

DC MCCB Switch Disconnectors Ex9MSD

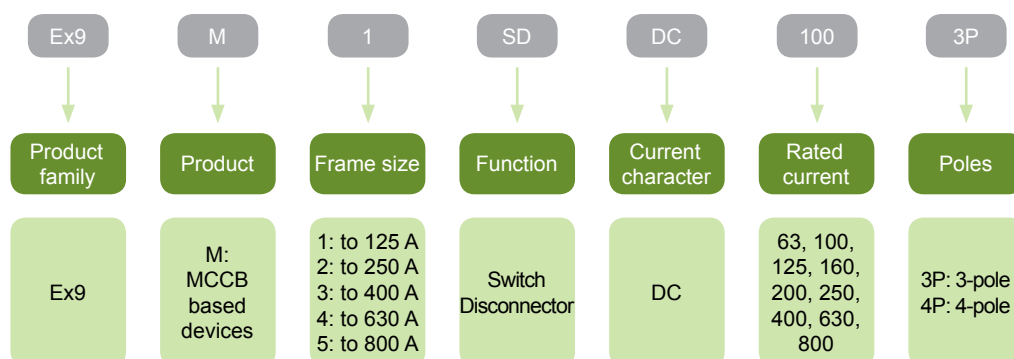


- DC MCCB Switch Disconnectors
- Frame sizes M1- M5
- Rated current up to 800 A
- Tested according to EN 60947-3
- DC current character
- 3 and 4-poles versions
- Rated operating voltage U_o up to 1000 V DC (4-pole DC version)
- Fixed version

DC MCCB based Switch Disconnectors Ex9MSD are used as a main switch in all kinds of DC applications. Thanks to their polarity independence can be used also for PV. They serve there as a main disconnector of DC side of the power plant.

These switch disconnectors have same size and design as standard Ex9M MCCBs. Therefore is there possibility to use fully compatible range of external and internal accessories including extended rotary handles, auxiliary contacts, tripping units, motor operators and terminal covers.

Type Key

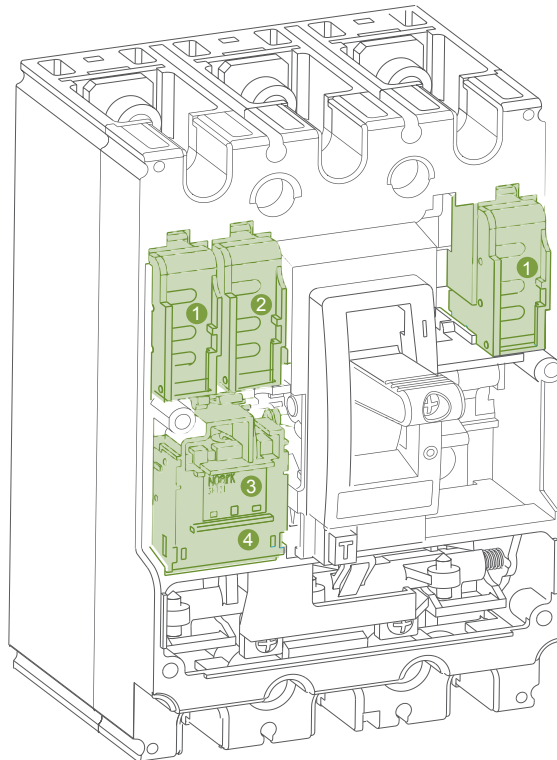


Certification marks



DC MCCB Switch Disconnectors Ex9MSD

Internal accessories



1

Auxiliary contact
AX21

2

Signal contact
AL21

3

Shunt trip release
SHT2i
1 unit or UVT2i

4

Undervoltage release
UVT2i
1 unit or SHT2i

Auxiliary contact AX21

Signal contact AL21

Shunt trip releases SHT2i

Undervoltage releases UVT2i

The undervoltage release UVT in PV system is intended e.g. for safe remote disconnection of DC part from installation.

DC MCCB Switch Disconnectors Ex9MSD

External accessories



Phase barriers
PB2i



Terminal cover set, short
TCV2i



Terminal cover set, long
TCE2i



Box terminals
MC2i



Tunnel terminals
MC2i W



Remote operator
MOD2i



Direct rotary handle
RHD2i



Extended rotary handle
ERH2i

Phase barriers PB2i

Terminal cover set, short TCV2i

Terminal cover set, long TCE2i

Remote operators MOD2i

Direct rotary handles RHD2i

Extended rotary handles ERH2i

Connection terminals MC2i

DC MCCB Switch Disconnectors Ex9MSD

750 V DC versions

- Mounting screws, interconnection busbars as well as phase barriers in the scope of delivery
- The operating voltage 750 V DC is reached via serial connection of three contacts by means of interconnection busbars



