

SIDERMAT

Load break switches for power distribution
from 250 to 1800 A with tripping function



SIDERMAT *4 x 630 A*
External front operation

The solution for

- Main switchboard
- Distribution panel
- Motor load break



Strong points

- Remote tripping
- Safety with visible double breaking
- Robustness in harsh conditions

Something to think about

- SIDERMAT combination: Manually operated fuse switches which can be tripped remotely.

Function

SIDERMAT are manually operated 3 or 4 pole load break switches with visible breaking and a remote tripping function.
They make and break under load conditions and provide safety isolation for any low voltage circuit.
The tripping function assures the following:
- protection of persons against insulation faults through combination with toroids and differential relays
- protection against overloads through combination with CTs and thermal relays
- protection against short circuits with fuses (see "SIDERMAT fuse-combination switches" page 316).

Advantages

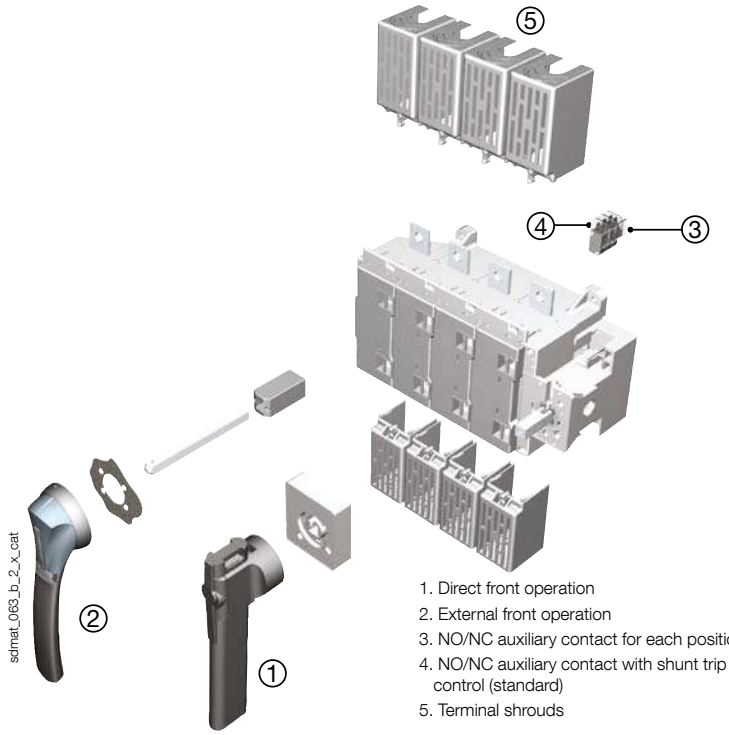
Remote tripping
Disconnection by a shunt trip device enables the power to the installation to be switched off with a remote pushbutton.

Safety with visible double breaking
SIDERMATs are visible double breaking devices (quadruple up to 800 A) providing real and secure display.

Robustness in harsh conditions
By lowering the current via a limiting resistor, a SIDERMAT fitted with an undervoltage coil may be used in continuous processes or exposed to high ambient temperatures.

Functional diagram

For more details, please see the installation instructions supplied with the product.



1. Direct front operation
2. External front operation
3. NO/NC auxiliary contact for each position
4. NO/NC auxiliary contact with shunt trip coil control (standard)
5. Terminal shrouds

