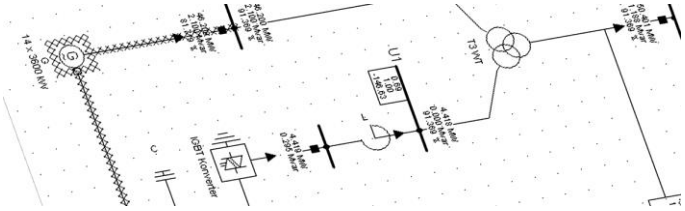

DIgSILENT Technical Documentation

Areva P111
PowerFactory
V001 Relay model description

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1 Model general description

The Areva P111 relay is a simple phase and ground overcurrent relay with up to 4 protective elements. The Areva P 111 PowerFactory relay model is implementing all the protective functions available in the relay; it consists of the measurement and acquisition units, the protective elements and the output logic.

The following subversion of the Areva P111 PowerFactory relay model are available:

- P1117390xxxxx0x (A)
- P1117390xxxxx1x (A)
- P1117390xxxxx2x (A)
- P1117390xxxx00x (BC)
- P1117390xxxx01x (BC)
- P1117390xxxx02x (BC)
- P1117390xxxx03x (BC)
- P1117390xxxx10x (BC)
- P1117390xxxx11x (BC)
- P1117390xxxx12x (BC)
- P1117390xxxx13x (BC)
- P1117390xxxx40x (BC)
- P1117390xxxx41x (BC)
- P1117390xxxx42x (BC)
- P1117390xxxx43x (BC)
- P1117391xxxx04x (EF)
- P1117391xxxx05x (EF)
- P1117391xxxx44x (EF)
- P1117391xxxx45x (EF)
- P1117391xxxx54x (EF)
- P1117391xxxx55x (EF)

1.1 Measurement and acquisition

1.1.1 Available Units

The primary currents are measured by one current transformer ("Ct-3p" blocks)

One measurement unit ("Measure Ph" blocks) is fed by this CT.

1.1.2 Functionality

The input signals are sampled in the relay model at 20 samples/cycle; a RMS calculation (integral calculator) operating over a cycle calculates the current values used by the protective elements.

1.2 Protective elements

1.2.1 Available Units

- One 3 phase inverse time overcurrent element ("I>" block)
- One 3 phase definite time overcurrent element ("I>>" block)
- One ground current inverse time overcurrent element ("I0>" block, BCEF model only)
- One ground current definite time overcurrent element ("I0>>" block, BCEF model only)

1.2.2 Functionality

The PF model contains all the protective elements available in the relay.

The inverse time overcurrent elements support the following trip characteristics:

- Definite time
- IEC "Extremely inverse"
- IEC "Very inverse"
- IEC "Normal inverse"

1.3 Output logic

1.3.1 Available Units

The output logic is implemented by the "Output logic" block.

1.3.2 Functionality

This block is operating the breaker. Please disable the "Output logic" block to disable the relay model ability to open the power circuit.

The following output signals are available: "P1", "P2", "P3" and "P4". The signal operating the breaker is "P1". Please notice that the "P3" and "P4" signals are not available in the "A" and in the "B" models.

