

# Switch-disconnector selection

## Compact INS40 to 160

# Switch-disconnector selection

## Compact INS40 to 160



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		3-4
<b>Electrical characteristics as defined by IEC 60947-1 / 60947-3 and EN 60947-1 / 60947-3</b>		
Conventional thermal current (A)	<b>I<sub>th</sub></b>	at 60 °C
Conventional thermal current in enclosure	<b>I<sub>the</sub></b>	at 60 °C
Rated insulation level (V)	<b>U<sub>i</sub></b>	AC 50/60 Hz
Impulse-withstand voltage (kV)	<b>U<sub>imp</sub></b>	
Rated operational voltage (V)	<b>U<sub>e</sub></b>	AC 50/60 Hz DC
Rated operational voltage AC20 and DC20 (V)		AC 50/60 Hz
Rated operational current (A)	<b>I<sub>e</sub></b>	<b>Electrical AC 50/60 Hz</b> 220-240 V 380-415 V 440-480 V <sup>(1)</sup> 500 V 660-690 V <b>Electrical DC</b> 125 V (2P in series) 250 V (4P in series)
Rated operational power AC23 (kW)		<b>Electrical AC 50/60 Hz</b> 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)	<b>I<sub>cm</sub></b>	Min. (switch-disconnector alone) Max. (with upstream protection circuit breaker)
Short-time withstand current (A rms)	<b>I<sub>cw</sub></b>	1 s 3 s 20 s 30 s
Suitability for isolation		
Durability (O-C cycles)		Mechanical <b>Electrical AC 50/60 Hz</b> 220-240 V 380-415 V 440 V 500 V 690 V <b>Electrical DC</b> 250 V
Positive contact indication		
Visible break		
Emergency-off switch disconnector		
Degree of pollution		
<b>Upstream protection</b>		
See the "Complementary technical information" page D-1.		
<sup>(1)</sup> 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
	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>
	40	40	63	63	80	80
	40	40	63	63	80	72
	40	40	63	63	80	100
	40	32	63	40	80	40
	-	-	-	-	100	63
	-	-	-	-	100	63
	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>
	40	40	63	63	80	80
	40	40	63	63	80	80
	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
	■	■	■	■	■	■
	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
	■	■	■	■	■	■
	20000	20000	20000	15000	15000	15000
	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>
	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
	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>
	1500	1500	1500	1500	1500	1500
	1500	1500	1500	1500	1500	1500
	■	■	■	■	■	■
	-	-	-	-	-	-
	■	■	■	■	■	■
	3	3	3	3	3	3
	-	-	-	-	-	-

# Switch-disconnector selection

## Compact INS250-100 to 630

# Switch-disconnector selection

## Compact INS250-100 to 630



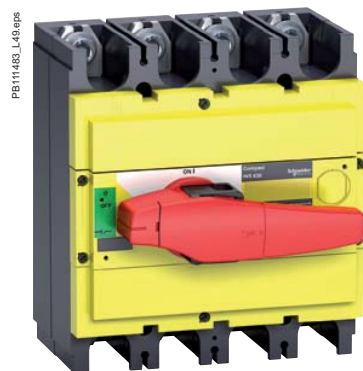
Compact INS250 switch-disconnector.



Compact INS250 emergency-off switch-disconnector.



Compact INS630 switch-disconnector.



Compact INS630 emergency-off switch-disconnector.

Compact INS switch-disconnectors		
Number of poles		3-4
<b>Electrical characteristics as defined by IEC 60947-1 / 60947-3 and EN 60947-1 / 60947-3</b>		
Conventional thermal current (A)	<b>I<sub>th</sub></b>	at 60 °C
Conventional thermal current in enclosure	<b>I<sub>the</sub></b>	at 60 °C
Rated insulation level (V)	<b>U<sub>i</sub></b>	AC 50/60 Hz
Impulse-withstand voltage (kV)	<b>U<sub>imp</sub></b>	
Rated operational voltage (V)	<b>U<sub>e</sub></b>	AC 50/60 Hz
		DC
Rated operational voltage AC20 and DC20 (V)		AC 50/60 Hz
Rated operational current (A)	<b>I<sub>e</sub></b>	<b>Electrical AC 50/60 Hz</b>
		220-240 V
		380-415 V
		440-480 V <sup>(1)</sup>
		500-525 V
		660-690 V
		<b>Electrical DC</b>
125 V (2P in series)		
250 V (4P in series)		
Rated operational power AC23 (kW)	<b>Electrical AC 50/60 Hz</b>	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)	<b>I<sub>cm</sub></b>	Min. (switch-disconnector alone)
		Max. (with upstream protection circuit breaker)
Short-time withstand current (A rms)	<b>I<sub>cw</sub></b>	1 s
		3 s
		20 s
		30 s
Suitability for isolation		
Durability (O-C cycles)		Mechanical
		<b>Electrical AC 50/60 Hz</b>
		440 V
		500 V
		690 V
<b>Electrical DC</b>		
250 V		
Positive contact indication		
Visible break		
Emergency-off switch disconnector		
Degree of pollution		3
<b>Upstream protection</b>		
See the "Complementary technical information" page D-1.		
<sup>(1)</sup> Suitable for 480 V NEMA.		
<sup>(2)</sup> 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 <sup>(2)</sup>
	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
	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>
	100	100	160	160	200	200	250	250
	100	100	160	160	200	200	250	250
	100	100	160	160	200	200	250	250
	100	100	160	160	200	200	250	250
	100	100	160	160	200	200	250	250
	100	100	160	160	200	200	250	250
	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>
	100	100	160	160	200	200	250	250
	100	100	160	160	200	200	250	250
	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
	■	■	■	■	■	■	■	■
	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
	■	■	■	■	■	■	■	■
	15000	15000	15000	15000	10000	10000	10000	10000
	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>	<b>AC22A</b>	<b>AC23A</b>
	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
	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>	<b>DC22A</b>	<b>DC23A</b>
	1500	1500	1500	1500	1500	1500	1000	200
	■	■	■	■	■	■	■	■
	-	-	-	-	-	-	-	-
	■	■	■	■	■	■	■	■
	3	3	3	3	3	3	3	3
	-	-	-	-	-	-	-	-

