



SILENT
DIG

POWERFACTORY

PowerFactory 2021

Technical Reference

DigSILENT F81 Frequency Generic Relay

PF2021

POWER SYSTEM SOLUTIONS
MADE IN GERMANY

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1 F81 Frequency

1.1 Intent

To simulate a set of over/underfrequency protective functions with minimum voltage activation threshold.

1.2 Functionality

- Under frequency protective functions (F81) with minimum voltage threshold.
- Over frequency protective functions (F81) with minimum voltage threshold.

Please notice that each protective element has its own minimum voltage threshold.

1.3 Inputs

- One 3 phase VT ("Phase Vt" block, *StaVt* class).

The following blocking signals are available:

- *iblock_1* blocking " $f > 1$ ".
- *iblock_2* blocking " $f > 2$ ".
- *iblock_3* blocking " $f > 3$ ".
- *iblock_4* blocking " $f > 4$ ".
- *iblock_5* blocking " $f < 1$ ".
- *iblock_6* blocking " $f < 2$ ".
- *iblock_7* blocking " $f < 3$ ".
- *iblock_8* blocking " $f < 4$ ".

1.4 Available Units

Measurement

- One frequency measurement element ("Measurement Freq" block, [RelFmeas class]).
- One 3phase measurement element ("Measurement" block, *RMS Calculation* enabled, *Filter* disabled [RelMeasure class]).

Protective elements

- Four inverse time/definite time overfrequency elements ("f> 1", "f> 2", "f> 3" and "f> 4" block, [*RelChar* class]).
- Four definite time phase-ground undervoltage elements blocking the overfrequency elements("f> 1 min V", "f> 2 min V", "f > 3 min V" and "f> 4 min V" block, [*RelUlim* class]).
- Four inverse time/definite time underfrequency elements ("f< 1", "f< 2", "f< 3" and "f< 4" block, [*RelChar* class]).
- Four definite time phase-ground undervoltage elements blocking the underfrequency elements("f< 1 min V", "f< 2 min V", "f < 3 min V" and "f< 4 min V" block, [*RelUlim* class]).

Output logic

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

1.5 Outputs

- *yout* associated by default to any protective element trip.
- *yout1* associated by default to the overfrequency element trip ("f> 1", "f> 2", "f> 3" and "f> 4" block).
- *yout2* associated by default to the underfrequency element trip("f< 1", "f< 2", "f< 3" and "f< 4" block).

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