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LV product characteristics

Circuit protection and control devices 0.5 to 6300 A

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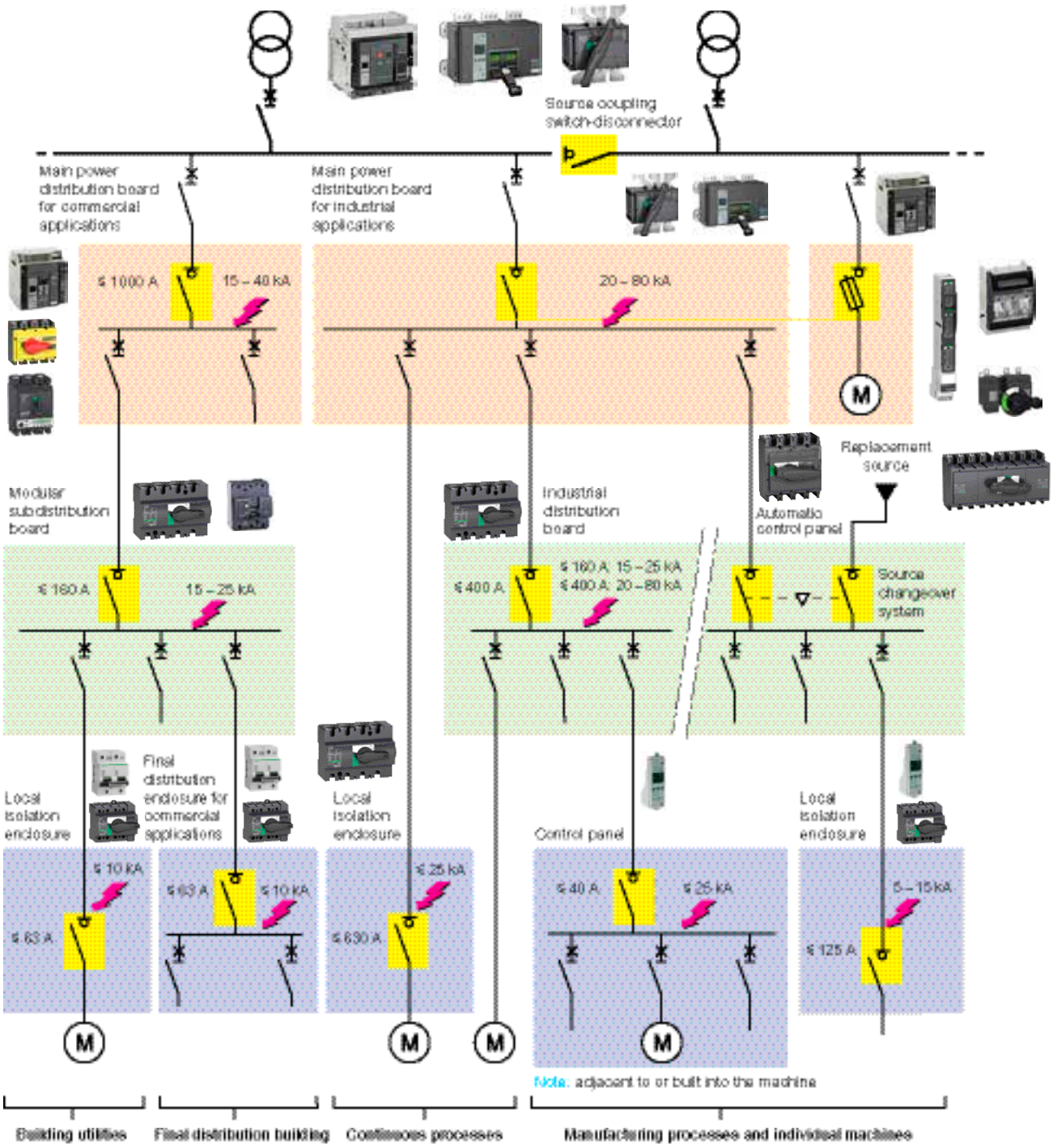
Overview of solutions



LV devices

Acti 9™ · NG160 · Compact NS · Masterpact™ NT · Micrologic™ · Compact INS · Compact INV · Fupact INF · Fupact ISFT · Fupact ISFL

Compact NSX · Compact NSX DC · Compact NSX DC PV · Masterpact NW · Masterpact NW DC/DC PV · Compact INS/INV · PowerPact™ · Source-changeover

General contents

Compact INV

Masterpact NT/NW

EasyPact MVS

Vigirex

TeSys Contactors

Acti 9 circuit breaker from 0.5 to 125 A

iDPN N Vigi

iID

iC60N

			RCD		RCCB	
Acti 9 circuit breaker			**iDPN N**	**iDPN H**	**iID**	
Number of poles			1+N	1+N	2	4
Electrical characteristics						
Rated current (A)	In		1-32	1-32	1-100	
Rated insulation voltage (V)	Ui		440		500	
Impulse withstand voltage (kV)	Uimp		4		6	
Maximum operational voltage (V)	Ue	AC 50/60 Hz	415		240	415
Fast closing			b		b	
Suitability for isolation and positive contact indication			b		b	
AC breaking capacity						
IEC 60898 (EN 60898)	Icn (A)	230/400 V	6000	10000	Equal to iC60	
Number of poles			1+N	1+H	2	4
Rated current (A)	In		4-40	6-32	16-100	25-100
IEC 60947-2 (EN 60947-2)	Icu (kA)	12 … 60 V	-		-	
		12 … 133 V	-		-	
		100 … 133 V	-		-	
		220 … 240 V	10	15	-	
		380 … 415V	6	10	-	
		440 V	-		-	
	Ics	(% of Icu)	75%		-	
Trip units (nonadjustable)						
Curve type		B (Im = 3 to 5 In)	b		-	
		C (Im = 5 to 10 In)	b		-	
		D (Im = 10 to 14 In)	-		-	
		K (Im = 10 to 14 In)	-		-	
		Z (Im = 2.4 to 3.2)	-		-	
		MA (Im = 12 In)	-		-	
Earth leakage protection						
Add-on rcd's (Vigi module)			-	-	-	
Integrated			b	-	b	
Sensitivity type (mA)	a	AC	30-300	-	10-500	
	k	A	10-30-300	30-300	10-300	
		SI	30-100-300	30-300	10-500	
Electrical auxiliaries						
Auxiliary and alarm switches (OF-SD)			b		b	
Shunt trip (MX); undervoltage release (MN)			b		b	
Emergency stop opening switch (MNx)			b		b	
Voltage threshold release (MSU)			b		b	
Connection						
Cable maxi capacity (mm^2)		Flexible	10		25	
		Rigid	16		35	
Installation						
Plug in base			-		-	
Terminal shieds			-		-	
Padlocking device			-		-	
Rotary handle			-		-	
Dimensions (mm)	W		36		36	72
	D x H		73 x 85		69 x 58	

	MCB																	
	iC60N				iC60H				iC60L								iC60LMA	
	1-1+N		2-3-4		1-1+N		2-3-4		1				2-3-4				2-3	
	0.5-63				0.5-63				0.5-63								1.6-40	
	500				500				500								500	
	6				6				6								6	
	440				440				440								440	
	b				b				b								b	
	b				b				b								b	
	6000				10000				15000								-	
	1-1+N		2-3-4		1-1+N		2-3-4		1				2-3-4				2-3	
	0.5-4	6-63	0.5-4	6-63	0.5-4	6-63	0.5-4	6-63	0.5-4	6-25	32-40	50-63	0.5-4	6-25	32-40	50-63	1.6-16	25-40
	50	36	-	-	70	42	-	-	100	70	70	70	-	-	-	-	-	-
	-	-	50	36	-	-	70	42	-	-	-	-	100	70	70	70	-	-
	50	20	-	-	70	30	-	-	100	50	36	30	-	-	-	70	-	-
	50	20	50	20	70	15	70	30	100	25	20	15	100	50	36	30	40	30
	-	-	50	10	-	-	70	15	-	-	-	-	100	25	20	15	20	15
	-	-	25	6	-	-	50	10	-	-	-	-	70	20	15	10	15	10
	100%		75%		100%		50%		100%		50%		50%		50%		50%	
	b				b				b								-	
	b				b				b								-	
	b				b				-								-	
	-				-				b								-	
	-				-				b								-	
	-				-				-								b	
	b				b				b								b	
	-				-				-								-	
	10-1000				10-1000				10-1000								10-1000	
	30-1000				30-1000				30-1000								30-1000	
	10-1000				10-1000				10-1000								10-1000	
	b				b				b								b	
	b				b				b								b	
	b				b				b								b	
	b				b				b								b	
	16 (y 25 A)		25 (> 25 A)															
	16 (y 25 A)		25 (> 25 A)															
	b																	
	b																	
	b																	
	b																	
	18 per pole																	
	78.5 x 85																	

Acti 9 circuit breaker from 0.5 to 125 A

C120

NG125N

			MCB	
Acti 9 circuit breaker			**C120N**	
Number of poles			1	2-3-4
Electrical characteristics				
Rated current (A)	In		63-125	
Rated insulation voltage (V)	Ui		500	
Impulse withstand voltage (kV)	Uimp		6	
Maximum operational voltage (V)	Ue	AC 50/60 Hz	440	
Fast closing			b	
Suitability for isolation and positive contact indication			b	
AC breaking capacity				
IEC 60898 (EN 60898)	Icn (A)	230/400 V	10000	
Number of poles			1	2-3-4
IEC 60947-2 (EN 60947-2)		110 … 130 V	20	-
		220 … 240 V	10	20
	Icu (kA)	380 … 415 V	3(1)	10
		440 V	-	6
		500 V	-	
	Ics	(% of Icu)	75%	
Trip units (non adjustable)				
Curve type		B (Im = 3 to 5 In)	b	
		C (Im = 5 to 10 In)	b	
		D (Im = 10 to 14 In)	-	
		MA (Im = 12 In)	-	
Earth leakage protection				
Add-on rcd's (Vigi module)			b	
Integrated			-	
Sensitivity type (mA)	a	AC	30-1000	
	k	A	30-1000	
		SI	30-1000	
Electrical auxiliaries				
Auxiliary and alarm switches (OF-SD)			b	
Shunt trip (MX); undervoltage release (MN)			b	
Emergency stop opening switch (MNx)			b	
Voltage threshold release (MSU)			b	
Connection				
Cable maxi capacity (mm^2)		Flexible	16	
		Rigid	25	
Installation				
Plug in base			b y 63 A	
Terminal shieds			b	
Padlocking device			b	
Rotary handle			b	
Dimensions (mm)	W		27 per pole	
	D x H		73 x 81	

(1) Breaking capacity under 1 pole with IT isolated neutral system (case of double fault).

	C120H		NG125N		NG125H		NG125L		NG125L MA
	1	2-3-4	1	2-3-4	1	2-3-4	1	2-3-4	2-3
	10-125		10-125		10-80		10-80		4-80
	500		690		690		690		690
	6		8		8		8		8
	440		500		500		500		500
	b		b		b		b		b
	b		b		b		b		b
	15000		-		-		-		-
	1	2-3-4	1	2-3-4	1	2-3-4	1	2-3-4	2-3
	30	-	50	-	70	-	100	-	-
	15	30	25	50	36	70	50	100	100
	4.5(1)	15	6(1)	25	9(1)	36	12.5(1)	50	50
	-	10	-	20	-	30	-	40	40
	-	-	-	10	-	12	-	15	15
	75%		75%		75%		75%		75%
	b		b		-		b		-
	b		b		b		b		-
	-		b		-		b		-
	-		-		-		-		b
	b		b		b		b		b
	-		-		-		-		-
	30-1000		30-300		30-300		30-300		30-300
	30-1000		30-3000		30-3000		30-3000		30-3000
	30-1000		30-3000		30-3000		30-3000		30-3000
	b		b		b		b		b
	b		b		b		b		b
	b		b		b		b		b
	b		-		-		-		-
	25		25		35		35		35
	35		35		50		50		50
	b y 63 A		-						
	b		b						
	b		b						
	b		b						
	27 per pole		27 per pole						
	73 x 81		81 x 103						

(1) Breaking capacity under 1 pole with IT isolated neutral system (case of double fault).

Compact NSX circuit breaker NSX100 to NSX250

Compact NSX single-pole

Compact NSX two-pole

Compact circuit breakers

Number of poles			
Control	manual	toggle direct or extended rotary handle	
	electric		
Connections	fixed	front connection rear connection	
	withdrawable	front connection rear connection	
Electrical characteristics as per IEC 60947-2 and EN 60947-2			
Rated current (A)	In	40 °C	
Rated insulation voltage (V)	Ui		
Rated impulse withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	AC 50/60 Hz DC	
Type of circuit breaker			
Ultimate breaking capacity (kA rms)	Icu	AC 50/60 Hz	220/240 V 380/415 V 440 V 500/525 V 660/690 V
		DC	250 V (1P) 500 V (2P)
Service breaking capacity (kA rms)	Ics	% Icu	
Suitability for isolation			
Utilization category			
Durability (C-O cycles)	mechanical		
	electrical	277 V	In/2 In
Electrical characteristics as per NEMA AB1			
Breaking capacity (kA) V AC 50/60 Hz		240 V 277 V 480 V 600 V	
Protection and measurements			
Type of trip units			
Ratings		In	
Overload protection (thermal)	long time threshold	Ir	
Short-circuit protection (magnetic)	instantaneous pickup	Im	value indicated for AC(1) real value for DC
Add-on earth-leakage protection	add-on Vigi module combination with Vigirex relay		
Additional indication and control auxiliaries			
Indication contacts			
Voltages releases	MX shunt release MN undervoltage release		
Installation			
Accessories	terminal extensions and spreaders terminal shields and interphase barriers escutcheons		
Dimensions (mm)	W x H x D		
Weight (kg)			
Source-changeover system			
Interlocking systems			

(1) The thresholds for TMD and TMG 1-pole and 2-pole magnetic trip units up to 63 A are indicated for AC. The real DC thresholds are indicated on the following line.

	NSX100									NSX160						NSX250		
	1					2				1			2			1		
	b -					b -				b -			b -			b -		
	-					-				-			-			-		
	b b					b b				b b			b b			b b		
	- -					- -				- -			- -			- -		
	100					100				160			160			250		
	750					750				750			750			750		
	8					8				8			8			8		
	277 250					690 500				277 250			690 500			277 -		
	F	N	M			F	M	S		F	N	M	F	M	S	N		
	18 - - - -	25 - - - -	40 - - - -			36 18 15 10 5	85 25 25 18 8	100 70 65 35 10		18 - - - -	25 - - - -	40 - - - -	36 18 15 10 5	85 25 25 18 8	100 70 65 35 10	25 - - - -		
	36 -	50 -	85 -			36 36	85 85	100 100		36 -	50 -	85 -	36 36	85 85	100 100	- -		
	100%					100%				100%			100%			100%		
	b					b				b			b			b		
	A					A				A			A			A		
	20000					20000				20000			20000			10000		
	20000 10000					20000 10000				20000 10000			20000 10000			10000 5000		
	F	N	M			F	M	S		F	N	M	F	M	S	N		
	18 18 - -	25 25 - -	40 40 - -			36 - 10 5	85 - 18 8	100 - 35 10		18 18 - -	25 25 - -	40 40 - -	36 - 10 5	85 - 18 8	100 - 35 10	25 25 - -		
	built-in thermal-magnetic									built-in thermal-magnetic						built-in thermal-magnetic		
	16	20	25	30	40	50	63	80	100	125	160					160	200	250
	fixed 16	20	25	30	40	50	63	80	100	fixed 125	160					fixed 160	200	250
	fixed 190 260	190 260	300 400	300 400	500 700	500 700	500 700	640 800	800 1000	fixed 1000 1200	1250 1250					fixed 850 -	850 -	850 -
	- -					- b				- -			- b			- -		
	-					b				-			b			-		
	- -					b b				- -			b b			- -		
	b b b					b b b				b b b			b b b			b b b		
	35 x 161 x 86					70 x 161 x 86				35 x 161 x 86			70 x 161 x 86			35 x 161 x 86		
	0.7					1.2				0.7			1.2			0.7		
	-					-				-			-			-		

Compact NSX circuit breaker NSX100 to NSX250

Compact NSX100/160/250

Compact NSX250 R

Compact NSX250 HB2

Common characteristics

Rated voltages			
Insulation voltage (V)	Ui		800
Impulse withstand voltage (kV)	Uimp		8
Operational voltage (V)	Ue	AC 50/60 Hz	690
Suitability for isolation		IEC/EN 60947-2	yes
Utilization category			A
Pollution degree		IEC 60664-1	3

Circuit breakers

Breaking capacity levels

Electrical characteristics as per IEC 60947-2

Rated current (A)	In	40 °C		
Number of poles				
Breaking capacity (kA rms)				
	Icu	AC 50/60 Hz	220/240 V	
			380/415 V	
			440 V	
			500 V	
			525 V	
			660/690 V	
Service breaking capacity (kA rms)				
	Ics	AC 50/60 Hz	220/240 V	
			380/415 V	
			440 V	
			500 V	
			525 V	
			660/690 V	
Durability (C-O cycles)		Mechanical		
		Electrical	440 V	In/2
				In
			690 V	In/2
				In

Characteristics as per Nema AB1

Breaking capacity (kA rms)		AC 50/60 Hz	240 V
			480 V
			600 V

Characteristics as per UL 508

Breaking capacity (kA rms)		AC 50/60 Hz	240 V
			480 V
			600 V

Protection and measurements

Short-circuit protection	Magnetic only	
Overload/short-circuit protection	Thermal magnetic	
	Electronic	
		with neutral protection (Off-0.5-1-OSN)(1)
		with ground-fault protection
		with zone selective interlocking (ZSI)(2)
Display/I, U, f, P, E, THD measurements/interrupted-current measurement		
Options	Power Meter display on door	
	Operating assistance	
	Counters	
	Histories and alarms	
	Metering Com	
	Device status/control Com	
Earth-leakage protection	By Vigi module(3)	
	By Vigirex relay	

Installation/connections

Dimensions and weights

Dimensions (mm) W x H x D	Fixed, front connections	2/3P
		4P
Weight (kg)	Fixed, front connections	2/3P
		4P

Connections

Connection terminals	Pitch	With/without spreaders
Large Cu or Al cables	Cross-section	mm²

(1) OSN: oversized neutral protection for neutrals carrying high currents (e.g., 3rd harmonics).
(2) ZSI: zone selective interlocking using pilot wires.
(3) Vigi module is not available for breaking capacity levels HB1/HB2.
(4) There is no 160 A frame, use 250 A frame with lower rating trip units for R, HB1, HB2.
(5) 2P circuit breaker in 3P case for B and F types, only with thermal-magnetic trip unit.

Common characteristics

Control			
	Manual	With toggle	b
		With direct or extended rotary handle	b
	Electrical	With remote control	b
Versions			
	Fixed		b
	Withdrawable	Plug-in base	b
		Chassis	b

NSX100									NSX160 [4]						NSX250								
B	F	N	H	S	L	R	HB1	HB2	B	F	N	H	S	L	B	F	N	H	S	L	R	HB1	HB2
100						100			160						250						250		
2[5], 3, 4						3, 4			2[5], 3, 4						2[5], 3, 4						3, 4		
40	85	90	100	120	150	200	-	-	40	85	90	100	120	150	40	85	90	100	120	150	200	-	-
25	36	50	70	100	150	200	-	-	25	36	50	70	100	150	25	36	50	70	100	150	200	-	-
20	35	50	65	90	130	200	-	-	20	35	50	65	90	130	20	35	50	65	90	130	200	-	-
15	25	36	50	65	70	80	85	100	15	30	36	50	65	70	15	30	36	50	65	70	80	85	100
-	22	35	35	40	50	65	80	100	-	22	35	35	40	50	-	22	35	35	40	50	65	80	100
-	8	10	10	15	20	45	75	100	-	8	10	10	15	20	-	8	10	10	15	20	45	75	100
40	85	90	100	120	150	200	-	-	40	85	90	100	120	150	40	85	90	100	120	150	200	-	-
25	36	50	70	100	150	200	-	-	25	36	50	70	100	150	25	36	50	70	100	150	200	-	-
20	35	50	65	90	130	200	-	-	20	35	50	65	90	130	20	35	50	65	90	130	200	-	-
7	12	36	50	65	70	80	85	100	15	30	36	50	65	70	15	30	36	50	65	70	80	85	100
-	11	35	35	40	50	65	80	100	-	22	35	35	40	50	-	22	35	35	40	50	65	80	100
-	4	10	10	15	20	45	75	100	-	8	10	10	15	20	-	8	10	10	15	20	45	75	100
50000						20000			40000						20000						20000		
50000						20000			40000						20000						20000		
30000						10000			20000						10000						10000		
20000						10000			15000						10000						10000		
10000						5000			7500						5000						5000		
40	85	90	100	120	150	200	-	-	40	85	90	100	120	150	40	85	90	100	120	150	200	-	-
20	35	50	65	90	130	150	85	100	20	35	50	65	90	130	20	35	50	65	90	130	150	85	100
-	8	20	35	40	50	50	75	100	-	20	20	35	40	50	-	20	20	35	40	50	50	75	100
-	85	85	85	-	-	-	-	-	-	85	85	85	-	-	-	85	85	85	-	-	-	-	-
-	25	50	65	-	-	-	-	-	-	35	50	65	-	-	-	35	50	65	-	-	-	-	-
-	10	10	10	-	-	-	-	-	-	10	10	10	-	-	-	15	15	15	-	-	-	-	-
b									b						b								
b									b						b								
b									b						b								
b									b						b								
b									b						b								
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b									b						b								
b									b						b								
b									b						b								
105 x 161 x 86						105 x 161 x 86			105 x 161 x 86						105 x 161 x 86								
140 x 161 x 86						140 x 161 x 86			140 x 161 x 86						140 x 161 x 86								
2.05						2.4			2.2						2.4								
2.4						2.8			2.6						2.8								
35/45 mm						35/45 mm			35/45 mm						35/45 mm								
300						300			300						300								

Compact NSX circuit breaker NSX400 to NSX630

Compact NSX400/630

Compact NSX630 R

Compact NSX630 HB2

(1) OSN: oversized neutral protection for neutrals carrying high currents (e.g., 3rd harmonics).
(2) ZSI: zone selective interlocking using pilot wires.
(3) Vigi module is not available for breaking capacity levels HB1/HB2.