socomec
Innovative Power Solutions

References

Front operation - Switch body with a shunt trip coil 230 VAC

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contact position	Auxiliary contact tripping	Terminal shrouds	Terminal screens	Inter phase barrier
250 A	3 P	3500 **3026**	Black 3999 **6203**	S3 type Black IP55 1431 **3511**(1) S3 type Red/Yellow IP55 1432 **3511**	200 mm 1401 **1520** 320 mm 1401 **1532**(1)	1st contact NO/NC 3999 **0051** 2nd contact NO/NC 3999 **0052**	1 contact NO/NC 3999 **0031**	3 P 3998 **3040**(2) 4 P 3998 **4040**(2)		
	4 P	3500 **4026**								
400 A	3 P	3500 **3041**								
	4 P	3500 **4041**								
630 A	3 P	3500 **3064**								
	4 P	3500 **4064**								
800 A	3 P	3500 **3081**						3 P 3998 **3063**(2) 4 P 3998 **4063**(2)		
	4 P	3500 **4081**								
1250 A	3 P	3500 **3121**							3 P 2998 **3120**(2) 4 P 2998 **4120**(2)	3 P 2998 **0003** 4 P 2998 **0004**
	4 P	3500 **4121**								
1600 A	3 P	3500 **3161**								
	4 P	3500 **4161**								
1800 A	3 P	3500 **3180**								included
	4 P	3500 **4180**								

(1) Standard.
(2) Top/bottom.

Side operation - Switch body with a shunt trip coil 230 VAC

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contact position	Auxiliary contact tripping	Terminal shrouds	Terminal screens	Inter phase barrier
250 A	3 P	3505 **3026**	Black 3999 **6012**(1) Red 3999 **6013**	S3 type Black IP55 1435 **3511**(1) S3 type Red IP55 1436 **3511**	200 mm 1403 **1520**	1st contact NO/NC 3999 **0051** 2nd contact NO/NC 3999 **0052**	1 contact NO/NC 3999 **0031**	3 P 3998 **3040**(2) 4 P 3998 **4040**(2)		
	4 P	3505 **4026**								
400 A	3 P	3505 **3041**								
	4 P	3505 **4041**								
630 A	3 P	3505 **3064**								
	4 P	3505 **4064**								
800 A	3 P	3505 **3081**						3998 **3063**(2)		
	4 P	3505 **4081**						3998 **4063**(2)		
1250 A	3 P	3505 **3121**							3 P 2998 **3120**(2) 4 P 2998 **4120**(2)	3 P 2998 **0003** 4 P 2998 **0004**
	4 P	3505 **4121**								
1600 A	3 P	3505 **3161**								
	4 P	3505 **4161**								
1800 A	3 P	3505 **3180**								included
	4 P	3505 **4180**								

(1) Standard.
(2) Top/bottom.

Accessories

External operation handle

For front operation

Rating (A)	Handle type	Handle colour	External IP(1)	Reference
250 ... 1800	S3	Black	IP55	1431 **3511**(2)
250 ... 1800	S3	Red / Yellow	IP55	1432 **3511**

(1) IP: protection degree according to IEC 60529. *(2) Standard.*

For side operation

Rating (A)	Handle type	Handle colour	External IP(1)	Reference
250 ... 1800	S3	Black	IP55	1435 **3511**(2)
250 ... 1800	S3	Red	IP55	1436 **3511**

(1) IP: protection degree according to IEC 60529. *(2) Standard.*





Handle type S3

Direct operation handle

For front operation

Rating (A)	Handle colour	Reference
250 ... 1800	Black	3999 **6203**

For side operation

Rating (A)	Handle colour	Reference
250 ... 1800	Black	3999 **6012**



Alternative colour Type S handle cover

Use

For single lever S3 type handles.

Other colours: please contact us.

Colour	To be ordered in multiples of	Handle type	Reference
Light grey	50	S3	1401 **0001**
Dark grey	50	S3	1401 **0011**



Type S handle adapter

Use

Enables S-type handles to be fitted in place of existing older style Socomec handles.

Dimensions

Adds 12 mm to the handle depth.

Handle colour	To be ordered in multiples of	External IP(1)	Reference
Black	1	IP65	1493 **0000**

(1) IP: protection degree according to IEC 60529.



Shaft for external operation

Use

Standard lengths:
- 200 mm,
- 320 mm.

Other lengths: please contact us.

