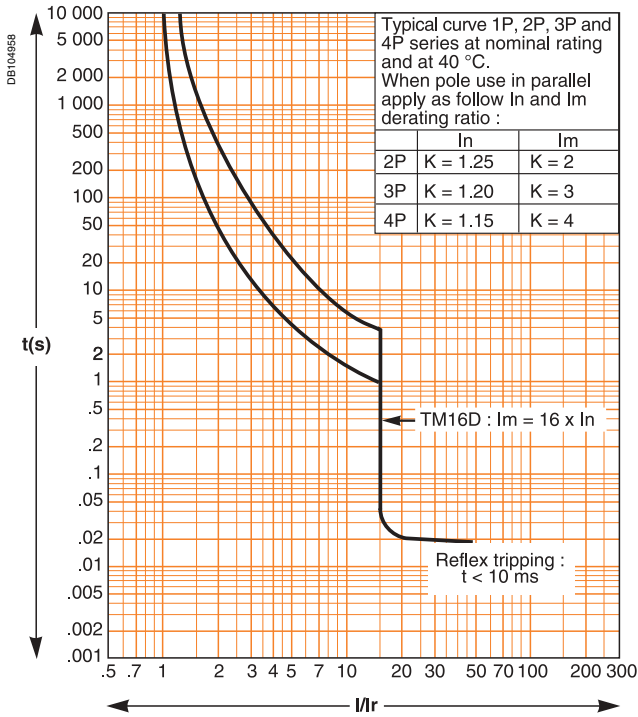
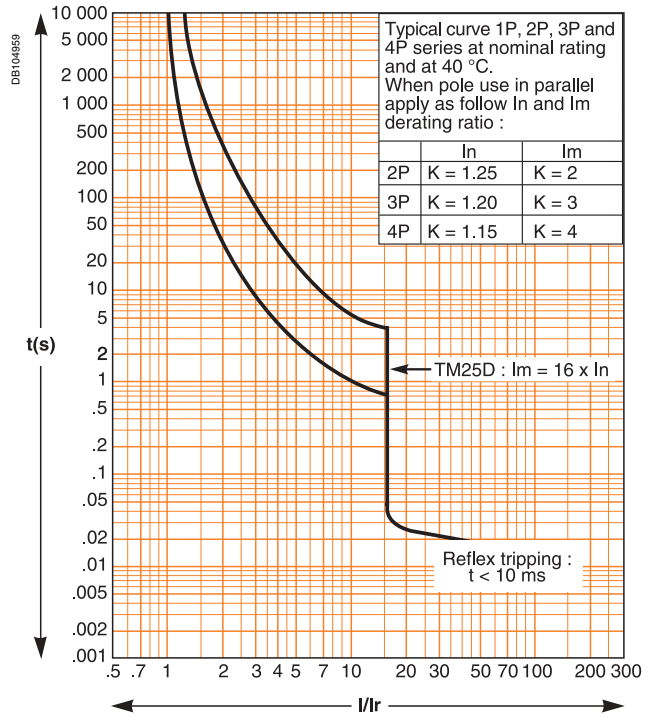

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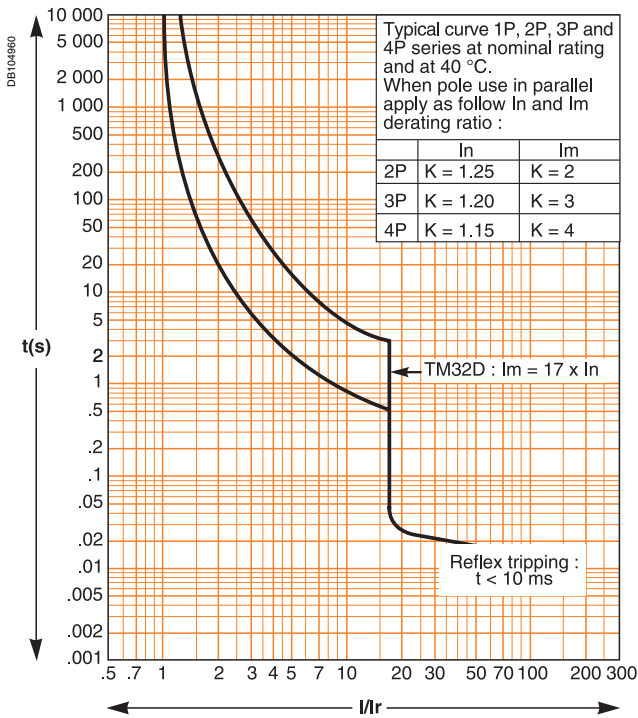
TM16D for direct current use