Common characteristics

Rated voltages			
Insulation voltage (V)	Ui		800
Impulse withstand voltage (kV)	Uimp		8
Operational voltage (V)	Ue	AC 50/60 Hz	690
Suitability for isolation		IEC/EN 60947-2	yes
Utilization category			A
Pollution degree		IEC 60664-1	3

Circuit breakers

Breaking capacity levels

Electrical characteristics as per IEC 60947-2

Rated current (A)	In	40 °C		
Number of poles				
Breaking capacity (kA rms)				
	Icu	AC 50/60 Hz	220/240 V	
			380/415 V	
			440 V	
			500 V	
			525 V	
			660/690 V	
Service breaking capacity (kA rms)				
	Ics	AC 50/60 Hz	220/240 V	
			380/415 V	
			440 V	
			500 V	
			525 V	
			660/690 V	
Durability (C-O cycles)		Mechanical		
		Electrical	440 V	In/2
				In
			690 V	In/2
				In

Characteristics as per Nema AB1

Breaking capacity (kA rms)	AC 50/60 Hz	240 V	
		480 V	
		600 V	

Characteristics as per UL 508

Breaking capacity (kA rms)	AC 50/60 Hz	240 V	
		480 V	
		600 V	

Protection and measurements

Short-circuit protection	Magnetic only	
Overload/short-circuit protection	Thermal magnetic	
	Electronic	
		with neutral protection (Off-0.5-1-OSN)(1)
		with ground-fault protection
		with zone selective interlocking (ZSI)(2)
Display/I, U, f, P, E, THD measurements/interrupted-current measurement		
Options	Power Meter display on door	
	Operating assistance	
	Counters	
	Histories and alarms	
	Metering Com	
	Device status/control Com	
Earth-leakage protection	By Vigi module(3)	
	By Vigirex relay	

Installation/connections

Dimensions and weights

Dimensions (mm) W x H x D	Fixed, front connections	2/3P
		4P
Weight (kg)	Fixed, front connections	2/3P
		4P

Connections

Connection terminals	Pitch	With/without spreaders
Large Cu or Al cables	Cross-section	mm²

Common characteristics

Control			
	Manual	With toggle	b
		With direct or extended rotary handle	b
	Electrical	With remote control	b
Versions			
	Fixed		b
	Withdrawable	Plug-in base	b
		Chassis	b

NSX400								NSX630										
													Ir = 225 – 500 A			Ir = 501 – 630 A		
F	N	H	S	L	R	HB1	HB2	F	N	H	S	L	R	HB1	HB2	R	HB1	HB2
400					400			630					630					
3, 4					3, 4			3, 4					3, 4					
40	85	100	120	150	200	-	-	40	85	100	120	150	200	-	-	200	-	-
36	50	70	100	150	200	-	-	36	50	70	100	150	200	-	-	200	-	-
30	42	65	90	130	200	-	-	30	42	65	90	130	200	-	-	200	-	-
25	30	50	65	70	80	85	100	25	30	50	65	70	80	85	100	80	85	100
20	22	35	40	50	65	80	100	20	22	35	40	50	65	80	100	65	80	100
10	10	20	25	35	45	75	100	10	10	20	25	35	45	75	100	45	75	100
40	85	100	120	150	200	-	-	40	85	100	120	150	200	-	-	200	-	-
36	50	70	100	150	200	-	-	36	50	70	100	150	200	-	-	200	-	-
30	42	65	90	130	200	-	-	30	42	65	90	130	200	-	-	200	-	-
25	30	50	65	70	80	85	100	25	30	50	65	70	80	85	100	80	85	100
10	11	11	12	12	65	80	100	10	11	11	12	12	65	80	100	-	-	-
10	10	10	12	12	45	75	100	10	10	10	12	12	45	75	100	-	-	-
15000					15000			15000					15000					
12000					12000			8000					8000					
6000					6000			4000					4000					
6000					6000			6000					6000					
3000					3000			2000					2000					
40	85	100	120	150	200	-	-	40	85	100	120	150	200	-	-	200	-	-
30	42	65	90	130	150	85	100	30	42	65	90	130	150	85	100	150	85	100
-	20	35	40	50	50	75	100	-	20	35	40	50	50	75	100	50	75	100
85	85	85	-	-	-	-	-	85	85	85	-	-	-	-	-	-	-	-
35	50	65	-	-	-	-	-	35	50	65	-	-	-	-	-	-	-	-
20	10	20	-	-	-	-	-	20	20	20	-	-	-	-	-	-	-	-
b								b										
-								-										
b								b										
b								b										
b								b										
b								b										
b								b										
b								b										
b								b										
b								b										
b								b										
b								b										
b								b										
140 x 255 x 110								140 x 255 x 110										
185 x 255 x 110								185 x 255 x 110										
6.05								6.2										
7.90								8.13										
45/52.5 mm								45/52.5 mm										
45/70 mm								45/70 mm										
4 x 240								4 x 240										

Compact NSX switch-disconnector NSX100NA to NSX630NA

Installation standards require upstream protection. However Compact NSX100 to 630 NA switch-disconnectors are self-protected by their high-set magnetic release.

Compact NSX100 to 250 NA

Compact NSX400 to 630 NA

Common characteristics

Rated voltages			
Insulation voltage (V)	Ui		800
Impulse withstand voltage (kV)	Uimp		8
Operational voltage (V)	Ue	AC 50/60 Hz	690
Suitability for isolation		IEC/EN 60947-3	yes
Utilization category		AC 22 A/AC 23 A - DC 22 A/DC 23 A	
Pollution degree		IEC 60664-1	3

Switch-disconnectors

Electrical characteristics as per IEC 60947-3 and EN 60947-3

Conventional thermal current (A)	Ith 60 °C			
Number of poles				
Operational current (A) depending on the utilization category	Ie	AC 50/60 Hz		
			220/240 V	
			380/415 V	
			440/480 V(2)	
			500/525 V	
			660/690 V	
		DC		
			250 V (1 pole)	
			500 V (2 poles in series)	
			750 V (3 poles in series)	
Short-circuit making capacity (kA peak)	Icm	min. (switch-disconnector alone)		
		max. (protection by upstream circuit breaker)		
Rated short-time withstand current (A rms)	Icw	for	1 s	
			3 s	
			20 s	
Durability (C-O cycles)	mechanical			
	electrical	AC		
			440 V	In/2
				In
			690 V	In/2
				In
		DC	250 V (1 pole) and	In/2
			500 V (2 poles in series)	In
Positive contact indication				
Pollution degree				

Protection

Add-on earth-leakage protection	By Vigi module
	By Vigirex relay

Additional indication and control auxiliaries

Indication contacts	
Voltages releases	MX shunt release
	MN undervoltage release
Voltage-presence indicator	
Current-transformer module	
Ammeter module	
Insulation monitoring module	

Remote communication by bus

Device-status indication

Device remote operation

Operation counter

Installation/connections

Dimensions (mm)	fixed, front connections	2/3P
W x H x D		4P
Weight (kg)	fixed, front connections	3P
		4P

Source-changeover systems (see chapter on Source-changeover systems)

Manual source-changeover systems

Remote-operated or automatic source-changeover systems

(1) 2P in 3P case.
(2) Suitable for 480 V NEMA.

Common characteristics			
Control			
	Manual	With toggle	b
		With direct or extended rotary handle	b
	Electrical	With remote control	b
Versions			
	Fixed		b
	Withdrawable	Plug-in base	b
		Chassis	b

NSX100NA	NSX160NA	NSX250NA	NSX400NA	NSX630NA
100	160	250	400	630
2[1], 3, 4	2[1], 3, 4	2 [1], 3, 4	3, 4	3, 4
AC22A/AC23A	AC22A/AC23A	AC22A/AC23A	AC22A/AC23A	AC22A/AC23A
100	160	250	400	630
100	160	250	400	630
100	160	250	400	630
100	160	250	400	630
100	160	250	400	630
DC22A/DC23A	DC22A/DC23A	DC22A/DC23A	-	-
100	160	250	-	-
100	160	250	-	-
100	160	250	-	-
2.6	3.6	4.9	7.1	8.5
330	330	330	330	330
1800	2500	3500	5000	6000
1800	2500	3500	5000	6000
690	960	1350	1930	2320
50000	40000	20000	15000	15000
AC22A/AC23A	AC22A/AC23A	AC22A/AC23A	AC22A/AC23A	AC22A/AC23A
35000	30000	15000	10000	6000
20000	15000	7500	5000	3000
15000	10000	6000	5000	3000
8000	5000	3000	2500	1500
10000	10000	10000	-	-
5000	5000	5000	-	-
b	b	b	b	b
3	3	3	3	3
b			b	
b			b	
b			b	
b			b	
b			b	
b			b	
b			b	
b			b	
b			b	
b			b	
b			b	
105 x 161 x 86			140 x 255 x 110	
140 x 161 x 86			185 x 255 x 110	
1.5 to 1.8			5.2	
2.0 to 2.2			6.8	
b			b	
b			b	

Compact NSX100 to 250DC

Compact NSX DC circuit breaker

Basic frame	Number of poles			
Electrical characteristics as per IEC 60947-1/ 60947-2 and EN 60947-1/60947-2				
Rated current at 40 °C	**In**	(A)		
Rated insulation voltage	**Ui**	(V)		
Rated impulse withstand voltage	**Uimp**	(kV peak)		
Rated operational voltage	**Ue**	(V DC)		
Type of circuit breaker				
Ultimate breaking capacity (L/R = 5 ms and L/R = 15 ms)	**Icu**	(kA rms)	V DC	24 – 125 V (1P)(1)
				250 V (1P)(1)
				500 V (2P)(1)
				750 V (3P)(1)
Service breaking capacity	**Ics**	% Icu		
Rated making capacity	**Icm**	% Icu		
Utilization category				
Breaking time		(ms)		
Suitability for isolation				
Pollution degree (as per IEC 60664-1)				
Protection against overcurrents (see trip-unit table in the catalog Compact NSX-DC LVPED208006EN, on page 19)				
				Built-in
Trip units				Interchangeable
Protection				Overloads
				Short-circuits
Durability				
(O/C cycles)	Mechanical			
	Electrical			250 V In
				250 V In/2
				500 V In
				500 V In/2
				750 V In
				750 V In/2
Indication and control auxiliaries				
Auxiliary contacts				
Voltage release	MX shunt release			
	MN undervoltage release			
Installation and connections				
Fixed				Front connection
				Rear connection
Plug-in (base)				Front connection
				Rear connection
Withdrawable (chassis)				Front connection
				Rear connection
Control	Manual	with toggle		
		with direct or extended rotary handle		
	Electrical	with remote control		
Dimensions and weight				
Dimensions H x W x D (mm) connected in series	Fixed	(mm)		1P
				2P
				3P
				4P
Weight (kg) connected in series	Fixed	(kg)		1P
				2P
				3P
				4P

(1) Number of poles in series taking part in current interruption.
Example. The NSX100N DC circuit breaker exists in the following versions:
- 1 pole with an Icu of 50 kA, for systems ≤ 250 V
- 2 poles with an Icu of 85 kA, for systems ≤ 500 V; 1 pole can be used in a 250 V system.

	NSX100 DC								NSX160 DC								NSX250 DC	
	1			2			3/4		1			2			3/4		3/4	
	100								160								250	
	750								750								750	
	8								8								8	
	250			500			750		250			500			750		750	
	F	N	M	F	M	S	F	S	F	N	M	F	M	S	F	S	F	S
	36	50	85	36	85	100	36	100	36	50	85	36	85	100	36	100	36	100
	36	50	85	36	85	100	36	100	36	50	85	36	85	100	36	100	36	100
	-	-	-	36	85	100	36	100	-	-	-	36	85	100	36	100	36	100
	-	-	-	-	-	-	36	100	-	-	-	-	-	-	36	100	36	100
	100%																	
	100%																	
	A																	
	< 10 ms																	
	b																	
	3																	
	b	b	b	b	b	b	-		b	b	b	b	b	b	-		-	
	-	-	-	-	-	-	b		-	-	-	-	-	-	b		b	
	b	b	b	b	b	b	b		b	b	b	b	b	b	b		b	
	b	b	b	b	b	b	b		b	b	b	b	b	b	b		b	
	10000																	
	5000																	
	10000																	
	5000																	
	10000																	
	5000																	
	10000																	
	-			b			b		-			b			b		b	
	-			b			b		-			b			b		b	
	-			b			b		-			b			b		b	
	b																	
	b																	
	-	-	-	-	-	-	b		-	-	-	-	-	-	b		b	
	-	-	-	-	-	-	b		-	-	-	-	-	-	b		b	
	-	-	-	-	-	-	b		-	-	-	-	-	-	b		b	
	-	-	-	-	-	-	b		-	-	-	-	-	-	b		b	
	b																	
	b																	
	b																	
	161 x 35 x 86			-			-		161 x 35 x 86			-			-			
	-			161 x 70 x 86			-		-			161 x 70 x 86			-			
	-			-			161 x 105 x 86		-			-			161 x 105 x 86			
	-			-			161 x 140 x 86		-			-			161 x 140 x 86			
	0.7			-			-		0.7			-			-			
	-			1.2			-		-			1.2			-			
	-			-			1.6 to 1.9		-			-			1.6 to 1.9			
	-			-			2.1 to 2.3		-			-			2.1 to 2.3			

Compact NSX400 to 1200DC

Compact NSX DC circuit breaker

Basic frame	Number of poles			
Electrical characteristics as per IEC 60947-1/ 60947-2 and EN 60947-1/60947-2				
Rated current at 40 °C	In	(A)		
Rated insulation voltage	Ui	(V)		
Rated impulse withstand voltage	Uimp	(kV peak)		
Rated operational voltage	Ue	(V DC)		
Type of circuit breaker				
Ultimate breaking capacity (L/R = 5 ms and L/R = 15 ms)	Icu	(kA rms)	V DC	24 – 125 V (1P)(1)
				250 V (1P)(1)
				500 V (2P)(1)
				750 V (3P)(1)
	Icu	(kA rms)	V DC	24 – 300 V (1P)(1)
				300 – 600 V (2P)(1)
Service breaking capacity	Ics	% Icu		
Rated making capacity	Icm	% Icu		
Utilization category				
Breaking time		(ms)		
Suitability for isolation				
Pollution degree (as per IEC 60664-1)				
Protection against overcurrents (see trip-unit table in the catalog Compact NSX-DC LVPED208006EN, on page 19)				
Trip units				Interchangeable
Protection				Overloads
				Short-circuits
Durability				
(O/C cycles)	Mechanical			
	Electrical			250 V In
				250 V In/2
				500 V In
				500 V In/2
				750 V In
				750 V In/2
				600 V In
				600 V In/2
Indication and control auxiliaries				
Auxiliary contacts				
Voltage release	MX shunt release			
	MN undervoltage release			
Installation and connections				
Fixed				Front connection
				Rear connection
Plug-in (base)				Front connection
				Rear connection
Withdrawable (chassis)				Front connection
				Rear connection
Control	Manual	with toggle		
		with direct or extended rotary handle		
	Electrical	with remote control		
Dimensions and weight				
Dimensions H x W x D (mm) connected in series	Fixed	(mm)		1P
				2P
				3P
				4P
Weight (kg) connected in series	Fixed	(kg)		1P
				2P
				3P
				4P

(1) Number of poles in series taking part in current interruption.
Example. The NSX100N DC circuit breaker exists in the following versions:
- 1 pole with an Icu of 50 kA, for systems ≤ 250 V
- 2 poles with an Icu of 85 kA, for systems ≤ 500 V; 1 pole can be used in a 250 V system.

	NSX400 DC						NSX630 DC				NSX1200 DC			
	3/4						3/4		3/4		2			
	250		320		400		500		600		630	800	1000	1200
	750		750		750		750		750		750	750	750	750
	8		8		8		8		8		8	8	8	8
	750		750		750		750		500		600	600	600	600
	F	S	F	S	F	S	F	S	F	S	N			
	36	100	36	100	36	100	36	100	36	100	-	-	-	-
	36	100	36	100	36	100	36	100	36	100	-	-	-	-
	36	100	36	100	36	100	36	100	36	100	-	-	-	-
	36	100	36	100	36	100	36	100	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	50	50	50	50
	-	-	-	-	-	-	-	-	-	-	50	50	50	50
	100%						100%				25%			
	100%						100%				100%			
	A													
	10 ms													
	b													
	3													
	-													
	b													
	b													
	5000						5000		5000		-			
	1000						1000		1000		-			
	2000						2000		2000		-			
	1000						1000		1000		-			
	2000						2000		2000		-			
	1000						1000		-		-			
	2000						2000		-		-			
	-						-		-		1000			
	-						-		-		2000			
	b													
	b													
	b						b				b	b	b	b
	b						b				-	-	-	-
	b						b				-	-	-	-
	b						b				-	-	-	-
	b						b				-	-	-	-
	b						b				-	-	-	-
	b						b				b	b	b	b
	b						b				b	b	b	b
	b						b				b	b	b	b
	-													
	-										350 x 185 x 110			
	255 x 140 x 110													
	255 x 185 x 110										-			
	-													
	-										9.4			
	8										-			
	8.4										-			

Compact NSX Direct Current

Compact NSX switch-disconnector NSX100NA DC to NSX250NA DC

Installation standards require upstream protection. However Compact NSX100 to 630 NA switch-disconnectors are self-protected by their high-set magnetic release.

Compact NSX100 to 250 NA

Common characteristics

Rated voltages			
Insulation voltage (V)	Ui		750
Impulse withstand voltage (kV)	Uimp		8
Operational voltage (V)	Ue		750
Suitability for isolation		IEC/EN 60947-3	yes
Utilization category		DC 22 A/DC 23 A	
Pollution degree		IEC 60664-1	3

Switch-disconnectors

Electrical characteristics as per IEC 60947-3 and EN 60947-3

Conventional thermal current (A)	Ith 60 °C		
Number of poles			
Operational current (A) depending on the utilization category	Ie	DC	250 V (1 pole)
			500 poles (2 poles in series)
			750 V (3 poles in series)
Short-circuit making capacity (kA peak)	Icm	min. (switch-disconnector alone)	
		max. (protection by upstream NSX DC circuit breaker)	
Rated short-time withstand current (A rms)	Icw	for	1 s
			3 s
			20 s
Durability (C-O cycles)	mechanical		
	electrical	DC	250 V (1 pole) and 500 V (2 poles in series) In/2 In
Positive contact indication			
Pollution degree			

Protection

Add-on earth-leakage protection	By Vigi module	
	By Vigirex relay	

Additional indication and control auxiliaries

Indication contacts		
Voltages releases	MX shunt release	
	MN undervoltage release	
Voltage-presence indicator		
Current-transformer module		
Ammeter module		
Insulation monitoring module		

Remote communication by bus

Device-status indication		
Device remote operation		
Operation counter		

Installation/connections

Dimensions (mm)	fixed, front connections	2/3P
W x H x D		4P
Weight (kg)	fixed, front connections	3P
		4P

Source-changeover systems (see chapter on Source-changeover systems)

Manual source-changeover systems
Remote-operated or automatic source-changeover systems

(1) 2P in 3P case.
(2) Suitable for 480 V NEMA.
Note: For more information, please see the catalog Compact NSX LVPED208001EN.

Common characteristics			
Control			
	Manual	With toggle	b
		With direct or extended rotary handle	b
	Electrical	With remote control	b
Versions			
	Fixed		b
	Withdrawable	Plug-in base	b
		Chassis	b

NSX100NA	NSX160NA	NSX250NA
100	160	250
2[1], 3, 4	2[1], 3, 4	2[1], 3, 4
DC22A/DC23A	DC22A/DC23A	DC22A/DC23A
100	160	250
100	160	250
100	160	250
2.6	3.6	4.9
100	100	100
1800	2500	3500
1800	2500	3500
690	960	1350
50000	40000	20000
10000	10000	10000
5000	5000	5000
b	b	b
3	3	3
b		
b		
b		
b		
b		
b		
b		
b		
b		
b		
b		
105 x 161 x 86		
140 x 161 x 86		
1.5 to 1.8		
2.0 to 2.2		
b		
b		

Compact NSX switch-disconnector NSX400NA DC to NSX630NA DC

Compact NSX630 NA DC

Compact NSX630 NA DC

Compact NSX DC switch-disconnector

Number of poles			
Electrical characteristics as per IEC 60947-3			
Rated current (A) (free air + no venting)	In	40 °C	
Altitude	m	2000	
Rated insulation voltage (V)	Ui		
Rated impulse withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	DC	
Type of circuit breaker			
Rated short circuit withstand current (kA rms)	Icw/Icm	t = 1 s	
Rated conditionnal short-circuit current	Iq	kA	
	with back-up fuse	A gG	
Rated conditionnal short-circuit current	Iq with NSX DC circuit breaker	kA with MCCB	
Utilization category			
Suitability for isolation			
Pollution degree			
Durability			
Endurance (C-O cycles)	mechanical		
	electrical (In)	750 V	
Installation and connections			
Control	manual	toggle	
		direct or extended rotary handle	
	motor mechanism		
Connections	fixed	front connection	
		long rear connection	
	plug-in (on base)	front connection	
		rear connection	
	withdrawable (on chassis)	front connection	
		rear connection	
Additional measurement, indication and control auxiliaries			
Indication contacts	OF	auxiliary contact	
	SD, SDE	trip, fault-trip	
Voltage releases	MX, MN	shunt trip/undervoltage release	
Installation			
Accessories	crimp lugs/bare cable connector		
	terminal extensions and spreaders		
	escutcheons		
	terminal shields and interphase barriers		
	Din rail adapter		
Dimensions and weight			
Dimensions (mm) H x W x D (w/o series connection)			3P
			4P
Weight (kg) (w/o series connection)			3P
			4P

	NSX400 NA DC	NSX630 NA DC
	3/4	3/4
	400	630
	b	b
	750	750
	8	8
	750	750
	7.5	7.5
	10	10
	400	630
	100	100
	DC22-A	DC22-A
	b	b
	3	3
	5000	5000
	1000	1000
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	b	b
	-	-
	255 x 140 x 110	255 x 140 x 110
	255 x 185 x 110	255 x 185 x 110
	6	6
	7.8	7.8

Compact NS circuit breakers NS630b to NS3200

Compact NS800L

Compact NS2000H

Compact circuit breakers

Number of poles				
Control	manual		toggle	
			direct or extended rotary handle	
	electric			
Type of circuit breaker				
Connections	fixed		front connection	
			rear connection	
			front connection with bare cables	
	withdrawable (on chassis)		front connection	
			rear connection	
Electrical characteristics as per Nema AB1				
Breaking capacity at 60 Hz (kA)				240 V
				480 V
				600 V
Electrical characteristics as per IEC 60947-2 and EN 60947-2				
Rated current (A)		In	50 °C	
			65 °C(1)	
Rated insulation voltage (V)		Ui		
Rated impulse withstand voltage (kV)		Uimp		
Rated operational voltage (V)		Ue	AC 50/60 Hz	
Type of circuit breaker				
Ultimate breaking capacity (kA rms)	Manual	Icu	AC 50/60 Hz	220/240 V
				380/415 V
				440 V
				500/525 V
				660/690 V
		Ics	AC 50/60 Hz	220/240 V
				380/415 V
				440 V
				500/525 V
				660/690 V
	Electrical	Icu	AC 50/60 Hz	220/240 V
				380/415 V
				440 V
				500/525 V
				660/690 V
		Ics	AC 50/60 Hz	220/240 V
				380/415 V
				440 V
				500/525 V
				660/690 V
Short-time withstand current (kA rms)		Icw	AC 50/60 Hz	1 s
				3 s
Integrated instantaneous protection			kA peak ±10%	
Suitability for isolation				
Utilization category				
Durability (C-O cycles)	mechanical			
	electrical		440 V	In/2
				In
			690 V	In/2
				In
Pollution degree				

(1) 65 °C with vertical connections. See the temperature derating tables for other types of connections.
(2) Ics: 100% Icu for breaking capacity 440 V/500 V/660 V
Ics: 75% Icu for breaking capacity 220 V/380 V.

