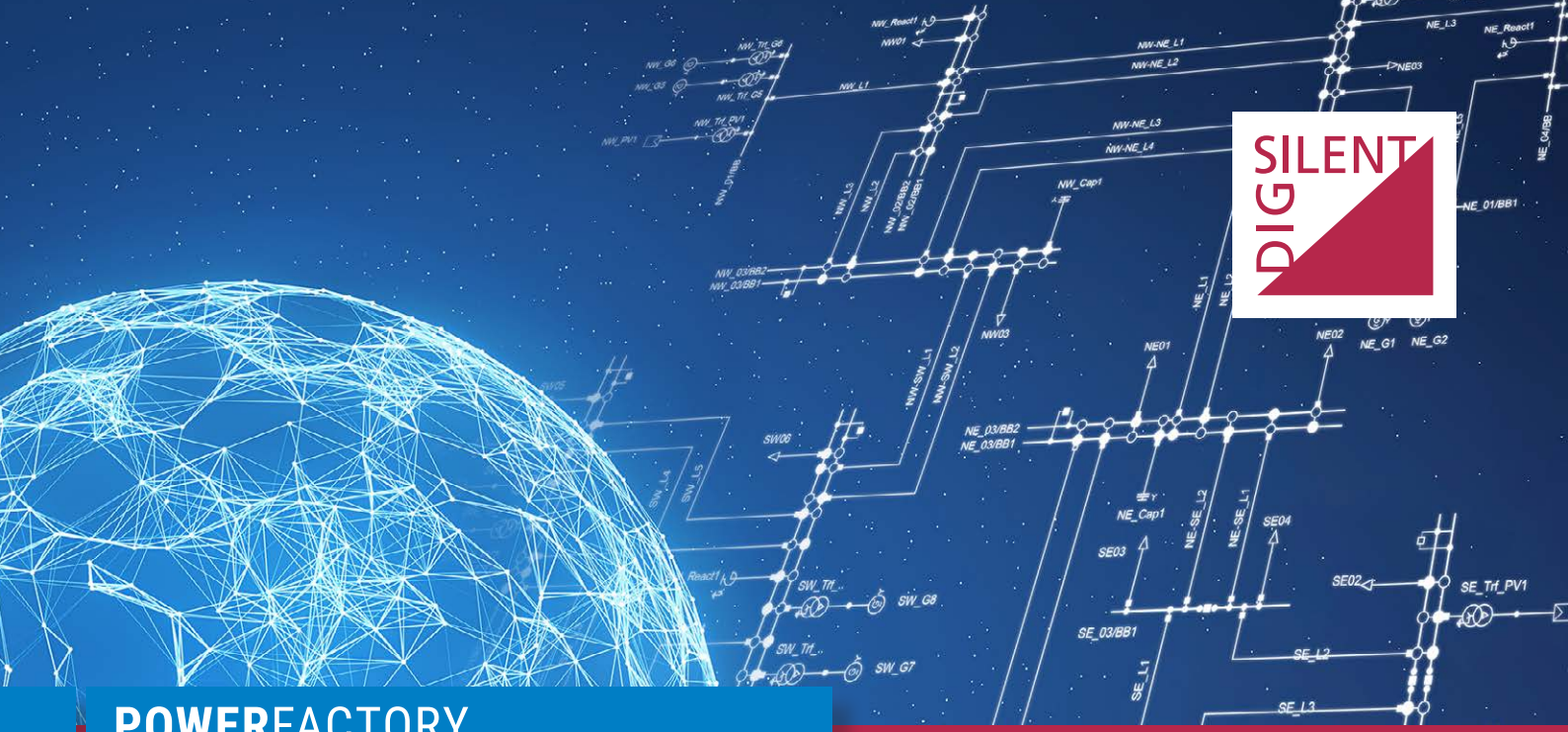

POWERFACTORY

PowerFactory 2021

Technical Reference

Eaton Magnum IEC

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 Eaton

Model Magnum IEC

Variants The Eaton Magnum IEC series contains the electronic trip unit *"Digitrip 520"* available for circuit breakers Magnum based on the information given in [3], [2] and [1]. Each combination of model and available sensor rating is a dedicated type.