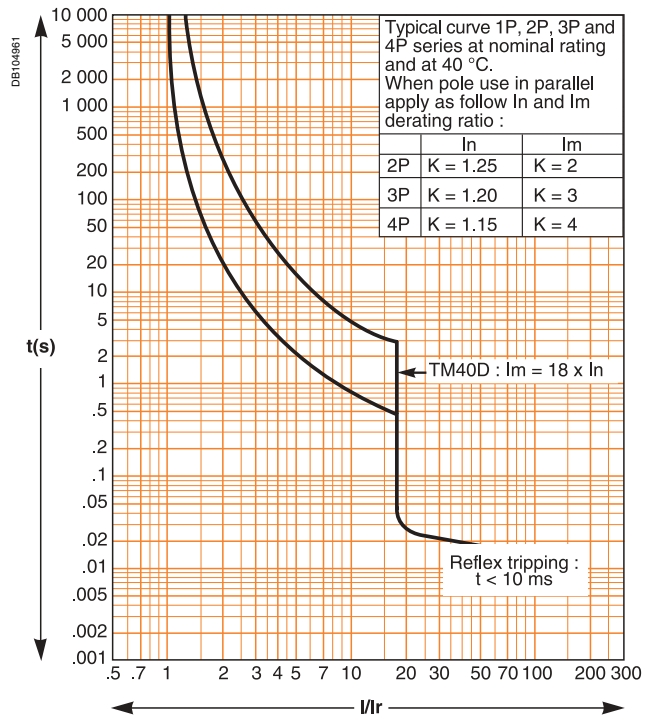
TM25D for direct current use



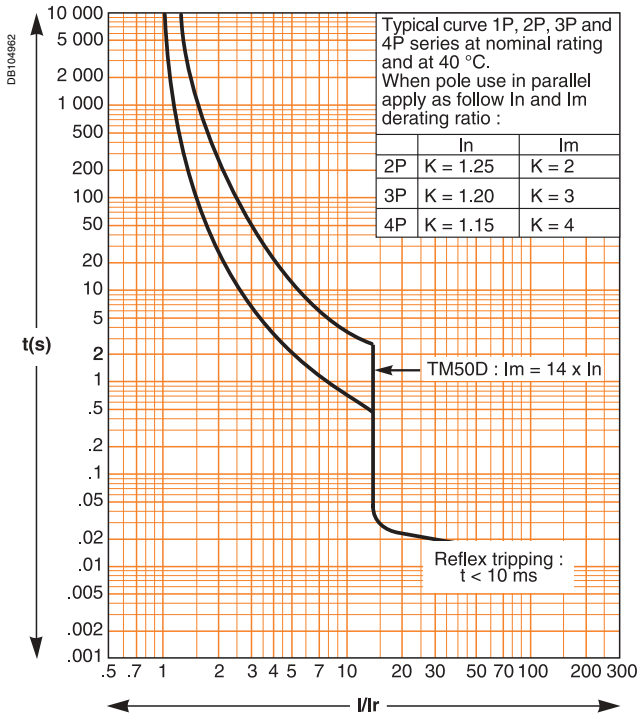
TM32D for direct current use



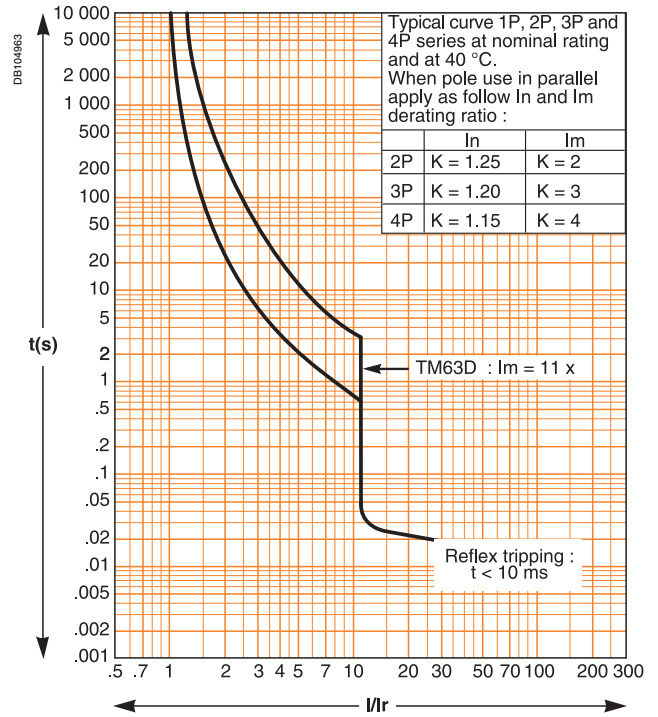
TM40D for direct current use



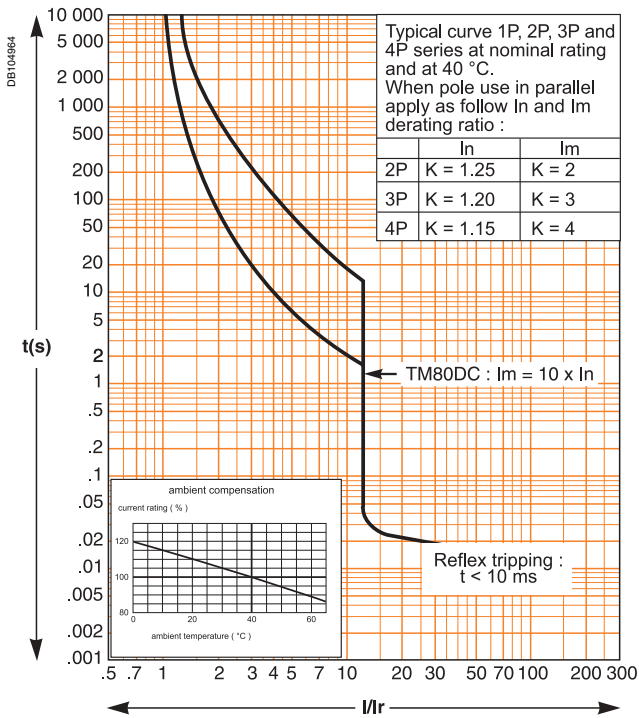
TM50D for direct current use



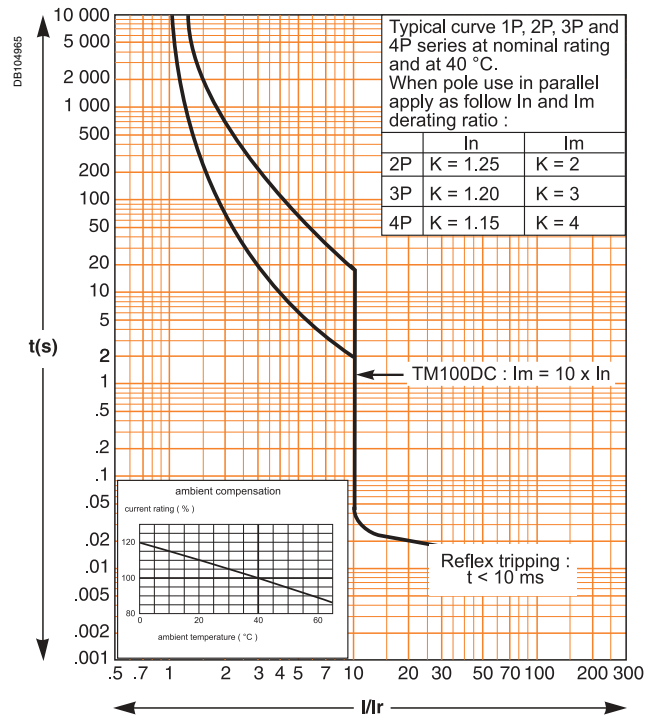
TM63D for direct current use



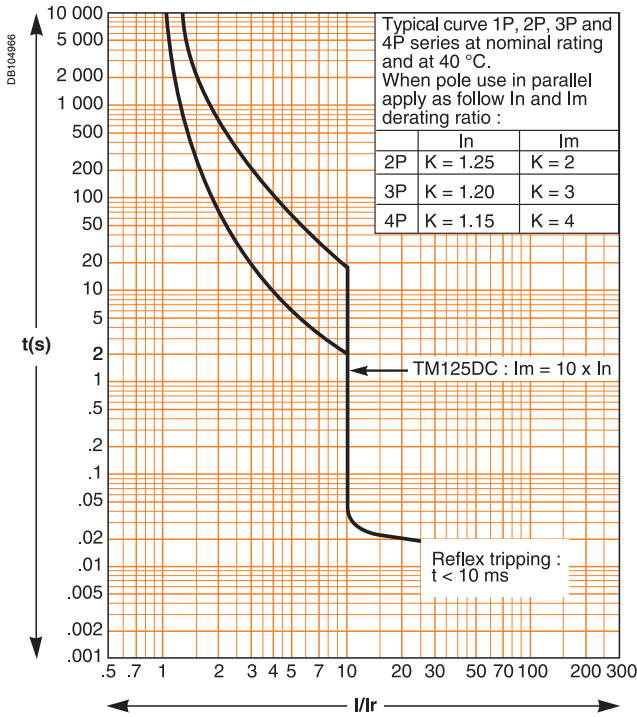
TM80DC for direct current use



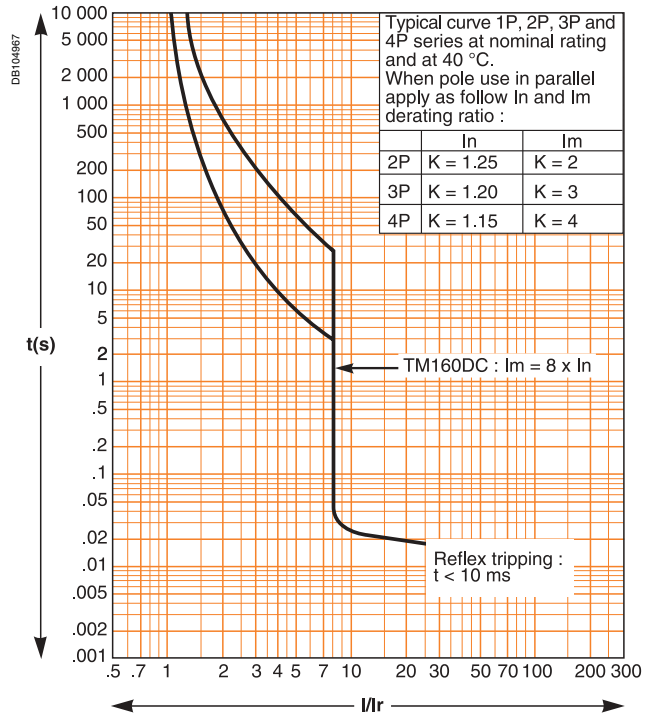
TM100DC for direct current use



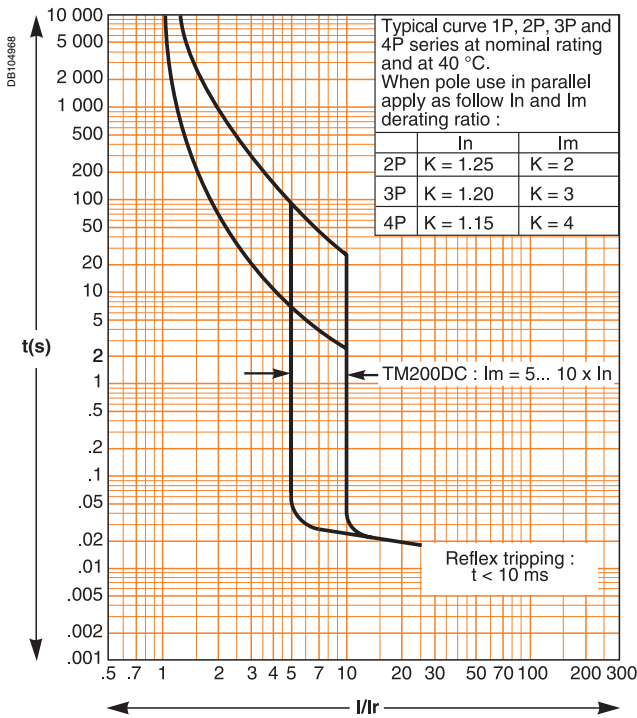
TM125DC for direct current use



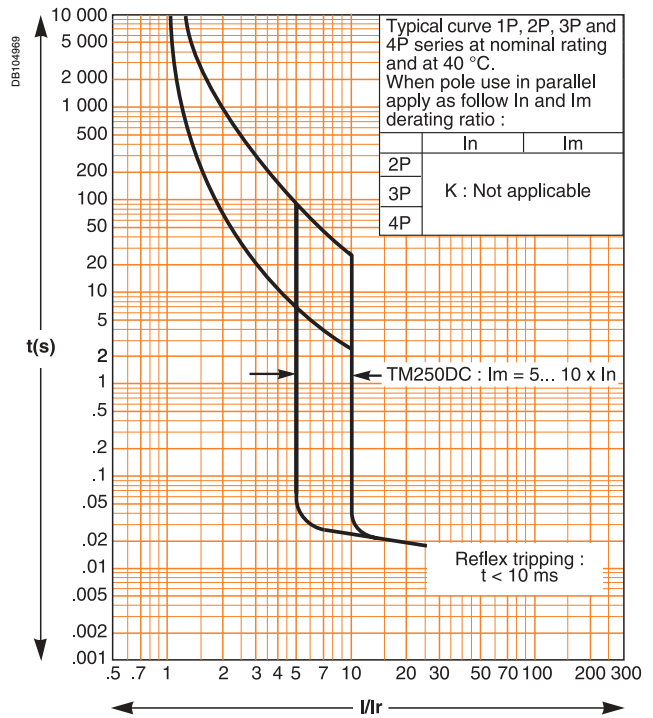
TM160DC for direct current use



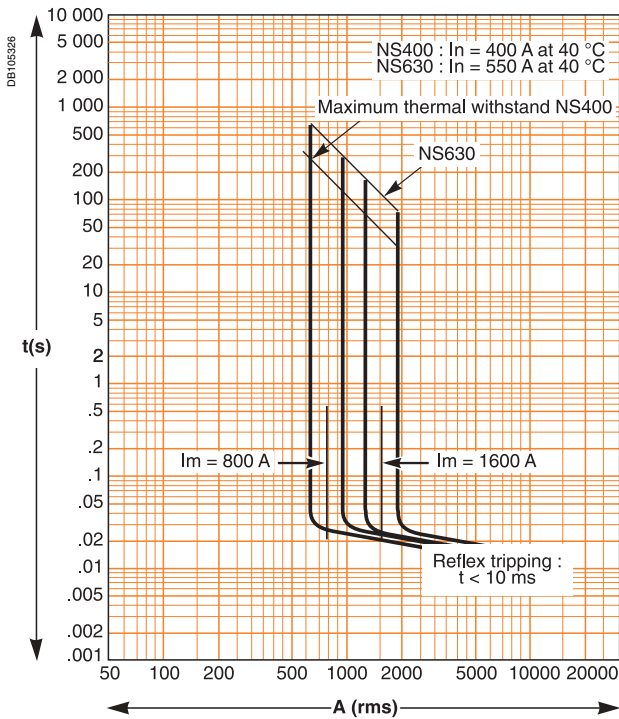
TM200DC for direct current use



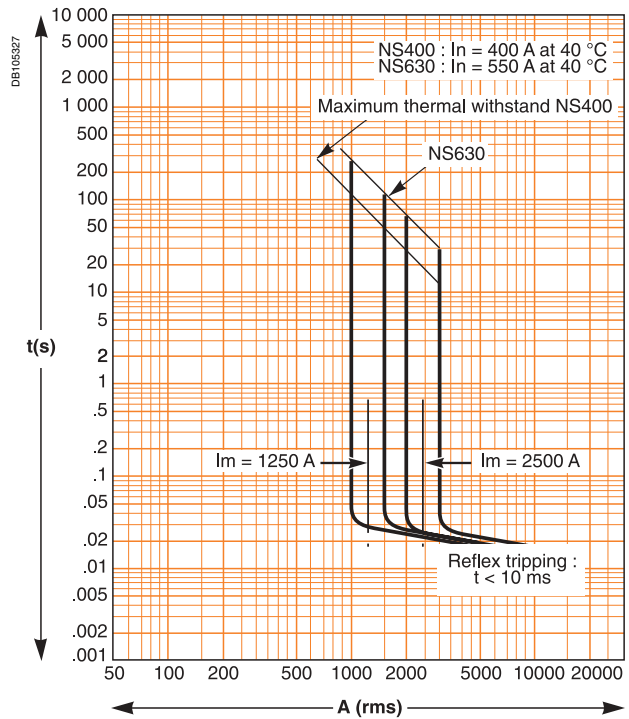
TM250DC for direct current use



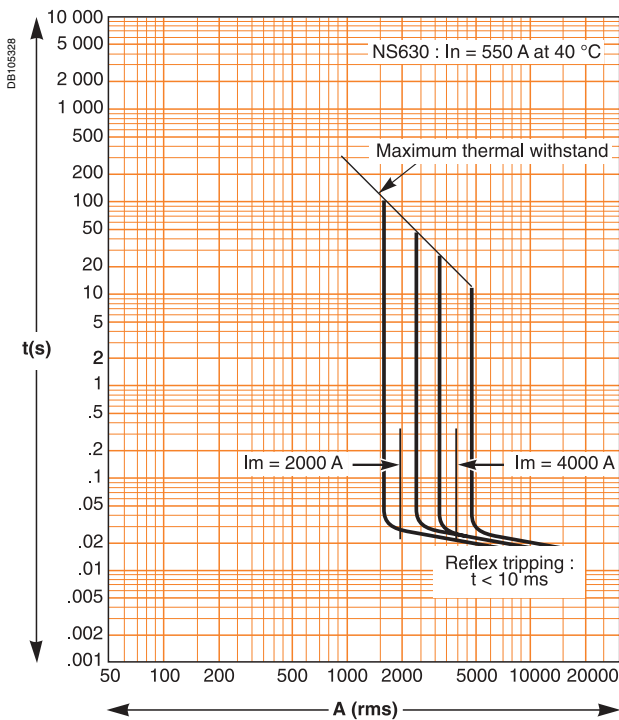
MP1 for NS400/630DC



MP2 for NS400/630DC

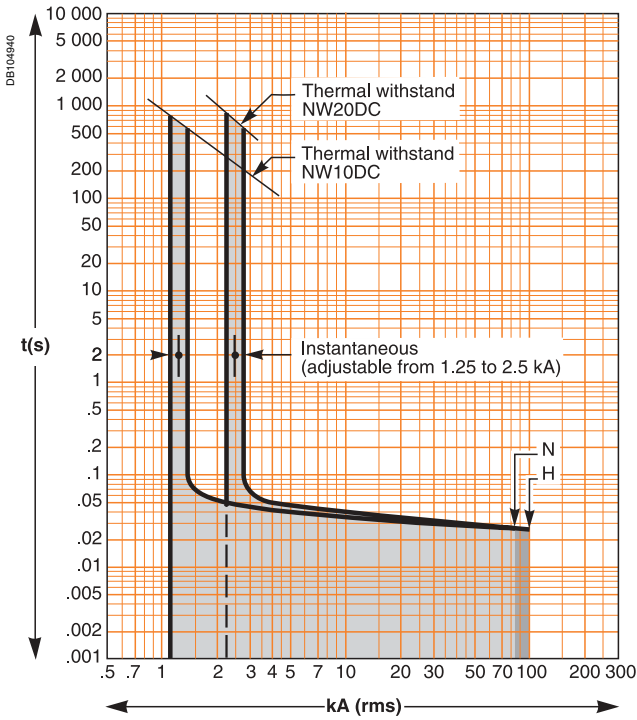


MP3 for NS630DC

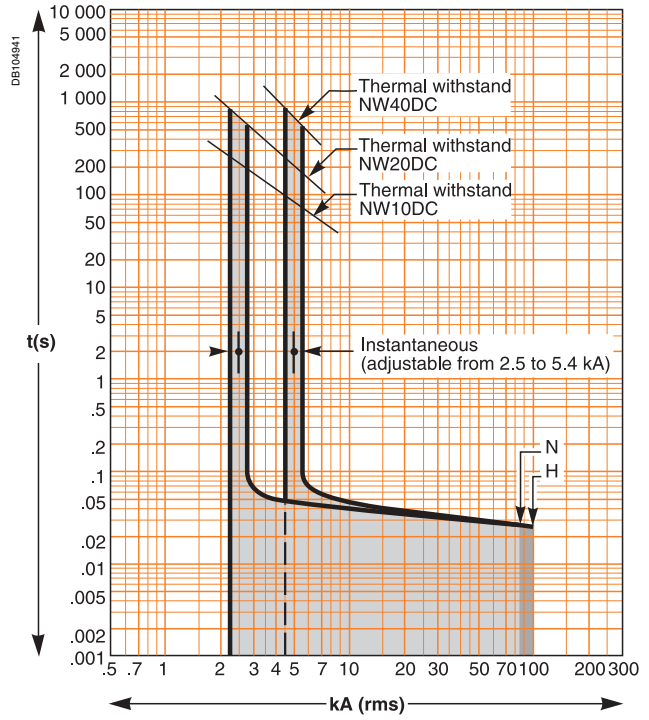


Micrologic DC 1.0 instantaneous protection

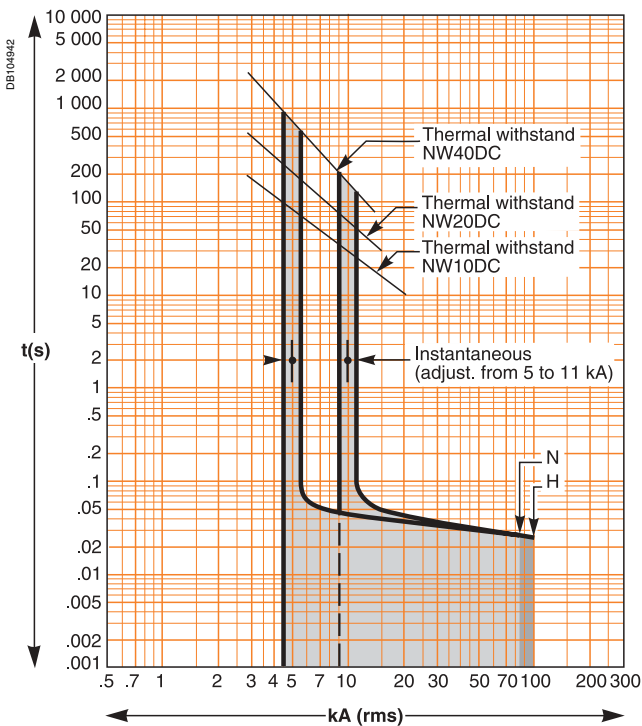
With 1250 - 2500 A sensors



