**POWER**FACTORY

# PowerFactory 2021

## Technical Reference

### DIgSILENT  F81 Frequency Generic Relay

PF2021

**POWER SYSTEM SOLUTIONS**

MADE IN GERMANY

Please visit our homepage at:
https://www.digsilent.de

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# Contents

# 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 is 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.