For front operation

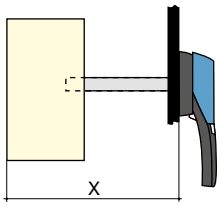
Rating (A)	Dimension X (mm)	Shaft length (mm)	Reference
250 ... 630	275 ... 439	200 mm	1401 **1520**
250 ... 630	275 ... 559	320 mm	1401 **1532**(1)
800	296 ... 460	200 mm	1401 **1520**
800	296 ... 580	320 mm	1401 **1532**(1)
1250 ... 1800	291 ... 455	200 mm	1401 **1520**
1250 ... 1800	291 ... 575	320 mm	1401 **1532**(1)

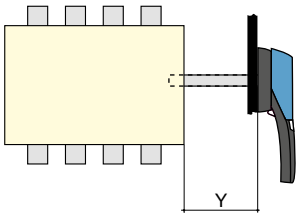
(1) Standard.

For side operation

Rating (A)	Dimension Y (mm)	Shaft length (mm)	Reference
800 ... 1800	110 ... 279	200	1403 **1520**







Tripping coil

Use

Omnipolar breaking remotely controlled by a shunt trip or undervoltage release coil.

Note:the shunt trip coil must not be supplied for more than 5s.

A 230 VAC shunt trip coil is fitted as standard to the switch body. To have an alternative coil, one of the references below must be ordered with the switch.

Examples of ordering

- SIDERMAT with 230 VAC shunt trip coil - 1 part number: SIDERMAT 250 A, 3-pole, front operation: 3500 3026.
- SIDERMAT with other coil type or voltage - 2 part numbers: SIDERMAT 250 A, 3-pole, front operation, with undervoltage trip coil 110 VAC: 3500 3026 + 3991 3110.


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Shunt trip coil


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Undervoltage trip coil

Characteristics

Shunt trip coil					
AC voltage (V) (+5% to -20%)(1)	24	48	110	230	400
In-rush consumption (VA)	80	100	100	120	120
DC voltage (V) (+5% to -20%)	12	24	48	110	220
In-rush consumption (W)	80	100	100	120	120

(1) Note: Note: the shunt trip coil must not be supplied for more than 5 s.
A 230VAC shunt trip coil is fitted as standard.

AC undervoltage trip coil					
AC voltage (V) (+5% to -10%)	24	48	110	230	400
Continuous consumption (VA)	13	13	13	13	20
In-rush consumption (VA)	13	13	13	13	20
Minimum maintaining voltage (V)	15	25	60	140	200

DC undervoltage trip coil					
Continuous voltage (V) (+5% to -10%)	12	24	48	110	220
Continuous consumption (W)	13	13	13	13	13
In-rush consumption (W)	13	13	13	13	13
Minimum maintaining voltage (V)	6	15	25	60	140

Delayed undervoltage trip coil		
Voltage	**Time (ms)**	**Reference**
230 VAC	430	3993 **3230**(1)
400 VAC	410	3993 **3400**(1)

(1) To be ordered with the switch.

References

Shunt trip coil		
Voltage	**Reference**	**Reference**
24 VAC	3990 **1024**	3991 **1024**(1)
48 VAC	3990 **1048**	3991 **1048**(1)
110 VAC	3990 **1110**	3991 **1110**(1)
230 VAC	3990 **1220**	included
400 VAC	3990 **1380**	3991 **1380**(1)
12 VDC		3991 **2012**(1)
24 VDC	3990 **2024**	3991 **2024**(1)
48 VDC	3990 **2048**	3991 **2048**(1)
110 VDC	3990 **2220**	3991 **2220**(1)
220 VDC		3991 **2220**(1)

(1) To be ordered with the switch.

Undervoltage trip coil		
	Replacement coil	**Alternative coil**
Voltage	**Reference**	**Reference**
24 VAC	3990 **3024**	3991 **3024**(1)
48 VAC	3990 **3048**	3991 **3048**(1)
110 VAC	3990 **3110**	3991 **3110**(1)
230 VAC	3990 **3220**	3991 **3220**(1)
400 VAC	3990 **3380**	3991 **3380**(1)
12 VDC	3990 **4012**	3991 **4012**(1)
24 VDC	3990 **4024**	3991 **4024**(1)
48 VDC	3990 **4048**	3991 **4048**(1)
110 VDC	3990 **4110**	3991 **4110**(1)
220 VDC	3990 **4220**	3991 **4220**(1)

(1) To be ordered with the switch.

