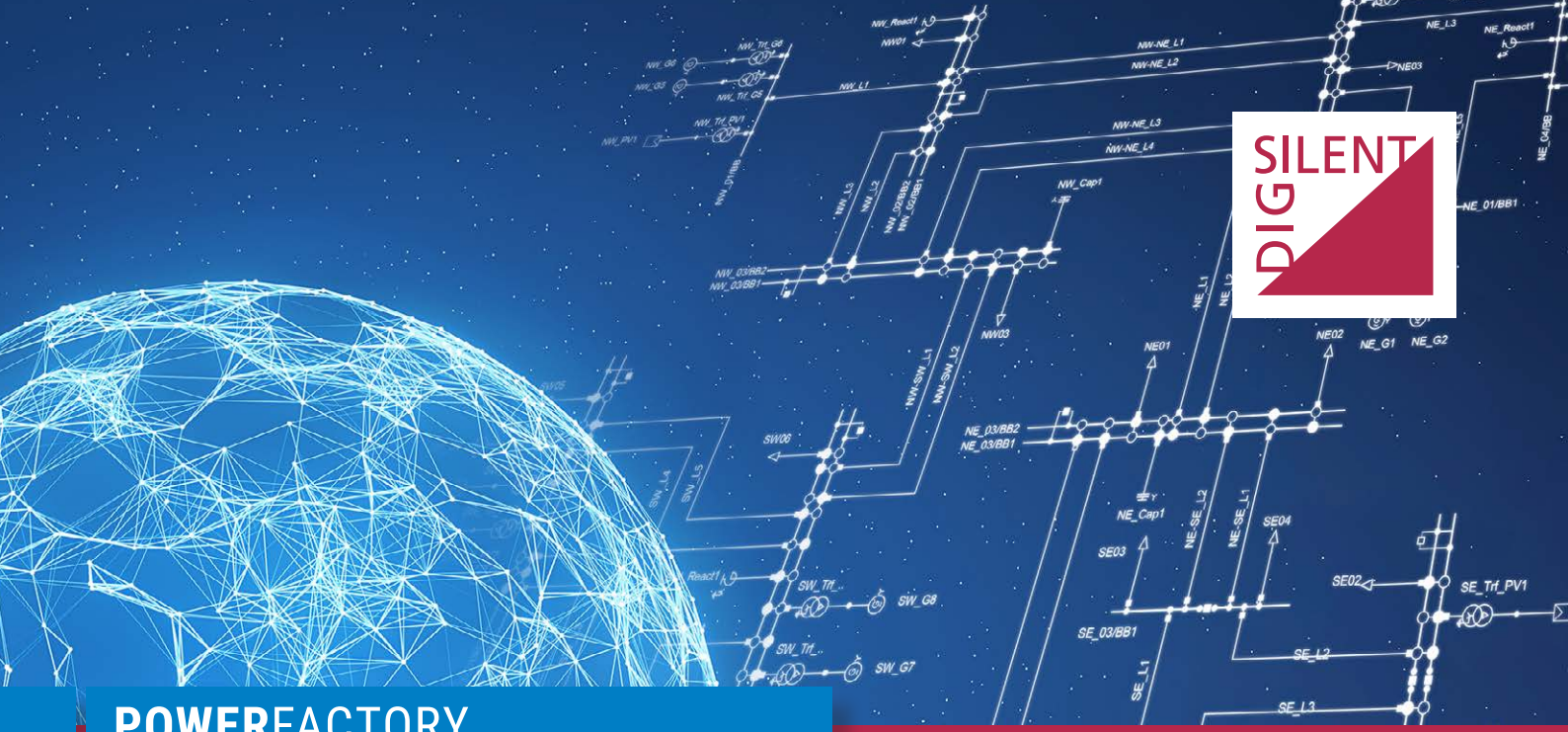

POWERFACTORY

PowerFactory 2021

Technical Reference

DIgSILENT F67 Phase directional Generic Relay

PF2021

POWER SYSTEM SOLUTIONS

MADE IN GERMANY

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Contents

1 F67 Phase directional

1.1 Intent

To add the 3 phase directional feature to the protective features simulated by other relays.

1.2 Functionality

The *F67 Phase directional* generic relay models three independent phase directional logics.

The directional logics are is based on

- the angle comparison between the phase current vectors and the phase voltage vectors (”VI Angle dir” block).
- the angle comparison between the positive sequence current vector and the positive sequence voltage vector (”V1I1 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 *F67 Phase 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.

1.3 Inputs

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

1.4 Available Units

Measurement

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

Protective elements

- Three 3 phase overcurrent directional elements (”VI Angle dir”,”Pcosphi, Qsinphi”, and ”V1I1 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* generic forward directional signal.
- *rev* generic reverse directional signal.
- *fwd_A*, *fwd_B*, *fwd_C* phase A, phase B, phase C forward directional signals.
- *rev_A*, *rev_B*, *rev_C* phase A, phase B, phase C reverse directional signals.