# Switch-disconnector selection

## Compact INS630b to 2500

# Switch-disconnector selection

## Compact INS630b to 2500



Compact INS1600 switch-disconnector.



Compact INS1600 emergency-off switch-disconnector.



Compact INS2500 switch-disconnector.

Compact INS switch-disconnectors		
Number of poles		
<b>Electrical characteristics as defined by IEC 60947-1 / 60947-3 and EN 60947-1 / 60947-3</b>		
Conventional thermal current (A)	<b>I<sub>th</sub></b>	at 60 °C
Conventional thermal current in enclosure	<b>I<sub>the</sub></b>	at 60 °C
Rated insulation level (V)	<b>Ui</b>	AC 50/60 Hz
Impulse-withstand voltage (kV)	<b>U<sub>imp</sub></b>	
Rated operational voltage (V)	<b>U<sub>e</sub></b>	AC 50/60 Hz DC
Rated operational voltage AC20 and DC20 (V)		AC 50/60 Hz
Rated operational current (A)	<b>I<sub>e</sub></b>	<b>Electrical AC 50/60 Hz</b>
		220-240 V
		380-415 V
		440-480 V <sup>(1)</sup>
		500-525 V
		660-690 V
		<b>Electrical DC</b>
		125 V (2P in series)
		250 V (4P in series)
Rated operational power AC23 (kW)		<b>Electrical AC 50/60 Hz</b>
		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)	<b>I<sub>cm</sub></b>	Min. (switch-disconnector alone)
		Max. (with upstream protection circuit breaker)
Short-time withstand current (kA rms)	<b>I<sub>cw</sub></b>	0.5 s
		0.8 s
		1 s
		3 s
		20 s
		30 s
Suitability for isolation		
Durability (O-C cycles)		<b>Mechanical</b>
		<b>Electrical AC 50/60 Hz</b>
		220-240 V
		380-415 V
		440-480 V <sup>(1)</sup>
		500-525 V
		660-690 V
		<b>Electrical DC</b>
		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" [page D-1](#).  
<sup>(1)</sup> Suitable for 480 V NEMA.  
<sup>(2)</sup> For vertical connection busbars only. For horizontal connection busbars, see derating charts in "Installation recommendations" [see page B-22](#).