With 2500 - 5400 A sensors

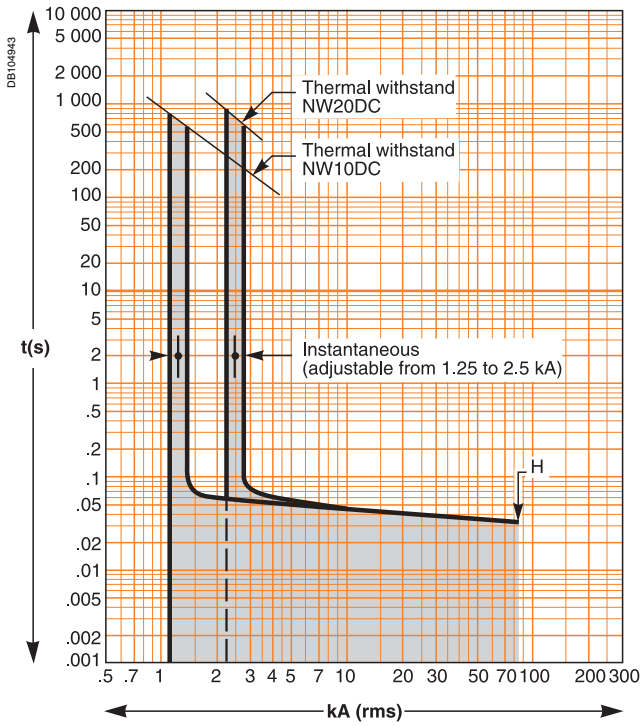


With 5000 - 11000 A sensors

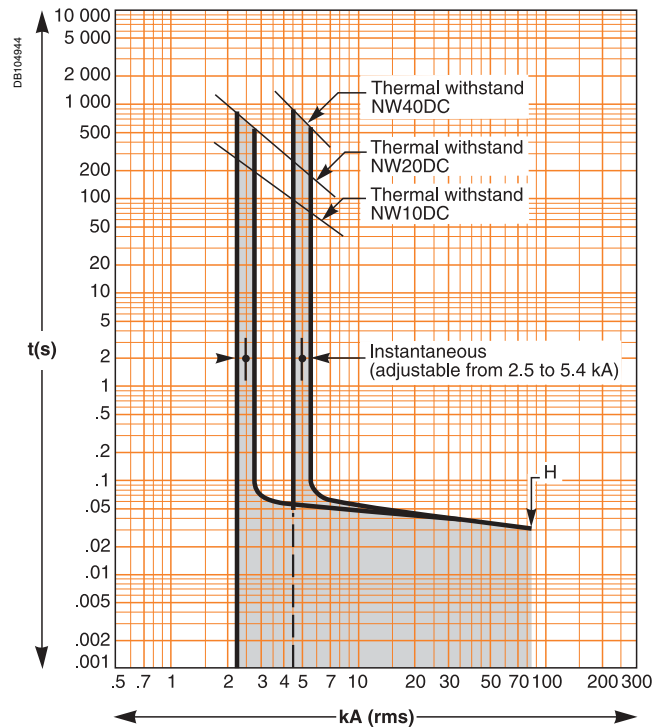


Micrologic DC 1.0 instantaneous protection

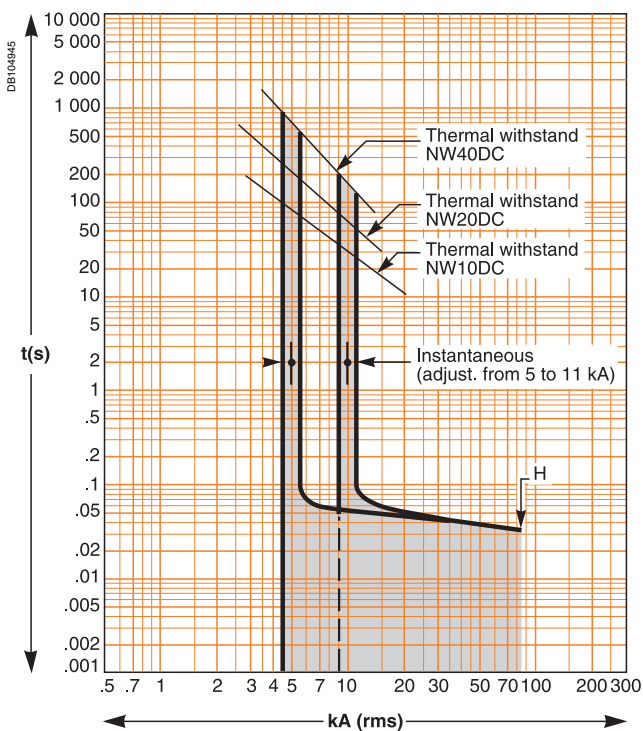
With 1250 - 2500 A sensors



With 2500 - 5400 A sensors

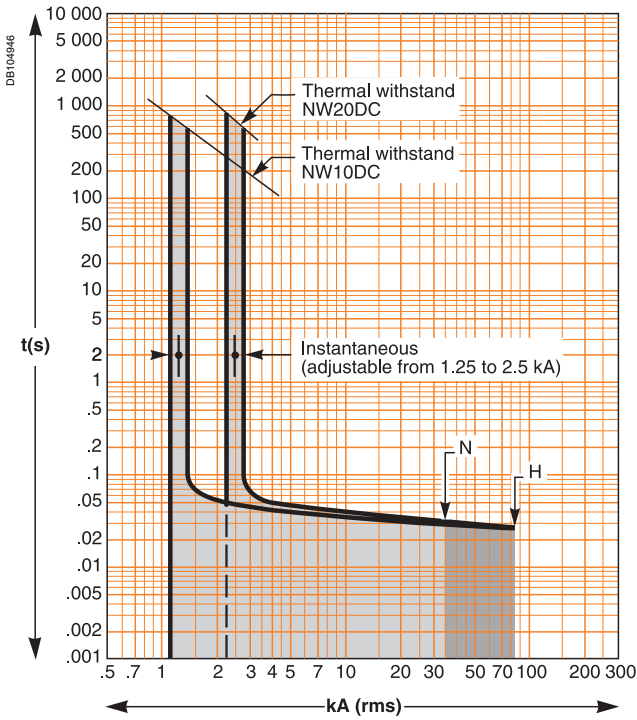


With 5000 - 11000 A sensors

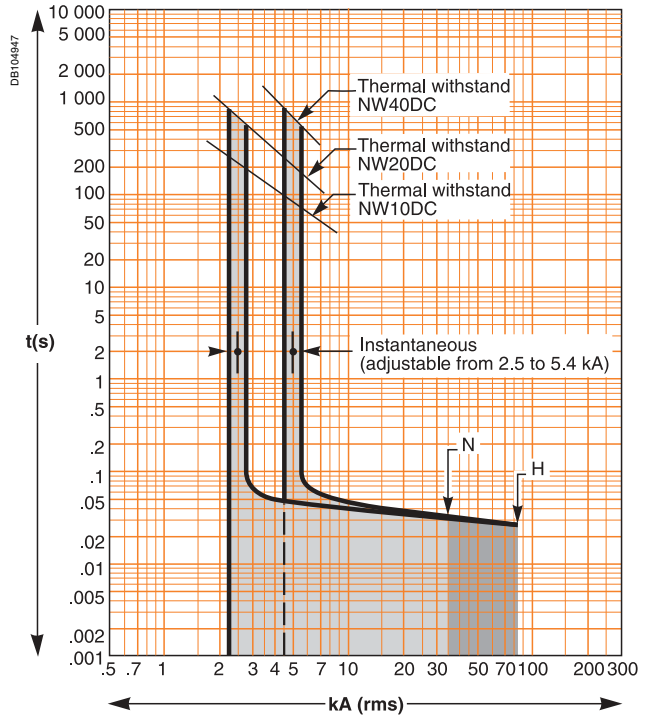


Micrologic DC 1.0 instantaneous protection

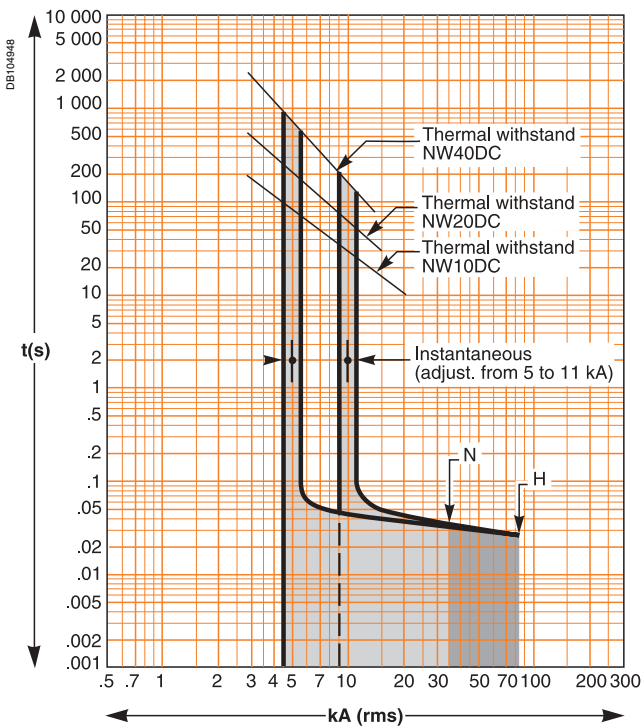
With 1250 - 2500 A sensors



With 2500 - 5400 A sensors

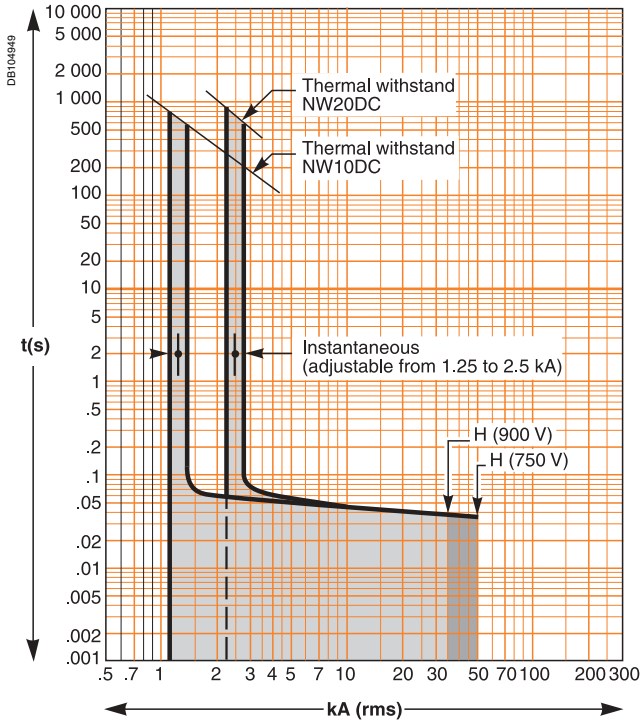


With 5000 - 11000 A sensors

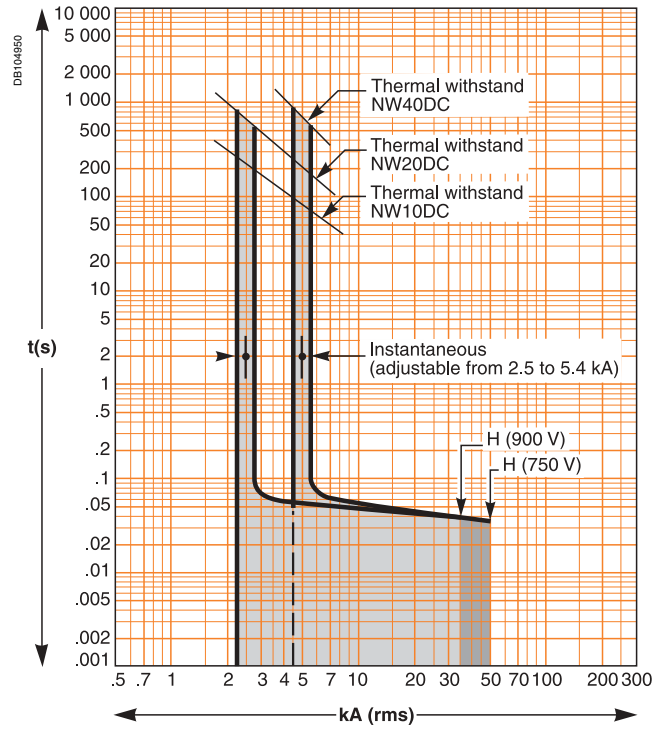


Micrologic DC 1.0 instantaneous protection

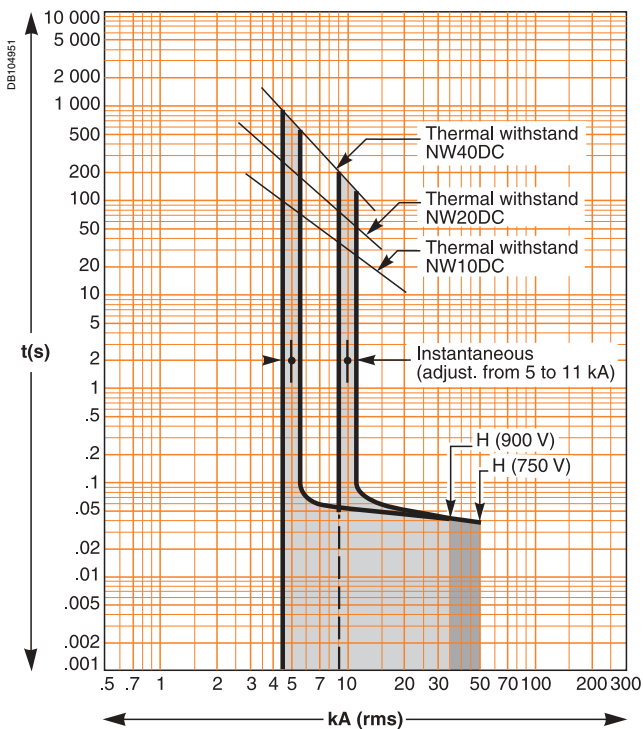
With 1250 - 2500 A sensors



With 2500 - 5400 A sensors

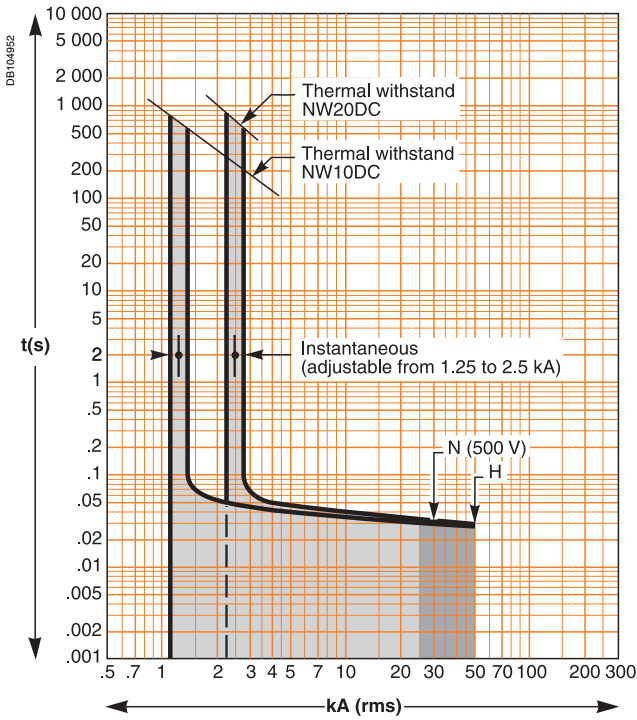


With 5000 - 11000 A sensors

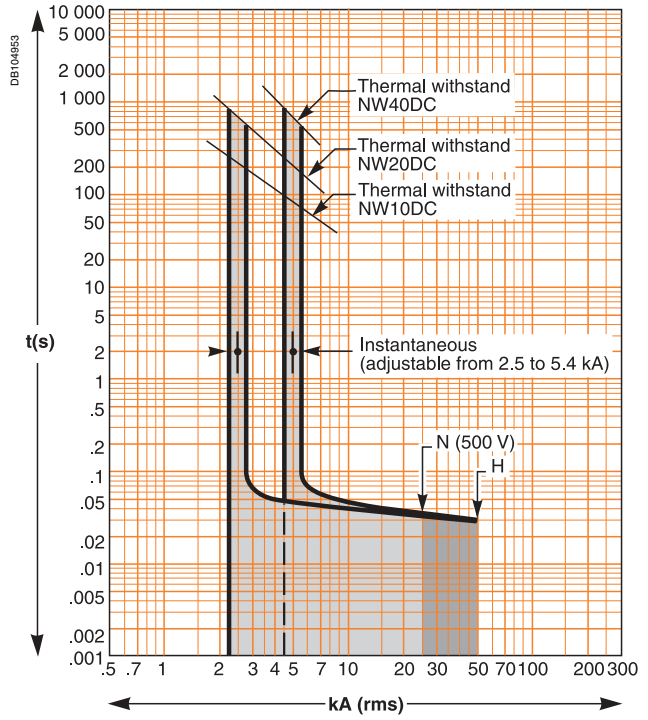


Micrologic DC 1.0 instantaneous protection

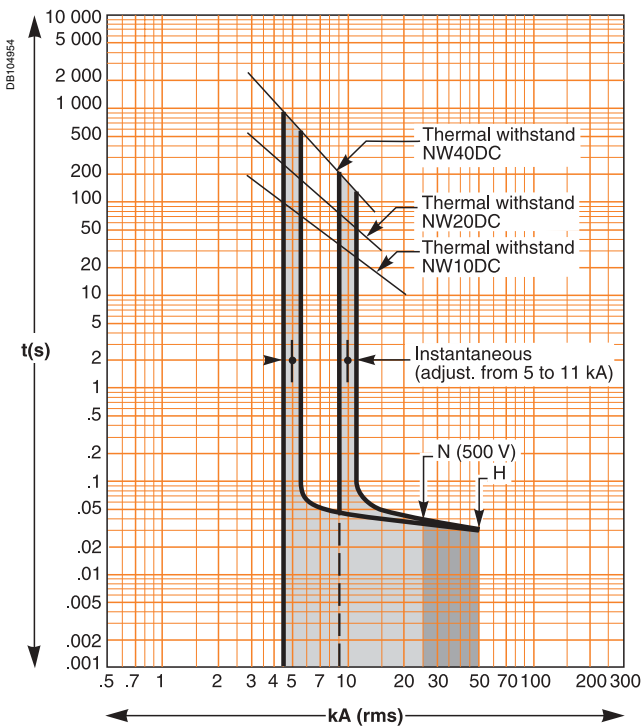
With 1250 - 2500 A sensors



With 2500 - 5400 A sensors

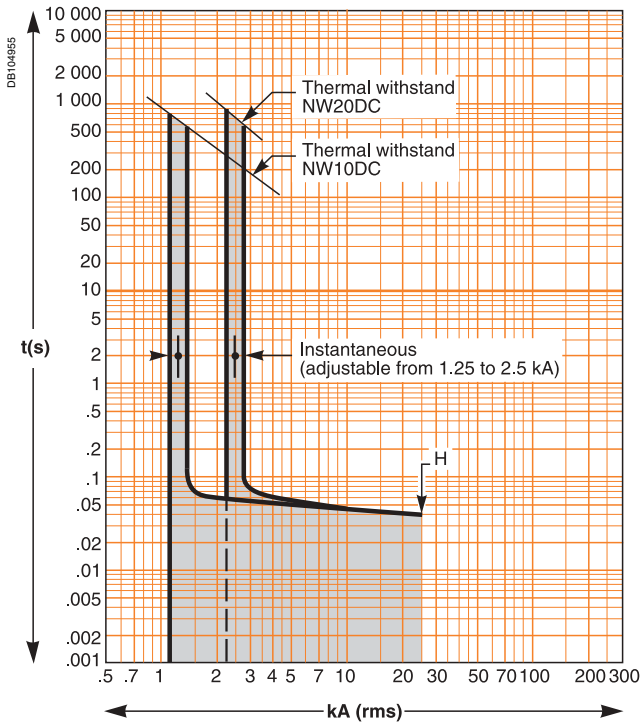


With 5000 - 11000 A sensors