Rated current I_n	Frame size	Article No.	Type	Packing
63 A	M1	102008	Ex9M1SD DC63 3P	1/8
100 A	M1	102009	Ex9M1SD DC100 3P	1/8
125 A	M1	102010	Ex9M1SD DC125 3P	1/8
125 A	M2	102014	Ex9M2SD DC125 3P	1/4
160 A	M2	102015	Ex9M2SD DC160 3P	1/4
200 A	M2	102016	Ex9M2SD DC200 3P	1/4
250 A	M2	102017	Ex9M2SD DC250 3P	1/4
250 A	M3	102022	Ex9M3SD DC250 3P	1/2
400 A	M3	102023	Ex9M3SD DC400 3P	1/2
630 A	M4	104008	Ex9M4SD DC630 3P	1
800 A	M5	104010	Ex9M5SD DC800 3P	1

1000 V DC versions

- Mounting screws, interconnection busbars as well as phase barriers in the scope of delivery
- The operating voltage 750 V DC is reached via serial connection of three contacts by means of interconnection busbars



Rated current I_n	Frame size	Article No.	Type	Packing
63 A	M1	102011	Ex9M1SD DC63 4P	1/8
100 A	M1	102012	Ex9M1SD DC100 4P	1/8
125 A	M1	102013	Ex9M1SD DC125 4P	1/8
125 A	M2	102018	Ex9M2SD DC125 4P	1/4
160 A	M2	102019	Ex9M2SD DC160 4P	1/4
200 A	M2	102020	Ex9M2SD DC200 4P	1/4
250 A	M2	102021	Ex9M2SD DC250 4P	1/4
250 A	M3	102024	Ex9M3SD DC250 4P	1/2
400 A	M3	102025	Ex9M3SD DC400 4P	1/2
630 A	M4	104009	Ex9M4SD DC630 4P	1
800 A	M5	104011	Ex9M5SD DC800 4P	1

Technical Data Ex9M1SD

DC MCCB Switch Disconnectors up to 125 A

General parameters

Suitable for PV and other DC applications

Internal accessories

Auxiliary contact unit	AX21	101395
Alarm contact unit	AL21	101396
Shunt trip releases	SHT21	101397-101405
Undervoltage releases	UVT21	101406-101407
Max. number of installed internal accessories is 2 pcs of AX21, 1 pc of AL21 and 1 pc of a release (SHT21 or UVT21)		

External accessories

Direct rotary handle	RHD21	101410
Extended rotary handle	ERH21	101409
Remote motor operators	MOD21	101411-101415
Terminal cover set, short	TCV21 3P, TCV21 4P	101439, 102372
Terminal cover set, long	TCE21 3P, TCE21 4P	101440, 102373
Phase barrier set	PB21 3P, 4P	101441, 104852
Connection terminals	MC21	103705-103708

Mounting screws, interconnection busbar as well as phase barriers in the scope of delivery

Electrical parameters

Tested according to	IEC/EN 60947-3
Rated operating voltage U_e	750 V DC (3P) 1000 V DC (4P)
Rated insulation voltage U_i	1000 V DC
Rated impulse withstand voltage U_{imp}	8 kV
Rated current I_n	63 — 125 A
Rated short time withstand current I_{cw}	
1 s	1800 A
3 s	1800 A
20 s	700 A
Overvoltage category	III
Utilization category	A
Mechanical service life	15 000 operation cycles
Electrical service life	5 000 operation cycles
Maximum frequency of switch. cycles	120 cycles per hour

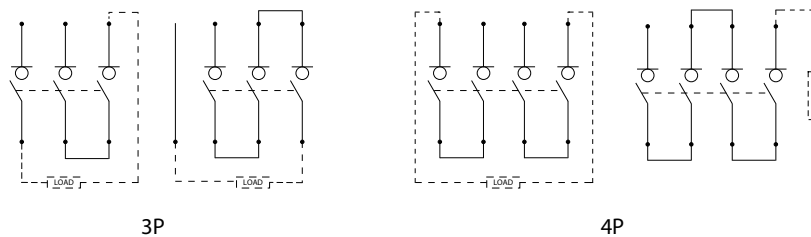
Technical Data Ex9M1SD

DC MCCB Switch Disconnectors up to 125 A

Mechanical parameters

Device width (3P / 4P)	90 mm / 120 mm
Device height	140 mm
Device depth	81.6 mm
Mounting	onto panel
Degree of protection	IP40, IP20 terminals
Terminals	M6 screws
Busbar thickness	≤ 4 mm
Busbar width	≤ 14.2 mm
Cable lug width	≤ 14.2 mm
Fastening torque of terminals	8 — 10 Nm
Ambient temperature	-25 — +70 °C
Altitude	≤ 2000 m
Relative humidity	≤ 50 % at 40 °C, ≤ 90 % monthly average
Resistance to humidity and heat	class 2
Pollution degree	3
Weight (3P / 4P)	1.0 kg / 1.5 kg
Mounting position	vertical, can be rotated by 90° in each axis

