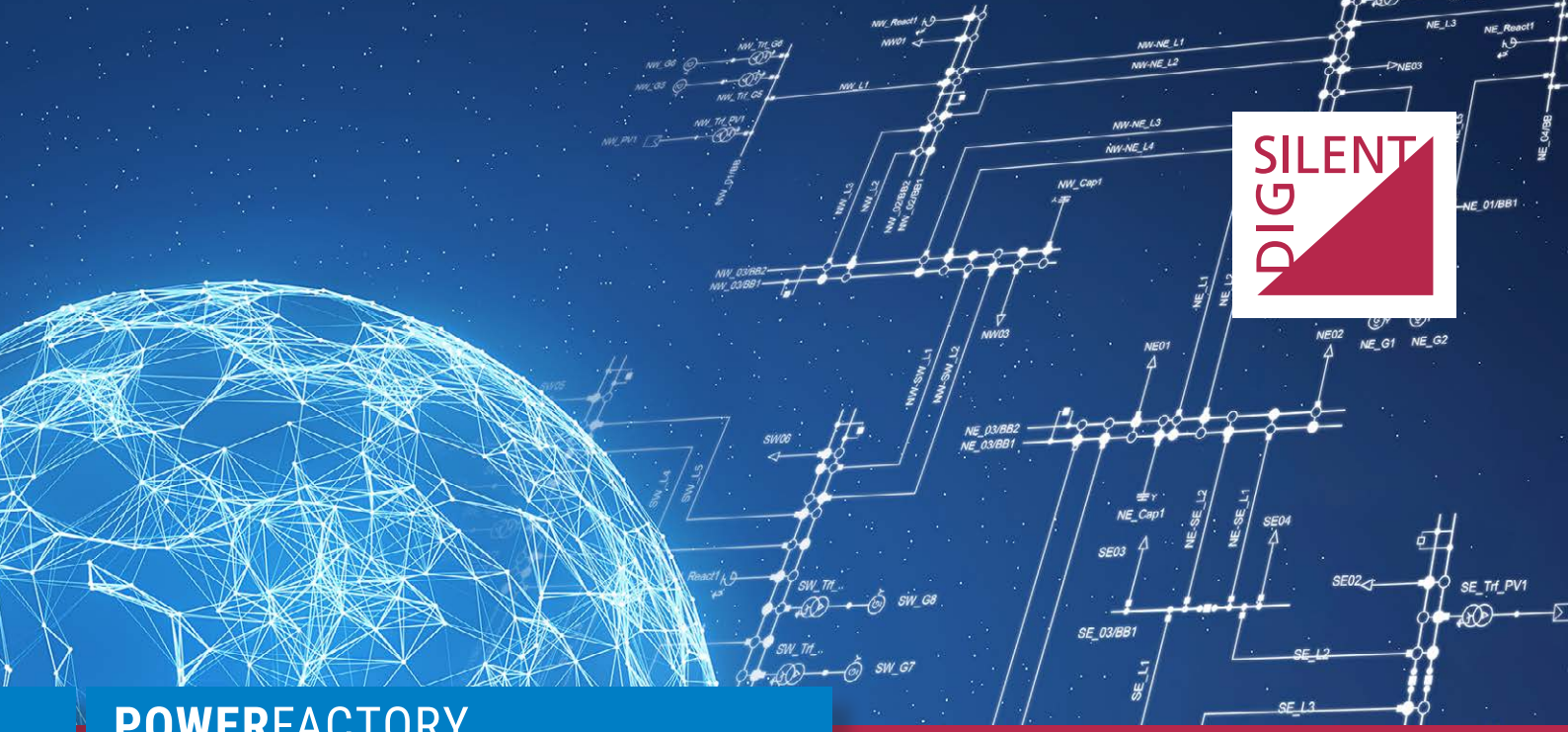

PowerFactory 2021

Technical Reference

DIgSILENT F67N Neutral directional Generic Relay

PF2021

POWER SYSTEM SOLUTIONS

MADE IN GERMANY

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Contents

1 F67N Neutral directional

1.1 Intent

Add the neutral/ground directional feature to the protective features simulated by other relays.

1.2 Functionality

The *F67N Neutral directional* generic relay models three independent neutral/ground directional logics.

The directional logics are is based on

- the angle comparison between the zero sequence current vector and the zero sequence voltage vectors (”V0I0 Angle dir” block).
- the angle comparison between the negative sequence current vector and the negative sequence voltage vector (”V2I2 Angle” block).
- the active power or the reactive power evaluation (”Pcosphi, Qsinphi” block).

Each logic can be disabled by the user, if not present in the modeled relay, disabling the relevant relay model block. Please refer to the ”TechRef_directional.pdf” technical reference for more details about the directional logics here above listed.

The *F67N Neutral directional* generic relay consists of the main relay and of a set of ”Relay” external devices which are connected by a set of relay slots and use the directional logics of the main relay.

The directional elements can be configured to get the zero sequence voltage calculated by the phase voltages or the zero sequence voltage measured by the open delta VT. Please notice that if an open delta VT is connected only the angle comparison between the zero sequence current vector and the zero sequence voltage vectors logic can be used.

1.3 Inputs

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

1.4 Available Units

Measurement

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

Protective elements

- Three single phase overcurrent directional elements (”V0I0 Angle dir”, ”Pcosphi, Qsinphi”, and ”V2I2 Angle” block, [*RelDir* class]).
- One logic element used as selector (”Directional mode selector” block, [*RelLogdip* class]).

The external protective devices must be set in the ”Relay x” with x =1..4 slots of the relay (”Relay 1”, ”Relay 2”, ”Relay 3”, and ”Relay 4” block [*ElmRelay* class]).

Output logic The following relay output signals are available:

- *fwd* forward directional signal.
- *rev* reverse directional signal.