	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 <sup>(2)</sup>	2000	2500
	630	800	1000	1250	1600 <sup>(2)</sup>	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
	<b>AC21A AC22A AC23A</b>	<b>AC21A AC22A AC23A</b>	<b>AC21A AC22A AC23A</b>	<b>AC21A AC22A AC23A</b>	<b>AC21B AC22B AC23A</b>	<b>AC21B AC22B AC23B</b>	<b>AC21B AC22B AC23B</b>
	630 630 630	800 800 800	1000 1000 1000	1250 1250 1250	1600 1600 1250	2000 2000 -	2500 2500 -
	630 630 630	800 800 800	1000 1000 1000	1250 1250 1250	1600 1600 1250	2000 2000 -	2500 2500 -
	630 630 630	800 800 800	1000 1000 1000	1250 1250 1250	1600 1600 1250	2000 2000 -	2500 2500 -
	630 630 630	800 800 800	1000 1000 1000	1250 1250 1250	1600 1600 1250	2000 2000 -	2500 2500 -
	<b>DC21A DC22A DC23A</b>	<b>DC21A DC22A DC23A</b>	<b>DC21A DC22A DC23A</b>	<b>DC21A DC22A DC23A</b>	<b>DC21A DC22A DC23A</b>	<b>DC21B DC22B DC23B</b>	<b>DC21B DC22B DC23B</b>
	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	250	315	400	400	-	-
	400	400	560	710	710	-	-
	500	500	630	800	800	-	-
	560	560	710	900	900	-	-
	710	710	900	-	-	-	-
	■	■	■	■	■	■	■
	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
	■	■	■	■	■	■	■
	5000	3000	3000	3000	3000	3000	3000
	<b>AC21A AC22A AC23A</b>	<b>AC21A AC22A AC23A</b>	<b>AC21A AC22A AC23A</b>	<b>AC21A AC22A AC23A</b>	<b>AC21B AC22B AC23A</b>	<b>AC21B AC22B AC23B</b>	<b>AC21B AC22B AC23B</b>
	1000 1000 1000	500 500 500	500 500 500	500 500 500	100 100 500	100 100 -	100 100 -
	1000 1000 1000	500 500 500	500 500 500	500 500 500	100 100 500	100 100 -	100 100 -
	1000 1000 1000	500 500 500	500 500 500	500 500 500	100 100 500	100 100 -	100 100 -
	1000 1000 1000	500 500 500	500 500 500	500 500 500	100 100 500	100 100 -	100 100 -
	1000 1000 1000	500 500 500	500 500 500	500 500 500	100 100 500	100 100 -	100 100 -
	<b>DC21A DC22A DC23A</b>	<b>DC21A DC22A DC23A</b>	<b>DC21A DC22A DC23A</b>	<b>DC21A DC22A DC23A</b>	<b>DC21A DC22A DC23A</b>	<b>DC21B DC22B DC23B</b>	<b>DC21B DC22B DC23B</b>
	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 -
	■	■	■	■	■	■	■
	-	-	-	-	-	-	-
	■	■	■	■	■	■	■
	3	3	3	3	3	3	3

# TeSys protection components

## Mini-VARIO and VARIO switch disconnectors

**Applications**

Mini-Vario and Vario rotary switch disconnectors from 12 to 175 A are suitable for on-load making and breaking of resistive or mixed resistive and inductive circuits where frequent operation is required. They can also be used for direct switching of motors in utilisation categories AC-3 and DC-3 specific to motors. Vario switch disconnectors are suitable for isolator applications with fully visible breaking (since the handle cannot indicate the "open" position unless all the contacts are actually open and separated by the appropriate isolating distance) and it is possible to padlock the handles in the open position.

Mini-Vario and Vario rotary switch disconnectors from 12 to 175 A are suitable for on-load making and breaking of resistive or mixed resistive and inductive circuits where frequent operation is required. They can also be used for direct switching of motors in utilisation categories AC-3 and DC-3 specific to motors. Vario switch disconnectors are suitable for isolator applications with fully visible breaking (since the handle cannot indicate the "open" position unless all the contacts are actually open and separated by the appropriate isolating distance) and it is possible to padlock the handles in the open position.



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<b>Switch type</b>	Mini-VARIO for standard applications					VARIO for high performance applications					VARIO for high performance applications				
<b>Thermal current</b>	12 A	20 A	12 A	20 A	25 A	32 A	40 A	63 A	80 A	125 A	175 A				
<b>Operational current AC-23 A at 400 Volts</b>	8.1 A	11 A	8.1 A	11 A	14.5 A	21.8 A	29 A	41.5 A	57 A	68.5 A	83 A				
<b>Number of poles</b>	3...5		3...6			3...6					3 + N + PE				
<b>Number of auxiliary contacts</b>	1 or 2		1...4			1...4									
<b>Switch fixing</b>	Screw fixing, 1 or 4 holes														
	From the front Fixing: 1 x Ø 22.5 hole or 4 x Ø 5.5 screws					From the front Fixing: 1 x Ø 22.5 hole or 4 x Ø 5.5 screws					From the front Fixing: 4 x Ø 5.5 screws				
Clip-on mounting on rail															
From the back Clip-on mounting on rail			From the back Clip-on mounting on rail or screw fixing			From the back Clip-on mounting on rail or screw fixing					From the back Screw fixing				
<b>Reversible terminal blocks</b>	Yes					Yes									
<b>Door mounting, direct operator</b>	Yes					Yes									
<b>Mounting at back of enclosure, indirect operator with door interlock</b>	Yes					Yes									
<b>Enclosure reference</b>	V•DN 12	V•DN 20	V•D 02 V•F 02	V•D 01 V•F 01	V•D 0 V•F 0	V•D 1 V•F 1	V•D 2 V•F 2	V•F 3	V•F 4	V•F 5	V•F 6				
<b>Product reference</b>	VCFN 12GE	VCFN 20GE	V•F 02GE	V•F 01GE	V•F 0GE	V•F 1GE	V•F 2GE	V•F 3GE	V•F 4GE	V•F 5GE	V•F 6GE				
<b>Pages</b>	2/4 and 4/8		4/12 and 4/13			2/4, 4/8 and 4/12									