	NS630b		NS800		NS1000			NS1250		NS1600		NS1600b		NS2000	NS2500	NS3200
	3, 4				3, 4			3, 4		3, 4		3, 4				
	b				b			b		b		b				
	b				b			b		b		-				
	b (except LB)				b			b		b		-				
	N	H	L	LB	N	H	L	N	H	N	H	N	H			
	b	b	b	-	b	b	b	b	b	b	b	b	b			
	b	b	b	b	b	b	b	b	b	b	b	-	-			
	b	b	-	-	b	b	-	b	b	-	-	-	-			
	b	b	b	b	b	b	b	b	b	b	b	-	-			
	b	b	b	b	b	b	b	b	b	b	b	-	-			
	N	H	L	LB	N	H	L	N	H	N	H	N	H			
	50	65	125	200	50	65	125	50	65	50	65	85	125			
	35	50	100	200	35	50	100	35	50	35	50	65	85			
	25	50	-	100	25	50	-	25	50	25	50	50	-			
	630		800		1000			1250		1600		1600		2000	2500	3200
	630		800		1000			1250		1510		1550		1900	2500	2970
	800				800			800		800		800				
	8				8			8		8		8				
	690				690			690		690		690				
	N	H	L	LB	N	H	L	N	H	N	H	N	H			
	85	85	150	200	85	85	150	85	85	85	85	85	125			
	50	70	150	200	50	70	150	50	70	50	70	70	85			
	50	65	130	200	50	65	130	50	65	50	65	65	85			
	40	50	100	100	40	50	100	40	50	40	50	65	-			
	30	42	-	75	30	42	-	30	42	30	42	65	-			
	50	50	150	200	50	52	150	50	52	37	37	65	94			
	50	50	150	200	50	52	150	50	52	37	37	52	64			
	50	50	130	200	50	48	130	50	48	37	37	65	64			
	40	40	100	100	40	37	100	40	37	30	30	65	-			
	30	30	-	75	30	31	-	30	31	22	22	65	-			
	50	70	150	-	50	70	150	50	70	50	70	-				
	50	70	150	-	50	70	150	50	70	50	70					
	50	65	130	-	50	65	130	50	65	50	65					
	40	50	100	-	40	50	100	40	50	40	50					
	30	42	-	-	30	42	-	30	42	30	42					
	37	37	150	-	37	37	150	37	37	37	37	-				
	37	37	150	-	37	37	150	37	37	37	37					
	37	37	130	-	37	37	130	37	37	37	37					
	30	30	100	-	30	30	100	30	30	30	30					
	22	22	-	-	22	22	-	22	22	22	22					
	19.2	19.2	-	-	19.2	19.2	-	19.2	19.2	19.2	19.2	-				
	-	-	-	-	-	-	-	-	-	-	-	32				
	40	40	-	-	40	40	-	40	40	40	40	130				
	b				b			b		b		b				
	B	B	A	A	B	B	A	B	B	B	B	B				
	10000				10000			10000		10000		5000				
	6000	6000	4000	4000	6000	6000	4000	5000		5000		3000				
	5000	5000	3000	3000	5000	5000	3000	4000		2000		2000				
	4000	4000	3000	3000	4000	4000	3000	3000		2000		2000				
	2000	2000	2000	2000	2000	2000	2000	2000		1000		1000				
	3				3			3		3		3				

Compact NS circuit breakers NS630b to NS3200

Compact NS800L

Compact NS2000H

Compact circuit breakers		
Protection and measurements		
Interchangeable control units		
Overload protection	long time	**Ir** (In x …)
Short-circuit protection	short time	**Isd** (Ir x …)
	instantaneous	**Ii** (In x …)
Earth-fault protection		**Ig** (In x …)
Residual earth-leakage protection		**IΔn**
Zone selective interlocking		**ZSI**
Protection of the fourth pole		
Current measurements		
Power measurements		
Advanced protection		
Quick view		
Remote communication by bus		
Device-status indication		
Device remote operation(2)		
Transmission of settings		
Indication and identification of protection devices and alarms		
Transmission of measured current values		

Compact circuit breakers		
Additional indication and control auxiliaries		
Indication contacts		
Voltage releases	MX shunt release/MN undervoltage release	
Installation		
Accessories	terminal extensions and spreaders terminal shields and interphase barriers escutcheons	
Dimensions fixed devices, front connections (mm) H x W x D		3P 4P
Weight fixed devices, front connections (kg)		3P 4P
Source-changeover system (see section on "Source-changeover systems")		
Manual, remote-operated and automatic Source-changeover systems		

(1) Except 1600b-3200.
(2) With NS630b … NS1600, remote operation is possible with electrically operated device.
With NS1600 … NS3200, remote operation is not possible.

	NS630b		NS800		NS1000		NS1250		NS1600		NS1600b		NS2000		NS2500		NS3200	
	Micrologic																	
	2.0	5.0	6.0		2.0 A	5.0 A	6.0 A		7.0 A		2.0 E	5.0 E	6.0 E		5.0 P[1]	6.0 P[1]	7.0 P[1]	
	b	b	b		b	b	b		b		b	b	b		b	b	b	
	-	b	b		-	b	b		b		-	b	b		b	b	b	
	b	b	b		b	b	b		b		b	b	b		b	b	b	
	-	-	b		-	-	b		-		-	-	b		-	b	-	
	-	-	-		-	-	-		b		-	-	-		-	-	b	
	-	-	-		b	b	b		b		b	b	b		b	b	b	
	b	b	b		b	b	b		b		b	b	b		b	b	b	
	-	-	-		b	b	b		b		b	b	b		b	b	b	
	-	-	-		-	-	-		-		b	b	b		b	b	b	
	-	-	-		-	-	-		-		-	-	-		b	b	b	
	-	-	-		-	-	-		-		b	b	-		-	-	-	
	b	b	b		b	b	b		b		b	b	b		b	b	b	
	b	b	b		b	b	b		b		b	b	b		b	b	b	
	-	-	-		b	b	b		b		b	b	b		b	b	b	
	-	-	-		b	b	b		b		b	b	b		b	b	b	
	-	-	-		b	b	b		b		b	b	b		b	b	b	

	NS630b	NS800	NS1000	NS1250	NS1600	NS1600b	NS2000	NS2500	NS3200
	b					b			
	b					b			
	b					-			
	b					b			
	b					b			
	327 x 210 x 147 327 x 280 x 147					350 x 420 x 160 350 x 535 x 160			
	14 18					24 36			
	b					-			

EasyPact CVS circuit breaker CVS100 to CVS630

EasyPact CVS100/160/250

EasyPact CVS400/630

Common characteristics

Rated voltages			
Insulation voltage (V)	Ui		690
Impulse withstand voltage (kV)	Uimp		8
Operational voltage (V)	Ue	AC 50/60 Hz	440
Suitability for isolation		IEC/EN 60947-2	yes
Utilization category			A
Pollution degree		IEC 60664-1	3

Circuit breakers

Performance

Electrical characteristics as per IEC 60947-2

Rated current (A)	In	40 °C		
Number of poles				
Breaking capacity levels				
Breaking capacity (kA rms)				
	Icu	AC 50/60 Hz	220/240 V	
			380/415 V	
			440 V	
Service breaking capacity (kA rms)				
	Ics	AC 50/60 Hz	220/240 V	
			380/415 V	
			440 V	
Durability (C-O cycles)		Mechanical		
		Electrical	415V	In/2
				In

Protection

Short-circuit protection	Magnetic only	
Overload/short-circuit protection	Thermal magnetic	
	Electronic	
		with neutral protection (Off-0.5-1)
Earth-leakage protection	By Vigi module	

Installation/connections

Dimensions and weights

Dimensions (mm) W x H x D	Fixed, front connections	3P
		4P
Weight (kg)	Fixed, front connections	3P
		4P

Connections

Connection terminals	Pitch	Without/with spreaders
Large Cu or Al cables	Cross-section	mm²

CVS100	CVS160	CVS250	CVS400	CVS630
100	160	250	400	630
3, 4	3, 4	3, 4	3, 4	3, 4
B F N	B F N	B F N	F N	F N
40 70 70 25 36 50 20 36	40 70 70 25 36 50 20 36	40 70 70 25 36 50 20 36	40 70 36 50 30 42	40 70 36 50 30 42
40 70 70 25 36 50 15 18	40 70 70 25 36 50 15 18	40 70 70 25 36 50 15 18	40 70 36 50 23 32	40 70 36 50 23 32
30000	25000	20000	15000	15000
30000 12000	25000 12000	20000 10000	12000 6000	8000 4000
b	b	b	b	b
b	b	b	b	b
-	-	-	b	b
-	-	-	b	b
b	b	b	b	b
105 x 161 x 86 140 x 161 x 86	105 x 161 x 86 140 x 161 x 86	105 x 161 x 86 140 x 161 x 86	140 x 255 x 110 185 x 255 x 110	140 x 255 x 110 185 x 255 x 110
1.8 2.2	1.8 2.3	2.0 2.6	4.7 6.3	5.2 7.1
35/45 mm	35/45 mm	35/45 mm	45/52.5 mm 45/70 mm	45/52.5 mm 45/70 mm
300	300	300	4 x 240	4 x 240

EasyPact CVS switch-disconnector CVS100NA to CVS630NA

Installation standards require upstream protection. HoweverEasyPact CVS100 to 630 NA switch-disconnectors are self-protected by their high-set magnetic release.

EasyPact CVS100 to 250 NA

EasyPact CVS400 to 630 NA

Switch-disconnectors

Electrical characteristics as per IEC 60947-3 and EN 60947-3

Conventional thermal current (A)	**Ith** 50 °C			
Number of poles				
Operational current (A) depending on the utilization category	**Ie**	AC 50/60 Hz		
			220/240 V	
			380/415 V	
			440 V	
Short-circuit making capacity (kA peak)	**Icm**	min. (switch-disconnector alone)		
		max. (protection by upstream circuit breaker)		
Rated short-time withstand current (A rms)	**Icw**	for	1 s	
			3 s	
			20 s	
Durability (C-O cycles)	mechanical			
	electrical	AC		
			415 V	In

Protection

Add-on earth-leakage protection	By Vigi module

Additional indication and control auxiliaries

Indication contacts	
Voltage releases	MX shunt release
	MN undervoltage release

Installation/connections

Dimensions (mm)	fixed, front connections	3P
W x H x D		4P
Weight (kg)	fixed, front connections	3P
		4P

CVS100NA	CVS160NA	CVS250NA	CVS400NA	CVS630NA
100	160	250	400	630
3, 4	3, 4	3, 4	3, 4	3, 4
AC22A/AC23A	AC22A/AC23A	AC22A/AC23A	AC22A/AC23A	AC22A/AC23A
100	160	250	400	630/500
100	160	250	400	630/500
100	160	250	400	630/500
2.6	3.6	4.9	7.1	8.5
75	75	75	105	105
1800	2500	3500	5000	6000
1800	2500	3500	5000	6000
690	960	1350	1930	2320
30000	25000	20000	15000	15000
AC22A/AC23A	AC22A/AC23A	AC22A/AC23A	AC22A/AC23A	AC22A/AC23A
8000	8000	6500	4000	2500
b			b	
b			b	
b			b	
b			b	
105 x 161 x 86			140 x 255 x 110	
140 x 161 x 86			185 x 255 x 110	
1.5 to 1.8			5.2	
2.0 to 2.2			6.8	

EasyPact EZC circuit breaker EZC100 to EZC630

EZC100-1P

EZC100-2P

EZC100-3P

EZC100-4P

EZC250-3P

EasyPact EZC circuit breakers			
Fixed version			
Plug-in version			
Number of poles			
Rated current (A)	In	at 40 °C	
Rated insulation voltage (V)	Ui		
Rated impulse withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	AC 50/60 Hz	
		DC	
Electrical characteristics as per IEC 60947-2, EN 60947-2, JIS C8201-2-1			
Ultimate breaking capacity (kA rms)	Icu	AC 50/60 Hz	110/130 V
			220/230/240 V
			380 V
			400/415 V
			440 V
			550 V
		DC	125 V (1P)
			250 V (2P in series)
Rated service breaking capacity (kA rms)	Ics	% Icu	110 – 400 V
			415 – 550 V
Suitability for isolation			
Utilization category			
Pollution degree			
Endurance (C-O cycles)	Mechanical		
	Electrical	In/415 V	
Electrical characteristics as per NEMA-AB1			
Breaking capacity (kA rms)	HIC	AC 50/60 Hz	240 V
			277/480 V
Protection			
Overload protection	Bimetal		
Instantaneous protection	Magnetic		Fixed (±20%)
Auxiliaries			
Indication contacts	Auxiliary switch		AX
	Alarm switch		AL
	Combined AX + AL		AXAL
Voltage releases	Shunt trip release		SHT
	Undervoltage release		UVR
Installation			
Connection	Crimp lugs/bars		
Accessories	Box lugs for bare cables		
	Rotary handles		Direct
			Extended
	Terminal extensions		
	Spreaders		
	Phase barriers		
	Terminal shields		
	Padlocking system		
	DIN rail adaptor		
Dimension and weight			
Dimensions (mm)	D x H		
	W		
Weight (kg)			

(1) 50 kA for 2 poles.
(2) For 277 V only.
(3) For 3 and 4 poles only.
(4) For 3P only.

	EZC100B	EZC100F	EZC100N		EZC100H		EZC250F	EZC250N	EZC250H
	b	b	b	b	b	b	b	b	b
	b	b	-	b[4]	-	b[4]	b	b	b
	3	3	1	3-4	1	2-3-4	3	3	2-3
	15, 16, 20, 25, 30, 32, 40, 45, 50, 60	15, 16, 20, 25, 30, 32, 40, 45, 50, 60, 63, 75, 80, 100	15, 16, 20, 25, 30, 32, 40, 45, 50, 60, 63, 75, 80, 100	15, 16, 20, 25, 30, 32, 40, 45, 50, 60, 63, 75, 80, 100	15, 16, 20, 25, 30, 32, 40, 45, 50, 60, 63, 75, 80, 100	15, 16, 20, 25, 30, 32, 40, 45, 50, 60, 63, 75, 80, 100	100, 125, 150, 160, 175, 200, 225, 250	100, 125, 150, 160, 175, 200, 225, 250	100, 125, 150, 160, 175, 200, 225, 250
	690	690	690	690	690	690	690	690	690
	6	6	6	6	6	6	6	6	6
	550	550	415	550	415	550	550	550	550
	-	250	125	250	125	250	250	250	250
	10	25	25	25	50	100	25	50	85
	10	25	18	25	25	100[1]	25	50	85
	7.5	10	2.5	18	5	30	18	25	36
	7.5	10	2.5	15	5	30	18	25	36
	5	7.5	-	10	-	20	15	20	25
	2.5	5	-	5	-	10	5	8	10
	-	5	5	5	10	10	5	20	30
	-	5	-	5	-	10	5	20	30
	25%	50%	50%	50%	50%	50%	50%	50%	50%
	25%	50%	50%	50%	50%	25%	50%	50%	50%
	b	b	b	b	b	b	b	b	b
	A	A	A	A	A	A	A	A	A
	3	3	3	3	3	3	3	3	3
	8500	8500	8500	8500	8500	8500	10000	10000	10000
	1500	1500	1500	1500	1500	1500	5000	5000	5000
	-	-	10	25	18	100	25	50	85
	-	-	10[2]	10	18[2]	18[3]	15	18	25[3]
	fixed	fixed	fixed	fixed	fixed	fixed	fixed	fixed	fixed
	fixed	fixed	fixed	fixed	fixed	fixed	10 In	10 In	10 In
	b	b	-	b	-	b	b	b	b
	b	b	-	b	-	b	b	b	b
	b	b	-	b	-	b	b	b	b
	b	b	-	b	-	b	b	b	b
	b	b	-	b	-	b	b	b	b
	b	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b	b
	b	b	-	b	-	b[3]	b	b	b
	b	b	-	b	-	b[3]	b	b	b
	-	-	-	-	-	-	b	b	b
	b	b	-	b	-	b	b	b	b
	b	b	b	b	b	b	b	b	b
	b	b	-	b	-	b[3]	b	b	b
	b	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	-	-	-
	60 x 130	60 x 130	60 x 130	60 x 130	60 x 130	60 x 130	60 x 165	60 x 165	60 x 165
	75	75	25	75 (3P) 100 (4P)	25	50 (2P) 75 (3P) 100 (4P)	105	105	105
	0.78	0.78	0.28	0.78 (3P) 1.0 (4P)	0.28	0.6 (2P) 0.78 (3P) 1.0 (4P)	1.3	1.3	1.1 (2P) 1.3 (3P)

EasyPact EZC circuit breaker EZC100 to EZC630

EZC250-4P

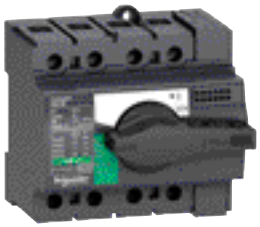
EZCV250-4P

EZC400-3P

EasyPact EZC circuit breakers			
Fixed version			
Plug-in version			
Number of poles			
Rated current (A)	In	at 40 °C	
Rated insulation voltage (V)	Ui		
Rated impulse withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	AC 50/60 Hz	
		DC	
Electrical characteristics as per IEC 60947-2, EN 60947-2 and JIS C8201-2-1/C8201-2-2			
Ultimate breaking capacity (kA rms)	Icu	AC 50/60 Hz	220/230 V
			380 V
			400/415 V
			440 V
			550 V
		DC	125 V (1P)
			250 V (2P in series)
Rated service breaking capacity (kA rms)	Ics	% Icu	
Suitability for isolation			
Utilization category			
Pollution degree			
Endurance (C-O cycles)	Mechanical		
	Electrical	In/415 V	
Electrical characteristics as per NEMA-AB1			
Breaking capacity (kA rms)	HIC	AC 50/60 Hz	240 V
			277/480 V
Protection			
Overload protection	Bimetal		
Instantaneous protection	Magnetic		fixed (±20%)
Earth-leakage protection			
Sensitivity (A)	IΔn		adjustable
Time-delay (ms)	Δt		adjustable
Max. breaking time (s)	at 2 IΔn		
Auxiliaries			
Indication contacts	Auxiliary switch	OF/AX	
	Alarm switch	SD/AL	
	Combined AX + AL	AXAL	
	Earth-alarm switch	ALV	
Voltage releases	Shunt trip release	MX/SHT	
	Undervoltage release	MN/UVR	
Installation			
Connection	Crimp lugs/bars		
Accessories	Box lugs for bare cables		
	Rotary handles	Direct	
		Extended	
	Terminal extensions		
	Spreaders		
	Phase barriers		
	Terminal shields		
	Padlocking system		
Dimension and weight			
Dimensions (mm)	D x H		
	W		
Weight (kg)			

	EZC250N	EZC250H	EZCV250N	EZCV250H	EZC400N	EZC400H	EZC630N	EZC630H
	b	b	b	b	b	b	b	b
	b	b	b	b	-	-	-	-
	4	4	3-4	3-4	3-4	3-4	3-4	3-4
	63, 80, 100, 125, 150, 160, 175, 200, 225, 250	63, 80, 100, 125, 150, 160, 175, 200, 225, 250	63, 80, 100, 125, 150, 160, 175, 200, 225, 250	63, 80, 100, 125, 150, 160, 175, 200, 225, 250	320, 350, 400	320, 350, 400	400, 500, 600	400, 500, 600
	690	690	440	440	690	690	690	690
	6	6	6	6	6	6	6	6
	550	550	440	440	440	440	440	440
	250	250	-	-	250	250	250	250
	50	85	85	100	40	70	40	70
	25	36	25	36	36	50	36	50
	25	36	25	36	36	50	36	50
	20	25	20	25	36	50	36	50
	8	10	-	-	-	-	-	-
	20	30	-	-	-	-	-	-
	20	30	-	-	-	-	-	-
	50%	50%	50%	50%	50%	50%	100% (220 – 415 V) 50% (440 V)	100% (220 – 415 V) 50% (440 V)
	b	b	b	b	b	b	b	b
	A	A	A	A	A	A	A	A
	3	3	3	3	3	3	3	3
	10000	10000	10000	10000	10000	10000	10000	10000
	5000	5000	5000	5000	4000	4000	3000	3000
	50	85	50	85	50	85	50	85
	18	25	-	-	25	35	25	35
	fixed	fixed	fixed	fixed	fixed	fixed	fixed	fixed
	10 In	10 In	10 In	10 In	10 In	10 In	10 In (400/500 A) 5000 A (600 A)	10 In (400/500 A) 5000 A (600 A)
	-	-	0.1/0.3/0.5/1	0.1/0.3/0.5/1	-	-	-	-
	-	-	0/200/500/1000	0/200/500/1000	-	-	-	-
	-	-	0.15/0.4/1/2	0.15/0.4/1/2	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	-	-	-	-
	-	-	b	b	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	68 x 165	68 x 165	68 x 165	68 x 165	140 x 255	140 x 255	140 x 255	140 x 255
	140	140	105 (3P) 140 (4P)	105 (3P) 140 (4P)	140 (3P) 185 (4P)	140 (3P) 185 (4P)	140 (3P) 185 (4P)	140 (3P) 185 (4P)
	1.8	1.8	1.6 (3P) 2.1 (4P)	1.6 (3P) 2.1 (4P)	4.8 (3P) 6.4 (4P)	4.8 (3P) 6.4 (4P)	4.8 (3P) 6.4 (4P)	4.8 (3P) 6.4 (4P)

Compact INS switch-disconnector INS40 to INS160



Compact INS40 to 80 switch-disconnector

Compact INS40 to 80 emergency-off switch-disconnector

Compact INS100 to 160 switch-disconnector

Compact INS100 to 160 emergency-off switch-disconnector

Compact INS switch-disconnectors

Number of poles			
Electrical characteristics as defined by IEC 60947-1/60947-3 and EN 60947-1/60947-3			
Conventional thermal current (A)	Ith	at 60 °C	
Conventional thermal current in enclosure	Ithe	at 60 °C	
Rated insulation level (V)	Ui	AC 50/60 Hz	
Impulse-withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	AC 50/60 Hz	
		DC	
Rated operational voltage AC20 and DC20 (V)		AC 50/60 Hz	
Rated operational current (A)	Ie	Electrical AC	50/60 Hz
			220 – 240 V
			380 – 415 V
			440 – 480 V(1)
			500 V
			660 – 690 V
		Electrical DC	
			125 V (2P in series)
			250 V (4P in series)
Rated operational power AC23 (kW)		Electrical AC	50/60 Hz
			220 – 240 V
			230 V (NEMA)
			380 – 415 V
			440 V
			480 V (NEMA)
			500 – 525 V
			660 – 690 V
Rated duties		Uninterrupted duty	
		Intermittent duty	
Short-circuit making capacity (kA peak)	Icm	Min. (switch-disconnector alone)	
		Max. (with upstream protection circuit breaker)	
Short-time withstand current (A rms)	Icw	1 s	
		3 s	
		20 s	
		30 s	
Suitability for isolation			
Durability (O-C cycles)		Mechanical	
		Electrical AC	50/60 Hz
			220 – 240 V
			380 – 415 V
			440 V
			500 V
			690 V
		Electrical DC	
			250 V
Positive contact indication			
Visible break			
Emergency-off switch disconnector			
Degree of pollution			

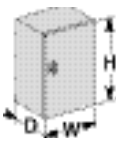
Upstream protection

See the “Complementary technical information” in the catalog Compact INS/INV LVPED213024EN.

(1) Suitable for 480 V NEMA.

