

Susol

Super Solution

Metasol

Meta Solution



DC Components

You can count on us.

Global leader that puts customer values as the highest priority

We promise to return the best value for our customers. Committed to develop global leading products, we endeavor to expand overseas market as well as domestic market. Join us where you can share bright future.

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DC MCCB (100~800AF)

- Susol MCCB is suitable for DC application such as Photovoltaic Circuit Breaker, UPS and datacenter
- DC short circuit test tested by VDE
- Higher nominal voltage range up to 1000 VDC
- Rated Current : 16A~800A
- No of Pole: 2/3/4Pole



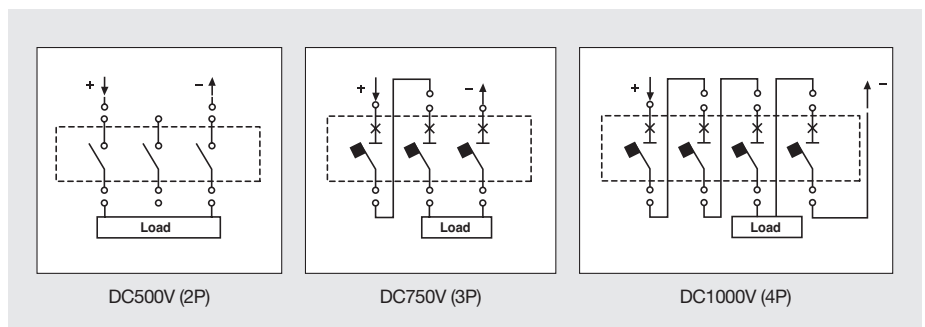
Rating

Model	TD100	TD160	TS100	TS160	TS250	TS400	TS630	TS800
Frame size (AF)	100	160	100	160	250	400	630	800
Rated current, In (A)	16, 20, 25, 32, 40, 50, 63, 80, 100	100, 125, 160	40, 50, 63, 80, 100	100, 125, 160	125, 160, 200, 250	300, 400	500, 550	700 ^{Note 5)} , 800
No. of poles (Pole)	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4
Rated operational voltage, Ue (Vdc)	2Pole: 500 3Pole: 750 4Pole: 1000	2Pole: 500 3Pole: 750 4Pole: 1000	2Pole: 500 3Pole: 750 4Pole: 1000	2Pole: 500 3Pole: 750 4Pole: 1000	2Pole: 500 3Pole: 750 4Pole: 1000	2Pole: 500 3Pole: 750 4Pole: 1000	2Pole: 500 3Pole: 750 4Pole: 1000	2Pole: 500 3Pole: 750 4Pole: 1000
Rated insulation voltage, Ui (V)	2Pole: 800 3Pole: 800 4Pole: 1000	2Pole: 800 3Pole: 800 4Pole: 1000	2Pole: 800 3Pole: 800 4Pole: 1000	2Pole: 800 3Pole: 800 4Pole: 1000	2Pole: 800 3Pole: 800 4Pole: 1000	2Pole: 800 3Pole: 800 4Pole: 1000	2Pole: 800 3Pole: 800 4Pole: 1000	2Pole: 800 3Pole: 800 4Pole: 1000
Rated impulse withstand voltage Uimp (kV)	8	8	8	8	8	8	8	8
Rated ultimate short-circuit breaking capacity, Icu (kA)	H	H	H	H	H	H	H	H
Rated service breaking capacity, Ics [%Icu]	40	40	40	40	40	40	40	40
Trip Unit ^{Note 4)} Function	FTU	FTU	FTU	FTU	FTU	FTU	FTU	FTU
	FMU	FMU	FMU	FMU	FMU	FMU	FMU	FMU
	ATU	ATU	ATU	ATU	ATU	ATU	ATU	ATU

Note)

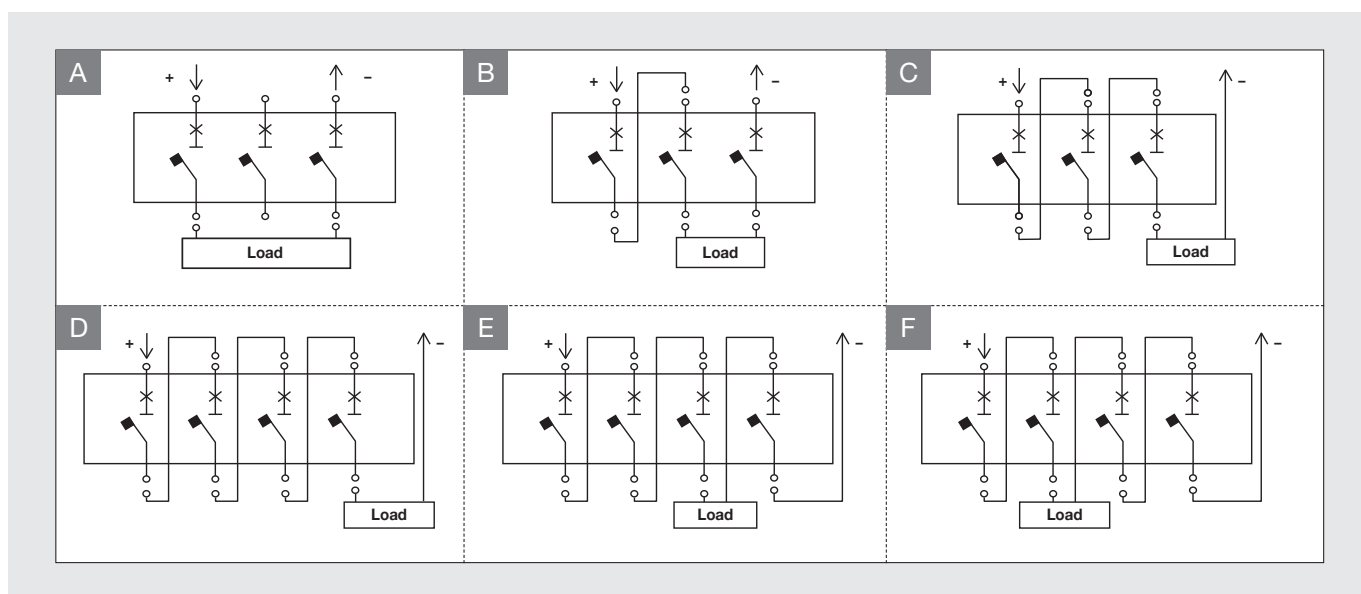
1. TD100/TD160 is the same Construction Frame.
2. TS100/TS160/TS250 is the same Construction Frame.
3. TS400/TS630 is the same Construction Frame.
4. Trip Unit Function have 3 Types (FTU/FMU/ATU)
 - FTU : Fixed thermal, fixed magnetic unit
 - FMU : Adjustable thermal, fixed magnetic unit
 - ATU : Adjustable thermal, adjustable magnetic unit
 (Not applicable to TS160 100A ATU)
5. 700A is only available for TS800FTU
6. 4Pole type MCCB is 4P4T.