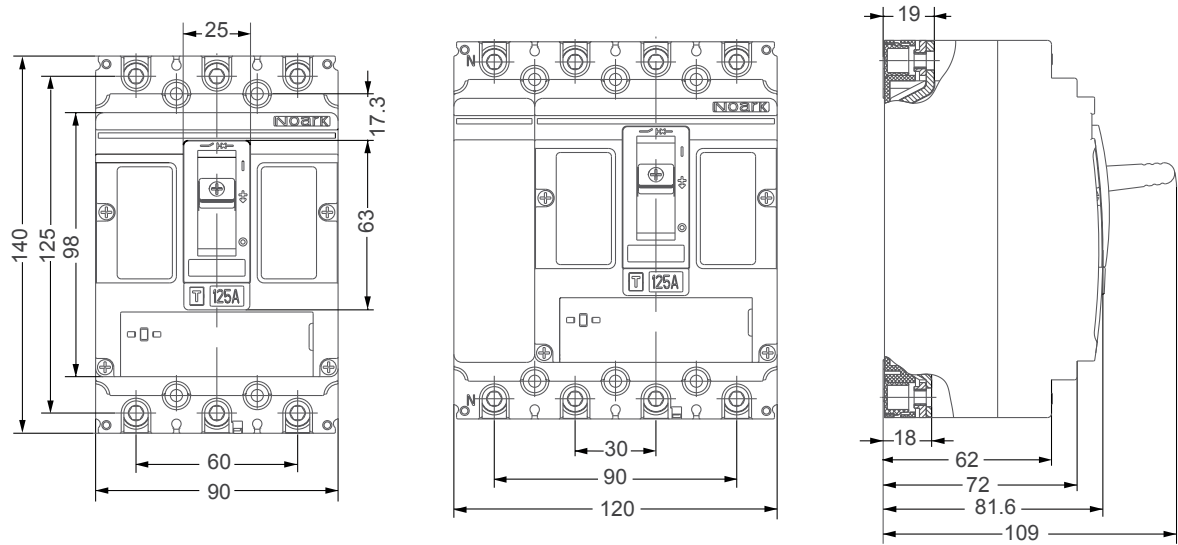
Wiring diagram



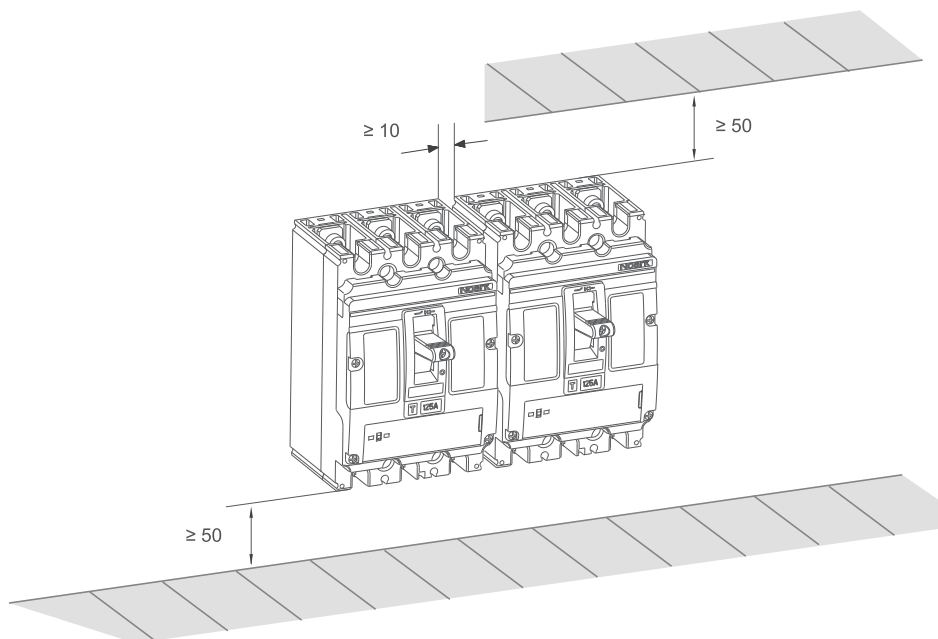
Technical Data Ex9M1SD

DC MCCB Switch Disconnectors up to 125 A

Dimensions



Installation space



Technical Data Ex9M2SD

DC MCCB Switch Disconnectors up to 250 A

General parameters

Suitable for PV and other DC applications

Internal accessories

Auxiliary contact unit	AX21	101395
Alarm contact unit	AL21	101396
Shunt trip releases	SHT22	101416-101424
Undervoltage releases	UVT22	101425-101426
Max. number of installed internal accessories is 2 pcs of AX21, 1 pc of AL21 and 1 pc of a release (SHT22 or UVT22)		

External accessories

Direct rotary handle	RHD22	101429
Extended rotary handle	ERH22	101428
Remote motor operators	MOD22	101430-101434
Terminal cover set, short	TCV22 3P, TCV22 4P	101442, 102374
Terminal cover set, long	TCE22 3P, TCE22 4P	101443, 102375
Phase barrier set	PB22 3P, 4P	101444, 104853
Connection terminals	MC22	103709-103714

Mounting screws, interconnection busbar as well as phase barriers in the scope of delivery

Electrical parameters

Tested according to	IEC/EN 60947-3
Rated operating voltage U_e	750 V DC (3P) 1000 V DC (4P)
Rated insulation voltage U_i	1000 V DC
Rated impulse withstand voltage U_{imp}	8 kV
Rated current i_n	125 — 250 A
Rated short time withstand current I_{cw}	
1 s	3200 A
3 s	3200 A
20 s	1350 A
Overvoltage category	III
Utilization category	A
Mechanical service life	15 000 operation cycles
Electrical service life	5 000 operation cycles
Maximum frequency of switch. cycles	120 cycles per hour