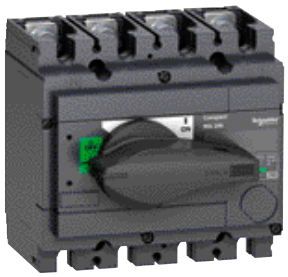
	INS40		INS63		INS80		INS100		INS125		INS160	
	3-4		3-4		3-4		3-4		3-4		3-4	
	40		63		80		100		125		160	
	40		63		80		100		125		160	
	690		690		690		800		800		800	
	8		8		8		8		8		8	
	500		500		500		690		690		690	
	250		250		250		250		250		250	
	690		690		690		750		750		750	
	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A
	40	40	63	63	80	80	100	100	125	125	160	160
	40	40	63	63	80	72	100	100	125	125	160	160
	40	40	63	63	80	63	100	100	125	125	160	160
	40	32	63	40	80	40	100	100	125	125	160	160
	-	-	-	-	-	-	100	63	125	80	160	100
	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A
	40	40	63	63	80	80	100	100	125	125	160	160
	40	40	63	63	80	80	100	100	125	125	160	160
	11		15		22		22		37		45	
	7,5		15		15		22		37		45	
	20		30		37		45		55		75	
	22		30		37		55		55		90	
	22		30		30		55		75		90	
	18,5		22		22		55		75		110	
	-		-		-		55		75		90	
	b		b		b		b		b		b	
	Class 120 - 60%		Class 120 - 60%		Class 120 - 60%		Class 120 - 60%		Class 120 - 60%		Class 120 - 60%	
	15		15		15		20		20		20	
	75		75		75		154		154		154	
	3000		3000		3000		5500		5500		5500	
	1730		1730		1730		3175		3175		3175	
	670		670		670		1230		1230		1230	
	550		550		550		1000		1000		1000	
	b		b		b		b		b		b	
	20000		20000		20000		15000		15000		15000	
	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A
	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
	-	-	-	-	-	-	1500	1500	1500	1500	1500	1500
	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A
	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
	b		b		b		b		b		b	
	-		-		-		-		-		-	
	b		b		b		b		b		b	
	3		3		3		3		3		3	
	-		-		-		-		-		-	

Compact INS switch-disconnector INS40 to INS160

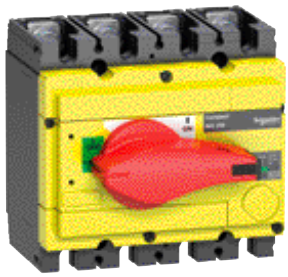
Compact INS switch-disconnectors	
Installation	
Fixed, front connection	
Fixed, rear connection	
On symmetrical rails	
On a backplate	
Connection	
By cables	To bare cable connectors
By cables with lugs	Directly to terminals
	To spreaders
	To vertical-connection adapters via cable-lug adapters
Flat-facing bars	Directly to terminals
	To spreaders
Edgewise bars	To vertical-connection adapters
Indication and measurement auxiliaries	
Auxiliary contacts	
Voltage-presence indicator	
Current-transformer module	
Ammeter module	
Control, locking and interlocking	
Control	Direct front rotary handle
	Extended front rotary handle
	Direct lateral rotary handle
	Extended lateral rotary handle
Locking	By keylock
	By padlocks
Interlocking	By keylock
	Mechanical
Complete source-changeover assembly	
Operating torque (Nm) (typical value for 3-4 poles with front handle)	
Installation and connection accessories	
Bare cable connectors	
Rear connectors	
Terminal extensions	
Spreaders	
One-piece spreader	
Terminal shrouds	
Terminal shields	
Interphase-barrier	
Front panel escutcheons	
Coupling accessories	
Tightening torque for electrical connections (Nm)	
Dimensions and weights	
Overall dimensions H x W x D (mm)	3 poles
	4 poles
Approximate weight (kg)	3 poles
	4 poles
Enclosure dimensions for Ithe	
	H x W x D (mm)

	INS40	INS63	INS80	INS100	INS125	INS160
	b	b	b	b	b	b
	-	-	-	b	b	b
	b	b	b	-	-	-
	b	b	b	b	b	b
	b	b	b	b	b	b
	-	-	-	b	b	b
	-	-	-	-	-	-
	-	-	-	-	-	-
	b	b	b	b	b	b
	-	-	-	-	-	-
	-	-	-	-	-	-
	b	b	b	b	b	b
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	b	b	b	b	b	b
	b	b	b	b	b	b
	b	b	b	b	b	b
	b	b	b	b	b	b
	-	-	-	-	-	-
	b	b	b	b	b	b
	-	-	-	-	-	-
	b	b	b	b	b	b
	-	-	-	-	-	-
	0.7 < Nm < 1.3	0.7 < Nm < 1.3	0.7 < Nm < 1.3	1.4 < Nm < 2	1.4 < Nm < 2	1.4 < Nm < 2
	b	b	b	b	b	b
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	b	b	b	b	b	b
	b	b	b	b	b	b
	-	-	-	b	b	b
	-	-	-	-	-	-
	-	-	-	-	-	-
	5	5	5	8	8	8
	85 x 90 x 62.5	85 x 90 x 62.5	85 x 90 x 62.5	100 x 135 x 62.5	100 x 135 x 62.5	100 x 135 x 62.5
	85 x 90 x 62.5	85 x 90 x 62.5	85 x 90 x 62.5	100 x 135 x 62.5	100 x 135 x 62.5	100 x 135 x 62.5
	0.5	0.5	0.5	0.8	0.8	0.8
	0.6	0.6	0.6	0.9	0.9	0.9
	190 x 115 x 55	190 x 115 x 55	190 x 115 x 55	260 x 160 x 55	260 x 160 x 55	260 x 160 x 55

Compact INS switch-disconnector INS250-100 to INS630



Compact INS250 switch-disconnector



Compact INS250 emergency-off switch-disconnector

Compact INS630 switch-disconnector

Compact INS630 emergency-off switch-disconnector

Compact INS switch-disconnectors

Number of poles			
Electrical characteristics as defined by IEC 60947-1/60947-3 and EN 60947-1/60947-3			
Conventional thermal current (A)	Ith	at 60 °C	
Conventional thermal current in enclosure	Ithe	at 60 °C	
Rated insulation level (V)	Ui	AC 50/60 Hz	
Impulse-withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	AC 50/60 Hz	
		DC	
Rated operational voltage AC20 and DC20 (V)		AC 50/60 Hz	
Rated operational current (A)	Ie	Electrical AC	50/60 Hz
			220 – 240 V
			380 – 415 V
			440 – 480 V(1)
			500 – 525 V
			660 – 690 V
		Electrical DC	
			125 V (2P in series)
			250 V (4P in series)
Rated operational power AC23 (kW)		Electrical AC	50/60 Hz
			220 – 240 V
			230 V (NEMA)
			380 – 415 V
			440 V
			480 V (NEMA)
			500 – 525 V
			660 – 690 V
Rated duties		Uninterrupted duty	
		Intermittent duty	
Short-circuit making capacity (kA peak)	Icm	Min. (switch-disconnector alone)	
		Max. (with upstream protection circuit breaker)	
Short-time withstand current (A rms)	Icw	1 s	
		3 s	
		20 s	
		30 s	
Suitability for isolation			
Durability (O-C cycles)		Mechanical	
		Electrical AC	50/60 Hz
			440 V
			500 V
			690 V
		Electrical DC	
			250 V
Positive contact indication			
Visible break			
Emergency-off switch disconnector			
Degree of pollution			

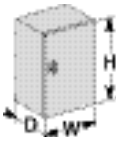
Upstream protection

See the “Complementary technical information” in the catalog Compact INS/INV LVPED213024EN.

(1) Suitable for 480 V NEMA.
(2) 550 A (DC).

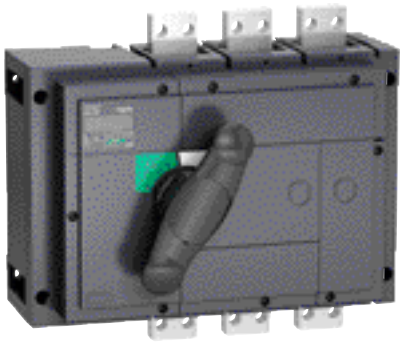
INS250-100		INS250-160		INS250-200		INS250		INS320		INS400		INS500		INS630		
3-4		3-4		3-4		3-4		3-4		3-4		3-4		3-4		
100		160		200		250		320		400		500		630		
100		160		200		250		320		400		500		630[2]		
800		800		800		800		800		800		800		800		
8		8		8		8		8		8		8		8		
690		690		690		690		690		690		690		690		
250		250		250		250		250		250		250		250		
750		750		750		750		750		750		750		750		
AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
100	100	160	160	200	200	250	250	320	320	400	400	500	500	630	630	
DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC23B
100	100	160	160	200	200	250	250	320	320	400	400	500	500	550	550	630
100	100	160	160	200	200	250	250	320	320	400	400	500	500	550	550	630
22		45		55		75		90		110		132		200		
22		45		55		75		90		110		150		200		
45		75		90		132		160		200		250		315		
55		90		110		150		185		220		250		400		
55		90		110		150		185		220		250		375		
55		110		132		160		220		250		355		400		
55		90		160		210		250		400		500		560		
b		b		b		b		b		b		b		b		
Class 120 - 60%		Class 120 - 60%		Class 120 - 60%		Class 120 - 60%		Class 120 - 60%		Class 120 - 60%		Class 120 - 60%		Class 120 - 60%		
30		30		30		30		50		50		50		50		
330		330		330		330		330		330		330		330		
8500		8500		8500		8500		20000		20000		20000		20000		
4900		4900		4900		4900		11500		11500		11500		11500		
2200		2200		2200		2200		4900		4900		4900		4900		
1800		1800		1800		1800		4000		4000		4000		4000		
b		b		b		b		b		b		b		b		
15000		15000		15000		15000		10000		10000		10000		10000		
AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	AC22A	AC23A	
1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	
1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	
1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	
DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC22A	DC23A	DC23A	DC23B	DC23A	DC23B	DC23A	DC23B	DC23A	DC23B	
1500	1500	1500	1500	1500	1500	1500	1500	1000	-	1000	-	1000	-	1000	200	
b		b		b		b		b		b		b		b		
-		-		-		-		-		-		-		-		
b		b		b		b		b		b		b		b		
3		3		3		3		3		3		3		3		
-		-		-		-		-		-		-		-		

Compact INS switch-disconnector INS250-100 to INS630

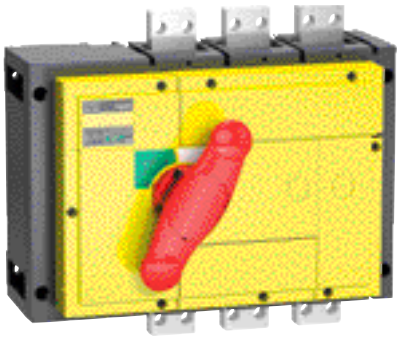
Compact INS switch-disconnectors	
Installation	
Fixed, front connection	
Fixed, rear connection	
On symmetrical rails	
On a backplate	
Connection	
By cables	To bare cable connectors
By cables with lugs	Directly to terminals
	To spreaders
	To vertical-connection adapters via cable-lug adapters
Flat-facing bars	Directly to terminals
	To spreaders
Edgewise bars	To vertical-connection adapters
Indication and measurement auxiliaries	
Auxiliary contacts	
Voltage-presence indicator	
Current-transformer module	
Ammeter module	
Control, locking and interlocking	
Control	Direct front rotary handle
	Extended front rotary handle
	Direct lateral rotary handle
	Extended lateral rotary handle
Locking	By keylock
	By padlocks
Interlocking	By keylock
	Mechanical
Complete source-changeover assembly	
Operating torque (Nm) (typical value for 3-4 poles with front handle)	
Installation and connection accessories	
Bare cable connectors	
Rear connectors	
Terminal extensions	
Spreaders	
One-piece spreader	
Terminal shrouds	
Terminal shields	
Interphase-barrier	
Front panel escutcheons	
Coupling accessories	
Tightening torque for electrical connections (Nm)	
Dimensions and weights	
Overall dimensions H x W x D (mm)	3 poles
	4 poles
Approximate weight (kg)	3 poles
	4 poles
Enclosure dimensions for Ithe	
	H x W x D (mm)

	INS250-100	INS250-160	INS250-200	INS250	INS320	INS400	INS500	INS630
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	-	-	-	-	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	-	-	-	-	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	-	-	-	-	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	-	-	-	-
	b	b	b	b	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	5 < Nm < 6.2	5 < Nm < 6.2	5 < Nm < 6.2	5 < Nm < 6.2	13.5 < Nm < 16.5	13.5 < Nm < 16.5	13.5 < Nm < 16.5	13.5 < Nm < 16.5
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	-	-	-	-
	-	-	-	-	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	15	15	15	15	50	50	50	50
	136 x 140 x 96	136 x 140 x 96	136 x 140 x 96	136 x 140 x 96	205 x 185 x 130	205 x 185 x 130	205 x 185 x 130	205 x 185 x 130
	136 x 140 x 96	136 x 140 x 96	136 x 140 x 96	136 x 140 x 96	205 x 185 x 130	205 x 185 x 130	205 x 185 x 130	205 x 185 x 130
	2	2	2	2	4.6	4.6	4.6	4.6
	2.2	2.2	2.2	2.2	4.9	4.9	4.9	4.9
	400 x 300 x 200	400 x 300 x 200	400 x 300 x 200	400 x 300 x 200	600 x 400 x 200	600 x 400 x 200	600 x 400 x 200	600 x 400 x 200

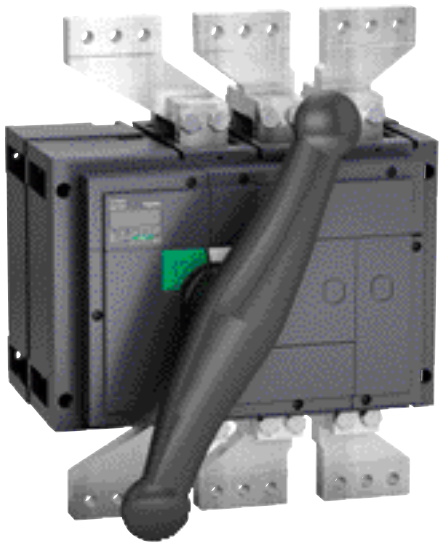
Compact INS switch-disconnector INS630b to INS2500



Compact INS1600 switch-disconnector



Compact INS1600 emergency-off switch-disconnector



Compact INS2500 switch-disconnector

Compact INS switch-disconnectors

Number of poles			
Electrical characteristics as defined by IEC 60947-1/60947-3 and EN 60947-1/60947-3			
Conventional thermal current (A)	Ith	at 60 °C	
Conventional thermal current in enclosure	Ithe	at 60 °C	
Rated insulation level (V)	Ui	AC 50/60 Hz	
Impulse-withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	AC 50/60 Hz	
		DC	
Rated operational voltage AC20 and DC20 (V)		AC 50/60 Hz	
Rated operational current (A)	Ie	Electrical AC	50/60 Hz
			220 – 240 V
			380 – 415 V
			440 – 480 V(1)
			500 – 525 V
			660 – 690 V
		Electrical DC	
			125 V (2P in series)
			250 V (4P in series)
Rated operational power AC23 (kW)		Electrical AC	50/60 Hz
			220 – 240 V
			380 – 400 V
			415 V
			500 – 525 V
			660 – 690 V
Rated duties		Uninterrupted duty	
		Intermittent duty	
Short-circuit making capacity (kA peak)	Icm	Min. (switch-disconnector alone)	
		Max. (with upstream protection circuit breaker)	
Short-time withstand current (kA rms)	Icw	0.5 s	
		0.8 s	
		1 s	
		3 s	
		20 s	
		30 s	
Suitability for isolation			
Durability (O-C cycles)		Mechanical	
		Electrical AC	50/60 Hz
			220 – 240 V
			380 – 415 V
			440 – 480 V(1)
			500 – 525 V
			660 – 690 V
		Electrical DC	
			125 V (2P)
			250 V (4P)
Positive contact indication			
Visible break			
Emergency-off switch disconnector			
Degree of pollution			

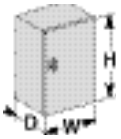
Upstream protection

See the "Complementary technical information" in the catalog Compact INS/INV LVPED213024EN.

(1) Suitable for 480 V NEMA.
(2) For vertical connection busbars only. For horizontal connection busbars, see derating charts in "Installation recommendations" in the catalog Compact INS/INV LVPED213024EN.

INS630b			INS800			INS1000			INS1250			INS1600			INS2000			INS2500		
3-4			3-4			3-4			3-4			3-4			3-4			3-4		
630			800			1000			1250			1600[2]			2000			2500		
630			800			1000			1250			1600[2]			2000			2500		
1000			1000			1000			1000			1000			1000			1000		
12			12			12			12			12			12			12		
690			690			690			690			690			690			690		
250			250			250			250			250			250			250		
800			800			800			800			800			800			800		
AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21B AC21A	AC22B AC22A	AC23A	AC21B	AC22B	AC23B	AC21B	AC22B	AC23B
630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1450	1600 1450	1250	2000	2000	-	2500	2500	-
630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1450	1600 1450	1250	2000	2000	-	2500	2500	-
630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1250	1600 1250	1250	2000	2000	-	2500	2500	-
630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1250	1600 1250	1250	2000	2000	-	2500	2500	-
630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1250	1600 1250	1250	2000	2000	-	2500	2500	-
DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21B	DC22B	DC23B	DC21B	DC22B	DC23B
630/2 630/4	630/2 630/4	630/2 630/4	800/2 800/4	800/2 800/4	800/2 800/4	1000/2 1000/4	1000/2 1000/4	1000/2 1000/4	1250/2 1250/4	1250/2 1250/4	1250/2 1250/4	1600/2 1600/4	1600/2 1600/4	1600/2 1600/4	2000/2 2000/4	2000/2 2000/4	- -	2500/2 2500/4	2500/2 2500/4	- -
250			250			315			400			400			-			-		
400			400			560			710			710			-			-		
500			500			630			800			800			-			-		
560			560			710			900			900			-			-		
710			710			900			-			-			-			-		
b			b			b			b			b			b			b		
Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%		
75			75			75			75			75			105			105		
330			330			330			330			330			330			330		
50			50			50			50			50			50			50		
42			42			42			42			42			50			50		
35			35			35			35			35			50			50		
20			20			20			20			20			30			30		
10			10			10			10			10			13			13		
8			8			8			8			8			11			11		
b			b			b			b			b			b			b		
5000			3000			3000			3000			3000			3000			3000		
AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21B AC21A	AC22B AC22A	AC23A	AC21B	AC22B	AC23B	AC21B	AC22B	AC23B
1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23B	DC21B	DC22B	DC23B	DC21B	DC22B	DC23B
1000	1000	1000	500	500	500	500	500	500	500	500	500	500	500	500	100	100	-	100	100	-
1000	1000	1000	500	500	500	500	500	500	500	500	500	500	500	500	100	100	-	100	100	-
b			b			b			b			b			b			b		
-			-			-			-			-			-			-		
b			b			b			b			b			-			-		
3			3			3			3			3			3			3		
-			-			-			-			-			-			-		

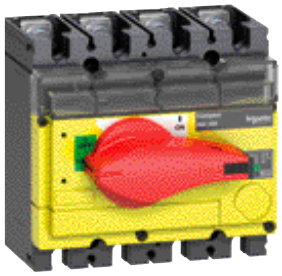
Compact INS switch-disconnector INS630b to INS2500

Compact INS switch-disconnectors	
Installation	
Fixed, front connection	
Fixed, rear connection	
On symmetrical rails	
On a backplate	
Connection	
By cables	To bare cable connectors
By cables with lugs	Directly to terminals
	To spreaders
	To vertical-connection adapters via cable-lug adapters
Flat-facing bars	Directly to terminals
	To spreaders
Edgewise bars	To vertical-connection adapters
Indication and measurement auxiliaries	
Auxiliary contacts	
Voltage-presence indicator	
Current-transformer module	
Ammeter module	
Control, locking and interlocking	
Control	Direct front rotary handle
	Extended front rotary handle
	Direct lateral rotary handle
	Extended lateral rotary handle
Locking	By keylock
	By padlocks
Interlocking	By keylock
	Mechanical
Complete source-changeover assembly	
Operating torque (Nm) (typical value for 3-4 poles with front handle)	
Installation and connection accessories	
Bare cable connectors	
Rear connectors	
Terminal extensions	
Spreaders	
One-piece spreader	
Terminal shrouds	
Terminal shields	
Interphase-barrier	
Front panel escutcheons	
Coupling accessories	
Tightening torque for electrical connections (Nm)	
Dimensions and weights	
Overall dimensions H x W x D (mm)	3 poles
	4 poles
Approximate weight (kg)	3 poles
	4 poles
Enclosure dimensions for Ithe	
	H x W x D (mm)

	INS630b	INS800	INS1000	INS1250	INS1600	INS2000	INS2500
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	b	b
	-	-	-	-	-	-	-
	b	b	b	b	b	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	-	-
	b	b	b	b	b	-	-
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	30	30	30	30	30	60	60
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	50	50	50	50	50	50	50
	300 x 340 x 146.5	300 x 340 x 146.5	300 x 340 x 146.5	300 x 340 x 146.5	300 x 340 x 146.5	440 x 347.5 x 227.5	440 x 347.5 x 227.5
	300 x 410 x 146.5	300 x 410 x 146.5	300 x 410 x 146.5	300 x 410 x 146.5	300 x 410 x 146.5	440 x 462.5 x 227.5	440 x 462.5 x 227.5
	14	14	14	14	14	35	35
	18	18	18	18	18	45	45
	-	-	-	-	-	-	-

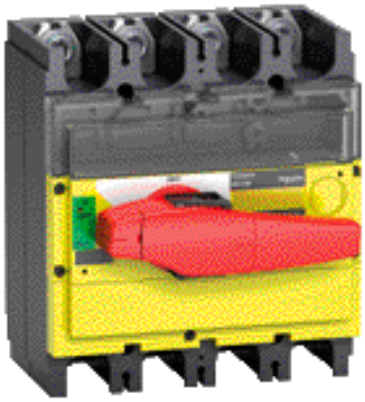
Compact INV switch-disconnector INV100 to INV630

Compact INV250 switch-disconnector



Compact INV250 emergency-off switch-disconnector

Compact INV630 switch-disconnector



Compact INV630 emergency-off switch-disconnector

Compact INV switch-disconnectors

Number of poles			
Electrical characteristics as defined by IEC 60947-1/60947-3 and EN 60947-1/60947-3			
Conventional thermal current (A)	Ith	at 60 °C	
Conventional thermal current in enclosure	Ithe	at 60 °C	
Rated insulation level (V)	Ui	AC 50/60 Hz	
Impulse-withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	AC 50/60 Hz	
		DC	
Rated operational voltage AC20 and DC20 (V)		AC 50/60 Hz	
Rated operational current (A)	Ie	Electrical AC	50/60 Hz
			220 – 240 V
			380 – 415 V
			440 – 480 V(1)
			500 – 525 V
			660 – 690 V
		Electrical DC	
			125 V (2P in series)
			250 V (4P in series)
Rated operational power AC23 (kW)		Electrical AC	50/60 Hz
			220 – 240 V
			230 V (NEMA)
			380 – 415 V
			440 V
			480 V (NEMA)
			500 – 525 V
			660 – 690 V
Rated duties		Uninterrupted duty	
		Intermittent duty	
Short-circuit making capacity (kA peak)	Icm	Min. (switch-disconnector alone)	
		Max. (with upstream protection circuit breaker)	
Short-time withstand current (A rms)	Icw	1 s	
		3 s	
		20 s	
		30 s	
Suitability for isolation			
Durability (O-C cycles)		Mechanical	
		Electrical AC	50/60 Hz
			440 V
			500 V
			690 V
		Electrical DC	
			250 V
Positive contact indication			
Visible break			
Emergency-off switch disconnector			
Degree of pollution			

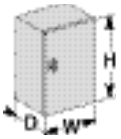
Upstream protection

See the “Complementary technical information” in the catalog Compact INS/INV LVPED213024EN.

(1) Suitable for 480 V NEMA.
(2) 550 A (DC).