DC Exemplary circuit diagrams



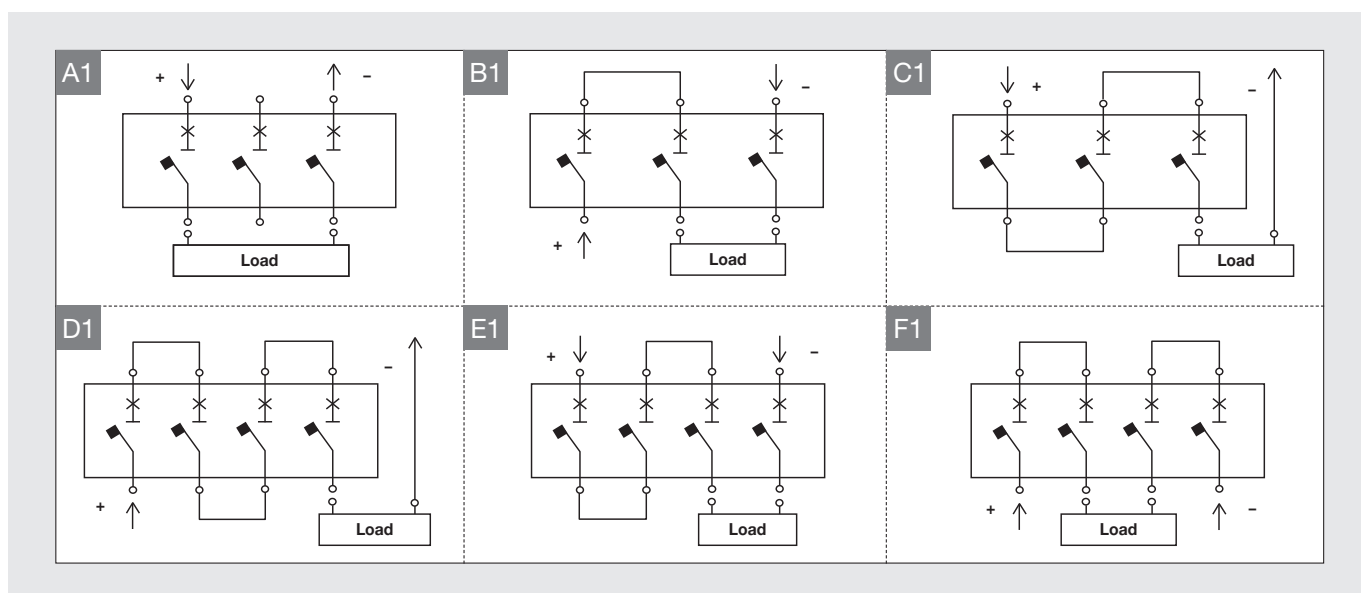
Connection method by DC voltage

Operating voltage (DC)	Center point Connected to earth (A)	One pole connected to earth (B)	Insulated from Earth (C)
~250V	A	A	A
~500V	A	B, C	A
~750V	F	C, E	B
~1000V	F	D	E, F



※ Application of 4P4D product when applying 4-pole product

Operating voltage (DC)	Center point Connected to earth (A)	One pole connected to earth (B)	Insulated from Earth (C)
~250V	A1	A1	A1
~500V	A1	B1, C1	A1
~750V	F1	C1, E1	B1
~1000V	F1	D1	E1, F1



※ Application of 4P4D product when applying 4-pole product

DC MCCB (DC 1000/1500V)

Characteristics

- Applications such as photovoltaic (PV) power generation, UPS and data center.
- Compact size implemented
- Maximum breaking capacity
- Nominal voltage ranges up to 1000/1500Vdc
- Rated current: 63~250A
- No. of poles: 2/4pole