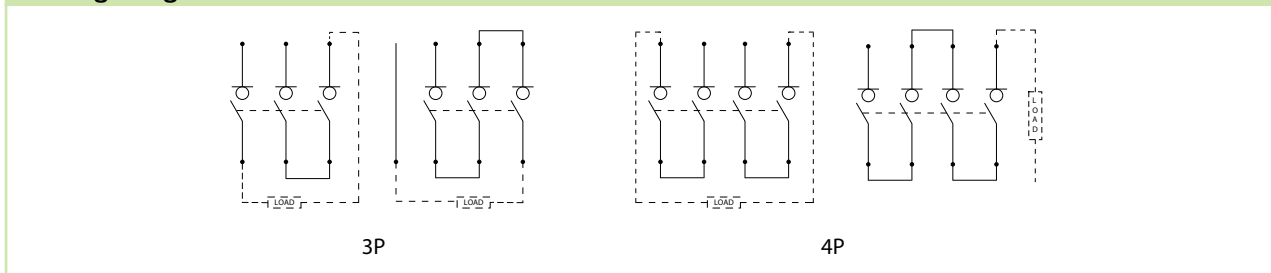
Technical Data Ex9M2SD

DC MCCB Switch Disconnectors up to 250 A

Mechanical parameters

Device width (3P / 4P)	105 mm / 140 mm
Device height	157 mm
Device depth	91.5 mm
Mounting	onto panel
Degree of protection	IP40, IP20 terminals
Terminals	M8 screws
Busbar thickness	≤ 6 mm
Busbar width	≤ 25 mm
Cable lug width	≤ 25 mm
Fastening torque of terminals	8 — 10 Nm
Ambient temperature	-25 — +70 °C
Altitude	≤ 2000 m
Relative humidity	≤ 50 % at 40 °C, ≤ 90 % monthly average
Resistance to humidity and heat	class 2
Pollution degree	3
Weight (3P / 4P)	1.5 / 2.0 kg
Mounting position	vertical, can be rotated by 90° in each axis