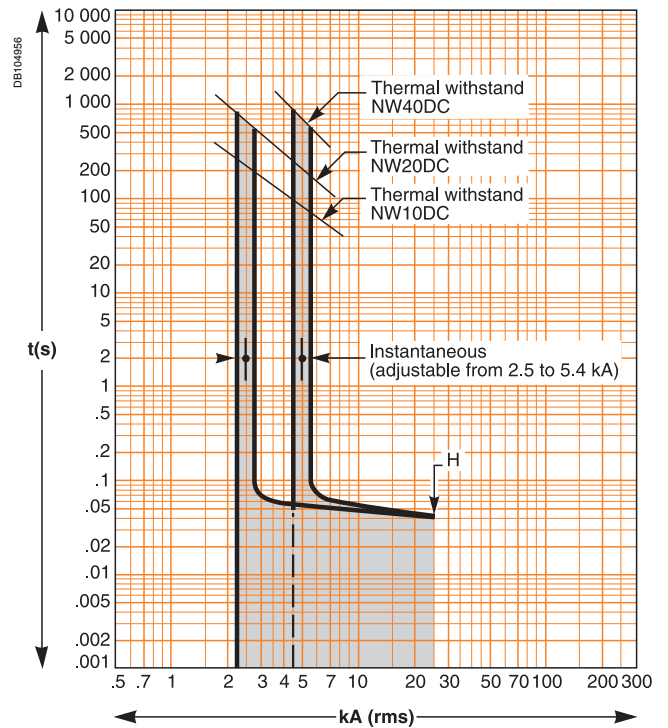


Micrologic DC 1.0 instantaneous protection

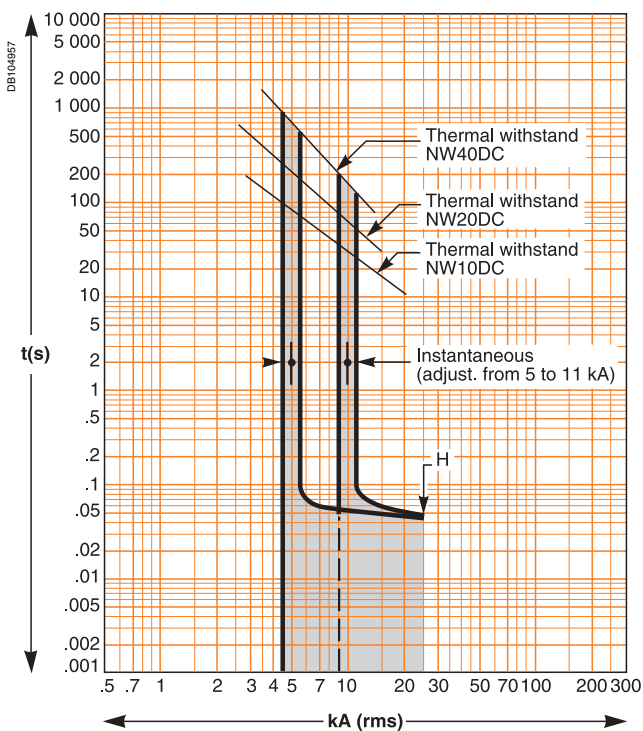
With 1250 - 2500 A sensors



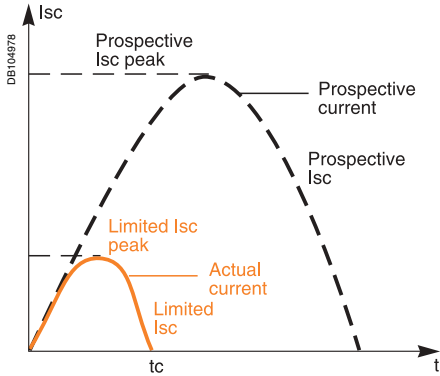
With 2500 - 5400 A sensors



With 5000 - 11000 A sensors



The limiting capacity of a circuit breaker is its aptitude to limit short-circuit currents.



The exceptional limiting capacity of the Compact NS range is due to the rotating double-break technique (very rapid natural repulsion of contacts and the appearance of two arc voltages in-series with a very steep wave front).

Ics = 100 % Icu

The exceptional limiting capacity of the Compact NS range greatly reduces the forces created by fault currents in devices.

The result is a major increase in breaking performance. In particular, the service breaking capacity Ics is equal to 100 % of Icu.

The Ics value, defined by IEC 60947-2 standard, is guaranteed by tests comprising the following operations:

- break three times consecutively a fault current equal to 100 % of Icu
- check that the device continues to function normally:
 - it conducts the rated current without abnormal temperature rise