Rating

AF		250AF			
Type		N-Type	N-Type	H-Type	NA-Type
Model		TSD250N	TSD250N	TSD250H	TSD250NA
Pole		2P	4P		
Rated current, In		63**, 80, 100, 125, 160, 200, 250A			200, 250A
Rated operational voltage, Ue		DC 1000V	DC 1500V		
Rated insulation voltage, Ui		DC 1000V	DC 1500V		
Rated impulse withstand voltage, Uimp		8kV			
Rated short-circuit breaking capacity, Icu		20kA	20kA	50kA	Icw* 3kA, Icm* 3kA
Ics = % Icu		100			-
Category		A			
Type of trip unit		Thermal-Magnetic			-
Current range	Fixed (Ir)	1 × In			-
Magnetic trip range	Fixed (Ii)	6 × In			-
Life cycle (time)	Mechanical	10,000			
	Electrical	2,000			1,000
Dimension (W×H×D, mm)		76 × 170 × 92	140 × 170 × 92		
Standards		IEC/EN60947-2, GB14048.2			IEC60947-3 & Annex D(For PV) GB/T14048.3
Certification		CCC, CB			

* Icw: Rated short-circuit withstand current(kA), 1s

Icm: Rated short-circuit making capacity(kA)

** 63A Magnetic trip range: 8×In

Temperature derating

Type	Rated Current (A)	Derating Current (A)		Compensated rated current in accordance with ambient temperature (A)										Terminal Connection
				40°C		45°C		50°C		60°C		70°C		
TSD250	63	63	100%	63	100%	62	98%	60	95%	56	89%	52	83%	TS250 BUSBAR 5T
	80	80	100%	80	100%	78	98%	76	95%	71	89%	66	83%	
	100	100	100%	100	100%	98	98%	95	95%	89	89%	83	83%	
	125	125	100%	125	100%	122	98%	119	95%	111	89%	104	83%	
	160	160	100%	160	100%	155	97%	150	94%	141	88%	131	82%	
	200	200	100%	200	100%	196	98%	190	95%	178	89%	166	83%	
	250	250	100%	250	100%	243	97%	235	94%	220	88%	205	82%	

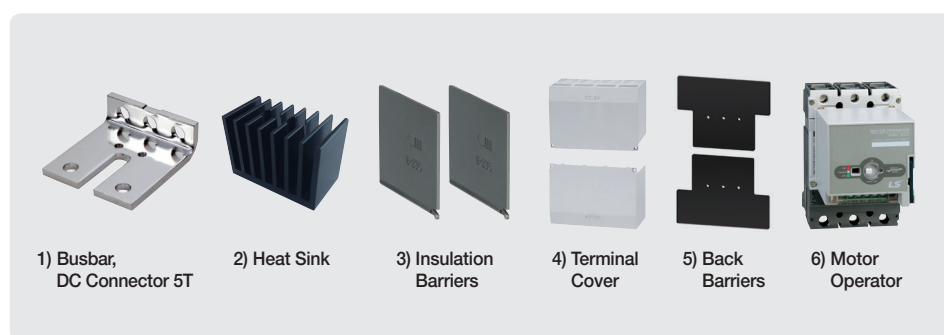
* Load-side terminal cover using derating current applied to 90%

Altitude derating

Altitude (m)	Ue (Vdc)			250AF
	2P	4P	Compensation constant	
2000	1000V	1500V	1.00	100%
3000	870V	1300V	0.87	98%
4000	770V	1150V	0.77	93%
5000	670V	1000V	0.67	90%

* Exclusive codes required for MOP order

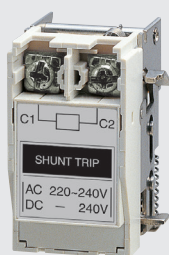
Exclusive external accessories



Possible configuration of electrical auxiliaries



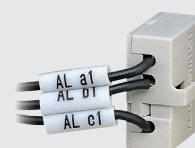
UVT



SHT



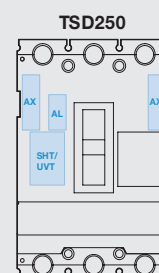
AX



AL

Maximum possibilities

Phase	Accessory	TSD250
R (Left)	AX	1
	AL	1
	SHT, UVT	1
T (Right)	AX	1
	AL	-



Note) 1. The internal accessories are assembled together with the product, so be careful when ordering.
2. SHT / UVT can not be used simultaneously

UL DC MCCB(DC 1500V)

Characteristics

- Applications such as photovoltaic (PV) power generation, UPS and data center.
- Compact size implemented
- Maximum breaking capacity
- Nominal voltage ranges up to DC 1500V
- Rated current: UL489-60~550A
UL489B - 40~450A
- Applicable standard: Acquired IEC/UL Dual standard



Rating

FRAME	
Rated voltage	
Rated current	UL489 for BPS (40°C)
	UL489B for PV (50°C)
Number of poles	
Breaker type	
UL489 BPS/UL489B PV	
Interrupting capacity (kA) UL, CSA	
IEC60947-2	
Ultimate breaking capacity (kA) DC, Icu	
Service cut-off current (kA) DC, Ics	$\tau = 1\text{ms(Annex P)}$
	$\tau = 10\text{ms}$
Insulation voltage, Ui	
Impulse withstand voltage, Uimp	
Utilization Ccategory	
IEC60947-3	
Insulation voltage, Ui	
Impulse withstand voltage, Uimp	
Rated short-time withstand current (Icw)	
Utilization category	
Trip Units	FTU*
	FMU*
	MCS**
	DSU***
Unit mounted	
Mechanical lugs	
Control wire terminal kit	
Motor operator (MOP)	
Terminal cover	
Insulation barriers	
Shunt trip (SHT)	
Undervoltage trip (UVT)	
Auxiliary switch (AX)	
Alarm switch (AL)	
External handle/Direct connection type	
External handle/Extended type	
Padlock attachment	
Weight(approximate), lbs.(kg)	
Dimensions Inches(mm)	