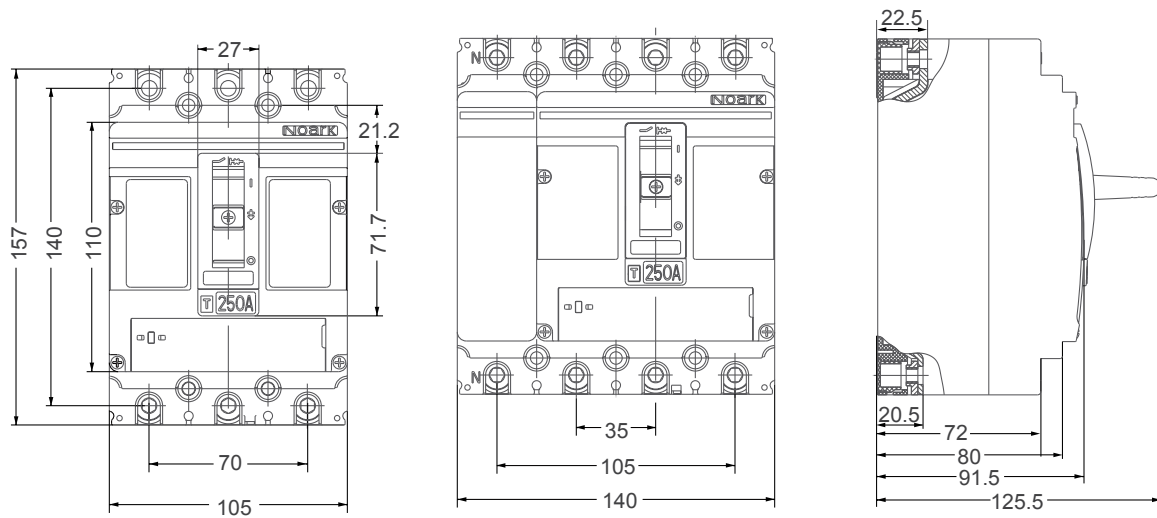
Wiring diagram



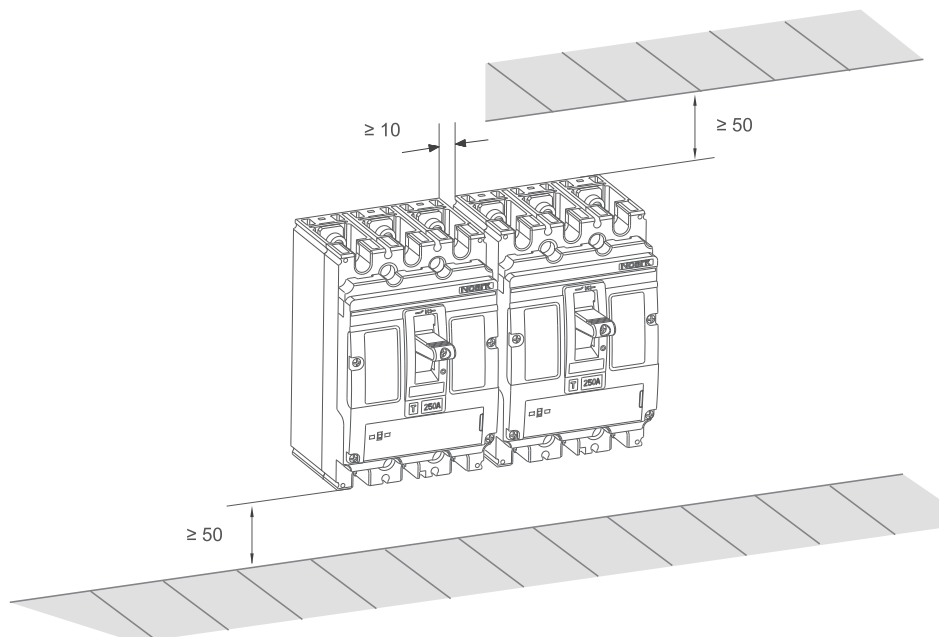
Technical Data Ex9M2SD

DC MCCB Switch Disconnectors up to 250 A

Dimensions



Installation space



Technical Data Ex9M3SD

DC MCCB Switch Disconnectors up to 400 A

General parameters

Suitable for PV and other DC applications

Internal accessories

Auxiliary contact unit	AX21	101395
Alarm contact unit	AL21	101396
Shunt trip releases	SHT22	101416-101424
Undervoltage releases	UVT22	101425-101426
Max. number of installed internal accessories is 3 pcs of AX21, 1 pc of AL21 and 1 pc of a release (SHT22 or UVT22)		

External accessories

Direct rotary handle	RHD23	101483
Extended rotary handle	ERH23	101482
Remote motor operators	MOD23	101484-101488
Terminal cover set, short	TCV23 3P, TCV23 4P	101489, 102376
Terminal cover set, long	TCE23 3P, TCE23 4P	101490, 102377
Phase barrier set	PB23 3P, 4P	101491, 104854
Connection terminals	MC23	103715-103722

Mounting screws, interconnection busbar as well as phase barriers in the scope of delivery

Electrical parameters

Tested according to	IEC/EN 60947-3
Rated operating voltage U_e	750 V DC (3P) 1000 V DC (4P)
Rated insulation voltage U_i	1000 V DC
Rated impulse withstand voltage U_{imp}	8 kV
Rated current I_n	250 — 400 A
Rated short time withstand current I_{cw}	
1 s	5000 A
3 s	5000 A
20 s	2400 A
Overvoltage category	III
Utilization category	A
Mechanical service life	10 000 operation cycles
Electrical service life	2 000 operation cycles
Maximum frequency of switch. cycles	60 cycles per hour

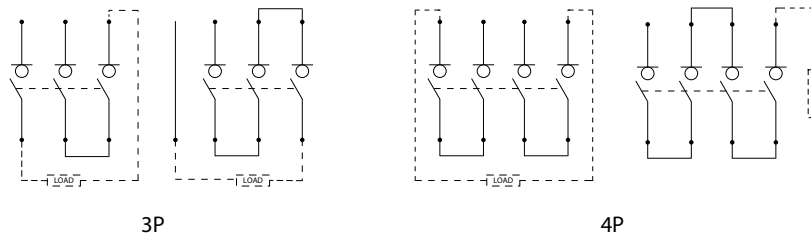
Technical Data Ex9M3SD

DC MCCB Switch Disconnectors up to 400 A

Mechanical parameters

Device width (3P / 4P)	140 mm / 185 mm
Device height	255 mm
Device depth	118.5 mm
Mounting	onto panel
Degree of protection	IP40, IP20 terminals
Terminals	M10 screws
Busbar thickness	≤ 8 mm
Busbar width	≤ 30 mm
Cable lug width	≤ 30 mm
Fastening torque of terminals	70 Nm
Ambient temperature	-25 — +70 °C
Altitude	≤ 2000 m
Relative humidity	≤ 50 % at 40 °C, ≤ 90 % monthly average
Resistance to humidity and heat	class 2
Pollution degree	3
Weight (3P / 4P)	4.5 kg / 6 kg
Mounting position	vertical, can be rotated by 90° in each axis