Current-reducing resistor for undervoltage trip coil

Use

By limiting the current, the resistor reduces the effects on undervoltage trip coils used in continuous processes or those exposed to high ambient temperatures.

Voltage	Reference
110 VAC	3999 **3112**
230 VAC	3999 **3230**
400 VAC	3999 **3400**
110 VDC	3999 **4110**

Accessories (continued)

Auxiliary contact

Use
Pre-break and signalling of positions 0 and I:
1 to 2 NO / NC auxiliary contacts.

Coil tripping
1 to 2 NO / NC auxiliary contacts.

Connection to the control circuit
By 6.35 mm fast-on terminal.

Characteristics
NO / NC auxiliary contact: IP2.

Electrical characteristics:
30000 operations.



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Characteristics

NO / NC position contact

Rating (A)	Rated current (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
250 ... 1800	16	12	8	14	6

NO / NC coil trip signalling

Rating (A)	Rated current (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
250 ... 1800	16	12	8	12	2

References

NO / NC position contact

Rating (A)	AC position	Reference
250 ... 1800	1st	3999 **0051**
250 ... 1800	2nd	3999 **0052**

NO / NC low level position contact

Rating (A)	AC position	Reference
250 ... 1800	1st	3999 **0111**
250 ... 1800	2nd	3999 **0112**

NO / NC coil trip signalling

Rating (A)	AC position	Reference
250 ... 1800	1	3999 **0031**

Terminal shrouds

Use
Top or bottom protection against direct contact with terminals or connection parts.

Advantage
Perforations allow remote thermographic inspection without the need to remove the shrouds.

Rating (A)	No. of poles	Position	Reference
250 ... 630	3 P	top or bottom	3998 **3040**
250 ... 630	4 P	top or bottom	3998 **4040**
800	3 P	top or bottom	3998 **3063**
800	4 P	top or bottom	3998 **4063**



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Terminal screen

Use
Top or bottom protection against direct contact with terminals or connection parts.

Rating (A)	No. of poles	Position	Reference
1250 ... 1800	3 P	Top or bottom	2998 **3120**
1250 ... 1800	4 P	Top or bottom	2998 **4120**

Inter-phase barrier

Use
Safety isolation between the terminals, essential for use at 690 VAC or in a polluted or dusty atmosphere.

Rating (A)	No. of poles	Reference
1250 ... 1600	3 P	2998 **0003**
1250 ... 1600	4 P	2998 **0004**
1800	3 / 4 P	included



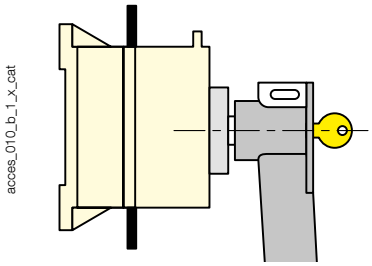
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Key handle interlocking system

Use

Locking in position 0 of the front or side operation handle:

- using a padlock (not supplied) and standard padlocking function of the handle. Padlocking in external front operation interlocks the door.
- using a RONIS 1104 A lock (key BC 3318) - to be mounted directly on the padlockable handle,
- using RONIS EL11AP lock (not supplied).



RONIS 1104A lock

Locking using RONIS EL11AP lock 1104 (supplied)		
Rating (A)	**Operation**	**Reference**
250 … 1800	direct	3999 **8104**

Locking using RONIS EL11AP lock (not supplied)		
Rating (A)	**Operation**	**Reference**
250 … 630	direct	3999 **6107**
800 … 1800	direct	3999 **7007**

Locking using RONIS EL11AP lock (not supplied)		
Rating (A)	**Operation**	**Reference**
250 … 1800	external	1499 **7701**

Cage terminals

Use

Connection of bare copper cables onto the terminals (without lugs).