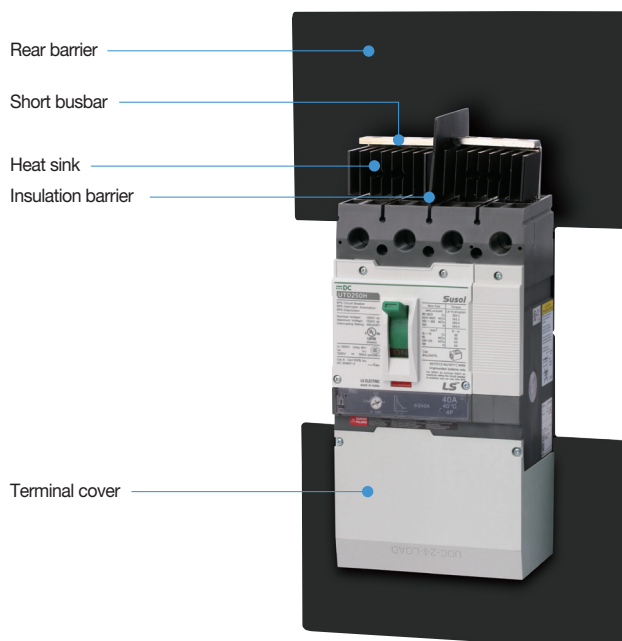
UTD250			UTD400			UTD600		
1500 Vdc			1500 Vdc			1500 Vdc		
60, 80, 100, 150, 200, 250A			275, 300, 400A			450, 500, 550A		
40, 60, 80, 100, 150, 200A			250, 275A			300, 400, 450A		
4			4			4		
E	N	H	E	N	H	E	N	H
UTD250			UTD400			UTD600		
20	50	65	20	50	65	20	50	65
UTD250			UTD400			UTD600		
20	40	50	20	40	50	20	40	50
20	40	50	20	40	50	20	40	50
20	20	20	20	20	20	20	20	20
1500 Vdc			1500 Vdc			1500 Vdc		
8 kV			8 kV			8 kV		
A			A			A		
UTD250			UTD400			UTD600		
1500 Vdc			1500 Vdc			1500 Vdc		
8 kV			8 kV			8 kV		
3 kA			4 kA			5 kA		
DC23A, DC-PV2			DC23A, DC-PV2			DC23A, DC-PV2		
UL489	UL489B		UL489	UL489B		UL489	UL489B	
60~250A	40~200A		275~400A	250, 275A		450~550A	300~450A	
60~250A	60~200A		275~400A	275A		450, 550A	300~450A	
250A	200A		400A	275A		550A	450A	
250A			400A			550A		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
●			●			●		
6.08(2.76)			15.41(6.99)			15.43(7)		
W	H	D	W	H	D	W	H	D
5.51(140)	7.87(200)	3.62(92)	7.34(186.5)	11.42(290)	4.33(110)	7.34(186.5)	13.39(340)	4.33(110)

* FTU, FMU : UL489, UL489B, IEC 60947-2

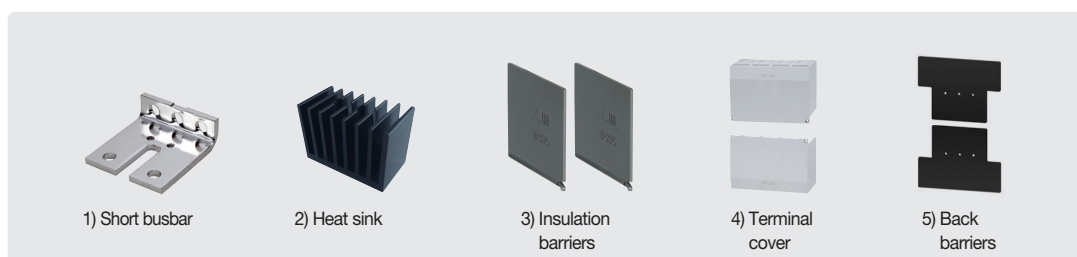
** UL489, UL489B Only

*** IEC 60947-3 Only

External configuration



Exclusive external accessories



Accessories Assembly Quantity

Accessories	Grounded system		Ungrounded system		Item code	Remarks
	Qty	Unit	Qty	Unit		
Short busbar	3	Set	2	Set	83261172113	UTD250, 40~200A, 1set
					83261172112	UTD250, 250A, 1set
					83261173650	UTD400/600, 250~500A, 1set
					83261173651	UTD400/600, 550A~600A, 1set
Insulation barriers	3	ea	4	ea	-	Included in spare part of MCCB or MCS
Terminal cover (Line)	1	ea	1	ea	83261172111 83261173557	UTD250
Terminal cover (Load)	1	ea	1	ea		UTD400/600
Insulation barrier (1ea)	2	ea	2	ea		

Note) For 400A ungrounded system, order MCCB or MCS, 83261173650 x2 and 83261173557 x1

Possible configuration of electrical auxiliaries

Frame	Internal accessories	Kinds	Left	Right
UTD250		AX	1	1
		AL	1	-
		SHT	1*	-
		UVT	1*	-
UTD400 UTD600		AX	3	-
		AL	-	1
		SHT	1*	-
		UVT	1*	-

* Only one type can be installed in a designated place

DC MCCB (1600AF)