 - protection functions perform within the limits specified by the standard
 - suitability for isolation is not impaired.

Longer service life of electrical installations

Current-limiting circuit breakers greatly reduce the negative effects of short-circuits on installations.

■ Thermal effects

Less temperature rise in conductors, therefore longer service life for cables.

■ Mechanical effects

Reduced electrodynamic forces, therefore less risk of electrical contacts or bus bars being deformed or broken.

■ Electromagnetic effects

Less disturbances for measuring devices located near electrical circuits.

Current-limiting curves

The current-limiting capacity of a circuit breaker is expressed by two curves which are a function of the prospective short-circuit current (the current which would flow if no protection devices were installed):

- the actual peak current (limited current),
- thermal stress (A²s), i.e. the energy dissipated by the short-circuit in a conductor with a resistance of 1 Ω.

Example

What is the real value of a 80 kA prospective short-circuit for L/R = 15 ms limited by an NS250 DC upstream ?

Answer: 18 kA peak (see next page).

Maximum permissible cable stresses

The table below indicates the maximum permissible thermal stresses for cables depending on their insulation, conductor (Cu or Al) and their cross-sectional area (CSA). CSA values are given in mm² and thermal stresses in A²s.

S (mm ²)		1.5	2.5	4	6	10
PVC	Cu	2.97 10 ⁴	8.26 10 ⁴	2.12 10 ⁵	4.76 10 ⁵	1.32 10 ⁶
	Al					5.41 10 ⁵
PRC	Cu	4.10 10 ⁴	1.39 10 ⁵	2.92 10 ⁵	6.56 10 ⁵	1.82 10 ⁶
	Al					7.52 10 ⁵
S (mm ²)		16	25	35	50	
PVC	Cu	3.4 10 ⁶	8.26 10 ⁶	1.62 10 ⁷	3.31 10 ⁷	
	Al	1.39 10 ⁶	3.38 10 ⁶	6.64 10 ⁶	1.35 10 ⁷	
PRC	Cu	4.69 10 ⁶	1.39 10 ⁶	2.23 10 ⁷	4.56 10 ⁷	
	Al	1.93 10 ⁶	4.70 10 ⁶	9.23 10 ⁶	1.88 10 ⁷	

Example

Is a Cu/PVC cable with a CSA of 10 mm² adequately protected by an NS160N?

The table above indicates that the permissible stress is 1.32x10⁶ A²s.

All short-circuit currents at the point where an NS160N (Icu = 35 kA) is installed are limited with a thermal stress less than 6 x 10⁵ A²s (see next page).

Cable protection is therefore ensured up to the limit of the breaking capacity of the circuit breaker.