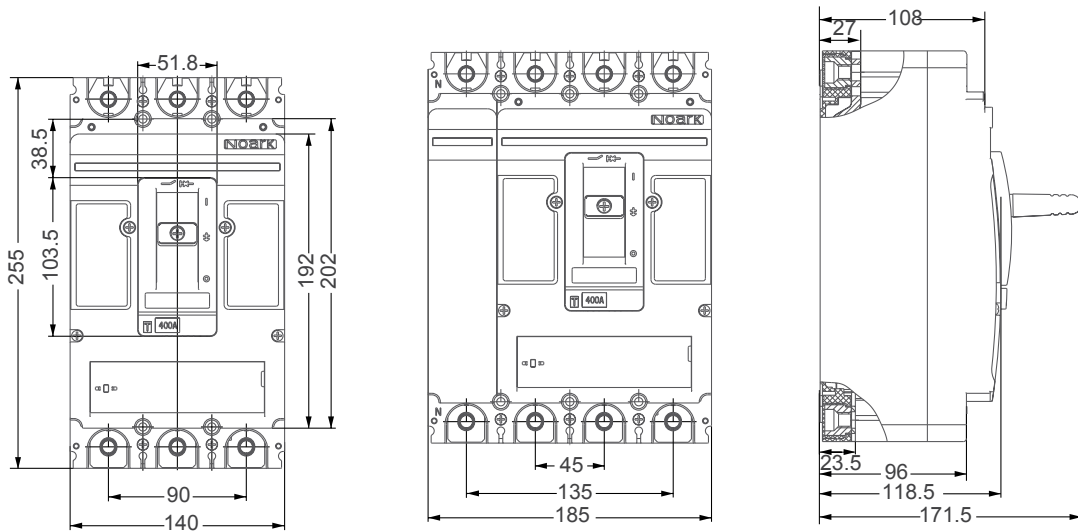
Wiring diagram



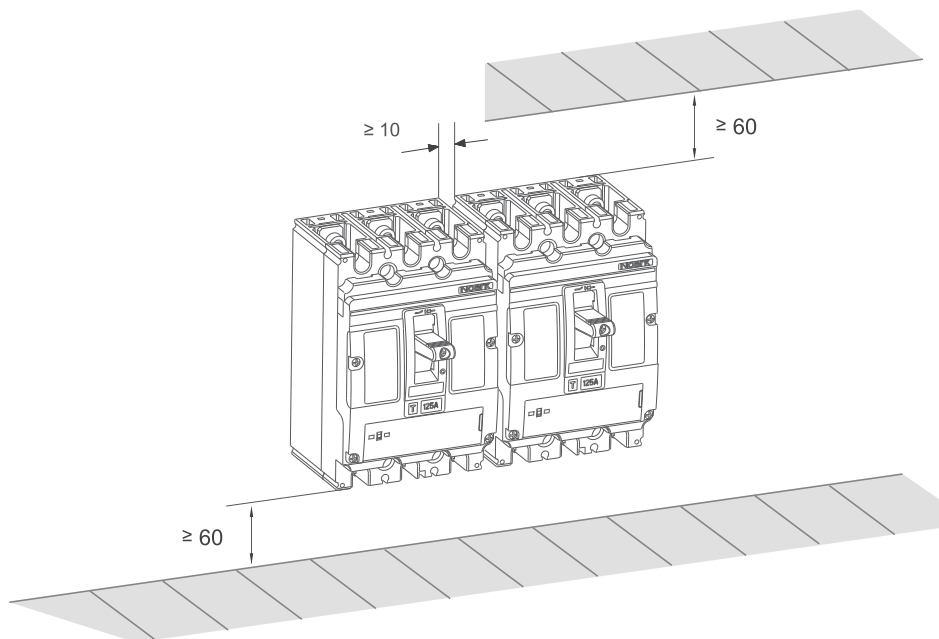
Technical Data Ex9M3SD

DC MCCB Switch Disconnectors up to 400 A

Dimensions



Installation space



Technical Data Ex9M4SD

DC MCCB Switch Disconnectors up to 630 A

General parameters

Suitable for PV and other DC applications

Internal accessories

Auxiliary contact unit	AX21	101395
Alarm contact unit	AL21	101396
Shunt trip releases	SHT24	103723-103730
Undervoltage releases	UVT24	103733-103740

Max. number of installed internal accessories is 4 pcs of AX21, 1 pc of AL21 and 1 pc of a release (SHT24 or UVT24)

External accessories

Direct rotary handle	RHD24	103742
Extended rotary handle	ERH24	103741
Remote motor operators	MOD24	103743-103747
Terminal cover set, short	TCV24 3P, 4P	103748, 103750
Terminal cover set, long	TCE24 3P, 4P	103749, 104855
Phase barrier set	PB24 3P, 4P	103751, 104856

Mounting screws, interconnection busbar as well as phase barriers in the scope of delivery

Electrical parameters

Tested according to	IEC/EN 60947-3
Rated operating voltage U_e	750 V DC (3P) 1000 V DC (4P)
Rated insulation voltage U_i	1000 V DC
Rated impulse withstand voltage U_{imp}	8 kV
Rated current I_n	630 A
Rated short time withstand current I_{cw}	
1 s	8000 A
3 s	6000 A
20 s	3500 A
Overvoltage category	III
Utilization category	A
Mechanical service life	5 000 operation cycles
Electrical service life	2 000 operation cycles
Maximum frequency of switch. cycles	60 cycles per hour

