Areva P14x

The model is based on the Areva P141, 142,143 Technical Manual.
(P14X_EN_M_B64.pdf)

The following functionalities are modelled:

1. Inverse time overcurrent protection (2 IDMT elements for phase, ground measured and ground calculated, sensitive earth fault (8 elements))
2. Definite time overcurrent protection (2 stages for phase, ground measured and ground calculated and sensitive earth fault, 4 stages for negative sequence(12 elements))
3. Two overvoltage stages (2 for phase, zero seq and 1 for negative sequence (5 elements))
4. Two undervoltage stages (for phase (2 elements))
5. Thermal element (single time constant)
6. 4 under frequency elements and 2 over frequency elements (6 elements)
7. 4 df/dt elements

Not supported features:

* Voltage controlled overcurrent protection (51V)
* Separated RCA values for the N1, the N2 and the SEF elements (the unique RCA value is available as "mtau" variable in the "Dir ground (residual voltage)" block and in the "Dir ground (neg seq)" block)
* Restricted earth fault protection
* Cold load pick up
* Check synchronism
* Circuit breaker failure protection
* Current transformer supervision
* Fault locator
* Undervoltage inverse characteristic (a definite time characteristic is used)
* Dual time constant thermal image (only one time constant is supported)
* Broken conductor detection
* Neutral admittance protection

Notes:

The directional earth fault protection can be configures inside the relay to use the residual voltage polarization or the negative sequence polarization. To achieve the same result inside the model the use must disable the "Dir ground (residual voltage)" block if the negative sequence polarization is used or disable the "Dir ground (neg seq)" block if the residual voltage polarization is used