Characteristics

- DC 750V (DC MCCB)
- 1000/1250/1600A DC
- Uimp = 8kV
- 3Pole
- IEC60947-2

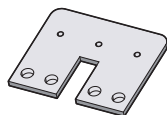


Rating

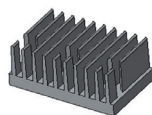
Model			TS1000N TM	TS1250N TM	TS1600N TM
Frame size			1000	1250	1600
Pole			3	3	3
Rated current, In (A)		-5~45τ	1000	1250	1600
		50τ	970	1210	1550
		65τ	880	1100	1410
Rated insulation voltage, (V)	Ui		1000	1000	1000
Rated impulse withstand voltage, (kV)	Uimp		8	8	8
Rated operational voltage, (V)	Ue	DC	750	750	750
Rated short-circuit breaking capacity, (kA)	Icu	750Vdc	40	40	40
		600Vdc	40	40	40
IEC60947-2		500Vdc	60	60	60
Rated service breaking capacity, (kA)	Ics	%Icu	100	100	100
Isolation behavior			●	●	●
Category			A	A	A
Trip characteristic			6In, 10In		
Life cycle (time)	Mechanical		2500	2500	2500
	Electrical		500	500	500
Pollution degree			3	3	3
Dimension (mm)			327×210×152.5		
Weight (kg)			12.5		
Reference standard			IEC60947-2		

Accessories

1) TS1000/1250N TM DC
Order number: 70223472601(1set)



<Busbar>

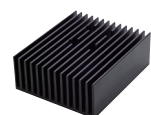


<Heat sink>

2) TS1600N TM DC
Order number: 70223472602(1set)