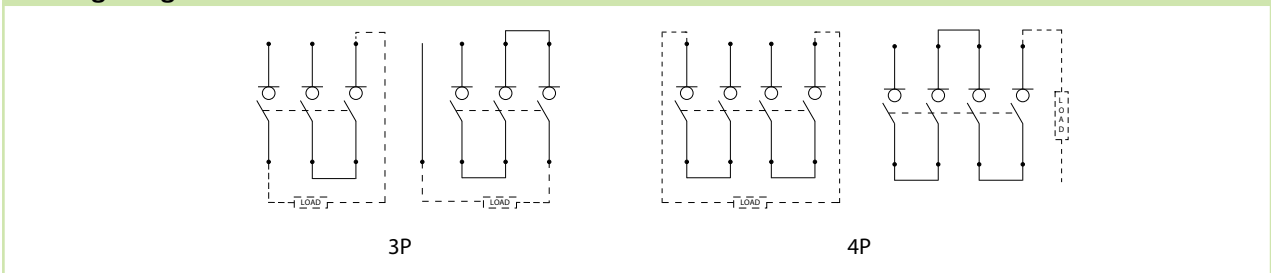
Technical Data Ex9M4SD

DC MCCB Switch Disconnectors up to 630 A

Mechanical parameters

Device width (3P / 4P)	195 mm / 260 mm
Device height	300 mm
Device depth	142 mm
Mounting	onto panel
Degree of protection	IP40, IP20 terminals
Terminals	M12 screws
Busbar thickness	≤ 10 mm
Busbar width	≤ 50 mm
Cable lug width	≤ 50 mm
Fastening torque of terminals	30 Nm
Ambient temperature	-25 — +70 °C
Altitude	≤ 2000 m
Relative humidity	≤ 50 % at 40 °C, ≤ 90 % monthly average
Resistance to humidity and heat	class 2
Pollution degree	3
Weight (3P / 4P)	9.5 kg / 12.7 kg
Mounting position	vertical, can be rotated by 90° in each axis

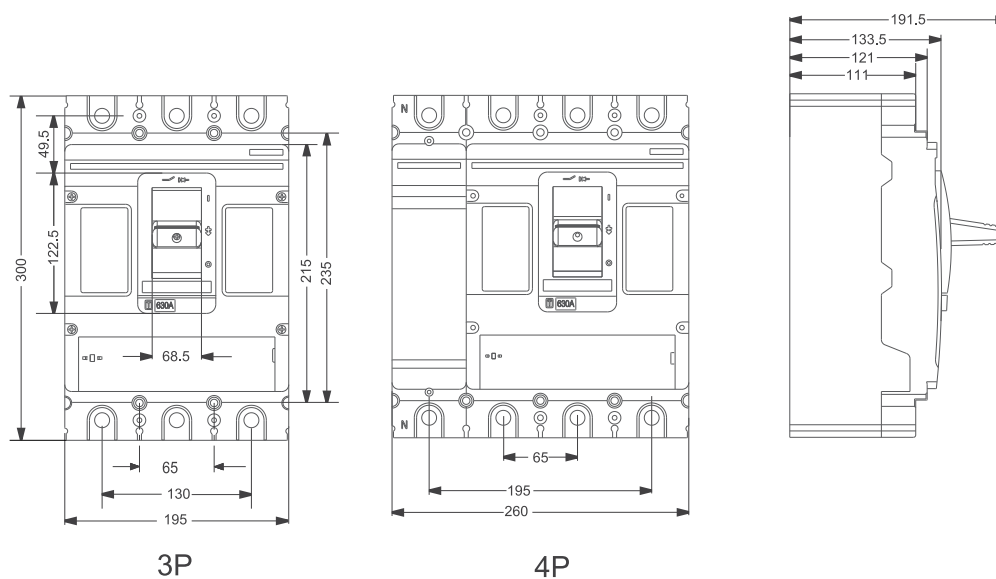
Wiring diagram



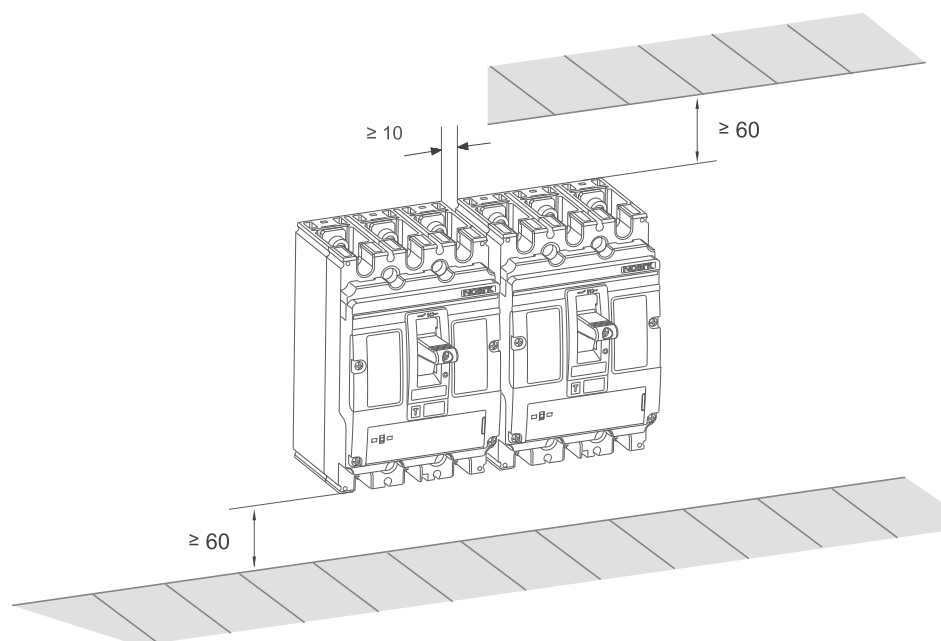
Technical Data Ex9M4SD

DC MCCB Switch Disconnectors up to 630 A

Dimensions



Installation space



Technical Data Ex9M5SD

DC MCCB Switch Disconnectors up to 800 A

General parameters

Suitable for PV and other DC applications

Internal accessories

Auxiliary contact unit	AX21	101395
Alarm contact unit	AL21	101396
Shunt trip releases	SHT24	103723-103730
Undervoltage releases	UVT24	103733-103740