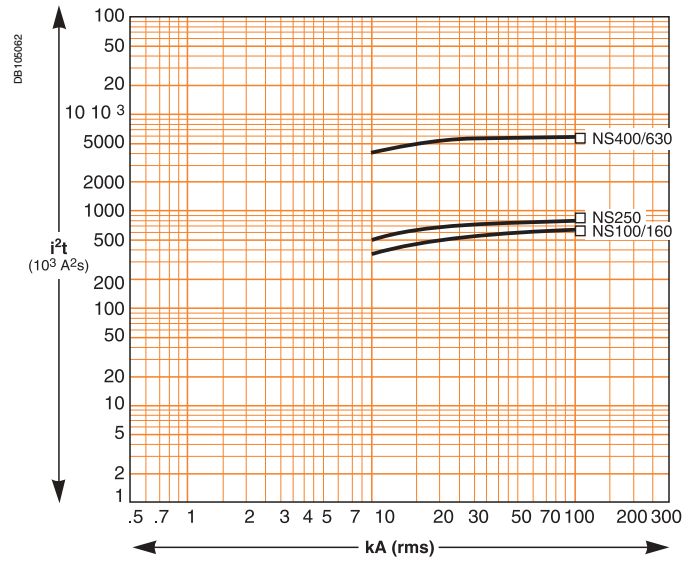
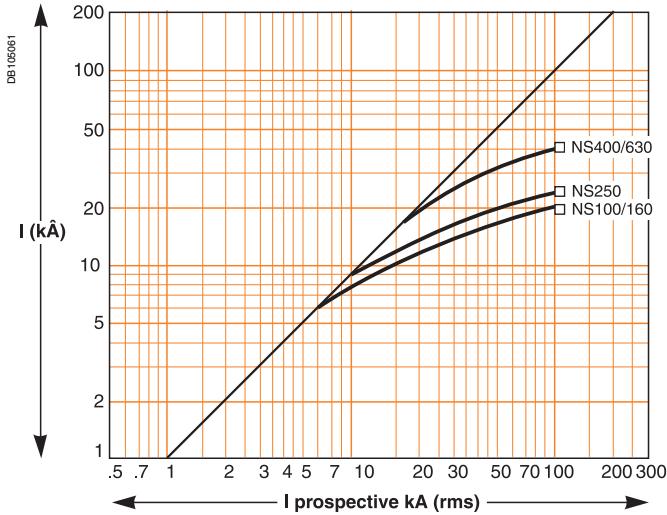
Compact NS100 to NS630

Current-limiting curves for circuit breakers equipped with magnetic trip units for direct current

Current-limiting curves and thermal stress for L/R = 5 ms

Peak current $U \leq 250$ V CC: 1P

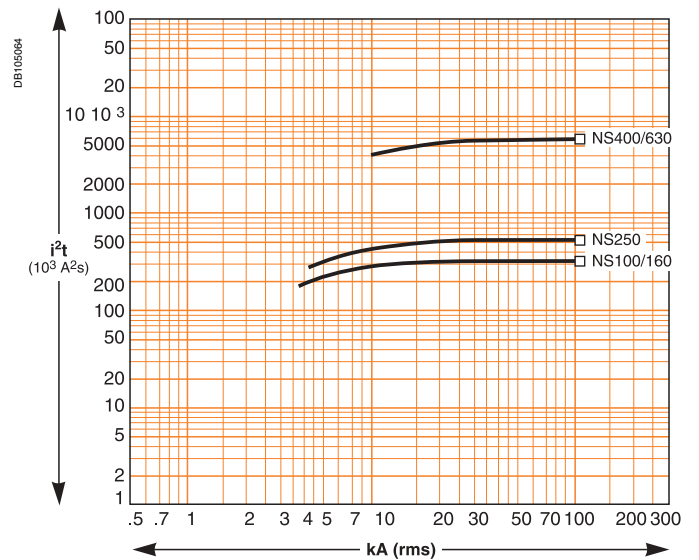
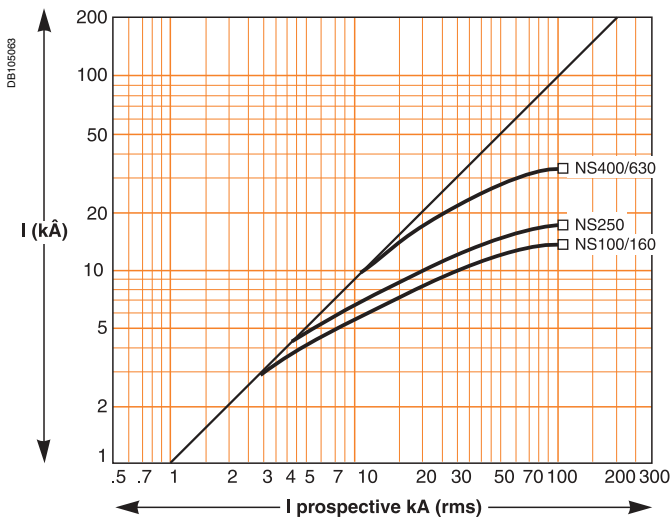
Thermal stress



Current-limiting curves and thermal stress for L/R = 15 ms

Peak current $U \leq 250$ V CC: 1P

Thermal stress

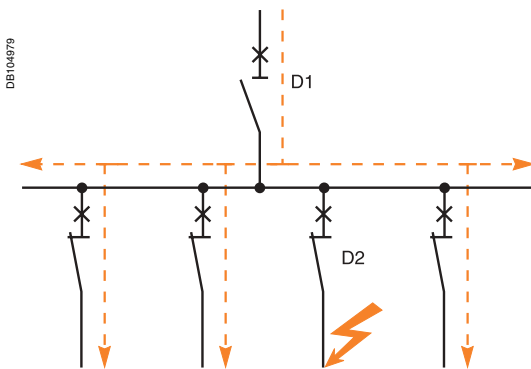


Protection discrimination is an essential element that must be taken into account starting at the design stage of a low voltage installation to ensure the highest level of availability for users.

Discrimination is important in all installations for the comfort of users, however it is fundamental in installations requiring a high level of service continuity, e.g. industrial manufacturing processes.

Industrial installations without discrimination run a series of risks of varying importance including:

- production deadline overruns
- interruption in manufacturing, entailing:
 - production or finished-product losses
 - risk of damage to production machines in continuous processes
- restarting of machines, one by one, following a general power outage
- shutdown of vital safety equipment such as lubrication pumps, smoke fans, etc.



What is discrimination?

Discrimination, also called selectivity, is the coordination of automatic protection devices in such a manner that a fault appearing at a given point in a network is cleared by the protection device installed immediately upstream of the fault, and by that device alone.

■ total discrimination

Discrimination is said to be total if, for all fault current values, from overloads up to the non-resistive short-circuit current, circuit breaker D2 opens and D1 remains closed.

■ partial discrimination

Discrimination is partial if the above condition is not respected up to the full short-circuit current, but only to a lesser value termed the selectivity limit current (I_s).

■ no discrimination

In the event of a fault, both circuit breakers D1 and D2 open.

For DC applications, discrimination is often partial.

Discrimination levels are given by the values indicated in the orange zones .

Protection discrimination

Upstream: Compact NS100 DC
Downstream: Compact NS100 DC

	Upstream Type of trip unit Fixed or adjustable Im (A)	Compact NS100 DC - Thermal magnetic protection							
		TM16D Fixed 260	TM25D Fixed 400	TM32D Fixed 550	TM40D Fixed 700	TM50D Fixed 700	TM63D Fixed 700	TM80DC Fixed 640	TM100DC Fixed 800
Downstream	Rating In (A)								
Compact NS100 DC	16			550	700	700	700	640	800
TMD trip units	25				700	700	700	640	800
	32						700	640	800
	40							640	800
	50							640	800
	63								800
TMDC trip units	80								
	100								

Protection discrimination

Upstream: Compact NS160 DC
Downstream: Compact NS100 and
NS160 DC

	Upstream Type of trip unit Fixed or adjustable In (A)	Compact NS160 DC - Thermal magnetic protection									
		TM16D Fixed 260	TM25D Fixed 400	TM32D Fixed 550	TM40D Fixed 700	TM50D Fixed 700	TM63D Fixed 700	TM80DC Fixed 640	TM100DC Fixed 800	TM125DC Fixed 1250	TM160DC Fixed 1250
Downstream	Rating In (A)										
Compact NS100 DC TMD trip units	16			550	700	700	700	640	800	1250	1250
	25				700	700	700	640	800	1250	1250
	32						700	640	800	1250	1250
	40							640	800	1250	1250
	50							640	800	1250	1250
	63								800	1250	1250
TMDC trip units	80										1250
	100										1250
Compact NS160 DC TMD trip units	16			550	700	700	700	640	800	1250	1250
	25				700	700	700	640	800	1250	1250
	32						700	640	800	1250	1250
	40							640	800	1250	1250
	50							640	800	1250	1250
	63								800	1250	1250
TMDC trip units	80										1250
	100										1250
	125										
	160										

Protection discrimination

Upstream: Compact NS250 DC
Downstream: Compact NS100 and NS250 DC

	Upstream Type of trip unit Fixed or adjustable	Compact NS250 DC - Thermal magnetic protection							
		TM80DC	TM100DC	TM125DC	TM160DC	TM200DC		TM250DC	
		Fixed	Fixed	Fixed	Fixed	Adjustable		Adjustable	
	I _m (A)	640	800	1250	1250	Min. 1000	Max. 2000	Min. 1250	Max. 2500
Downstream	Rating I_n (A)								
Compact NS100 DC TMD trip units	16	640	800	1250	1250	1000	2000	1250	2500
	25	640	800	1250	1250	1000	2000	1250	2500
	32	640	800	1250	1250	1000	2000	1250	2500
	40	640	800	1250	1250		2000	1250	2500
	50	640	800	1250	1250		2000	1250	2500
	63		800	1250	1250		2000	1250	2500
TMDC trip units	80			1250	1250		2000		2500
	100				1250		2000		2500
Compact NS160 DC TMD trip units	16	640	800	1250	1250	1000	2000	1250	2500
	25	640	800	1250	1250	1000	2000	1250	2500
	32	640	800	1250	1250	1000	2000	1250	2500
	40	640	800	1250	1250		2000	1250	2500
	50	640	800	1250	1250		2000	1250	2500
	63		800	1250	1250		2000	1250	2500
TMDC trip units	80			1250	1250		2000		2500
	100				1250		2000		2500
	125						2000		2500
	160						2000		2500
Compact NS250 DC TMDC trip units	80				1250		2000	1250	2500
	100				1250		2000	1250	2500
	125						2000		2500
	160						2000		2500
	200 I _{rm} min.						2000		2500
	200 I _{rm} max.								2500
	250 I _{rm} min.								2500
	250 I _{rm} max.								2500