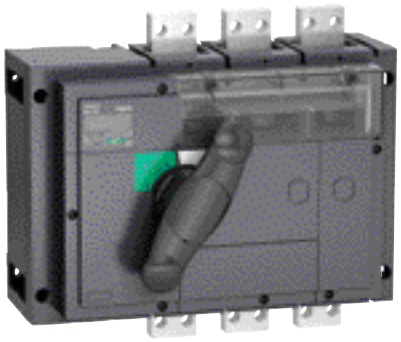
INV100			INV160			INV200			INV250			INV320			INV400			INV500			INV630		
3-4			3-4			3-4			3-4			3-4			3-4			3-4			3-4		
100			160			200			250			320			400			500			630		
100			160			200			250			320			400			500			630[2]		
800			800			800			800			800			800			800			800		
8			8			8			8			8			8			8			8		
690			690			690			690			690			690			690			690		
250			250			250			250			250			250			250			250		
750			750			750			750			750			750			750			750		
AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A
100	100	100	160	160	160	200	200	200	250	250	250	320	320	320	400	400	400	500	500	500	630	630	630
100	100	100	160	160	160	200	200	200	250	250	250	320	320	320	400	400	400	500	500	500	630	630	630
100	100	100	160	160	160	200	200	200	250	250	250	320	320	320	400	400	400	500	500	500	630	630	630
100	100	100	160	160	160	200	200	200	250	250	250	320	320	320	400	400	400	500	500	500	630	630	630
100	100	100	160	160	160	200	200	200	250	250	250	320	320	320	400	400	400	500	500	500	630	630	630
DC21A	DC22A	DC23B	DC21A	DC22A	DC23B	DC21A	DC22A	DC23B	DC21A	DC22A	DC23B	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A/ DC23B
100	100	100	160	160	160	200	200	200	250	250	250	320	320	320	400	400	400	500	500	500	550	550	550/630
100	100	100	160	160	160	200	200	200	250	250	250	320	320	320	400	400	400	500	500	500	550	550	550/630
22			45			55			75			90			110			132			200		
22			45			55			75			90			110			150			200		
45			75			90			132			160			200			250			315		
55			90			110			150			185			220			250			400		
55			50			110			150			185			220			250			375		
55			110			132			132			220			250			355			400		
55			90			160			160			250			400			500			560		
b			b			b			b			b			b			b			b		
Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%		
30			30			30			30			50			50			50			50		
330			330			330			330			330			330			330			330		
8500			8500			8500			8500			20000			20000			20000			20000		
4900			4900			4900			4900			11500			11500			11500			11500		
2200			2200			2200			2200			4900			4900			4900			4900		
1800			1800			1800			1800			4000			4000			4000			4000		
b			b			b			b			b			b			b			b		
15000			15000			15000			15000			10000			10000			10000			10000		
AC22A	AC23A		AC22A	AC23A		AC22A	AC23A		AC22A	AC23A		AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A/ AC23B
1500	1500		1500	1500		1500	1500		1500	1500		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
1500	1500		1500	1500		1500	1500		1500	1500		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000/200
1500	1500		1500	1500		1500	1500		1500	1500		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000/200
DC22A	DC23A		DC22A	DC23A		DC22A	DC23A		DC22A	DC23A		DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A/ DC23B
1500	1500		1500	1500		1500	1500		1500	1500		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000/200
b			b			b			b			b			b			b			b		
b			b			b			b			b			b			b			b		
b			b			b			b			b			b			b			b		
3			3			3			3			3			3			3			3		
-			-			-			-			-			-			-			-		

Compact INV switch-disconnector INV100 to INV630

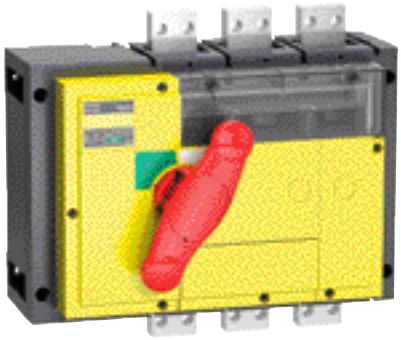
Compact INV switch-disconnectors	
Installation	
Fixed, front connection	
Fixed, rear connection	
On symmetrical rails	
On a backplate	
Connection	
By cables	To bare cable connectors
By cables with lugs	Directly to terminals
	To spreaders
	To vertical-connection adapters via cable-lug adapters
Flat-facing bars	Directly to terminals
	To spreaders
Edgewise bars	To vertical-connection adapters
Indication and measurement auxiliaries	
Auxiliary contacts	
Voltage-presence indicator	
Current-transformer module	
Ammeter module	
Control, locking and interlocking	
Control	Direct front rotary handle
	Extended front rotary handle
	Direct lateral rotary handle
	Extended lateral rotary handle
Locking	By keylock
	By padlocks
Interlocking	By keylock
	Mechanical
Complete source-changeover assembly	
Operating torque (Nm) (typical value for 3-4 poles with front handle)	
Installation and connection accessories	
Bare cable connectors	
Rear connectors	
Terminal extensions	
Spreaders	
One-piece spreader	
Terminal shrouds	
Terminal shields	
Interphase-barrier	
Front panel escutcheons	
Coupling accessories	
Tightening torque for electrical connections (Nm)	
Dimensions and weights	
Overall dimensions H x W x D (mm)	3 poles
	4 poles
Approximate weight (kg)	3 poles
	4 poles
Enclosure dimensions for Ithe	
	H x W x D (mm)

	INV100	INV160	INV200	INV250	INV320	INV400	INV500	INV630
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	-	-	-	-	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	-	-	-	-	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	-	-	-	-	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	-	-	-	-
	b	b	b	b	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	-	-	-	-	-	-	-	-
	5 < Nm < 6.2	5 < Nm < 6.2	5 < Nm < 6.2	5 < Nm < 6.2	13.5 < Nm < 16.5	13.5 < Nm < 16.5	13.5 < Nm < 16.5	13.5 < Nm < 16.5
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	-	-	-	-	-	-	-	-
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	b	b	b	b	b	b	b	b
	15	15	15	15	50	50	50	50
	136 x 140 x 96	136 x 140 x 96	136 x 140 x 96	136 x 140 x 96	205 x 185 x 130	205 x 185 x 130	205 x 185 x 130	205 x 185 x 130
	136 x 140 x 96	136 x 140 x 96	136 x 140 x 96	136 x 140 x 96	205 x 185 x 130	205 x 185 x 130	205 x 185 x 130	205 x 185 x 130
	2	2	2	2	4.6	4.6	4.6	4.6
	2.2	2.2	2.2	2.2	4.9	4.9	4.9	4.9
	400 x 300 x 200	400 x 300 x 200	400 x 300 x 200	400 x 300 x 200	600 x 400 x 200	600 x 400 x 200	600 x 400 x 200	600 x 400 x 200

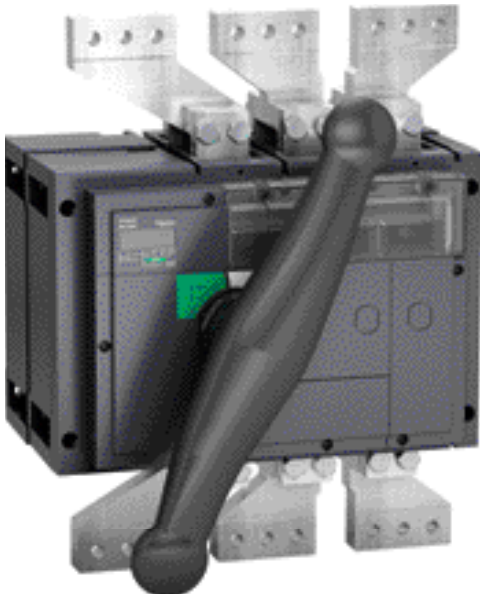
Compact INV switch-disconnector INV630b to INV2500



Compact INV1600 switch-disconnector



Compact INV1600 emergency-off switch-disconnector



Compact INV2500 switch-disconnector

Compact INV switch-disconnectors

Number of poles			
Electrical characteristics as defined by IEC 60947-1/60947-3 and EN 60947-1/60947-3			
Conventional thermal current (A)	Ith	at 60 °C	
Conventional thermal current in enclosure	Ithe	at 60 °C	
Rated insulation level (V)	Ui	AC 50/60 Hz	
Impulse-withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	AC 50/60 Hz	
		DC	
Rated operational voltage AC20 and DC20 (V)		AC 50/60 Hz	
Rated operational current (A)	Ie	Electrical AC	50/60 Hz
			220 – 240 V
			380 – 415 V
			440 – 480 V(1)
			500 – 525 V
			660 – 690 V
		Electrical DC	
			125 V (2P in series)
			250 V (4P in series)
Rated operational power AC23 (kW)		Electrical AC	50/60 Hz
			220 – 240 V
			380 – 400 V
			415 V
			500 – 525 V
			660 – 690 V
Rated duties		Uninterrupted duty	
		Intermittent duty	
Short-circuit making capacity (kA peak)	Icm	Min. (switch-disconnector alone)	
		Max. (with upstream protection circuit breaker)	
Short-time withstand current (kA rms)	Icw	0.5 s	
		0.8 s	
		1 s	
		3 s	
		20 s	
		30 s	
Suitability for isolation			
Durability (O-C cycles)		Mechanical	
		Electrical AC	50/60 Hz
			220 – 240 V
			380 – 415 V
			440 – 480 V(1)
			500 – 525 V
			660 – 690 V
		Electrical DC	
			125 V (2P)
			250 V (4P)
Positive contact indication			
Visible break			
Emergency-off switch disconnector			
Degree of pollution			

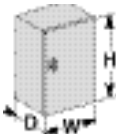
Upstream protection

See the "Complementary technical information" in the catalog Compact INS/INV LVPED213024EN.

(1) Suitable for 480 V NEMA.
(2) For vertical connection busbars only. For horizontal connection busbars, see derating charts in “Installation recommendations” in the catalog Compact INS/INV LVPED213024EN.

	INV630b			INV800			INV1000			INV1250			INV1600			INV2000			INV2500		
	3-4			3-4			3-4			3-4			3-4			3-4			3-4		
	630			800			1000			1250			1600[2]			2000			2500		
	630			800			1000			1250			1600 [2]			2000			2500		
	1000			1000			1000			1000			1000			1000			1000		
	12			12			12			12			12			12			12		
	690			690			690			690			690			690			690		
	250			250			250			250			250			250			250		
	800			800			800			800			800			800			800		
	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21B AC21A	AC22B AC22A	AC23A	AC21B	AC22B	AC23B	AC21B	AC22B	AC23B
	630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1450	1600 1450	1250	2000	2000	-	2500	2500	-
	630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1450	1600 1450	1250	2000	2000	-	2500	2500	-
	630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1250	1600 1250	1250	2000	2000	-	2500	2500	-
	630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1250	1600 1250	1250	2000	2000	-	2500	2500	-
	630	630	630	800	800	800	1000	1000	1000	1250	1250	1250	1600 1250	1600 1250	1250	2000	2000	-	2500	2500	-
	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21B	DC22B	DC23B	DC21B	DC22B	DC23B
	630/2	630/2	630/2	800/2	800/2	800/2	1000/2	1000/2	1000/2	1250/2	1250/2	1250/2	1600/2	1600/2	1600/2	2000/2	2000/2	-	2500/2	2500/2	-
	630/4	630/4	630/4	800/4	800/4	800/4	1000/4	1000/4	1000/4	1250/4	1250/4	1250/4	1600/4	1600/4	1600/4	2000/4	2000/4	-	2500/4	2500/4	-
	250 400 500 560 710			250 400 500 560 710			315 560 630 710 900			400 710 800 900 -			400 710 800 900 -			- - - - -			- - - - -		
	b			b			b			b			b			b			b		
	Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%			Class 120 - 60%		
	75			75			75			75			75			105			105		
	330			330			330			330			330			330			330		
	50			50			50			50			50			50			50		
	42			42			42			42			42			50			50		
	35			35			35			35			35			50			50		
	20			20			20			20			20			30			30		
	10			10			10			10			10			13			13		
	8			8			8			8			8			11			11		
	b			b			b			b			b			b			b		
	5000			3000			3000			3000			3000			3000			3000		
	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21A	AC22A	AC23A	AC21B AC21A	AC22B AC22A	AC23A	AC21B	AC22B	AC23B	AC21B	AC22B	AC23B
	1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
	1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
	1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
	1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
	1000	1000	1000	500	500	500	500	500	500	500	500	500	100 500	100 500	500	100	100	-	100	100	-
	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23A	DC21A	DC22A	DC23B	DC21B	DC22B	DC23B	DC21B	DC22B	DC23B
	1000	1000	1000	500	500	500	500	500	500	500	500	500	500	500	500	100	100	-	100	100	-
	1000	1000	1000	500	500	500	500	500	500	500	500	500	500	500	500	100	100	-	100	100	-
	b			b			b			b			b			b			b		
	b			b			b			b			b			b			b		
	b			b			b			b			b			-			-		
	3			3			3			3			3			3			3		
	-			-			-			-			-			-			-		

Compact INV switch-disconnector INV630b to INV2500

Compact INV switch-disconnectors	
Installation	
Fixed, front connection	
Fixed, rear connection	
On symmetrical rails	
On a backplate	
Connection	
By cables	To bare cable connectors
By cables with lugs	Directly to terminals
	To spreaders
	To vertical-connection adapters via cable-lug adapters
Flat-facing bars	Directly to terminals
	To spreaders
Edgewise bars	To vertical-connection adapters
Indication and measurement auxiliaries	
Auxiliary contacts	
Voltage-presence indicator	
Current-transformer module	
Ammeter module	
Control, locking and interlocking	
Control	Direct front rotary handle
	Extended front rotary handle
	Direct lateral rotary handle
	Extended lateral rotary handle
Locking	By keylock
	By padlocks
Interlocking	By keylock
	Mechanical
Complete source-changeover assembly	
Operating torque (Nm) (typical value for 3-4 poles with front handle)	
Installation and connection accessories	
Bare cable connectors	
Rear connectors	
Terminal extensions	
Spreaders	
One-piece spreader	
Terminal shrouds	
Terminal shields	
Interphase-barrier	
Front panel escutcheons	
Coupling accessories	
Tightening torque for electrical connections (Nm)	
Dimensions and weights	
Overall dimensions H x W x D (mm)	3 poles
	4 poles
Approximate weight (kg)	3 poles
	4 poles
Enclosure dimensions for Ithe	
	H x W x D (mm)

	INV630b	INV800	INV1000	INV1250	INV1600	INV2000	INV2500
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	b	b
	-	-	-	-	-	-	-
	b	b	b	b	b	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	-	-
	b	b	b	b	b	-	-
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	30	30	30	30	30	60	60
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	b	b	b	b	b	b	b
	-	-	-	-	-	-	-
	50	50	50	50	50	50	50
	300 x 340 x 146.5	300 x 340 x 146.5	300 x 340 x 146.5	300 x 340 x 146.5	300 x 340 x 146.5	440 x 347.5 x 227.5	440 x 347.5 x 227.5
	300 x 410 x 146.5	300 x 410 x 146.5	300 x 410 x 146.5	300 x 410 x 146.5	300 x 410 x 146.5	440 x 462.5 x 227.5	440 x 462.5 x 227.5
	14	14	14	14	14	35	35
	18	18	18	18	18	45	45
	-	-	-	-	-	-	-

Masterpact NT circuit breaker NT06 to NT16

Common characteristics

Number of poles		3/4
Rated insulation voltage (V)	Ui	1000
Impulse withstand voltage (kV)	Uimp	12
Rated operational voltage (V AC 50/60 Hz)	Ue	690
Suitability for isolation	IEC 60947-2	
Degree of pollution	IEC 60664-1	3

Basic sweatchgear

Circuit breaker as per IEC 60947-2

Rated current (A)	In	at 40 °C/50 °C(1)
Rating of 4th pole (A)		
Sensor ratings (A)		
Type of circuit breaker		
Ultimate breaking capacity (kA rms)	Icu	220/415 V
V AC 50/60 Hz		440 V
		525 V
		690 V
Rated service breaking capacity (kA rms)	Ics	% Icu
Utilization category		
Rated short-time withstand current (kA rms)	Icw	0.5 s
V AC 50/60 Hz		1 s
		3 s
Integrated instantaneous protection (kA peak ±10%)		
Rated making capacity (kA peak)	Icm	220/415 V
V AC 50/60 Hz		440 V
		525 V
		690 V
Break time (ms) between tripping order and arc extinction		
Closing time (ms)		

Circuit breaker as per NEMA AB1

Breaking capacity (kA)	240 V
V AC 50/60 Hz	480 V
	600 V

Switch-disconnector as per IEC 60947-3 and Annex A

Type of switch-disconnector		
Rated making capacity (kA peak)	Icm	220 V
AC23A/AC3 category V AC 50/60 Hz		440 V
		525/690 V
Rated short-time withstand current (kA rms)	Icw	0.5 s
AC23A/AC3 category V AC 50/60 Hz		1 s
		3 s
Ultimate breaking capacity Icu (kA rms) with an external protection relay Maximum time delay: 350 ms		690 V

Mechanical and electrical durability as per IEC 60947-2/3 at In/Ie

Durability	Mechanical	without maintenance		
C/O cycles x 1000				
Type of circuit breaker				
Rated current			**In (A)**	
C/O cycles x 1000	Electrical	without maintenance		440 V(3)
IEC 60947-2				690 V
Type of circuit breaker or switch-disconnector				
Rated operationnal current			**Ie (A)**	**AC23A**
C/O cycles x 1000	Electrical	without maintenance		440 V(3)
IEC 60947-3				690V
Type of circuit breaker or switch-disconnector				
Rated operationnal current			**Ie (A)**	**AC3 (4)**
Motor power				380/415 V (kW)
				440 V (kW)
C/O cycles x 1000	Electrical	without maintenance		440 V(3)
IEC 60947-3 Annex M/IEC 60947-4-1				690 V

(1) 50 °C: rear vertical connected. Refer to temperature derating tables for other connection types.
(2) SELLIM system.
(3) Available for 480 V NEMA.
(4) Suitable for motor control (direct-on-line starting).

Sensor selection							
Sensor rating (A)	250[1]	400	630	800	1000	1250	1600
Ir threshold setting (A)	100 to 250	160 to 400	250 to 630	320 to 800	400 to 1000	500 to 1250	640 to 1600

(1) For circuit breaker NT02, please consult us.

	NT06			NT08			NT10			NT12		NT16	
	630			800			1000			1250		1600	
	630			800			1000			1250		1600	
	400 to 630			400 to 800			400 to 1000			630 to 1250		800 to 1600	
	H1	H2	L1							H1	H2		
	42	50	150							42	50		
	42	50	130							42	50		
	42	42	100							42	42		
	42	42	25							42	42		
	100%									100%			
	B	B	A							B	B		
	42	42	10							42	42		
	42	42	-							42	42		
	24	20	-							24	20		
	-	90	10 x In[2]							-	90		
	88	105	330							88	105		
	88	105	286							88	105		
	88	88	220							88	88		
	88	88	52							88	88		
	25	25	9							25	25		
	< 50									< 50			
	42	50	150							42	50		
	42	50	100							42	50		
	42	42	25							42	42		
	HA									HA			
	75									75			
	75									75			
	75									75			
	36									36			
	36									36			
	20									20			
	36									36			
	12.5												
	H1	H2	L1	H1	H2	L1	H1	H2	L1	H1	H2	H1	H2
	630			800			1000			1250		1600	
	6	6	3	6	6	3	6	6	3	6	6	6	6
	3	3	2	3	3	2	3	3	2	3	3	3	3
	H1/H2/HA												
	630			800			1000			1250		1600	
	6			6			6			6		3	
	3			3			3			3		1	
	H1/H2/HA												
	500			630			800			1000		1000	
	y 250			250 to 335			335 to 450			450 to 560		450 to 560	
	y 300			300 to 400			400 to 500			500 to 630		500 to 630	
	6												
	-												

Masterpact NW circuit breaker NW08 to NW63

Common characteristics

Number of poles		3/4	
Rated insulation voltage (V)	Ui	1000	1250 for H10, HA10
Impulse withstand voltage (kV)	Uimp	12	12
Rated operational voltage (V AC 50/60 Hz)	Ue	690	1150 for H10, HA10
Suitability for isolation	IEC 60947-2		
Degree of pollution	IEC 60664-1	4 (1000 V)/3 (1250 V)	

Basic circuit breaker

Circuit breaker as per IEC 60947-2

Rated current (A)			at 40 °C/50 °C(1)
Rating of 4th pole (A)			
Sensor ratings (A)			
Type of circuit breaker			
Ultimate breaking capacity (kA rms) V AC 50/60 Hz	Icu		220/415/440 V 525 V 690 V 1150 V
Rated service breaking capacity (kA rms)	Ics		% Icu
Utilization category			
Rated short-time withstand current (kA rms) V AC 50/60 Hz	Icw		1 s 3 s
Integrated instantaneous protection (kA peak ±10%)			
Rated making capacity (kA peak) V AC 50/60 Hz	Icm		220/415/440 V 525 V 690 V 1150 V
Break time (ms) between tripping order and arc extinction			
Closing time (ms)			

Circuit breaker as per NEMA AB1

Breaking capacity (kA) V AC 50/60 Hz		240/480 V 600 V

Unprotected circuit breaker

Tripping by shunt trip as per IEC 60947-2

Type of circuit breaker		
Ultimate breaking capacity (kA rms) V AC 50/60 Hz	Icu	220 … 690 V
Rated service breaking capacity (kA rms)	Ics	% Icu
Rated short-time withstand current (kA rms)	Icw	1 s 3 s
Overload and short-circuit protection External protection relay: short-circuit protection, maximum delay: 350 ms(3)		
Rated making capacity (kA peak) V AC 50/60 Hz	Icm	220 … 690 V

Switch-disconnector as per IEC 60947-3 and Annex A

Type of switch-disconnector		
Rated making capacity (kA peak) AC23A/AC3 category V AC 50/60 Hz	Icm	220 … 690 V 1150 V
Rated short-time withstand current (kA rms) AC23A/AC3 category V AC 50/60 Hz	Icw	1 s 3 s

Earthing switch

Latching capacity (kA peak)		135
Rated short time withstand (kA rms)	Icw	1 s 3 s

Mechanical and electrical durability as per IEC 60947-2/3 at In/Ie

Durability	Mechanical	with maintenance		
C/O cycles x 1000		without maintenance		
Type of circuit breaker				
Rated current			In (A)	
C/O cycles x 1000	Electrical	without maintenance		440 V(4)
IE C 60947-2				690 V
				1150 V
Type of circuit breaker or switch-disconnector				
Rated operational current			Ie (A)	AC23A
C/O cycles x 1000	Electrical	without maintenance		440 V(4)
IEC 60947-3				690 V
Type of circuit breaker or switch-disconnector				
Rated operational current			Ie (A)	AC3(5)
Motor power				380/415 V (kW)
				440 V(4) (kW)
				690 V (kW)
C/O cycles x 1000	Electrical	without maintenance		440/690 V(4)
IEC 60947-3 Annex M/IEC 60947-4-1				

(1) 50 °C: rear vertical connected. Refer to temperature derating tables for other connection types.
(2) Equipped with a trip unit with a making current of 90 kA peak.
(3) External protection must comply with permissible thermal constraints of the circuit breaker (please consult us). No fault-trip indication by the SDE or the reset button.
(4) Available for 480 V NEMA.
(5) Suitable for motor control (direct-on-line starting).

Sensor selection

Sensor rating (A)	250[1]	400	630	800	1000	1250	1600	2000	2500	3200	4000	5000	6300
Ir threshold setting(A)	100 to 250	160 to 400	250 to 630	320 to 800	400 to 1000	500 to 1250	630 to 1600	800 to 2000	1000 to 2500	1250 to 3200	1600 to 4000	2000 to 5000	2500 to 6300

(1) For circuit breaker NW02, please consult us.