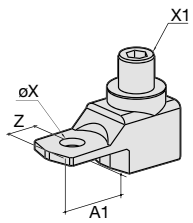
Connections

Rating (A)	Flexible cable cross-section (mm^2)	Rigid cable cross-section (mm^2)	Flexible bar width (mm)	Stripped over (mm)
250	16 … 185	16 … 185	18	27
400	50 … 240	50 … 300	20	34
630	70 … 300	70 … 300	24	34



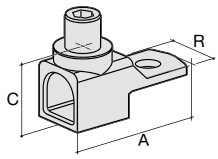
Dimensions

Rating (A)	A	A1	C	R	ØX	X1	Z
250	62	31.5	31.5	25	10.5	M16	14
400	71.5	32	38	32	10.5	M20	15
630	76.5	37	38	40	12.5	M20	15



References

Rating (A)	No. of poles	Reference
250	3 P	5400 **3025**
250	4 P	5400 **4025**
400	3 P	5400 **3040**
400	4 P	5400 **4040**
630	3 P	5400 **3063**
630	4 P	5400 **4063**



Other specific accessories

- Connection accessories.
- Mounting plates for standard systems.
- Special construction available for specific environments.

Characteristics according to IEC 60947-3

250 to 1800 A

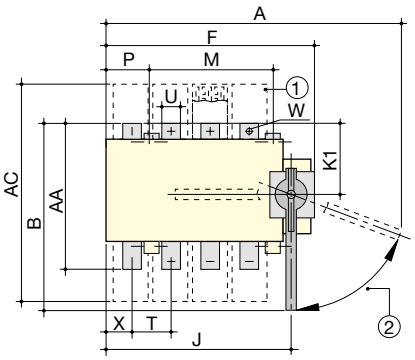
Thermal current I_{th} at 40°C		**250 A**	**400 A**	**630 A**	**800 A**	**1250 A**	**1600 A**	**1800 A**
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		8	12	12	12	12	12	12
Rated operational currents I_e (A)								
Rated voltage	**Utilisation category**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**
400 VAC	AC-22 A / AC-22 B	250/250	400/400	630/630	800/800	1250/1250	1600/1600	1600/1800
400 VAC	AC-23 A / AC-23 B	250/250	400/400	630/630	630/630	1250/1250	1600/1600	1600/1600
500 VAC	AC-22 A / AC-22 B	250/250	400/400	630/630	800/800	1250/1250	1600/1600	1600/1600
500 VAC	AC-23 A / AC-23 B	200/250	315/400	500/630	630/630	1000/1000	1250/1250	1250/1250
690 VAC(2)	AC-21 A / AC-21 B	250/250	400/400	630/630	800/800	1250/1250	1600/1600	1600/1600
690 VAC(2)	AC-22 A / AC-22 B	250/250	400/400	500/630	630/800	1000/1000	1250/1250	1250/1250
690 VAC(2)	AC-23 A / AC-23 B	200/250	315/400	400/500	500/500	800/800	1000/1000	1000/1000
400 VDC	DC-20 A / DC-20 B	250/250	400/400	630/630	800/800	1250/1250	1600/1600	1800/1800
400 VDC	DC-21 A / DC-21 B	250/250	400/400	630/630	800/800	1250/1250	1600/1600	1600/1600
400 VDC	DC-22 A / DC-22 B	250/250	400/400(3)	630/630(3)	800/800(3)	1250/1250(4)	1600/1600(4)	1600/1600(4)
400 VDC	DC-23 A / DC-23 B	200/250	315/400(3)	500/630(3)	630/800(3)	1250/1250(4)	1250/1250(4)	1250/1250(4)
Operational power in AC-23 (kW)								
At 400 VAC without pre-break in AC-23 (kW)(1)(5)		132/132	220/220	355/355	355/355	710/710	900/900	900/900
At 690 VAC without pre-break in AC-23 (kW)(1)(5)		185/220	295/400	400/475	475/475	750/750	900/900	900/900
Reactive power (kvar)								
At 400 VAC (kvar)(5)		115	185	290	365	575		
Fuse protected short-circuit withstand (kA rms prospective)								
Prospective short-circuit (kA rms)(6)		100	100	100	100	100	120	120
Associated fuse rating (A)(6)		250	400	630	800	1250	2 x 800	2 x 900
Short-circuit capacity (without protection)								
Rated short-time withstand current 0.3 s. I_{CW} (kA rms)		17	25	50	65	65	80	80
Rated peak withstand current (kA peak)(6)		30	45	55	80	100	120	120
Connection								
Minimum Cu cable cross-section (mm^2)		95	185	2 x 150	2 x 185			4 x 240
Minimum Cu busbar cross-section (mm^2)				2 x 30 x 5	2 x 40 x 5	2 x 60 x 5	2 x 80 x 5	
Maximum Cu cable cross-section (mm^2)		240	240	2 x 300	2 x 300	4 x 185	6 x 240	8 x 240
Maximum Cu busbar width (mm)		40	40	50	63	100	100	100
Tightening torque min (Nm)		20	40	40		20	40	40
Mechanical characteristics								
Durability (number of operating cycles)		8000	8000	5000	5000	5000	3000	3000
Weight of a 3 pole device (kg)		6.5	7	8	11	14	19	21
Weight of a 4 pole device (kg)		7.5	8	9.5	13	16	21.5	23.5

