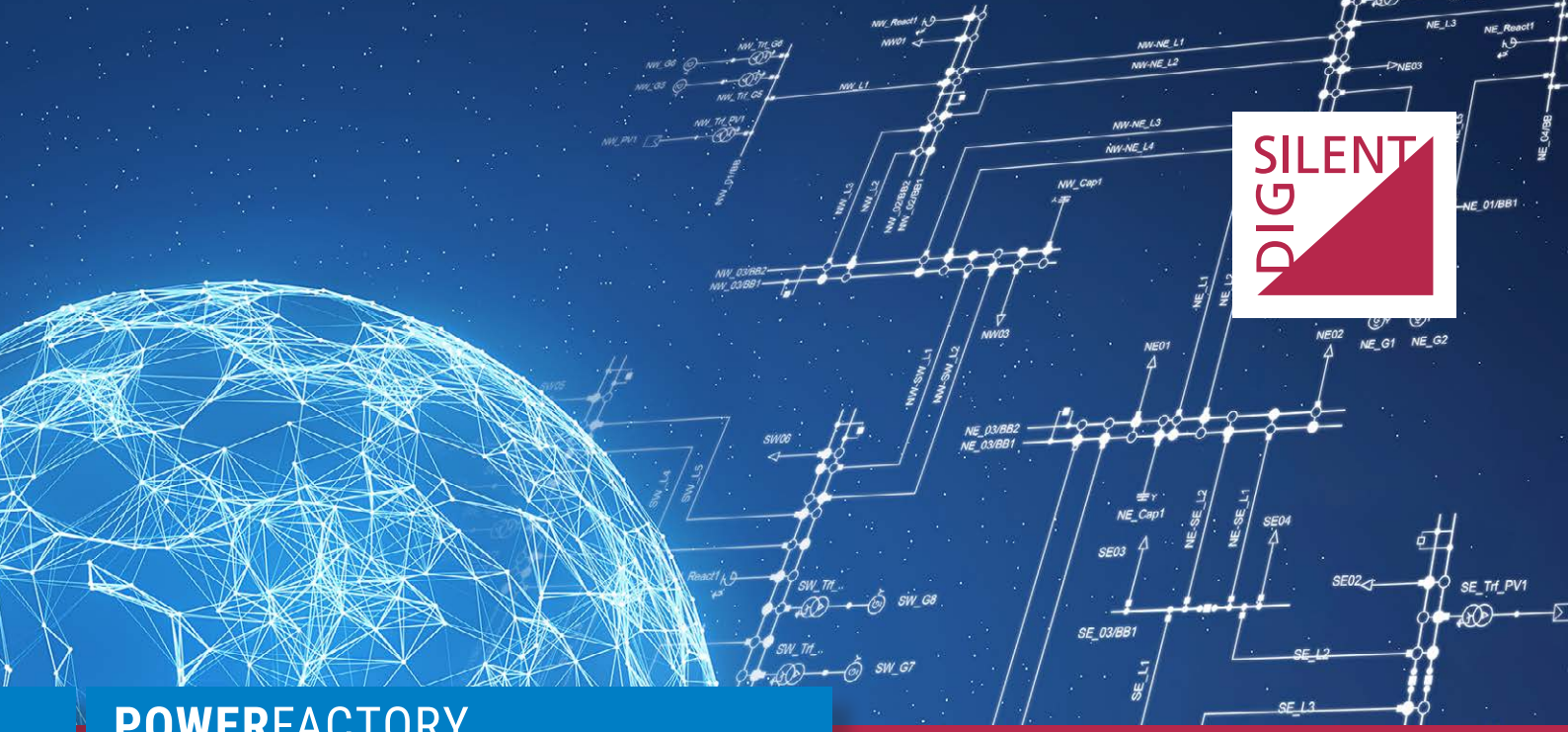

POWERFACTORY

PowerFactory 2021

Technical Reference

ABB RMX 913

PF2021

POWER SYSTEM SOLUTIONS

MADE IN GERMANY

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PowerFactory 2021
Revision 892

Contents

1 Model information

Manufacturer ABB

Model RMX 913

Variants The ABB RMX 913 PowerFactory relay model can be used to simulate the ABB RMX 913 relay.

2 General description

The ABB RMX 913 PowerFactory relay model has been implemented trying to simulate the relay phase directional detection features.

The relay contains the measurement and acquisition units, the output logic and the directional element.

The model implementation has been based on the information available in the relay manual [1].

3 Supported features

3.1 Measurement and acquisition

The phase voltages and currents are measured by one current transformer (*"Phase Ct"* block) and and one voltage transformer *"Phase Vt"* blocks).
The measurement unit (*"Measurement Seq"* block) is fed by the CT and the VT.

3.1.1 Available Units

- One 3 phase Ct (*"Phase Ct"* block).
- One 3 phase Vt (*"Phase Vt"* block).
- One sequence measurement element (*"Measurement Seq"* block).

3.1.2 Functionality

The CT and the VT provide the current and the voltage instantaneous values measured at the relay position that are sampled at 20 samples/cycle by the *"Measurement Seq"* block where a DFT filter operating over a cycle calculates then the voltage and current values used by directional element.

3.1.3 Data input

The nominal current and the nominal voltage values MUST be entered in the Measurement Seq unit.

3.2 Directional element

3.2.1 Functionality

The *"Directional angles"* block performs an angular comparison between the positive sequence voltage vector and the positive sequence current vector after rotating the voltage vector by the *Charakteristischet Winkler* setting (α parameter). The forward direction is declared when the angular deplacement is smaller than the *Sektorbreite* (γ parameter).

3.2.2 Available Units

- One positive sequence directional element (*"V1I1 angle directional"* block).

3.2.3 Data input

The relationships between the relay settings and the model parameters can be found in the following table (the relay model parameter names are listed between brackets):

Address	Relay Setting	Model block	Model Parameter	Range	Note
	Sektorbreite	Directional angles	Operating Sector Angle (*"phisecZ"*)	15-90 step 15 deg	
	Charakteristischet Winkler	Directional angles	Max Torque Angle (*"mtau"*)	-90-90 step 15 deg	

Output logic The following relay output signals are available:

- *yfwd* generic forward directional signal.
- *yrev* generic reverse directional signal.

4 References

[1] ABB Ltd Distribution Automation, P.O.box 699, FI-65101 Vaasa , FINLAND. *Dreiphasiges Richtungsrelay Typ RMX913 Schutztechnik 82-56.20.D Ausgabe MArz 1988*, 1988.