Max. number of installed internal accessories is 4 pcs of AX21, 1 pc of AL21 and 1 pc of a release (SHT24 or UVT24)

External accessories

Direct rotary handle	RHD24	103742
Extended rotary handle	ERH24	103741
Remote motor operators	MOD24	103743-103747
Terminal cover set, short	TCV24 3P, 4P	103748, 103750
Terminal cover set, long	TCE24 3P, 4P	103749, 104855
Phase barrier set	PB24 3P, 4P	103751, 104856

Mounting screws, interconnection busbar as well as phase barriers in the scope of delivery

Electrical parameters

Tested according to	IEC/EN 60947-3
Rated operating voltage U_e	750 V DC (3P) 1000 V DC (4P)
Rated insulation voltage U_i	1000 V DC
Rated impulse withstand voltage U_{imp}	8 kV
Rated current I_n	800 A
Rated short time withstand current I_{cw}	
1 s	10000 A
3 s	8000 A
20 s	4000 A
Overvoltage category	III
Utilization category	A
Mechanical service life	5 000 operation cycles
Electrical service life	2 000 operation cycles
Maximum frequency of switch. cycles	60 cycles per hour

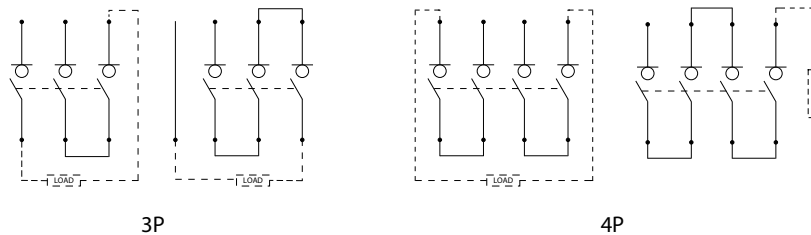
Technical Data Ex9M5SD

DC MCCB Switch Disconnectors up to 800 A

Mechanical parameters

Device width (3P / 4P)	195 mm / 260 mm
Device height	300 mm
Device depth	142 mm
Mounting	onto panel
Degree of protection	IP40, IP20 terminals
Terminals	M12 screws
Busbar thickness	≤ 10 mm
Busbar width	≤ 50 mm
Cable lug width	≤ 50 mm
Fastening torque of terminals	30 Nm
Ambient temperature	-25 — +70 °C
Altitude	≤ 2000 m
Relative humidity	≤ 50 % at 40 °C, ≤ 90 % monthly average
Resistance to humidity and heat	class 2
Pollution degree	3
Weight (3P / 4P)	9.5 kg / 12.7 kg
Mounting position	vertical, can be rotated by 90° in each axis

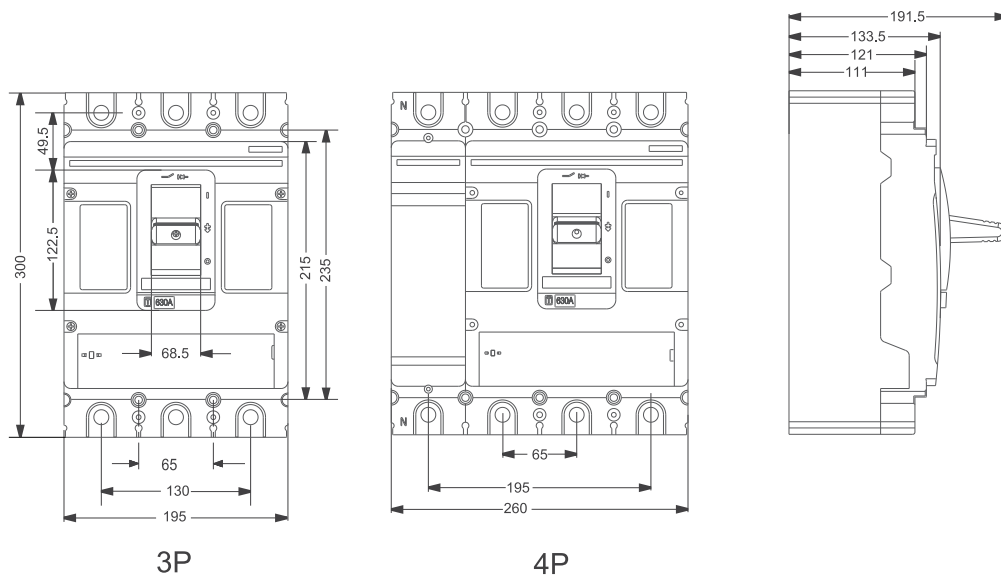
Wiring diagram



Technical Data Ex9M5SD

DC MCCB Switch Disconnectors up to 800 A

Dimensions



Installation space