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) Poles cannot be juxtaposed.
(4) 4-pole device with 2 poles in series per polarity.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.

Dimensions - Front operation

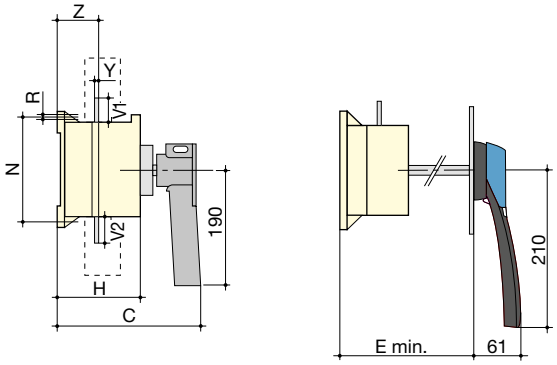
250 to 800 A

Direct front operation



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External front operation

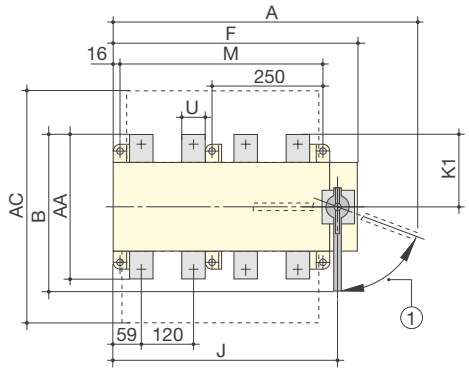


1. Terminal shroud 2. 70° reset

Rating (A)	Overall dimensions A 3p.	A 4p.	W	C	E min	Terminal shrouds AC	Switch body F 3p.	F 4p.	H	J 3p.	J 4p.	K1	Switch mounting M	N	P 3p.	P 4p.	R	Connection T	U	V1	V2	W	X 3p.	X 4p.	Y	Z	AA
250	435	495	309	248	275	388	285	345	148	253	313	115	210	180	10	70	7	65	32	35	43	11	31	46	3	67	238
400	435	495	309	248	275	388	285	345	148	253	313	115	210	180	10	70	7	65	32	35	43	13	31	46	5	69	238
630	435	495	318.5	248	275	388	285	345	148	253	313	115	210	180	10	70	7	65	32	35	43	13	31	46	8	72	257
800	491	570	350	262	296	470	346	426	178	308	388	160	250	250	20	100	9	80	50	60	60	15	36	65	7	72	320

