SILENT
DIG

PowerFactory 2021

Technical Reference

Schneider ComPact NSX NSXm

PF2021

POWER SYSTEM SOLUTIONS

MADE IN GERMANY

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Contents

Disclaimer

DIgSILENT protection device models are developed using publicly accessible information, such as user manuals, and are not validated or tested by the respective manufacturers.

1   Model information

Manufacturer   Schneider

Model   ComPact NSX NSXm

Variants   The Schneider ComPact NSX NSXm series contains thermal-magnetic trip units *"TM-D"*, *"TM-G"*, magnetic trip units *"MA"* and electronic trip units *"MicroLogic 6 A"* for circuit breakers NSX and NSXm based on the information given in [1]. Each combination of model, trip unit and available sensor rating is a dedicated type.

2   General description

The thermal-magnetic or magnetic trip units consist of thermal and magnetic blocks. The electronic trip unit is modelled as LSIG which corresponds to *"MicroLogic 6 A"*. The units are modelled as 3-pole without neutral. The ground-fault input is calculated from phase currents. All trip units include reflex trip functionality.

Current transformer

The *"CT"* slot holds the assigned ideal 3-phase current transformers which has to be modelled with a ratio of 1/1 A.

Measurement unit

The *"Measurement"* slot processes the transformer inputs and holds the rated current value of the circuit breaker.

Trip logic

The *"Trip Logic"* holds an OR functionality for generating the tripping signal.

3   Thermal-magnetic trip unit

The thermal-magnetic trip unit consists of three phase current stages. Thermal characteristics consist of minimum and maximum tripping curves and are digitalised according to information given in [1]. The magnetic curves are modelled as ideal DT curves. All characteristics are valid for 40 °C ambiant temperature, nominal current setting, 3 poles loaded and cold started.

Address	Relay Setting	Model Unit	Model Parameter	Note
	Pick-up Ir	Thermal	Pickup Current	adjustable
	Time Delay tr	Thermal	Time Setting	fixed
	Pick-up Im	Magnetic	Pickup Current	see 1)
	Time Delay tm	Magnetic	Time Setting	fixed
		Reflex	Pickup Current	fixed to 25 x In
		Reflex	Time Setting	fixed to t = 10 ms

Notes:

1)   – Only NSX200 and NSX250 are adjustable.

4   Magnetic trip unit

The magnetic trip unit consists of two phase current stages. The magnetic curves are modelled as ideal DT curves.

Address	Relay Setting	Model Unit	Model Parameter	Note
	Pick-up Im	Magnetic	Pickup Current	see 1)
	Time Delay tm	Magnetic	Time Setting	fixed
		Reflex	Pickup Current	fixed to 25 x In
		Reflex	Time Setting	fixed to t = 10 ms

Notes:

1)   – Current range depending on sensor rating:
   * 2.5 A < In < 100 A: Im = 6 to 14 x In
   * 150 A < In < 220 A: Im = 9 to 14 x In

5   Electronic trip unit

The electronic trip unit *"MicroLogic 6 A"* consists of four phase current stages one zero-seuqence current stage. The underlaying phase current stage blocks the overlaying phase current stage if started, e.g. if the short-time stage is started, the long-time stage is blocked.

Address	Relay Setting	Model Unit	Model Parameter	Note
	Current Setting Ir	Long-time	Pickup Current	
	Time Setting tr	Long-time	Time Setting	

Address	Relay Setting	Model Unit	Model Parameter	Note
	Pick-up Isd	Short-time	Pickup Current	
	Time Setting tsd for I2t Off	Short-time	Time Setting	for max breaking time
	Time Setting tsd for I2t On	Short-time	Time Setting	for max breaking time
	Pick-up Ii	Instantaneous	Pickup Current	see 1)
	Operating time	Instantaneous	Time Setting	see 2)
		Reflex	Pickup Current	fixed to 30 x In
		Reflex	Time Setting	fixed to t = 10 ms
	Pick-up Ig	Earth fault	Pickup Current	see 3)
	Time Setting tg for I2t Off	Short-time	Time Setting	for max breaking time
	Time Setting tg for I2t On	Short-time	Time Setting	for max breaking time

Notes:

1) – Current range depending on sensor rating:
   * 40 A < In < 160 A: Ii = 1.5 to 15 x In
   * 250 A < In < 400 A: Ii = 1.5 to 12 x In
   * 630 A: Ii = 1.5 to 11 x In

2) – Instantaneous tripping time: 10 to 50 ms (non tripping time to max breaking time).

3) – Current range depending on sensor rating:
   * In = 40 A: Ig = 0.4 to 1 x In
   * In > 40 A: Ig = 0.2 to 1 x In

6   Variants

Type	Sensor rating	Trip unit
NSXm	16; 25; 32; 40; 50; 63; 80; 100; 120; 160 A	Thermal-magnetic TM-D
NSX100	16; 25; 32; 50; 63; 80; 100 A	Thermal-magnetic TM-D
	16; 25; 40; 63; 80; 100 A	Thermal-magnetic TM-G
	2.5; 6.3; 12.5; 25; 50; 100 A	Magnetic MA
	40; 100 A	Electronic
NSX160	32; 40; 50; 63; 80; 100; 125; 160 A	Thermal-magnetic TM-D
	25; 40; 63; 80; 100; 125; 160 A	Thermal-magnetic TM-G
	25; 50; 100; 150 A	Magnetic MA
	40; 100; 160 A	Electronic
NSX250	63; 80; 100; 125; 160; 200; 250 A	Thermal-magnetic TM-D
	160; 200; 250 A	Thermal-magnetic TM-G
	100; 150; 220 A	Magnetic MA
	40; 100; 160; 250 A	Electronic
NSX400	250; 400 A	Electronic
NSX630	250; 400; 630 A	Electronic

7   References

[1] Schneider Electric Industries SAS, 35 rue Joseph Monier, 92506 Rueil-Malmaison, FRANCE. *ComPact NSX & NSXm Catalogue 2019*. LVPED217032EN.