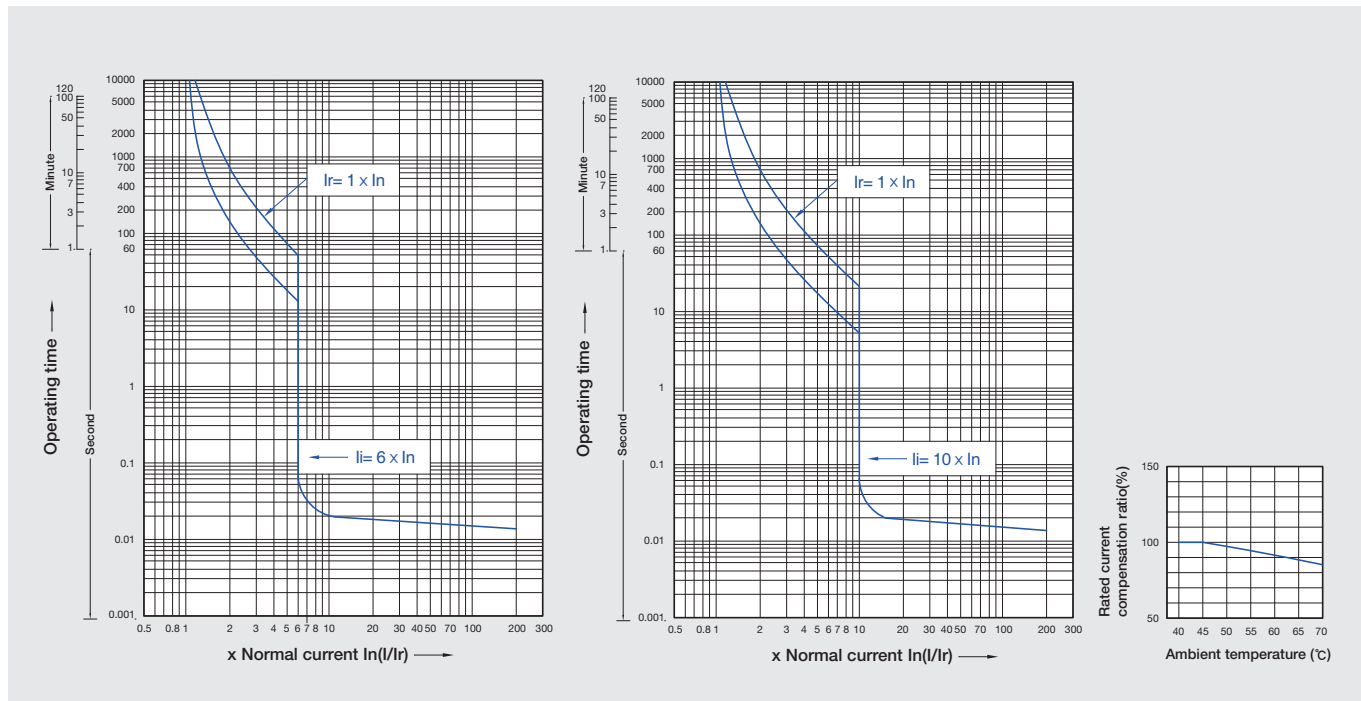


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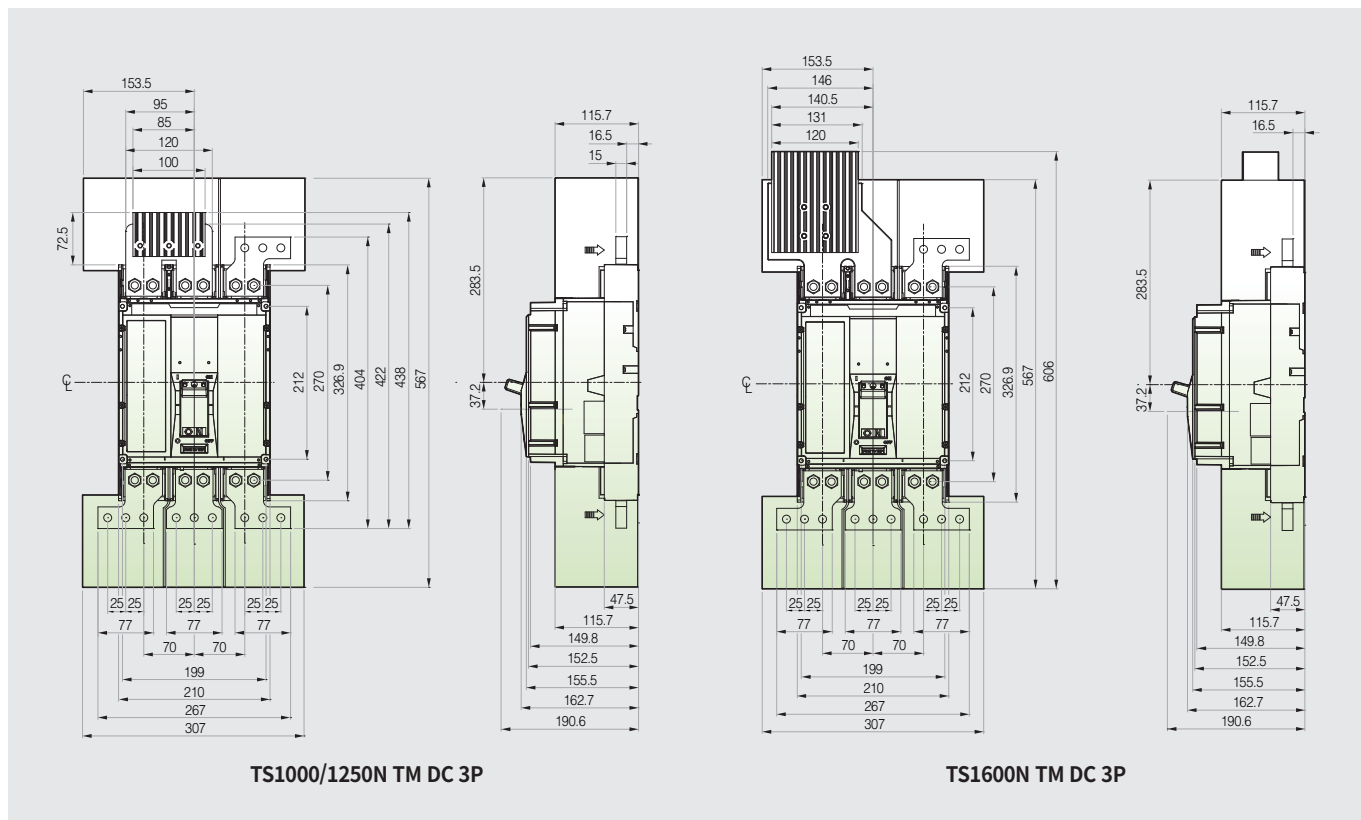
<Heat sink>

Characteristic curve



Dimensions

(unit: mm)

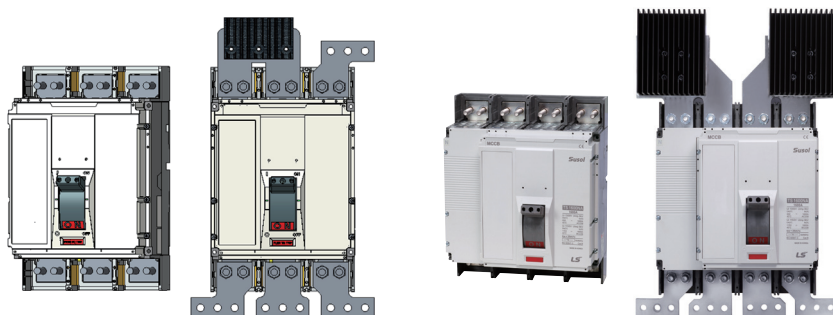


DC Switch-Disconnecter (1600AF)

1600AF Switch-Disconnectors

Characteristics

- 4Pole: DC1150V/AC690V Switch disconnectors
- 3Pole: DC900V/AC690V Switch disconnectors
- 1000/1250/1600A DC
- Uimp = 8kV
- IEC60947-3



(TS1250NA 3P)

(TS1600NA 4P)

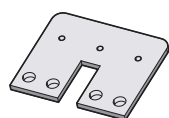
Rating

Type	
Frame size	[AF]
Conventional thermal current, Ith	[A]
Rated operational current, Ie	[A]
No. of poles	[Pole]
Rated operational voltage, Ue	DC/AC 3pole [V]
	DC/AC 4pole [V]
Rated insulation voltage, Ui	DC [V]
	AC [V]
Rated impulse withstand voltage, Uimp	[kV]
Rated short-circuit making capacity, Icm	DC [kA peak]
	AC [kA peak]
Rated short-circuit making capacity, Icw	1sec [kA rms]
Utilization category	
Isolation behavior	
Trip unit (Release)	Disconnecter unit DSU
Connection	Fixed
	Front-connection
	Rear-connection
Mechanical life	[Operations]
Electrical life	@ V DC [Operations]
	@ 690V AC [Operations]
Dimensions without accessories, W×H×D (Front connection)	3pole [mm]
	4pole [mm]
Weight without accessories (Front connection)	3pole [kg]
	4pole [kg]
Reference standard	