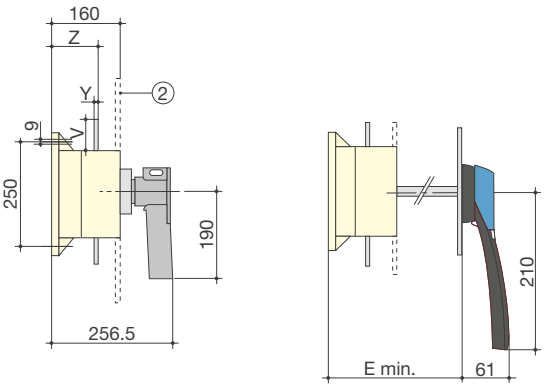
1250 to 1800 A

Direct front operation



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External front operation



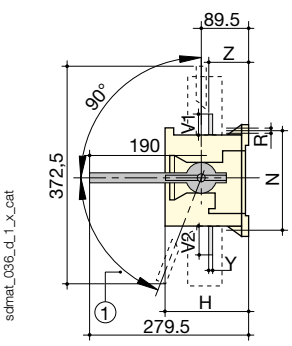
1. 70° reset
2. Terminal screens

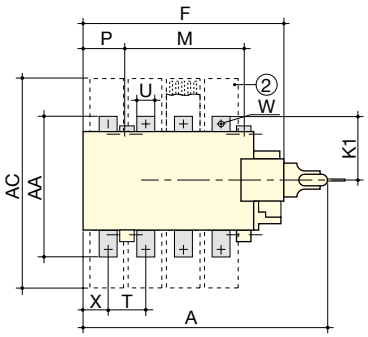
Rating (A)	Overall dimensions A 3p.	A 4p.	B	E min	Terminal shrouds AC	Switch body F 3p.	F 4p.	J 3p.	J 4p.	K1	Switch mounting M 3p.	M 4p.	Connection U	V	Y	Z	AA
1250	582	702	355	250	480	437	557	400	520	165	345	465	63	65	7	106	330
1600	582	702	370	250	480	437	557	400	520	180	345	465	80	80	15	110	360
1800	582	702	370	250	480	437	557	400	520	180	345	465	100	80	15	110	360

Dimensions for side operation

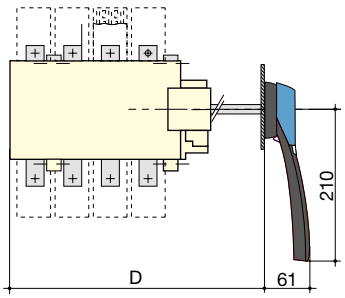
250 to 800 A

Direct side operation





External side operation

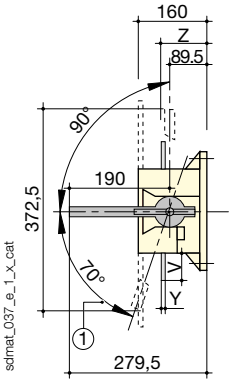


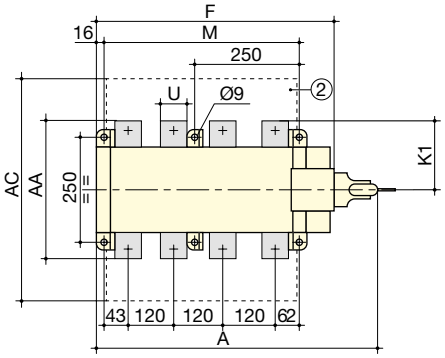
1. 70° reset
2. Terminal shrouds

Rating (A)	Overall dimensions A 3p.	A 4p.	D 3p.	D 4p.	Terminal shrouds AC	Switch body F 3p.	F 4p.	H	K1	Switch mounting M	N	P 3p.	P 4p.	R	Connection T	U	V1	V2	W	X 3p.	X 4p.	Y	Z	AA
250	365	425	357	417	388	285	345	148	115	210	180	10	70	7	65	32	35	43	11	31	46	3	67	238
400	365	425	357	417	388	285	345	148	115	210	180	10	70	7	65	32	35	43	13	31	46	5	69	238
630	365	425	357	417	388	285	345	148	129	210	180	10	70	7	65	45	49	49	13	31	46	8	72	257
800	421	501	413	493	470	346	426	178	160	250	250	20	100	9	80	50	60	60	15	36	65	7	72	320