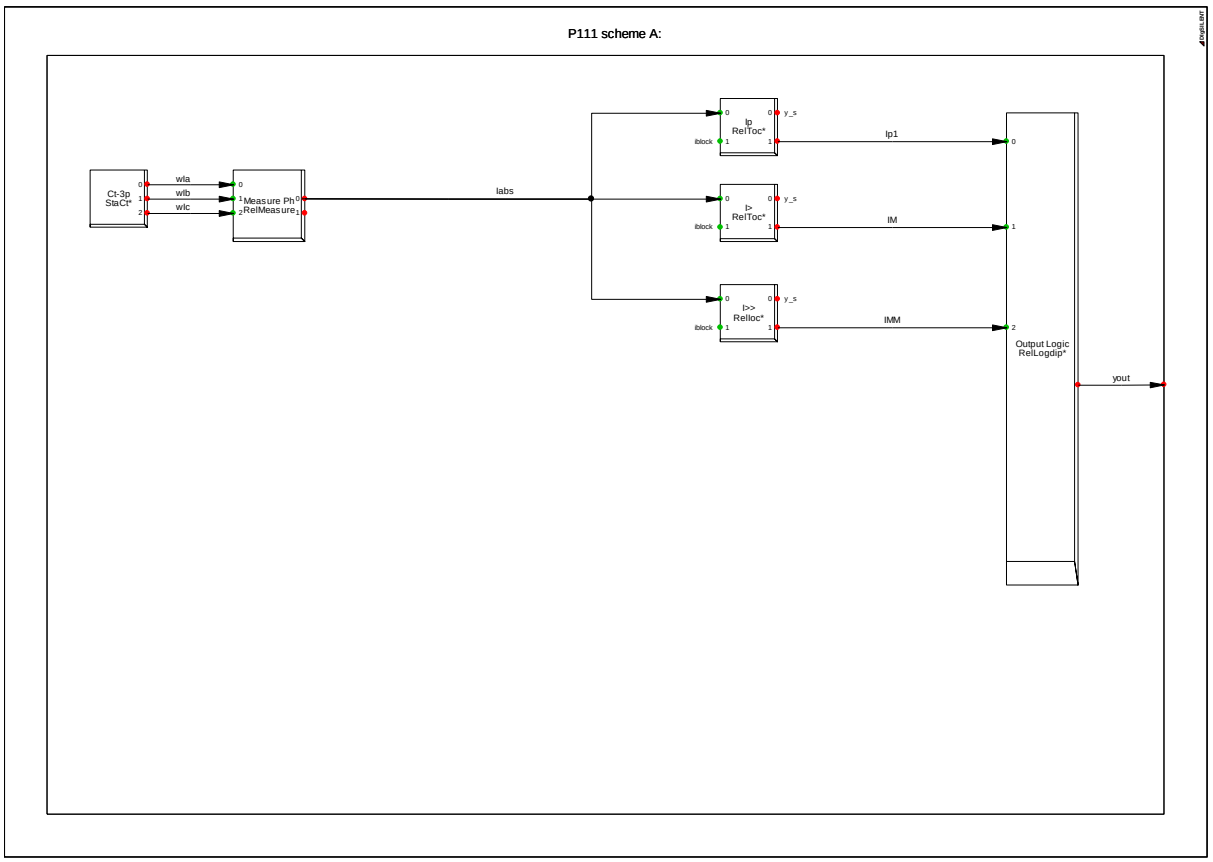
2 Relay not supported features

The following features are not supported:

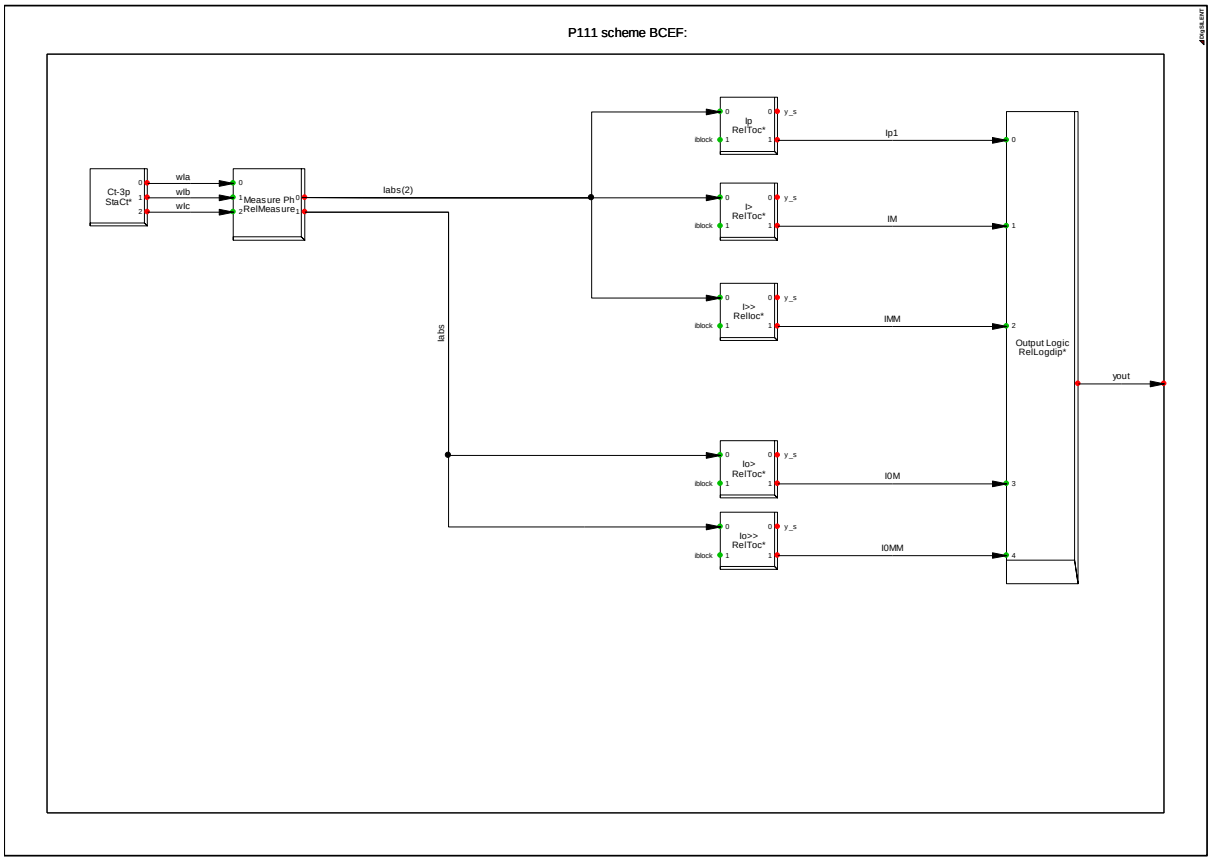
- Output latching
- Multiple setting groups

3 Model scheme

3.1 ”A” model schemes



3.2 ”BCEF” model schemes



4 References

The model implementation has been based on the information available in the following document:

- "Areva Micom P111 Universal Overcurrent Protection Relay version 6D User manual"