2 General description

The electronic trip unit is modelled as LSIG which corresponds to *"Digitrip 520"*. The units are modelled as 3-pole without neutral. The earth fault input is calculated from the phase currents.

Current transformer

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

Measurement unit

The *"Measurement"* slot processes the transformer inputs and holds the rated current value of the circuit breaker. The zero-sequence current is determined from the phase values.

Trip logic

The *"Trip Logic"* generates the tripping signal.

3 Electronic trip unit

The electronic trip unit *"Digitrip 520"* consists of three phase current stages and one zero-sequence current stage. The underlying phase current stage blocks the overlying 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
	Long delay setting	Long delay	Pickup Current	
	Long delay time I2t at 6 x (Ir)	Long delay	Time Setting	for max clearing time
	Short delay pickup	Short delay	Pickup Current	see 1)
	Short delay time I2t at 8 x (Ir)	Short delay	Time Setting	for max clearing time
	Short delay time FLAT	Short delay	Time Setting	for max clearing time
	Instantaneous pickup	Instantaneous	Pickup Current	see 1)
	Operating time	Instantaneous	Time Setting	
	Ground fault pickup	Ground fault	Pickup Current	see 2)
	Ground fault delay I2t at 0.625 x (In)	Ground fault	Time Setting	for max clearing time
	Ground fault delay flat	Ground fault	Time Setting	for max clearing time

Notes:

1) – Maximum setting M1 for 800-3200 A Frames:
   * M1 = 14 x In for sensor ratings 200-1250 A
   * M1 = 12 x In for sensor ratings 1600, 2000, 2500 A
   * M1 = 10 x In for sensor ratings 3200, 4000 A
   – Maximum setting M1 for 4000-6300 A Frames:
   * M1 = 14 x In for sensor ratings 2000, 2500 A
   * M1 = 12 x In for sensor ratings 3200, 4000, 5000 A
   * M1 = 10 x In for sensor rating 6300 A

2) – Current setting is not limited to 1200 A due to modelling IEC series

4 Variants

Type	Sensor rating	Trip unit
MWx-x08	200; 250; 300; 400; 630; 800 A	Electronic
MWx-x10	200; 250; 300; 400; 630; 800; 1000 A	Electronic
MWx-x12	200; 250; 300; 400 630; 800; 1000; 1250 A	Electronic
MWx-x16	200; 250; 300; 400; 630; 800; 1000; 1250; 1600 A	Electronic
MWx-x20	200; 250; 300; 400; 630; 800; 1000; 1250; 1600; 2000 A	Electronic
MWx-x25	200; 250; 300; 400; 630; 800; 1000; 1250; 1600; 2000; 2500 A	Electronic
MWx-x32	200; 250; 300; 400; 630; 800; 1000; 1250; 1600; 2000; 2500; 3200 A	Electronic
MWx-x4x	2000; 2500; 3200; 4000 A	Electronic
MWx-x5N	2500; 3200; 4000; 5000 A	Electronic
MWx-x6N	3200; 4000; 5000; 6300 A	Electronic

5 References

[1] Eaton Corporation, 1000 Cherrington Parkway, Moon Township PA 15108, UNITED STATES. *Digitrip 520 / 520M / 520MC / 520i / 520Mi / 520MCi Long Delay & Short Delay Curves , Instantaneous Curve, Ground Curve*. 70C1006, 70C1007, 70C1008.

[2] Eaton Corporation, 1000 Cherrington Parkway, Moon Township PA 15108, UNITED STATES. *Digitrip models 520, 520i; and 520M, 520Mi, 520MC, 520MCi trip units for use only in Magnum and Magnum DS circuit breakers*. 877-ETN-CARE (877-386-2273).

[3] Eaton Electric Limited, Reddings Lane, Birmingham B11 3EZ, UNITED KINGDOM. *Magnum ACB UL - IEC Common Catalog Volume 4 - Circuit Protection*. CA08100005E.