TS1000NA	TS1250NA	TS1600NA
1000	1250	1600
1000	1250	1600
1000	1250	1600
3/4	3/4	3/4
900/690	900/690	900/690
1150/690	1150/690	1150/690
1150	1150	1150
1000	1000	1000
8	8	8
25	25	25
52.5	52.5	52.5
25	25	25
DC22B/AC23B	DC22B/AC23B	DC22B/AC23B
●	●	●
●	●	●
●	●	●
●	●	●
10000	10000	10000
500	500	500
2000	2000	2000
210×327×152.5	210×327×152.5	210×327×152.5
280×327×152.5	280×327×152.5	280×327×152.5
12	12	12
17.8	17.8	17.8
IEC60947-3	IEC60947-3	IEC60947-3

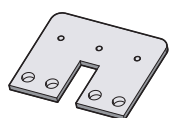
Accessories

1) For TS1000NA DC

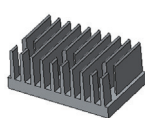


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2) For TS1250NA DC



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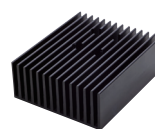


<Heatsink>

3) For TS1600NA DC



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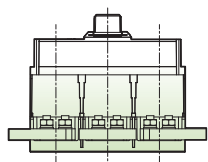
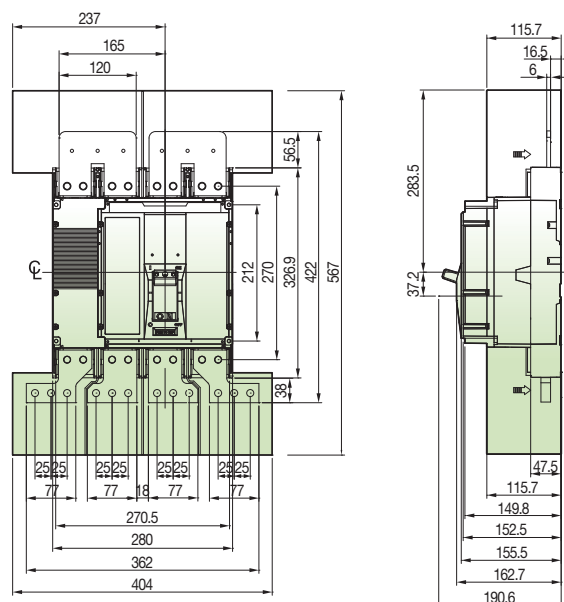
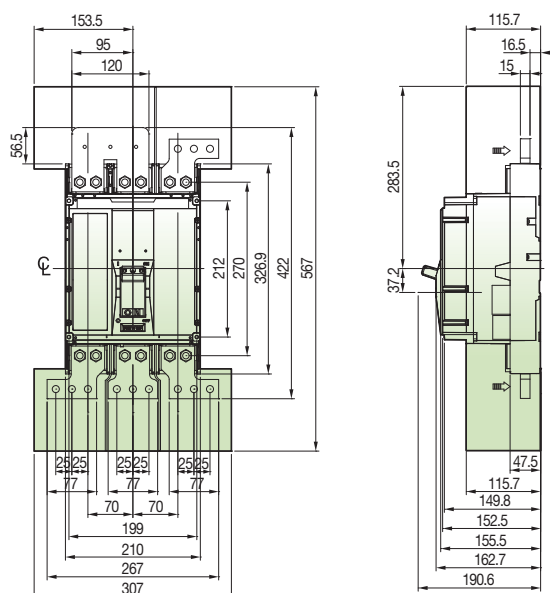


<Heatsink>

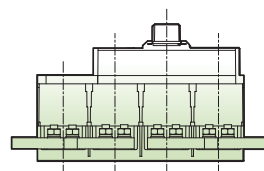
Dimensions

TS1600NA

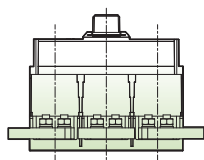
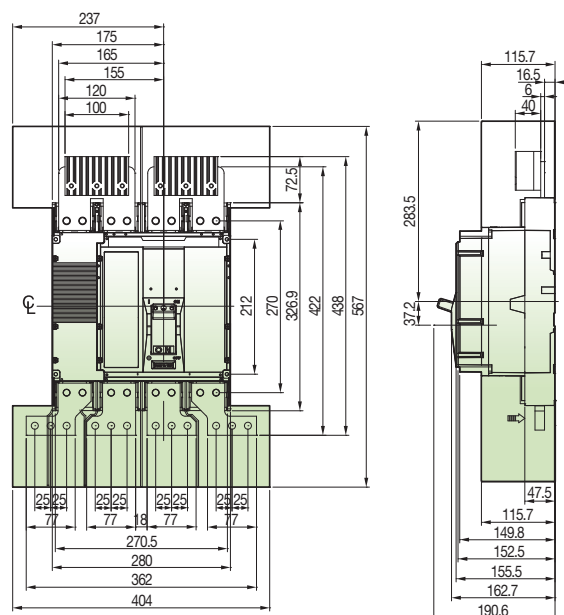
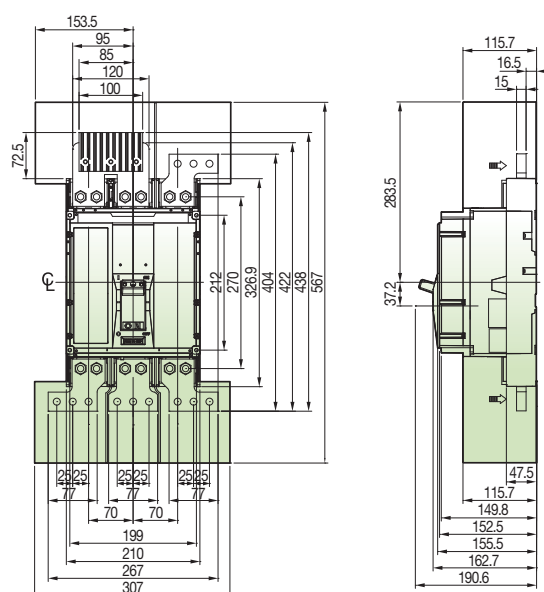
Dimension of MCCB with DC BUSBAR