Protection discrimination

Upstream: Compact NS400-NS630 DC
Downstream: Compact NS100 to NS630 DC

	Upstream Magnetic trip unit Adjustable I _m (A)	NS400 DC-NS630 DC - Magnetic protection only					
		MP1		MP2		MP3	
	Rating I _n (A)	Min. 800	Max. 1600	Min. 1250	Max. 2500	Min. 2000	Max. 4000
Downstream							
Compact NS100 DC	16	800	1600	1250	2500	2000	4000
TMD trip units	25	800	1600	1250	2500	2000	4000
	32		1600	1250	2500	2000	4000
	40		1600	1250	2500	2000	4000
	50		1600	1250	2500	2000	4000
	63		1600	1250	2500	2000	4000
TMDC trip units	80		1600	1250	2500	2000	4000
	100		1600	1250	2500	2000	4000
Compact NS160 DC	16	800	1600	1250	2500	2000	4000
TMD trip units	25	800	1600	1250	2500	2000	4000
	32		1600	1250	2500	2000	4000
	40		1600	1250	2500	2000	4000
	50		1600	1250	2500	2000	4000
	63		1600	1250	2500	2000	4000
TMDC trip units	80		1600	1250	2500	2000	4000
	100		1600	1250	2500	2000	4000
	125		1600		2500	2000	4000
	160		1600		2500	2000	4000
Compact NS250 DC	80		1600	1250	2500	2000	4000
TMDC trip units	100		1600	1250	2500	2000	4000
	125		1600		2500	2000	4000
	160		1600		2500	2000	4000
	200 I_{rm} min.				2500	2000	4000
	200 I_{rm} max.						4000
	250 I_{rm} min.				2500	2000	4000
	250 I_{rm} max.						4000
Compact NS400 DC-NS630 DC	MP1 I_{rm} min.				2500		4000
	MP1 I_{rm} max.				2500		4000
	MP2 I_{rm} min.						4000
	MP2 I_{rm} max.						4000
NS630DC	MP3 I_{rm} min.						
	MP3 I_{rm} max.						

Protection discrimination

Upstream: Masterpact NW10
Downstream: Compact NS100 to NS630 DC, Masterpact NW10

	Upstream Magnetic trip unit Adjustable Ii (A)	Masterpact NW10 magnetic protection only									
		1250 A to 2500 A Setting					2500 A to 5400 A Setting				
		A	B	C	D	E	A	B	C	D	E
	Rating In (A)	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
Downstream											
Compact NS100 DC TMD trip units	16	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	25	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	32	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	40	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	50	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	63	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
TMD trip units	80	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	100	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
Compact NS160 DC TMD trip units	16	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	25	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	32	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	40	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	50	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	63	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
TMD trip units	80	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	100	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	125				2000	2500	2500	3300	4000	5000	5400
	160				2000	2500	2500	3300	4000	5000	5400
Compact NS250 DC TMD trip units	80	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	100	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	125				2000	2500	2500	3300	4000	5000	5400
	160				2000	2500	2500	3300	4000	5000	5400
	200 Irm min.		1500	1600	2000	2500	2500	3300	4000	5000	5400
	200 Irm max.							3300	4000	5000	5400
	250 Irm min.				2000	2500	2500	3300	4000	5000	5400
	250 Irm max.						3300	4000	5000	5400	
Compact NS400 DC - NS630 DC	MP1 Irm min.	1250	1500	1600	2000	2500	2500	3300	4000	5000	5400
	MP1 Irm max.					2500	2500	3300	4000	5000	5400
	MP2 Irm min.				2000	2500	2500	3300	4000	5000	5400
	MP2 Irm max.								4000	5000	5400
Compact NS630 DC	MP3 Irm min.							3300	4000	5000	5400
	MP3 Irm max.										
Masterpact NW10 Ii = 1250/2500 A	Setting A			1600	2000	2500	2500	3300	4000	5000	5400
	B				2000	2500	2500	3300	4000	5000	5400
	C				2000	2500	2500	3300	4000	5000	5400
	D					2500	2500	3300	4000	5000	5400
	E							3300	4000	5000	5400
Masterpact NW10 Ii = 2500/5400 A	Setting A							3300	4000	5000	5400
	B									5000	5400
	C									5000	5400
	D										
	E										

Protection discrimination

Upstream: Masterpact NW10 and NW20
Downstream: Compact NS100 to NS630 DC, Masterpact NW10 and NW20

	Upstream Magnetic trip unit Adjustable	Masterpact NW10 magnetic protection only									
		5000 A to 11000 A Setting					2500 A to 5400 A Setting				
		A	B	C	D	E	A	B	C	D	E
li (A)	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400	
Downstream	Rating In (A)										
Compact NS100 DC TMD trip units	16	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	25	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	32	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	40	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	50	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	63	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
TMD trip units	80	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	100	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
Compact NS160 DC TMD trip units	16	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	25	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	32	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	40	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	50	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	63	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
TMD trip units	80	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	100	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	125	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	160	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
Compact NS250 DC TMD trip units	80	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	100	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	125	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	160	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	200 lrm min.	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	200 lrm max.	5000	8000	10000	11000	11000		3300	4000	5000	5400
	250 lrm min.	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	250 lrm max.	5000	8000	10000	11000	11000		3300	4000	5000	5400
Compact NS400 DC-NS630 DC	MP1 lrm min.	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	MP1 lrm max.	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	MP2 lrm min.	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	MP2 lrm max.	5000	8000	10000	11000	11000			4000	5000	5400
NS630 DC	MP3 lrm min.	5000	8000	10000	11000	11000		3300	4000	5000	5400
	MP3 lrm max.		8000	10000	11000	11000					
Masterpact NW10 li = 1250/2500 A	Setting A	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	B	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	C	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	D	5000	8000	10000	11000	11000	2500	3300	4000	5000	5400
	E	5000	8000	10000	11000	11000		3300	4000	5000	5400
Masterpact NW10 li = 2500/5400 A	Setting A	5000	8000	10000	11000	11000		3300	4000	5000	5400
	B	5000	8000	10000	11000	11000				5000	5400
	C	5000	8000	10000	11000	11000				5000	5400
	D		8000	10000	11000	11000					
	E		8000	10000	11000	11000					
Masterpact NW10 li = 5000/11000 A	Setting A		8000	10000	11000	11000					
	B			10000	11000	11000					
	C										
	D										
	E										
Masterpact NW20 li = 2500/5400 A	Setting A							3300	4000	5000	5400
	B									5000	5400
	C									5000	5400
	D										
	E										

Protection discrimination

Upstream: Masterpact NW20 and NW40
Downstream: Compact NS100 to NS630 DC, Masterpact NW10 to NW40

	Upstream Magnetic trip unit Adjustable	Masterpact NW20 magnetic protection only									
		5000 A to 11000 A Setting					5000 A to 11000 A Setting				
		A	B	C	D	E	A	B	C	D	E
li (A)	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000	
Downstream	Rating In (A)										
Compact NS100 DC TMD trip units	16	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	25	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	32	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	40	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	50	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	63	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
TMD trip units	80	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	100	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
Compact NS160 DC TMD trip units	16	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	25	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	32	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	40	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	50	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	63	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
TMD trip units	80	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	100	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	125	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	160	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
Compact NS250 DC TMD trip units	80	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	100	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	125	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	160	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	200 lrm min.	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	200 lrm max.	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	250 lrm min.	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	250 lrm max.	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
Compact NS400 DC-NS630 DC	MP1 lrm min.	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	MP1 lrm max.	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	MP2 lrm min.	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	MP2 lrm max.	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
NS630 DC	MP3 lrm min.	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	MP3 lrm max.		8000	10000	11000	11000		8000	10000	11000	11000
Masterpact NW10 li = 1250/2500 A	Setting A	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	B	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	C	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	D	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	E	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
Masterpact NW10 li = 2500/5400 A	Setting A	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	B	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	C	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	D		8000	10000	11000	11000	5000	8000	10000	11000	11000
	E		8000	10000	11000	11000	5000	8000	10000	11000	11000
Masterpact NW10 li = 5000/11000 A	Setting A		8000	10000	11000	11000	5000	8000	10000	11000	11000
	B			10000	11000	11000	5000	8000	10000	11000	11000
	C										
	D										
	E										
Masterpact NW20 li = 2500/5400 A	Setting A	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	B	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	C	5000	8000	10000	11000	11000	5000	8000	10000	11000	11000
	D		8000	10000	11000	11000	5000	8000	10000	11000	11000
	E		8000	10000	11000	11000	5000	8000	10000	11000	11000
Masterpact NW20 li = 5000/11000 A	Setting A		8000	10000	11000	11000	5000	8000	10000	11000	11000
	B			10000	11000	11000	5000	8000	10000	11000	11000
	C										
	D										
	E										
Masterpact NW40 li = 5000/11000 A	Setting A						5000	8000	10000	11000	11000
	B						5000	8000	10000	11000	11000
	C										
	D										
	E										