	NW08	NW10	NW12	NW16		NW20						NW25	NW32	NW40		NW40b	NW50	NW63
	800	1000	1250	1600		2000						2500	3200	4000		4000	5000	6300
	800	1000	1250	1600		2000						2500	3200	4000		4000	5000	6300
	400 to 800	400 to 1000	630 to 1250	800 to 1600		1000 to 2000						1250 to 2500	1600 to 3200	2000 to 4000		2000 to 4000	2500 to 5000	3200 to 6300
	N1	H1	H2	L1	H10	N1	H1	H2	H3	L1	H10	H1	H2	H3	H10	H1	H2	
	42	65	100	150	-	42	65	100	150	150	-	65	100	150	-	100	150	
	42	65	85	130	-	42	65	85	130	130	-	65	85	130	-	100	130	
	42	65	85	100	-	42	65	85	100	100	-	65	85	100	-	100	100	
	-	-	-	-	50	-	-	-	-	-	50	-	-	-	50	-	-	
	100%					100%						100%				100%		
	B					B						B				B		
	42	65	85	30	50	42	65	85	65	30	50	65	85	65	50	100	100	
	22	36	50	30	50	22	36	75	65	30	50	65	75	65	50	100	100	
	-	-	190	80	-	-	-	190	150	80	-	-	190	150	-	-	270	
	88	143	220	330	-	88	143	220	330	330	-	143	220	330	-	220	330	
	88	143	187	286	-	88	143	187	286	286	-	143	187	286	-	220	286	
	88	143	187	220	-	88	143	187	220	220	-	143	187	220	-	220	220	
	-	-	-	-	105	-	-	-	-	-	105	-	-	-	105	-	-	
	25	25	25	10	25	25	25	25	25	10	25	25	25	25	25	25	25	
	< 70					< 70	< 70					< 70				< 80		
	42	65	100	150	-	42	65	100	150	150	-	65	100	150	-	100	150	
	42	65	85	100	-	42	65	85	100	100	-	65	85	100	-	100	100	
		HA	HF[2]				HA	HF[2]				HA	HF[2]			HA		
		50	85				50	85				55	85			85		
		100%					100%					100%				100%		
		50	85				50	85				55	85			85		
		36	50				36	75				55	75			85		
		-	-				-	-				-	-			-		
		105	187				105	187				121	187			187		

	NW08/NW10/NW12/NW16				NW20			NW25/NW32/NW40			NW40b/NW50/NW63
	NA	HA	HF	HA10	HA	HF	HA10	HA	HF	HA10	HA
	88	105	187	-	105	187	-	121	187	-	187
	-	-	-	105	-	-	105	-	-	105	-
	42	50	85	50	50	85	50	55	85	50	85
	-	36	50	50	36	75	50	55	75	50	85
	60										
	50										
	25				20						10
	12.5				10						5
	N1/H1/H2	L1	H10		N1/H1/H2	H3	L1	H10	H1/H2	H3	H10	H1	H2
	800/1000/1250/1600				2000				2500/3200/4000			4000b/5000/6300	
	10	3	-		8	2	3	-	5	1.25	-	1.5	1.5
	10	3	-		6	2	3	-	2.5	1.25	-	1.5	1.5
	-	-	0.5		-	-	-	0.5	-	-	0.5	-	-
	H1/H2/NA/HA/HF				H1/H2/H3/HA/HF				H1/H2/H3/HA/HF			H1/H2/HA	
	800/1000/1250/1600				2000				2500/3200/4000			4000b/5000/6300	
	10				8				5			1.5	
	10				6				2.5			1.5	
	H1/H2/NA/HA/HF				H1/H2/H3/HA/HF								
	800	1000	1250	1600	2000								
	335 to 450	450 to 560	560 to 670	670 to 900	900 to 1150								
	400 to 500	500 to 630	500 to 800	800 to 1000	1000 to 1300								
	y 800	800 to 1000	1000 to 1250	1250 to 1600	1600 to 2000								
	6												

Micrologic control units
Overview of functions

All Masterpact circuit breakers are equipped with a Micrologic control unit that can be changed on site. Control units are designed to protect power circuits and loads. Alarms may be programmed for remote indications.

Measurements of current, voltage, frequency, power, and power quality optimize continuity of service and energy management.

Dependability
Integration of protection functions in an ASIC electronic component used in all Micrologic control units guarantees a high degree of reliability and immunity to conducted or radiated disturbances.
On Micrologic A, E, P, and H control units, advanced functions are managed by an independent microprocessor.

Accessories
Certain functions require the addition of Micrologic control unit accessories, described in the catalog Masterpact NT/NW LVPED208008EN, on page 28.
The rules governing the various possible combinations can be found in the documentation accessible via the Products and services menu of the www.schneider-electric.com/sg web site.

Micrologic name codes

2.0 E
X Y Z

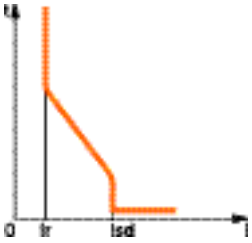
X: type of protection
- b 2 for basic protection
- b 5 for selective protection
- b 6 for selective + earth-fault protection
- b 7 for selective + earth-leakage protection.

Y: control-unit generation
Identification of the control-unit generation.
“0” signifies the first generation.

Z: type of measurement
- b A for “ammeter”
- b E for “energy”
- b P for “power meter”
- b H for “harmonic meter”.

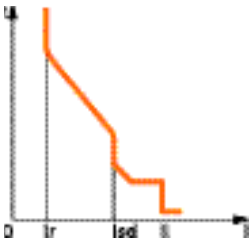
Current protection

Micrologic 2: basic protection



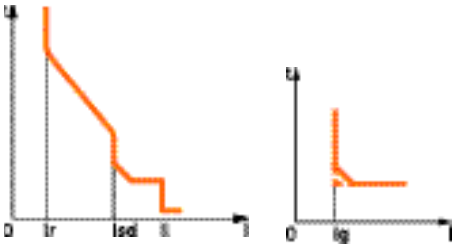
Protection:
long time
+ instantaneous

Micrologic 5: selective protection



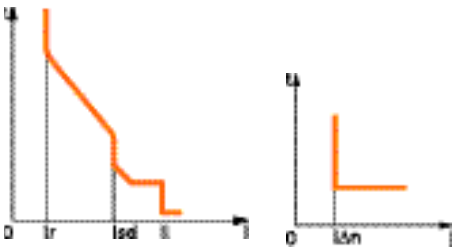
Protection:
long time
+ short time
+ instantaneous

Micrologic 6: selective + earth-fault protection



Protection:
long time
+ short time
+ instantaneous
+ earth fault

Micrologic 7: selective + earth-leakage protection



Protection:
long time
+ short time
+ instantaneous
+ earth leakage up to 3200A

Measurements and programmable protection

A: ammeter

- b I_1, I_2, I_3, I_N, $I_{earth-fault}$, $I_{earth-leakage}$ and maximeter for these measurements
- b fault indications
- b settings in amperes and in seconds.

E: Energy

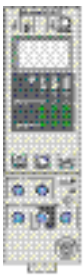
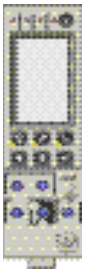
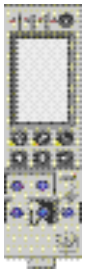
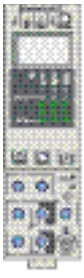
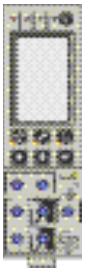
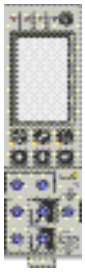
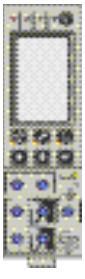
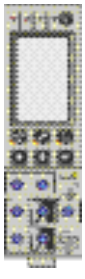
- b incorporates all the rms measurements of Micrologic A, plus voltage, power factor, power, and energy metering measurements
- b calculates the current demand value
- b "Quickview" function for the automatic cyclical display of the most useful values (as standard or by selection)

P: A + power meter + programmable protection

- b measurements of V, A, W, VAR, VA, Wh, VARh, VAh, Hz, V_{peak}, A_{peak}, power factor and maximeters and minimeters
- b IDMTL long-time protection, minimum and maximum voltage and frequency, voltage and current imbalance, phase sequence, reverse power
- b load shedding and reconnection depending on power or current
- b measurements of interrupted currents, differentiated fault indications, maintenance indications, event histories and time-stamping, etc.

H: P + harmonics

- b power quality: fundamentals, distortion, amplitude, and phase of harmonics up to the 31st order
- b waveform capture after fault, alarm, or on request
- b enhanced alarm programming: thresholds and actions.

2.0 A 	2.0 E 		
5.0 A 	5.0 E 	5.0 P 	5.0 H 
6.0 A 	6.0 E 	6.0 P 	6.0 H 
7.0 A 		7.0 P 	7.0 H 

EasyPact MVS circuit breaker MVS08 to MVS40

Circuit breaker

Switch disconnector

Common characteristics

Number of poles			3/4
Rated insulation voltage (V)	Ui		1000
Impulse withstand voltage (kV)	Uimp		12
Rated operational voltage (V AC 50/60 Hz)	Ue		690
Suitability for isolation	IEC 60947-2		Yes
Degree of pollution	IEC 60664-1		4

Basic circuit-breaker

Circuit-breaker as per IEC 60947-2

Rated current (A)	In		at 40 °C(1)
Rating of 4th pole (A)			
Sensor ratings (A)			
Type of circuit breaker			
Ultimate breaking capacity (kA rms)	Icu		220 … 440V
V AC 50/60 Hz			690 V
Rated service breaking capacity (kA rms)	Ics		% Icu
Utilization category			
Rated short-time withstand current (kA rms)	Icw	1s	220 … 440 V
V AC 50/60 Hz			690V
		3s	440/690V
Rated making capacity (kA peak)	Icm		220 … 440 V
V AC 50/60 Hz			690 V
Breaking time (ms) between tripping order and arc extinction			
Closing time (ms)			

Switch-disconnector as per IEC60947-3 and Annex A

Type of switch-disconnector			
Operational current AC23A			
Rated making capacity (kA peak)	Icm		
Rated short-time withstand current (kA rms)	Icw	1s	
		3s	

Maintenance/Connection/Installation

Service life C/O cyclesx1000	Mechanical	with maintenance	
		without maintenance	
	Electrical	without maintenance	440 V
			690 V
Connection		Horizontal	
		Vertical	
Dimensions (mm) (H x W x D)		Draw-out	3P
			4P
		Fixed	3P
			4P
Weight (kg) (approximate)		Draw-out	3P/4P
		Fixed	3P/4P

(1) Please consult Schneider Electric staff for details on temperature derating.

	MVS08	MVS10	MVS12	MVS16	MVS20	MVS25	MVS32	MVS40
	800	1000	1250	1600	2000	2500	3200	4000
	800	1000	1250	1600	2000	2500	3200	4000
	800	1000	1250	1600	2000	2500	3200	4000
	H	H	H	H	H	H	H	H
	65	65	65	65	65	65	65	65
	50	50	50	50	50	50	50	50
	100%	100%	100%	100%	100%	100%	100%	100%
	B	B	B	B	B	B	B	B
	65	65	65	65	65	65	65	65
	50	50	50	50	50	50	50	50
	36	36	36	36	36	36	36	36
	143	143	143	143	143	143	143	143
	105	105	105	105	105	105	105	105
	25	25	25	25	25	25	25	25
	<70	<70	<70	<70	<70	<70	<70	<70
	MVS08	MVS10	MVS12	MVS16	MVS20	MVS25	MVS32	MVS40
	HA	HA	HA	HA	HA	HA	HA	HA
	143	143	143	143	143	143	143	143
	65	65	65	65	65	65	65	65
	36	36	36	36	36	36	36	36
	20	20	20	20	20	20	20	20
	10	10	10	10	10	10	10	10
	6000	6000	6000	6000	6000	5000	5000	5000
	4000	4000	4000	4000	4000	2500	2500	2500
	Yes							
	Yes							
	439 x 441 x 395							
	439 x 556 x 395							
	352 x 422 x 297							
	352 x 537 x 297							
	70/85					90/120		
	40/50					60/80		

ET control units

EasyPact MVS circuit breakers equipped with ET range of trip system are designed to protect power circuit and connected loads.

Dependability

Integration of protection functions in an ASIC electronic component used in all trip units guarantees a high degree of reliability and immunity to conducted or radiated disturbances.
On ET range, measurement functions are managed by an independent microprocessor. Protection functions are independent of measurement functions, ensure system protection even at very low load currents.

Accessories

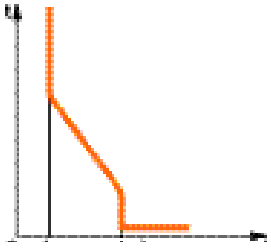
Certain functions require the addition of trip unit accessories. Please consult Schneider Electric staff for more details.

Trip unit name codes

Type of protection
- b 2I for basic protection
- b 5S for selective protection
- b 6G for selective + earth-fault protection

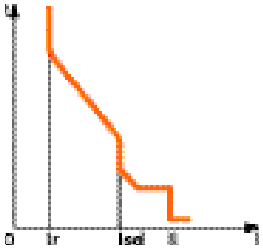
Type of measurement
- b ET for basic
- b ETA for “Current”
- b ETV for “Current” and “Voltage”

ET2I: basic protection



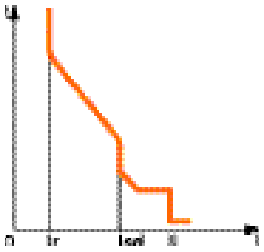
Protection:
long time
+ instantaneous

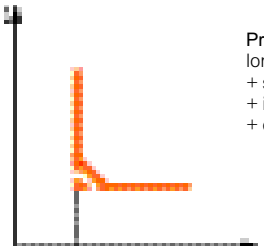
ET5S: selective protection



Protection:
long time
+ short time
+ instantaneous

ET6G: selective + earth-fault protection





Protection:
long time
+ short time
+ instantaneous
+ earth fault

Protection and measurement functions	
ET	
b Fault indications b Settings in amperes and in seconds	
2I	
5S	
6G	

	Protection relays [2]		
	RH10	RH21	RH68
All Vigirex products are type A[1] devices, also covering the requirements of type AC devices.			
Functions			
Protection	b	b	b
Local indications	b	b	b
Remote indications (hard-wired)	-	-	-
Remote indications (via communication)	-	-	-
Display of measurements	-	-	-
Wiring			
Optimum continuity of service	b	b	b
Optimum safety (failsafe)	b	b	b
Mounting			
DIN rail	b	b	b
Front-panel mount	b	b	-
Rated operational voltage			
1 DC voltage range from 12 to 48 V	b	b	-
1 DC voltage range from 24 to 130 V and AC 48 V	-	-	-
6 AC voltage ranges from 12 to 525 V	b	b	-
4 AC voltage ranges from 48 to 415 V	-	-	-
1 AC voltage ranges from 220 to 240 V	-	-	b
Thresholds			
Fault (IΔn)	1 fixed instantaneous threshold choose from 0.03 A to 1 A	2 user-selectable thresholds 0.03 A or 0.3 A	6 user-selectable thresholds from 0.03 A to 3 A
Alarm	-	-	-
Pre-alarm	-	-	-
Time delay			
Fault	Instantaneous	1 user-selectable time delay instantaneous or 0.06 s for IΔn = 0.3 A	Instantaneous for IΔn = 0.03 A 8 user-selectable time delay instantaneous to 1 s
Alarm	-	-	-
Pre-alarm	-	-	-
Display and indications			
Voltage presence (LED and/or relay)[3]	b	b	b
Threshold overrun fault (LED)	b	b	b
Threshold overrun alarm (LED and relay)	-	-	-
Threshold overrun pre-alarm (LED and relay)	-	-	-
Leakage current (digital)	-	-	-
Settings (digital)	-	-	-
Test with or without actuation of output contacts			
Local	b	b	b
Remote (hard-wired)	b	b	b
Remote (hard-wired for several relays)	b	b	-
Remote (via communication)	-	-	-
Communication			
Suitable for supervision (internal bus)	-	-	-
Characteristics			
	see catalog LVPED208009EN	see catalog LVPED208009EN	see catalog LVPED208009EN
Sensors			
Schneider Electric A, TOA, E toroids [4] up to 630 A	b	b	b
Schneider Electric rectangular sensors up to 3200 A	b	b	b

(1) Type A relay up to IΔn = 5 A.
(2) Relay with output contact requiring local, manual reset after fault clearance.
(3) Depending on the type of wiring (optimum continuity of service or optimum safety).
(4) See characteristics in the catalog Vigirex LVPED208009EN.

	RH86	RH99	RH197M	RH197P	RHUs or RHU
					
	b	b	b	b	b
	b	b	b	b	b
	-	-	b	b	b
	-	-	-	-	b except RHUs
	-	-	b[5]	b[5]	b
	b	b	b	b	b
	b	b	b	b	b
	b	b	b	-	-
	b	b	-	b	b
	-	b	-	-	-
	-	-	b	b	-
	-	b	-	-	-
	-	-	b	b	b
	b				
	6 user-selectable thresholds from 0.03 A to 10 A	9 user-selectable thresholds from 0.03 A to 30 A	19 user-selectable thresholds from 0.03 A to 30 A	19 user-selectable thresholds from 0.03 A to 30 A	1 adjustable threshold from 0.03 A to 30 A
	-	-	Fixed: 50% IΔn or 100% IΔn	Fixed: 50% IΔn or 100% IΔn	1 adjustable threshold from 0.015 A to 30 A
	-	-	-	-	-
	Instantaneous for IΔn = 0.03 A 6 user-selectable time delay instantaneous to 0.5 s	Instantaneous for IΔn = 0.03 A 9 user-selectable time delay instantaneous to 4.5 s	7 user-selectable time delay instantaneous to 4.5 s	7 user-selectable time delay instantaneous to 4.5 s	1 adjustable threshold instantaneous to 4.5 s
	-	-	instantaneous	instantaneous	1 adjustable threshold instantaneous to 4.5 s
	-	-	-	-	-
	b	b	b[6]	b[6]	b
	b	b	b	b	b
	-	-	b	b	b
	-	-	-	-	-
	-	-	by bargraph	by bargraph	b
	-	-	-	-	b
			[7]		
	b	b	b	b	b
	b	b	b	b	b
	-	b	-	-	b
	-	-	-	-	b except RHUs
	-	-	-	-	b except RHUs
	see catalog LVPED208009EN	see catalog LVPED208009EN	see catalog LVPED208009EN	see catalog LVPED208009EN	see catalog LVPED208009EN
	b	b	b	b	b
	b	b	b	b	b

(5) On a bargraph.
(6) No voltage presence relay.
(7) With actuation of contacts only.

Vigirex relays			RH10	RH21	
General characteristics					
Monitored distribution system: LV AC/System voltage			50/60/400 Hz y 1000 V	50/60/400 Hz y 1000 V	
System earthing arrangement			TT, TNS, IT	TT, TNS, IT	
A, AC type class as per IEC 60947-2 appendix M(1)			b	b	
Operating-temperature range			-35 °C/+70 °C	-35 °C/+70 °C	
Storage-temperature range			-55 °C/+85 °C	-55 °C/+85 °C	
Electrical characteristics as per IEC 60755 and EN 60755, IEC 60947-2 and EN 60947-2, UL 1053 and CSA C22.2 N° 144 for RH10 to 99 with Ue y 220 V					
Power supply: rated operational voltage Ue	12 to 24 V AC -12 to 48 V DC	50/60 Hz/DC	b	b	
	48 V AC - 24 to 130 V DC	50/60 Hz/DC	-	-	
	48 V AC	50/60 Hz	b	b	
	110 to 130 V AC	50/60 Hz	b	b	
	220 to 240 V AC	50/60/400 Hz	b	b	
	380 to 415 V AC	50/60 Hz	b	b	
	440 to 525 V AC	50/60 Hz	b	b	
Operational voltage tolerances	Ue : 12 to 24 V AC - 12 to 48 V DC		55% to 120% Ue(2)	55% to 120% Ue(2)	
	Ue : 48 V AC - 24 to 130 V DC		-	-	
	Ue : 48 to 415 V		55% to 110% Ue	55% to 110% Ue	
	Ue : 110 to 415 V		-	-	
	Ue > 415 V		70% to 110% Ue	70% to 110% Ue	
Overvoltage category			4	4	
Rated impulse withstand voltage up to Ue = 525 V AC		Uimp (kV)	8	8	
Maximum consumption	AC		4 VA	4 VA	
	DC		4 W	4 W	
Insensitive to micro-outages y 60 ms			b	b	
Maximum break time on toroid failure (as per standard IEC 60947-2)			b	b	
Leakage-current measurements	Measurement range		from 15 mA to 60 A	from 15 mA to 60 A	
	Measurement accuracy		±7%	±7%	
	Display refresh time		-	-	
Fault current detection	Threshold IΔn		1 fixed threshold 0.03 A - 0.05 A - 0.1 A - 0.15 A 0.25 A - 0.3 A - 0.5 A - 1 A	2 user-selectable thresholds 0.03 A or 0.3 A	
	Fault-current detection range		80% IΔn to 100% IΔn	80% IΔn to 100% IΔn	
	Time delay Δt		instantaneous	instantaneous for IΔn = 0,03 A 1 user-selectable time delay instantaneous or 0.06 s for IΔn = 0.3 A	
	Δt settings (s)		0	0	0.06
	Maximum nonoperating time at 2 IΔn (s)		-	-	0.06
	Maximum operating time at 5 IΔn (s) (residual-current relay alone)		0.015	0.015	0.13
	Maximum total time at 5 IΔn(6) (s)		0.04	0.04	0.15
	Setting		none	selector	
	Output contact		changeover with latching	changeover with latching	
Alarm	I alarm threshold		-	-	
	Alarm-current detection range		-	-	
	Time delay Δt alarm		-	-	
	Δt alarm settings		-	-	
	Maximum nondetection time at 2 I alarm		-	-	
	Maximum detection time at 5 I alarm		-	-	
	Setting		-	-	
	Output contact		-	-	
	Hysteresis		-	-	
Test with or without actuation of the output contacts and output-contact reset following a fault	Local		b	b	
	Remote (hard-wired) (10 m maximum)		b	b	
	Remote (hard-wired for several relays) (10 m maximum)		b	b	
	Remote (via communication)		-	-	
Self-monitoring	Relay/sensor link		continuous	continuous	
	Power supply		continuous	continuous	
	Electronics		continuous	continuous	

(1) Type A relays up to 5 A.
(2) 80% to 120% Ue if Ue < 20 V.
(3) 80% to 110% Ue if Ue < 28 V.
(4) 85% during energization.
(5) < 10% of IΔn: display = 0 and > 200% of IΔn: display = SAT.

	RH68	RH86	RH99
	50/60/400 Hz y 1000 V	50/60/400 Hz y 1000 V	50/60/400 Hz y 1000 V
	TT, TNS, IT	TT, TNS, IT	TT, TNS, IT
	b	b	b
	-35 °C/+70 °C	-35 °C/+70 °C	-35 °C/+70 °C
	-55 °C/+85 °C	-55 °C/+85 °C	-55 °C/+85 °C
	-	-	b
	-	-	-
	-	-	b
	-	-	b
	b	b	b
	-	-	b
	-	-	b
	-	-	55% to 120% Ue(2)
	-	-	
	55% to 110% Ue	55% to 110% Ue	55% to 110% Ue
	-	-	
	-	-	70% to 110% Ue
	4	4	4
	8	8	8
	4 VA	4 VA	4 VA
	4 W	4 W	4 W
	b	b	b
	b	b	b
	from 15 mA to 60 A	from 15 mA to 60 A	from 15 mA to 60 A
	±7%	±7%	±7%
	-	-	-
	6 user-selectable thresholds 0.03 A - 0.1 A - 0.3 A - 0.5 A - 1 A - 3 A	8 user-selectable thresholds 0.03 A - 0.1 A - 0.3 A - 0.5 A - 1 A - 3 A - 5 A - 10 A	9 user-selectable thresholds 0.03 A - 0.1 A - 0.3 A - 0.5 A - 1 A - 3 A - 5 A - 10 A - 30 A
	80% IΔn to 100% IΔn	80% IΔn to 100% IΔn	80% IΔn to 100% IΔn
	instantaneous for IΔn = 0.03 A 8 user-selectable time delays instantaneous to 1 s	instantaneous for IΔn = 0.03 A 6 user-selectable time delays instantaneous to 0.5 s	instantaneous for IΔn = 0.03 A 9 user-selectable time delays instantaneous to 4.5 s
	0 / 0.06 / 0.15 / 0.25 / 0.31 / 0.5 / 0.8 / 1	0 / 0.06 / 0.15 / 0.25 / 0.31 / 0.5	0 / 0.06 / 0.15 / 0.25 / 0.31 / 0.5 / 0.8 / 1 / 4.5
	- / 0.06 / 0.15 / 0.25 / 0.31 / 0.5 / 0.8 / 1	- / 0.06 / 0.15 / 0.25 / 0.31 / 0.5	- / 0.06 / 0.15 / 0.25 / 0.31 / 0.5 / 0.8 / 1 / 4.5
	0.015 / 0.13 / 0.23 / 0.32 / 0.39 / 0.58 / 0.88 / 1.08	0.015 / 0.13 / 0.23 / 0.32 / 0.39 / 0.58	0.015 / 0.13 / 0.23 / 0.32 / 0.39 / 0.58 / 0.88 / 1.08 / 4.58
	0.04 / 0.15 / 0.25 / 0.34 / 0.41 / 0.6 / 0.9 / 1.1	0.04 / 0.15 / 0.25 / 0.34 / 0.41 / 0.6	0.04 / 0.15 / 0.25 / 0.34 / 0.41 / 0.6 / 0.9 / 1.1 / 4.6
	selector	selector	selector
	changeover with latching	changeover with latching	changeover with latching
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	b	b	b
	b	b	b
	b	b	b
	-	-	-
	continuous	continuous	continuous
	continuous	continuous	continuous
	continuous	continuous	continuous

(6) Maximum time to clear the fault current when combined with a Schneider Electric circuit breaker or switch rated y 630 A.
(7) Depending on version.

