



POWERFACTORY

PowerFactory 2021

Technical Reference

DigSILENT F40 Loss of field Generic Relay

PF2021

POWER SYSTEM SOLUTIONS
MADE IN GERMANY

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1 F40 Loss of field

1.1 Intent

The *F40 Loss of field* generic relay simulates the most widely applied method for detecting a synchronous rotating machine loss of field.

1.2 Functionality

The *Loss of field* consists of two mho elements with separate time delays and underreactance measurement enabled by a ground undercurrent unit and by a phase-ground overvoltage element. When the ground current is greater than a given threshold or the relevant phase-ground voltage is lower than a minimum voltage threshold the mho element trip is inhibited.

1.3 Inputs

- One 3 phase CT ("Phase Ct" block, *StaCt* class).
- One 3 phase VT ("Phase Vt" block, *StaVt* class).
- Four blocking signals (*iblock_1*, *iblock_2*, *iblock_3*, and *iblock_4*).

Please notice that the *iblock_1* and the *iblock_2* input signal inhibits directly the 1st and the 2nd mho element trip whereas the *iblock_3* and the *iblock_4* input signal blocking logic can be configured in the "Logic" tab page of the output block.

1.4 Available Units

Measurement

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

Protective elements

- One polarizing element ("Polarizing" block, [*RelZpol* class]).
- Two 3 phase mho elements ("Underreactance 1", and "Underreactance 2" block, [*RelDis-mho* class]).
- Two timers ("Underreactance 1 Timer", and "Underreactance 2 Timer" block, [*RelTimer* class]).
- One ground under current element connected to the *wsuppadd* signal of the mho blocks ("IN supervision" block, [*Relloc* class]).
- One voltage-ground overvoltage element ("Voltage supervision" block, [*RelUlim* class]).

Output logic

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

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

1.5 Outputs

- *yout* associated by default to any protective element trip.
- *y_s* associated by default to any protective element start.