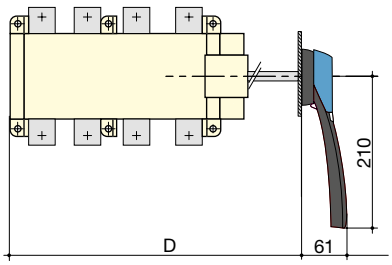
1250 to 1800 A

Direct side operation





External side operation



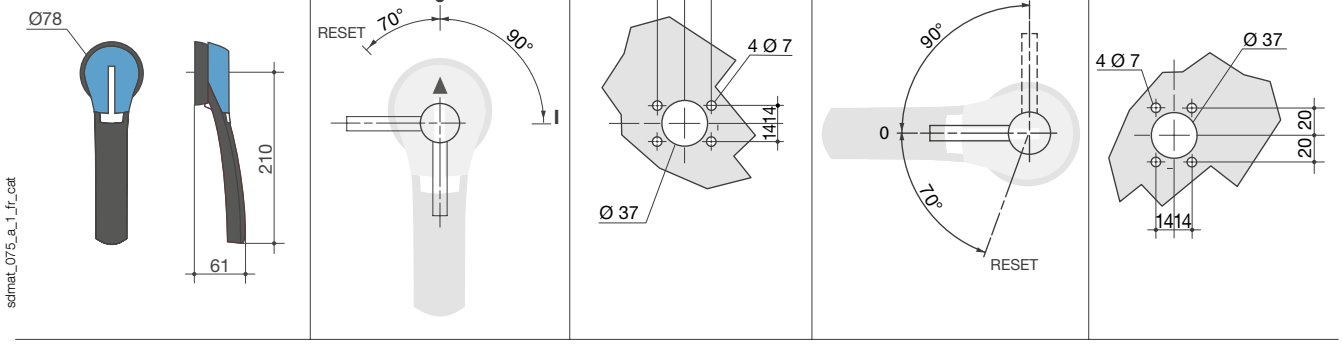
1. 70° reset
2. Terminal screens

Rating (A)	Overall dimensions A 3p.	A 4p.	D 3p.	D 4p.	Terminal shrouds AC	Switch body F 3p.	F 4p.	Switch mounting M 3p.	M 4p.	Connection U	V	Y	Z	AA
1250	522	641	504	624	480	437	557	345	465	63	65	7	106	330
1600	522	641	504	624	479	437	557	345	465	80	80	15	110	360
1800	522	641	504	624	479	437	557	345	465	100	80	15	110	360

Dimensions for external handles

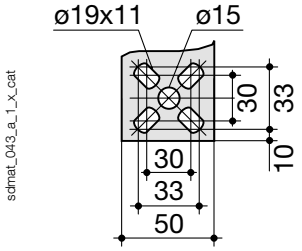
800 to 1800 A

Handle type	Front operation		Side operation	
	Direction of operation	Door drilling	Direction of operation	Door drilling
S3 type				

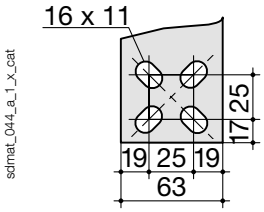


Connection terminal

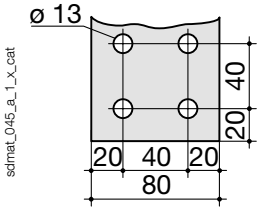
800 A



1250 A



1600 A



1800 A