Vigirex relays

General characteristics		
Monitored distribution system: LV AC/System voltage		
System earthing arrangement		
A, AC type class as per IEC 60947-2 appendix M (1)		
Operating-temperature range		
Storage-temperature range		
Electrical characteristics as per IEC 60755 and EN 60755, IEC 60947-2 and EN 60947-2, UL 1053 and CSA C22.2 N° 144 for RH10 to 99 with Ue y 220 V		
Power supply: rated operational voltage Ue	12 to 24 V AC -12 to 48 V DC	50/60 Hz/DC
	48 V AC - 24 to 130 V DC	50/60 Hz/DC
	48 V AC	50/60 Hz
	110 to 130 V AC	50/60 Hz
	220 to 240 V AC	50/60/400 Hz
	380 to 415 V AC	50/60 Hz
	440 to 525 V AC	50/60 Hz
Operational voltage tolerances	Ue : 12 to 24 V AC - 12 to 48 V DC	
	Ue : 48 V AC - 24 to 130 V DC	
	Ue : 48 to 415 V	
	Ue : 110 to 415 V	
	Ue > 415 V	
Overvoltage category		
Rated impulse withstand voltage up to Ue = 525 V AC		Uimp (kV)
Maximum consumption	AC	
	DC	
Insensitive to micro-outages y 60 ms		
Maximum break time on toroid failure (as per standard IEC 60947-2)		
Leakage-current measurements	Measurement range	
	Measurement accuracy	
	Display measurement	
	Display refresh time	
Fault current detection	Threshold IΔn	
	Fault-current detection range	
	Time delay Δt	
	Δt settings (s)	
	Maximum nonoperating time at 2 IΔn (s)	
	Maximum operating time at 5 IΔn (s) (residual-current relay alone)	
	Maximum total time at 5 IΔn (2) (s)	
	Setting	
	Output contact	
Alarm	I alarm threshold	
	Alarm-current detection range	
	Time delay Δt alarm	
	Δt alarm settings	
	Maximum nondetection time at 2 I alarm	
	Maximum detection time at 5 I alarm	
	Setting	
	Output contact	
	Hysteresis	
Test with or without actuation of the output contacts and output-contact reset following a fault	Local	
	Remote (hard-wired) (10 m maximum)	
	Remote (hard-wired for several relays) (10 m maximum)	
	Remote (via communication)	
Self-monitoring	Relay/sensor link	
	Power supply	
	Electronics	

(1) Type A relays up to 5 A.
(2) Maximum time to clear the fault current when combined with a Schneider Electric circuit breaker or switch rated y 630 A.
(3) 110 VAC, 230 VAC and 400 VAC only.
(4) 80% to 110% Ue if Ue < 28 V.
(5) 85% during energization.
(6) Ue = 240 V max.
(7) < 10% of IΔn: display = 0 and > 200% of IΔn: display = SAT.
(8) Depending on version.
(9) Not available for DC version.

	RH197M	RH197P	RHUs and RHU
	50/60/400 Hz y 1000 V	50/60/400 Hz y 1000 V	50/60/400 Hz y 1000 V
	TT, TNS, IT	TT, TNS, IT	TT, TNS, IT
	b	b	b
	-25 °C/+55 °C	-25 °C/+55 °C	-25 °C/+55 °C
	-40 °C/+85 °C	-40 °C/+85 °C	-40 °C/+85 °C
	-	-	-
	b	b	-
	-	-	b
	b(3)	b	b
	b(3)	b	b
	b(3)	b	-
	-	-	-
	-	-	-
	80% to 110% Ue(4)	70% to 110% Ue	
	-	-	70% to 110% Ue(5)
	85% to 110% Ue	70% to 110% Ue	
	-	-	-
	4	4	4
	8	8	6(6)
	4 VA	4 VA	4 VA
	4 W	4 W	-
	b	b	b
	b	b	b
	-	-	from 15 mA to 60 A
	±7%	±7%	±7%
	4 DEL 20, 30, 40 and 50% of IΔn 0.5 s	4 DEL 20, 30, 40 and 50% of IΔn 0.5 s	from ±10%(7) to 200% of IΔn 2 s
	19 user-selectable thresholds 0.03 A - 0.05 A - 0.075 A - 0.1 A - 0.15 A - 0.2 A 0.3 A - 0.5 A - 0.75 A - 1 A - 1.5 A - 2 A - 3 A - 5 A 7.5 A - 10 A - 15 A - 20 A - 30 A	19 user-selectable thresholds 0.03 A - 0.05 A - 0.075 A - 0.1 A - 0.15 A - 0.2 A 0.3 A - 0.5 A - 0.75 A - 1 A - 1.5 A - 2 A - 3 A - 5 A 7.5 A - 10 A - 15 A - 20 A - 30 A	1 adjustable threshold from 0.03 A to 1 A in 0.001 A steps from 1 A to 30 A in 0.1 A steps
	80% IΔn to 100% IΔn	80% IΔn to 100% IΔn	80% IΔn to 100% IΔn
	instantaneous for IΔn = 0.03 A 7 user-selectable time delays instantaneous to 4.5 s	instantaneous for IΔn = 0.03 A 7 user-selectable time delays instantaneous to 4.5 s	instantaneous for IΔn = 0.03 A 1 adjustable time delay instantaneous to 4.5 s in 10 ms steps
	0 / 0.06 / 0.15 / 0.31 / 0.5 / 1 / 4.5	0 / 0.06 / 0.15 / 0.31 / 0.5 / 1 / 4.5	0 / 0.06 y Δt
	- / 0.06 / 0.15 / 0.31 / 0.5 / 1 / 4.5	- / 0.06 / 0.15 / 0.31 / 0.5 / 1 / 4.5	- / same as for RH99
	0.020 / 0.13 / 0.32 / 0.39 / 0.58 / 1.08 / 4.58	0.020 / 0.13 / 0.32 / 0.39 / 0.58 / 1.08 / 4.58	0.015 / same as for RH99
	0.04 / 0.20 / 0.34 / 0.41 / 0.6 / 1.1 / 4.6	0.04 / 0.20 / 0.34 / 0.41 / 0.6 / 1.1 / 4.6	0.04 / same as for RH99
	selector	selector	keypad
	changeover with latching in manual position; 10 automatic resets in auto position (see algorithm)	changeover with latching in manual position; 10 automatic resets in auto position (see algorithm)	changeover with latching
	setting by Dip switch at 50% of IΔn or 100% of IΔn	fixed at 50% of IΔn or 100% of IΔn(8)	1 adj. threshold from 20 to 100% IΔn 0.015 A to 1 A in 0.001 A steps 1 A to 30 A in 0.1 A steps 0.015 A < I alarm < 30 A
	±7% of IΔn	±7% of IΔn	80% I alarm to 100% I alarm
	instantaneous	instantaneous	1 adjustable time delay instantaneous to 4.5 s in 10 ms steps
	-	-	0 s / 0.06 s y Δt
	-	-	- / same as for IΔn
	-	-	0.015 s / same as for IΔn
	-	-	keypad or internal bus
	NO without latching	NO without latching	NO without latching
	0, -10% IΔn	0, -10% IΔn	alarm deactivated at 70% of I alarm threshold
	b	b	b
	b(9)	b	b
	-	b	b
	-	-	b RHU only
	continuous	continuous	continuous
	continuous	continuous	continuous
	watch-dog in microprocessor	watch-dog in microprocessor	continuous

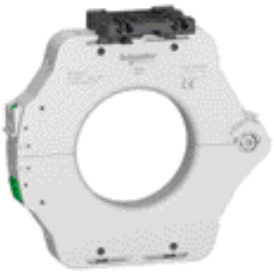
Vigirex relays			RH10 - RH21 - RH68 - RH86 - RH99					
Electrical characteristics as per IEC 60755 and EN 60755, IEC 60947-2 and EN 60947-2, UL 1053 and CSA C22.2 N° 144 for RH10 to 99 with Ue y 220 V (cont.)								
Characteristics of output contacts as per standard IEC 60947-5-1	Rated thermal current (A)		8					
	Minimum load		10 mA at 12 V					
Rated operational current (A)	Utilization category		AC12	AC13	AC14	AC 15	DC12	DC13
	24 V		6	6	5	5	6	2
	48 V		6	6	5	5	2	-
	110 – 130 V		6	6	4	4	0.6	-
	220 – 240 V		6	6	4	4	-	-
	250 V		-	-	-	-	0.4	-
	380 – 415 V		5	-	-	-	-	-
	440 V		-	-	-	-	-	-
	660 – 690 V		-	-	-	-	-	-
Display and indications	Voltage presence (LED and/or relay)(1)		b					
	Threshold overrun	fault (LED)	b					
		alarm (LED and relay)	-					
	Leakage current and settings (digital)		-					
Setting protection			sealable cover					
Communication								
Suitable for supervision (internal bus)			-					
Mechanical characteristics			**DIN**			**Front-panel mount**		
Dimensions			6 modules x 9 mm			72 x 72 mm		
Weight			0.3 kg			0.3 kg		
Insulation class (IEC 60664-1)	Front face		2			2		
	Communication output		-			-		
Degree of protection IP (IEC 60529)	Front face		IP40			IP40		
	Other faces		IP30			IP30		
	Connections		IP20			IP20		
Mechanical impact on front face IK (EN 50102)			IK07 (2 joules)			IK07 (2 joules)		
Sinusoidal vibrations (Lloyd's and Veritas)			2 to 13.2 Hz ±1 mm and 13.2 to 100 Hz - 0.7 g			2 to 13.2 Hz ±1 mm and 13.2 to 100 Hz - 0.7 g		
Fire (IEC 60695-2-1)			b			b		
Environment								
Damp heat, equipment not in service (IEC 60068-2-30)			28 cycles +25 °C/+55 °C/RH 95%					
Damp heat, equipment in service (IEC 60068-2-56)			48 hours, Environment category C2					
Salt mist (IEC 60068-2-52)			KB test, severity 2					
Degree of pollution (IEC 60664-1)			3					
Electromagnetic compatibility(2)	Electrostatic discharges (IEC 61000-4-2)		Level 4					
	Radiated susceptibility (IEC 61000-4-3)		Level 3					
	Low-energy conducted susceptibility (IEC 61000-4-4)		Level 4					
	High-energy conducted susceptibility (IEC 61000-4-5)		Level 4					
	Radiofrequency interference (IEC 61000-4-6)		Level 3					
	Conducted and radiated emissions (CISPR11)		Class B					
Sensors and accessories								
Sensors	A, TOA type toroids		b					
	L type rectangular sensors for IΔn u 300 mA		b					
Cables	Relay/sensor link via standard twisted pair not supplied		b					

(1) Depending on the type of wiring (optimum continuity of service or optimum safety).
(2) Compatibility for both relay and sensor.
(3) No voltage presence relay.
(4) By bargraph.

	RH197						RHUs and RHU					
	8						8					
	10 mA at 12 V						10 mA at 12 V					
	AC12	AC13	AC14	AC 15	DC12	DC13	AC12	AC13	AC14	AC15	DC12	DC13
	6	6	5	5	6	2	6	6	5	5	6	2
	6	6	5	5	2	-	6	6	5	5	2	-
	6	6	4	4	0.6	-	6	6	4	4	0.6	-
	6	6	4	4	-	-	6	6	4	4	-	-
	-	-	-	-	0.4	-	-	-	-	-	0.4	-
	5	-	-	-	-	-	5	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
	b[3]						b					
	b						b					
	b						b					
	b[4]						b					
	sealable cover						by password on the display					
	-						b (RHU only)					
	DIN			Front-panel mount			Front-panel mount					
	8 modules x 9 mm - H 89 mm			72 x 72 mm			72 x 72 mm					
	0.3 kg			0.3 kg			0.3 kg					
	2			2			2					
	-			-			2					
	IP40			IP40			IP40					
	IP30			IP30			IP30					
	IP20			IP20			IP20					
	IK07 (2 joules)			IK07 (2 joules)			IK07 (2 joules)					
	2 to 13.2 Hz ±1 mm and 13.2 to 100 Hz - 0.7 g			2 to 13.2 Hz ±1 mm and 13.2 to 100 Hz - 0.7 g			2 to 13.2 Hz ±1 mm and 13.2 to 100 Hz - 0.7 g					
	b			b			b					
	DIN			Front-panel mount								
	28 cycles +25 °C/+55 °C/RH 95%			28 cycles +25 °C/+55 °C/RH 95%			28 cycles +25 °C/+55 °C/RH 95%					
	48 hours, Environment category C2			48 hours, Environment category C2			48 hours, Environment category C2					
	KB test, severity 2			KB test, severity 2			KB test, severity 2					
	3			3			3					
	Level 4			Level 4			Level 4					
	Level 3			Level 3			Level 3					
	Level 4			Level 4			Level 4					
	Level 4			Level 4			Level 4					
	Level 3			Level 3			Level 3					
	Class B			Class B			Class B					
	b						b					
	b						b					
	b						b					

Vigirex Sensors

A type closed toroid: IA80



TOA type split toroid: TOA120

Type L rectangular sensor

Sensors	
Associated relays	
Monitoring relays	
Protection relays	
Use	
New installations and extensions	
Renovation and extensions	
General characteristics	
Monitored distribution system	
Insulation level Ui	
Closed sensor	
Split sensor	
Operating-temperature range	
Storage-temperature range	
Degree of protection	
Electrical characteristics	
Transformation ratio	
Overvoltage category	
Rated impulse withstand voltage Uimp (kV)	
Sensor characteristics	
Rated operational current Ie (A)	
Conductor max. size per phase (mm² copper)	
Rated short-time withstand current	Icw kA/0.5 s
Residual short-circuit withstand current (IEC 60947-2)	IΔw kA/0.5 s
Mechanical characteristics	
Type of sensor	
TA30 toroid	
PA50 toroid	
IA80 toroid	
MA120 toroid	
SA200 toroid	
GA300 toroid	
TOA80 toroid	
TOA120 toroid	
L1 rectangular sensor	
L2 rectangular sensor	
Wiring	
Wire size (mm²) for resistance R = 3 Ω	
0.22	
0.75	
1	
1.5	
Mounting	
Clip-on mounting on rear of Vigirex relay	
Symmetrical DIN rail (horizontal or vertical mounting)	
Plain, slotted or profiled plate	
On cable	
On busbars	
Opening/closing (number of operation)	
Environment	
Damp heat, equipment not in service (IEC 60068-2-30)	
Damp heat, equipment in service (IEC 60068-2-56)	
Salt mist (IEC 60068-2-52)	
Degree of pollution (IEC 60664-1)	

(1) With RH10, RH21, RH99, RH197, RHUs and RHU, IΔn must be ≤ 300 mA
(2) From 0.5 to 2.5 mm².

	A type closed toroid						TOA type split toroid		L type rectangular sensor[1]	
	RH99, RMH						RH99, RMH		RH99, RMH	
	RH10, RH21, RH68, RH86, RH99, RH197, RHUs and RHU						RH10, RH21, RH68, RH86, RH99, RH197, RHUs and RHU		RH10, RH21, RH68, RH86, RH99, RH197, RHUs and RHU	
	b						-		b	
	-						b		-	
	BT 50/60/400 Hz						BT 50/60/400 Hz		BT 50/60/400 Hz	
	1000 V						1000 V		1000 V	
	b						-		b	
	-						b		-	
	-35 °C/+70 °C						-35 °C/+70 °C		-35 °C/+80 °C	
	-55 °C/+85 °C						-55 °C/+85 °C		-55 °C/+100 °C	
	IP30 (connections IP20)						IP40 (connections IP20)		IP30 (connections IP20)	
	1/1000						1/1000		1/1000	
	4						4		4	
	12						12		12	
	TA30	PA50	IA80	MA120	SA200	GA300	TOA80	TOA120	L1 = 280 x 115	L2 = 470 x 160
	65	85	160	250	400	630	160	250	1600	3200
	25	50	95	240	2 x 185	2 x 240	95	240	2 x 100 x 5	2 x 125 x 10
	25	50	50	85	85	85	50	85	100	100
	25	50	50	85	85	85	50	85	85	85
	Dimensions ∅ (mm)			Weight (kg)			Dimensions ∅ (mm)	Weight (kg)	Inside dimensions (mm)	Weight (kg)
	30			0.120			-	-	-	-
	50			0.200			-	-	-	-
	80			0.420			-	-	-	-
	120			0.590			-	-	-	-
	200			1.320			-	-	-	-
	300			2.280			-	-	-	-
	-			-			80	0.9	-	-
	-			-			120	1.5	-	-
	-			-			-	-	280 x 115	11
	-			-			-	-	470 x 160	20
	Max. link length (m)						Max. link length (m)		Max. link length (m)	
	18						18		-	
	60						60		10[2]	
	80						80		10[2]	
	100						100		10[2]	
	TA30, PA50						-		-	
	TA30, PA50, IA80, MA120						b		-	
	TA30, PA50, IA80, MA120, SA200						b		-	
	IA80, MA120, SA200, GA300						b		b	
	-						-		b	
	-						10 maximum		-	
	28 cycles +25 °C/+55 °C/RH 95%						28 cycles +25 °C/+55 °C/RH 95%		28 cycles +25 °C/+55 °C/RH 95%	
	48 hours, environment category C2						48 hours, environment category C2		48 hours, Environment category C2	
	KB test, severity 2						KB test, severity 2		KB test, severity 2	
	3						3		4	

Pole characteristics

Contactor type		LC1		D09 (3P)	DT20 D098	D12 (3P)	DT25 D128	D18 (3P)	DT32 D188	D25 (3P)	DT40 D258
Rated operational current (Ie) (Ue y 440 V)	In AC-3, θ y 60 °C		A	9		12		18		25	
	In AC-1, θ y 60 °C		A	25(1)	20	25(1)	25	32(1)	32	40(1)	40
Rated operational voltage (Ue)	Up to		V	690		690		690		690	
Frequency limits	Of the operational current		Hz	25 … 400		25 … 400		25 … 400		25 … 400	
Conventional thermal current (Ith)	θ y 60 °C		A	25(1)	20	25(1)	25	32(1)	32	40(1)	40
Rated making capacity (440 V)	Conforming to IEC 60947		A	250		250		300		450	
Rated breaking capacity (440 V)	Conforming to IEC 60947		A	250		250		300		450	
Permissible short time rating No current flowing for preceding 15 minutes with θ y 40 °C	For 1 s		A	210		210		240		380	
	For 10 s		A	105		105		145		240	
	For 1 min		A	61		61		84		120	
	For 10 min		A	30		30		40		50	
Fuse protection against short-circuits (U y 690 V)	Without thermal overload relay, gG fuse	type 1	A	25		40		50		63	
		type 2	A	20		25		35		40	
	With thermal overload relay		A	Please contact Schneider Electric staff for aM or gG fuse ratings corresponding to the associated thermal overload relay							
Average impedance per pole	At Ith and 50 Hz		mΩ	2.5		2.5		2.5		2	
Power dissipation per pole for the above operational currents	AC-3		W	0.20		0.36		0.8		1.25	
	AC-1		W	1.56		1.56		2.5		3.2	

Control circuit characteristics, a.c. supply

Rated control circuit voltage (Uc)		50/60 Hz	V	12 … 690	
Control voltage limits					
50 or 60 Hz coils	Operation			–	
	Drop-out			–	
50/60 Hz coils	Operation			0.8 … 1.1 Uc on 50 Hz and 0.85 … 1.1 Uc on 60 Hz at 60 °C	
	Drop-out			0.3 … 0.6 Uc at 60 °C	
Average consumption at 20 °C and at Uc	a 50 Hz Inrush	50 Hz coil	VA	–	
		Cos φ		0.75	
		50/60 Hz coil	VA	70	
	Sealed	50 Hz coil	VA	–	
		Cos φ		0.3	
		50/60 Hz coil	VA	7	
	a 60 Hz Inrush	60 Hz coil	VA	–	
		Cos φ		0.75	
		50/60 Hz coil	VA	70	
	Sealed	60 Hz coil	VA	–	
		Cos φ		0.3	
		50/60 Hz coil	VA	7.5	
Heat dissipation	50/60 Hz		W	2 … 3	
Operating time(2)	Closing "C"		ms	12 … 22	
	Opening "O"		ms	4 … 19	
Mechanical durability in millions of operating cycles	50 or 60 Hz coil			–	
	50/60 Hz coil on 50 Hz			15	
Maximum operating rate at ambient temperature y 60 °C	In operating cycles per hour			3600	

(1) Versions with spring terminal connections:
16 A for **LC1 D093** and **LC1 D123** (20 A possible with 2 x 2.5 mm² in parallel),
25 A for **LC1 D183** to **LC1 D323** (32 A possible for **LC1 D183** connected with 2 x 4 mm² cables in parallel; 40 A possible for **LC1 D253** and **LC1 D323** connected with 2 x 4 mm² in parallel).

(2) The closing time "C" is measured from the moment the coil supply is switched on to closure of the main poles. The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate.

D32	D38	D40A	DT60A	D50A	D65A	DT80A	D80	D95	D115	D150
32	38	40	–	50	65	–	80	95	115	150
50[1]	50	60	60	80	80	80	125	125	200	200
690	690	690	690	690	690	690	1000	1000	1000	1000
25 … 400	25 … 400	25 … 400	25 … 400	25 … 400	25 … 400	25 … 400	25 … 400	25 … 400	25 … 400	25 … 400
50	50	60	60	80	80	80	125	125	200	200
550	550	800	800	900	1000	1000	1100	1100	1260	1660
550	550	800	800	900	1000	1000	1100	1100	1100	1400
430	430	720	720	810	900	900	990	1100	1100	1400
260	310	320	320	400	520	520	640	800	950	1200
138	150	165	165	208	260	260	320	400	550	580
60	60	72	72	84	110	110	135	135	250	250
63	63	80	80	100	125	125	200	200	250	315
63	63	80	80	100	125	125	160	160	200	250
Please contact Schneider Electric staff for aM or gG fuse ratings corresponding to the associated thermal overload relay										
2	2	1.5	1.6	1.5	1.5	1.6	0.8	0.8	0.6	0.6
2	3	2.4	–	3.7	6.3	–	5.1	7.2	7.9	13.5
5	5	5.4	5.8	9.6	9.6	10.2	12.5	12.5	24	24

12 … 690	12 … 690								24 … 500	
–	–						0.85 … 1.1 Uc at 55 °C			
–	–						0.3 … 0.6 Uc at 55 °C		0.3 … 0.5 Uc at 55 °C	
0.8 … 1.1 Uc on 50 Hz and 0.85 … 1.1 Uc on 60 Hz at 60 °C	0.8 … 1.1 Uc on 50 Hz and 0.85 … 1.1 Uc on 60 Hz at 60 °C						0.8 … 1.1 Uc on 50 Hz and 0.85 … 1.1 Uc on 60 Hz at 55 °C		0.8 … 1.15 Uc on 50/60 Hz at 55 °C	
0.3 … 0.6 Uc at 60 °C	0.3 … 0.6 Uc at 60 °C						0.3 … 0.6 Uc at 55 °C		0.3 … 0.5 Uc at 55 °C	
–	–						200		300	–
0.75	0.75						0.75		0.8	0.9
70	160						245		280 … 350	280 … 350
–	–						20		22	–
0.3	0.3						0.3		0.3	0.9
7	15						26		2 … 18	2 … 18
–	–						220		300	–
0.75	0.75						0.75		0.8	0.9
70	140						245		280 … 350	280 … 350
–	–						22		22	–
0.3	0.3						0.3		0.3	0.9
7.5	13						26		2 … 18	2 … 18
2 … 3	4 … 5						6 … 10		3 … 8	3 … 4.5
12 … 22	12 … 26	12 … 26	12 … 26	12 … 26	12 … 26	12 … 26	20 … 35	20 … 35	20 … 50	20 … 35
4 … 19	4 … 19	4 … 19	4 … 19	4 … 19	4 … 19	4 … 19	6 … 20	6 … 20	6 … 20	40 … 75
–	–	–	–	–	–	–	10	10	8	–
15	6	6	6	6	6	6	4	4	8	8
3600	3600	3600	3600	3600	3600	3600	3600	3600	2400	1200

d.c. control circuit characteristics

Contactor type				LC1 D09 … D38 LC1 DT20 … DT40	LC1 D40A … D65A LC1 DT60A and DT80A	LC1 or LP1 D80 LC1 D95	LC1 D115 and LC1 D150
Rated control circuit voltage (Uc)	c		V	12 … 440	12 … 440		24 … 440
Rated insulation voltage	Conforming to IEC 60947-1		V	690			
	Conforming to UL, CSA		V	600			
Control voltage limits	Operation	Standard coil		0.7 … 1.25 Uc at 60 °C	0.75 … 1.25 Uc at 60 °C	0.85 … 1.1 Uc at 55 °C	0.75 … 1.2 Uc at 55 °C
		Wide range coil		–	–	0.75 … 1.2 Uc at 55 °C	–
	Drop-out			0.1 … 0.25 Uc at 60 °C	0.1 … 0.3 Uc at 60 °C	0.1 … 0.3 Uc at 55 °C	0.15 … 0.4 Uc at 55 °C
Average consumption at 20 °C and at Uc	c	Inrush	W	5.4	19	22	270 … 365
		Sealed	W	5.4	7.4	22	2.4 … 5.1
Operating time (1) average at Uc	Closing	"C"	ms	63 ±15%	50 ±15%	95 … 130	20 … 35
	Opening	"O"	ms	20 ±20%	20 ±20%	20 … 35	40 … 75
				Note: The arcing time depends on the circuit switched by the poles. For all normal 3-phase applications, the arcing time is less than 10 ms. The load is isolated from the supply after a time equal to the sum of the opening time and the arcing time.			
Time constant (L/R)			ms	28	34	75	25
Mechanical durability at Uc	In millions of operating cycles			30	10	10	8
Maximum operating rate at ambient temperature y 60 °C	In operating cycles per hour			3600	3600	3600	1200

Low consumption control circuit characteristics

Rated insulation voltage	Conforming to IEC 60947-1		V	690	–
	Conforming to UL, CSA		V	600	–
Maximum voltage	Of the control circuit on c		V	250	–
Average consumption d.c. at 20 °C and at Uc	Wide range coil (0.7 … 1.25 Uc)	Inrush	W	2.4	–
		Sealed	W	2.4	–
Operating time(1) at Uc and at 20 °C	Closing	"C"	ms	77 ±15%	–
	Opening	"O"	ms	25 ±20%	–
Voltage limits (θ y 60 °C) of the control circuit	Operation			0.8 to 1.25 Uc	–
	Drop-out			0.1 … 0.3 Uc	–
Time constant (L/R)			ms	40	–
Mechanical durability	In millions of operating cycles			30	–
Maximum operating rate at ambient temperature y 60 °C	In operating cycles per hour			3600	–

(1) The operating times depend on the type of contactor electromagnet and its control mode.
The closing time "C" is measured from the moment the coil supply is switched on to initial contact of the main poles.
The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate.

TeSys F Contactors (200 to 2600 A)
Control circuit: a.c. or d.c.

Pole characteristics

Contactor type				LC1 F115	LC1 F150	LC1 F185	LC1 F225	LC1 F265
Number of poles				3 or 4	3 or 4	3 or 4	3 or 4	3 or 4
Rated operational current (Ie) (Ue ≤ 440 V)	In AC-3, θ ≤ 55 °C		A	115	150	185	225	265
	In AC-1, θ ≤ 40 °C		A	200	250	275	315	350
Rated operational voltage (Ue)	Up to		V	1000	1000	1000	1000	1000
Frequency limits	Of the operational current[1]		Hz	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200
Conventional thermal current	θ ≤ 40 °C		A	200	250	275	315	350
Rated making capacity	I rms conforming to IEC 60947-4-1		A	Making current: 10 x I in AC-3 or 12 x I in AC-4				
Rated breaking capacity	I rms conforming to IEC 60947-4-1		A	Making and breaking current: 8 x I in AC-3 or 10 x I in AC-4				
Maximum permissible current No current flowing for previous 60 minutes, at θ ≤ 40 °C	For 10 s		A	1100	1200	1500	1800	2200
	For 30 s		A	640	700	920	1000	1230
	For 1 min		A	520	600	740	850	950
	For 3 min		A	400	450	500	560	620
	For 10 min		A	320	350	400	440	480
Short-circuit protection by fuses U ≤ 440 V	Motor circuit (type aM)		A	125	160	200	250	315
	With thermal overload relay (type gG)		A	200	200	315	315	500
	gG fuses		A	200	250	315	315	400
Average impedance per pole	At Ith and 50 Hz		mΩ	0.37	0.35	0.33	0.32	0.3
Power dissipation per pole for the above operational currents	AC-3		W	5	8	12	16	21
	AC-1		W	15	22	25	32	37
Connection								
	Bar	Number of bars		2	2	2	2	2
		Bar	mm	20 x 3	25 x 3	25 x 3	32 x 4	32 x 4
	Cable with lug		mm^2	95	120	150	185	240
	Cable with connector		mm^2	95	120	150	185	240
	Bolt diameter		mm	Ø6	Ø8	Ø8	Ø10	Ø10
Tightening torque	Power circuit connections		N.m	10	18	18	35	35

(1) Sine wave without interference. Above these values, please consult Schneider Electric.
(2) With set of right-angled connectors LA9 F2100.
(3) Paralleling of poles must be carried out only in accordance with the fuse manufacturer's recommendations.
(4) θ ≤ 60 °C with set of right-angled connectors LA9 F2600.
(5) Ue ≤ 1000 V.

	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 F1250	LC1 F1400	LC1 F1700	LC1 F2100	LC1 F2600
	3 or 4	2, 3 or 4	2, 3 or 4	2, 3 or 4	3 or 4	3	3	3	3	3	3
	330	400	500	630	780	800	-	-	-	-	-
	400	500	700	1000	1600	1000	1260(5)	1400(5)	1700(5)	2100(2)(5)	2600(4)(5)
	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200	$16^{2/3}$ … 200
	400	500	700	1000	1600	1000	1260	1400	1700	2100(2)	2600
	Making current: 10 x I in AC-3 or 12 x I in AC-4						Making current: 1.5 x I in AC-1				
	Making and breaking current: 8 x I in AC-3 or 10 x I in AC-4						Making and breaking current: 1.5 x I in AC-1				
	2650	3600	4200	5050	6250	5500	8000	8000	10000	10000	12000
	1800	2400	3200	4400	5600	4600	5200	6000	7500	7500	9000
	1300	1700	2400	3400	4600	3600	4000	4500	5500	5500	7000
	900	1200	1500	2200	3000	2600	3000	4000	4200	4200	6000
	750	1000	1200	1600	2200	1700	2000	2600	3000	3000	4000
	400	400	500	630	800	800	–	–	–	–	–
	500	630	800	800	1000	1000	–	–	–	–	–
	500	500	800	1000	2 x 800 (3)	1000	1000	2 x 800(3)	2 x 800(3)	2 x 1000(3)	2 x 1250(3)
	0.28	0.26	0.18	0.12	0.10	0.12	0.12	0.10	0.10	0.10	0.10
	31	42	45	48	60	77	–	–	–	–	–
	44	65	88	120	250	120	120	150	200	200	250
	Maximum c.s.a.										
	2	2	2	2	2	2	2	2	3	4	3
	30 x 5	30 x 5	40 x 5	60 x 5	100 x 5	60 x 5	100 x 5	100 x 5	100 x 5	100 x 5	100 x 10
	240	2 x 150	2 x 240	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–	–
	Ø10	Ø10	Ø10	Ø12	2 x Ø12	Ø12	3 x Ø12 (Ø11.5 with set of right-angled connectors LA9 F1250)	4 x Ø12 (Ø11.5 with set of right-angled connectors LA9 F2100)			4 x Ø12 (Ø11.5 with set of right-angled connectors LA9 F2600)
	35	35	35	58	58	58	58 (35 with set of right-angled connectors LA9 F1250)	58 (35 with set of right-angled connectors LA9 F2100)			58 (35 with set of right-angled connectors LA9 F2600)

TeSys F Contactors (200 to 2600 A)
Control circuit: a.c. or d.c.

Control circuit characteristics with LX1 or LX9 coil

Contactor type				LC1 F115	LC1 F150	LC1 F185	LC1 F225	LC1 F265
Rated control circuit voltage (Uc)		50 or 60 Hz	V	24 … 1000				
Control voltage limits (θ y 55 °C) 50 or 60 Hz coils		Operation		0.85 … 1.1 Uc				–
		Drop-out		0.35 … 0.55 Uc				–
40 … 400 Hz coils		Operation		–				0.85 … 1.1 Uc
		Drop-out		–				0.35 … 0.55 Uc
Average consumption at 20 °C and at Uc								
a 50 Hz	Inrush	50 Hz coil	VA	550	550	805	805	–
		40 … 400 Hz coil	VA	–	–	–	–	650
		Cos φ		0.3	0.3	0.3	0.3	0.9
	Sealed	50 Hz coil	VA	45	45	55	55	–
		40 … 400 Hz coil	VA	–	–	–	–	10
		Cos φ		0.3	0.3	0.3	0.3	0.9
a 60 Hz	Inrush	60 Hz coil	VA	660	660	970	970	–
		40 … 400 Hz coil	VA	–	–	–	–	650
		Cos φ		0.3	0.3	0.3	0.3	0.9
	Sealed	60 Hz coil	VA	55	55	66	66	–
		40 … 400 Hz coil	VA	–	–	–	–	10
		Cos φ		0.3	0.3	0.3	0.3	0.9
Heat dissipation			W	12 … 16	12 … 16	18 … 24	18 … 24	8
Operating time (1)	Closing "C"		ms	23 … 35	23 … 35	20 … 35	20 … 35	40 … 65
	Opening "O"		ms	5 … 15	5 … 15	7 … 15	7 … 15	100 … 170
Mechanical durability at Uc	In millions of operating cycles			10	10	10	10	10
Maximum operating rate at ambient temperature y 55 °C	In operating cycles per hour			2400	2400	2400	2400	2400
Connection				Min/max c.s.a.				
Flexible cable without cable end	1 or 2 conductors		mm^2	1/4	1/4	1/4	1/4	1/4
Flexible cable with cable end	1 conductor		mm^2	1/4	1/4	1/4	1/4	1/4
	2 conductors		mm^2	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5
Solid cable without cable end	1 or 2 conductors		mm^2	1/4	1/4	1/4	1/4	1/4
Tightening torque			N.m	1.2	1.2	1.2	1.2	1.2
Mechanical latching				Mechanical latch blocks LA6 DK must not be fitted on LC1 F contactors. For similar type of operation, use magnetic latching contactors CR1 F.				

(1) The closing time "C" is measured from the moment the coil supply is switched on to initial contact of the main poles. The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate.
(2) Control circuit characteristics with LX1 coil.

LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 F1250	LC1 F1400	LC1 F1700	LC1 F2100	LC1 F2600
24 … 1000	48 … 1000		48 … 1000	110 … 500	110 … 400	110 … 600	110 … 500[2]	110 … 500[2]	110 … 500[2]	110 … 500[2]
–										
–										
0.85 … 1.1 Uc	0.85 … 1.1 Uc		0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc
0.35 … 0.55 Uc	0.3 … 0.5 Uc		0.25 … 0.5 Uc	0.2 … 0.4 Uc	0.3 … 0.5 Uc	0.25 … 0.5 Uc	0.3 … 0.5 Uc	0.3 … 0.5 Uc	0.3 … 0.5 Uc	0.3 … 0.5 Uc
–	–	–	–	–	–	–	–	–	–	–
650	1075	1100	1650	2100	1700	1650	2200	2200	2200	2500
0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
–	–	–	–	–	–	–	–	–	–	–
10	15	18	22	50	12	22	36	36	36	45
0.9	0.9	0.9	0.9	0.9	–	0.9	0.9	0.9	0.9	0.9
–	–	–	–	–	–	–	–	–	–	–
650	1075	1100	1650	2100	1700	1650	2200	2200	2200	2500
0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
–	–	–	–	–	–	–	–	–	–	–
10	15	18	22	50	12	22	36	36	36	45
0.9	0.9	0.9	0.9	0.9	–	0.9	0.9	0.9	0.9	0.9
8	14	18	20	2 x 22	25	20	2 x 18	2 x 18	2 x 18	2 x 25
40 … 65	40 … 75	40 … 75	40 … 80	40 … 80	60 … 80	40 … 80	40 … 75	40 … 75	40 … 75	40 … 80
100 … 170	100 … 170	100 … 170	100 … 200	130 … 230	150 … 180	100 … 200	100 … 170	100 … 170	100 … 170	100 … 200
10	10	10	5	5	5	1	0.5	0.5	0.5	0.5
2400	2400	2400	1200	600	600	1200	600	600	600	600
Min/max c.s.a.										
1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5
1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

Mechanical latch blocks LA6 DK must not be fitted on LC1 F contactors.
For similar type of operation, use magnetic latching contactors CR1 F.

TeSys F Contactors (200 to 2600 A)

Control circuit: a.c.

Control circuit characteristics with LX4 coil

Contactor type				LC1 F115	LC1 F150	LC1 F185	LC1 F225	LC1 F265
Rated control circuit voltage (Uc)	c		V	24 … 460	24 … 460	24 … 460	24 … 460	24 … 460
Control voltage **limits** (θ y 55 °C)	Operation			0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc
	Drop-out			0.15 … 0.2 Uc	0.15 … 0.2 Uc	0.15 … 0.2 Uc	0.15 … 0.2 Uc	0.15 … 0.2 Uc
Average consumption at 20 °C and at Uc	c	Inrush	W	560	560	800	800	750
		Sealed	W	4.5	4.5	5	5	5
Average operating time at Uc(1)	Closing "C"		ms	30 … 40	30 … 40	30 … 40	30 … 40	40 … 50
	Opening "O"		ms	30 … 50	30 … 50	30 … 50	30 … 50	40 … 65
				Note: the arcing time depends on the circuit switched by the poles. For all normal 3-phase applications, the arcing time is less than 10 ms. The load is isolated from the supply after a time equal to the sum of the opening time and the arcing time.				
Mechanical durability at Uc	In millions of operating cycles			10	10	10	10	10
Maximum operating rate at ambient temperature y 55 °C	In operating cycles per hour			2400	2400	2400	2400	2400
Cabling				Min/max c.s.a.				
Flexible cable without cable end	1 conductor		mm^2	1/4	1/4	1/4	1/4	1/4
	2 conductors		mm^2	1/4	1/4	1/4	1/4	1/4
Flexible cable with cable end	1 conductor		mm^2	1/4	1/4	1/4	1/4	1/4
	2 conductors		mm^2	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5
Solid cable without cable end	1 conductor		mm^2	1/4	1/4	1/4	1/4	1/4
	2 conductors		mm^2	1/4	1/4	1/4	1/4	1/4
Tightening torque			N.m	1.2	1.2	1.2	1.2	1.2
Mechanical latching				Mechanical latch blocks LA6 DK must not be fitted on LC1 F contactors. For similar type of operation, use magnetic latching contactors CR1 F.				

(1) The operating times depend on the type of contactor electromagnet and its control mode. The closing time "C" is measured from the moment the coil supply is switched on to initial contact of the main poles. The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate.

LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 F1250	LC1 F1400	LC1 F1700	LC1 F2100	LC1 F2600
24 … 460	48 … 440	48 … 440	48 … 440	110 … 440	110 … 400	48 … 250	110 … 440	110 … 440	110 … 440	110 … 440
0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc	0.85 … 1.1 Uc
0.15 … 0.2 Uc	0.2 … 0.35 Uc	0.2 … 0.35 Uc	0.2 … 0.35 Uc	0.2 … 0.4 Uc	0.3 … 0.5 Uc	0.2 … 0.35 Uc	0.2 … 0.35 Uc	0.2 … 0.35 Uc	0.2 … 0.35 Uc	0.2 … 0.35 Uc
750	1000	1100	1600	2 x 1000	1900	1600	2100	2100	2100	2600
5	6	6	9	2 x 21	12	9	10	10	10	18
40 … 50	50 … 60	50 … 60	60 … 70	70 … 80	60 … 80	60 … 70	50 … 60	50 … 60	50 … 60	60 … 70
40 … 65	45 … 60	45 … 60	40 … 50	100 … 130	40 … 50	40 … 50	45 … 60	45 … 60	45 … 60	40 … 50

Note: the arcing time depends on the circuit switched by the poles. For all normal 3-phase applications. the arcing time is less than 10 ms. The load is isolated from the supply after a time equal to the sum of the opening time and the arcing time.

10	10	10	5	5	5	1	0.5	0.5	0.5	0.5
2400	2400	2400	1200	600	600	1200	600	600	600	600
Min/max c.s.a.										
1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5	1/2.5
1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

Mechanical latch blocks LA6 DK must not be fitted on LC1 F contactors.
For similar type of operation, use magnetic latching contactors CR1 F.

Environment

Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 508, CSA C22.2 n° 14. ATEX directive 94/9/EC(1)
Product certifications			UL(4), CSA(4) CCC, GOST ATEX INERIS(1) GL, DNV, RINA, BV, LROS
Degree of protection (front face)	Conforming to IEC 60529		Protection against direct finger contact IP20
Protective treatment	Conforming to IEC 60068		"TH"
Ambient air temperature around the device	Storage	°C	-60 … +70
	Normal operation, without derating (IEC 60947-4-1)	°C	-20 … +60
	Minimum /maximum operating temperatures (with derating)	°C	-40 … +70
Operating positions without derating	In relation to normal vertical mounting plane		Any position. When mounting on a vertical rail, use a stop.
Flame resistance	Conforming to UL94		V1
	Conforming to IEC 60695-2-1	°C	850
Shock resistance	Permissible acceleration conforming to IEC 60068-2-7		15 gn - 11 ms
Vibration resistance(2)	Permissible acceleration conforming to IEC 60068-2-6		6 gn except LRD04L … LRD32L: 3 gn
Dielectric strength at 50 Hz	Conforming to IEC 60255-5	kV	6
Surge withstand	Conforming to IEC 60801-5	kV	6

Electrical characteristics of power circuit

Relay type			LRD 01 … 16, LR3 D01 … 16	LRD 04L … 32L	LRD 21 … 35, LR3 D21 … 35	LRD 313 … 365 LR3 D313 … 365	LRD 313L … 365L	LRD 3322 … 33696 LR3 D3322 … 33696	LR2 D3522 … 3563	LRD 4365 … 4369
Tripping class	Conforming to UL508, IEC 60947-4-1		10 A	20	10 A	10 A	20	10 A	20	10 A
Rated insulation voltage (Ui)	Conforming to IEC 60947-4-1	V	690					1000(3)		
	Conforming to UL, CSA	V	600							600 except LRD 4369
Rated impulse withstand voltage (Uimp)		kV	6							
Rated operational voltage (Ue)		V	690							
Frequency limits	Of the operating current	Hz	0 … 400							
Setting range	Depending on model	A	0.1 … 13	0.63 … 32	12 … 38	9 … 65	9 … 65	17 … 140	17 … 80	80 … 140

Auxiliary contact characteristics

Conventional thermal current		A	5					
Max. sealed consumption of the operating coils of controlled contactors (Occasional operating cycles of contact 95-96)	a.c. supply, AC-15	V	120	240	380	480	500	600
		A	3	1.5	0.95	0.75	0.72	0.12
	d.c. supply, DC-13	V	125	250	440			
		A	0.22	0.1	0.06			
Protection against short-circuits	By gG, BS fuses. Maximum rating or by GB2	A	5					

(1) For relays LRD 01 to LRD 365, LRD 3322 to LRD 3365, LRD 04L to LRD 32L, LRD 4365 to LRD 4369, LRD 33656 to LRD 33696.
(2) For relays LRD 313 to LRD 365: 6 gn only with independent plate mounting and 4 gn when mounted beneath the contactor.
(3) 750 V for LRD 33656, LRD 33676, LRD 33696.
(4) Except for relays LRD 4369.

Electrical characteristics of power circuit

Relay type			LR9	F5p57, F57	F5p63, F63 F5p67, F67 F5p69, F69	F5p71, F71	F7p75, F75 F7p79, F79	F7p81, F81
Rated insulation voltage (Ui)	Conforming to IEC 60947-4		V	1000				
Rated operational voltage (Ue)	Conforming to VDE 0110 gr C		V	1000				
Rated impulse withstand voltage (Uimp)	Conforming to IEC 60947-1		kV	8				
Rated operational current (Ie)			A	30 to 630				
Short-circuit protection and coordination				Please consult Schneider Electric staff				
Frequency limits	Of the operating current		Hz	50 … 60. For other frequencies, please consult Schneider Electric				
Power circuit connections	Width of terminal lug		mm	20	25	25	30 **LR9 F7p75** and **LR9 F75** 40 **LR9 F7p79** and **LR9 F79**	40
	Clamping screw			M6	M8	M10	M10	M12
	Tightening torque		N.m	10	18	35	35	58

Auxiliary contact electrical characteristics

Conventional thermal current			A	5	
Short-circuit protection	By gG or BS fuses or by circuit-breaker **GB2 CD10**		A	5	
Control circuit connections	Flexible cable with cable end	1 conductor	mm²	Min. 1 x 0.75	Max. 1 x 2.5
		2 conductors	mm²	2 x 1	2 x 1.5
	Flexible cable without cable end	1 conductor	mm²	1 x 0.75	1 x 4
		2 conductors	mm²	2 x 1	2 x 2.5
	Solid cable	1 conductor	mm²	1 x 0.75	1 x 2.5
		2 conductors	mm²	2 x 1	–
	Tightening torque		N.m	1.2	

Maximum sealed current consumption of the coils of associated contactors (occasional operating cycles of contact 95-96)	a.c. supply	V	24	48	110	220	380	600
		VA	100	200	400	600	600	600
	d.c. supply	V	24	48	110	220	440	–
		W	100	100	50	45	25	–

(1) For applications involving the use of these overload relays with soft starters or variable speed drives, please consult Schneider Electric.

Memo

Listed below the bases and printed catalogs concerning all the product ranges of the 2015 LV product characteristics.

Original source files and printed catalogs of the above documents are available on Shopping Kiosk and Pl@net area.

All modules and printed catalogs can be downloaded.

Range	Bases	Catalogs
Acti 9	Final Distribution	No printed document
Compact NSX	559E	LVPED208001EN
Compact NS630b-3200	554E	LVPED211021EN
Compact NSX - DC/DC PV	220E	LVPED208006EN
PowerPact Multistandard	553E	LVPED212023EN
Masterpact NT/NW - AC	208E	LVPED208008EN
Masterpact NW - DC/DC PV	220E	LVPED208006EN
Compact INS/INV	309E	LVPED213024EN
Source-changeover systems	313E	LVPED211022EN
Fupact	306E	LVPED208014EN
Vigirex	433E	LVPED208009EN

About Schneider Electric

Schneider Electric is the global specialist in energy management and automation. With revenues of ~€27 billion in FY2015, our 160,000+ employees serve customers in over 100 countries, helping them to manage their energy and process in ways that are safe, reliable, efficient and sustainable. From the simplest of switches to complex operational systems, our technology, software and services improve the way our customers manage and automate their operations. Our connected technologies reshape industries, transform cities and enrich lives.

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