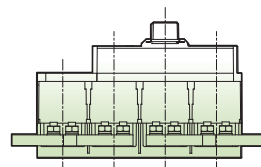
<TS1000NA 3P>



<TS1000NA 4P>



<TS1250NA 3P>



<TS1250NA 4P>

DC Switch-Disconnecter

- Basic rating
 - Rated voltage: 1500Vdc (DDV type), 1200Vdc (DDH type), 1800Vdc (DDX type)
 - Rated current: 800 ~ 4000A - I_{cw} = 100kA / 1s
 - Utilization Category: DC-23A
- Electrical endurance:
 - 10,000 operations (1600A @ 1500Vdc)
 - 2,000 operations (4000A @ 1500Vdc)
- Optional Short-Busbar considering temperature performance
- Compatible with existing Susol ACB
 - Accessories including closing and trip coils
 - Physical sizes for installation
- Applicable standards and tests: IEC 60947-3, DEKRA CB, UL listed certification



Type and ratings

Specification			
Rated insulation voltage (Ui)			(Vdc)
Rated impulse withstand voltage (Uimp)			(kV)
Rated short-time withstand current (Icw)			(kA/1s)
Rated making capacity (Icm)			(kA, peak)
Operation time (ms)	Opening		
	Closing		
Version	Draw-out type		
	Fixed type		
Standard certification			
DC 1200V			
Type			
Frame size			(AF)
Rated operational voltage (Ue)	(Vdc)	3Pole	
		4Pole	
Utilization category (according to IEC 60947-3)			
Endurance (times) (Without maintenance)	Mechanical		
	Electrical	Time const	2ms
DC 1500V			
Type			
Frame size			(AF)
Rated operational voltage (Ue)	(Vdc)	3Pole	
		4Pole	
Utilization category (according to IEC 60947-3)			
Endurance (times) (Without maintenance)	Mechanical		
	Electrical ²⁾	Time const	7.5ms
		Time const	2ms
DC 1800V			
Type			
Frame size			(AF)
Rated operational voltage (Ue)	(Vdc)	3Pole	
		4Pole	
Utilization category (according to IEC 60947-3)			
Endurance (times) (Without maintenance)	Mechanical		
	Electrical ²⁾	Time const	2ms
Demension and weight			
Weight (3P/4P) (kg)	Without cradle	Draw-out type	
	With cradle		
		Fixed type	
External dimensions (H×W×D) (mm)		Draw-out type	
		Fixed type	

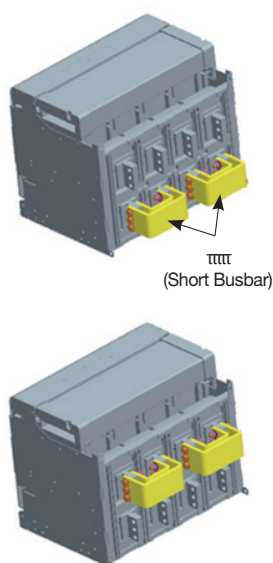
Electrical characteristics														
DDH/DDV-20D					DDH/DDV-40E					DDX-40E				
1500										1800				
12										12				
100 ¹⁾					100					100				
100										100				
Less than 25ms under I _{cw} /Less than 75ms over I _{cw}										Max. 40				
80ms under										Max. 80				
●										●				
●										●				
DEKRA CB certification according to IEC 60947-3										PT&T Test Report according to IEC 60947-3				
DDH														
DDH-08D	DDH-10D	DDH-13D	DDH-16D	DDH-20D		DDH-08E	DDH-10E	DDH-13E	DDH-16E	DDH-20E	DDH-25E	DDH-32E	DDH-40E	
800	1000	1250	1600	2000		800	1000	1250	1600	2000	2500	3200	4000	
750						750								
1200						1200								
DC-22A						DC-22A								
20,000						15,000								
6,000	5,000	2,500	1,500	1,000		3,000				2,000		1,000		
DDV														
DDV-08D	DDV-10D	DDV-13D	DDV-16D	DDV-20D	DDV-25D	DDV-08E	DDV-10E	DDV-13E	DDV-16E	DDV-20E	DDV-25E	DDV-32E	DDV-40E	
800	1000	1250	1600	2000	2500	800	1000	1250	1600	2000	2500	3200	4000	
1000 (1200V) ²⁾						1000 (1200V) ²⁾								
1500						1500								
DC-23A						DC-23A								
20,000						15,000								
-	-	-	-	-	-	5,000				4,000	2,500	1,500	1,000	
9,000	6,000	4,000	2,000	1,500	1,000	10,000				8,000	5,000	3,000	2,000	
						DDX								
						DDX-08E	DDX-10E	DDX-13E	DDX-16E	DDX-20E	DDX-25E	DDX-32E	DDX-40E	
						800	1000	1250	1600	2000	2500	3200	4000	
						1000 (1200V) ¹⁾								
						1800								
						DC-22A								
						15,000								
						10,000	8,000	5,000	3,000	2,000	1,000	800	500	
DDH/DDV-20D						DDH/DDV/DDX-40E								
34/42					37/45	43/53								
63/74					70/85	87/103								
34/44					38/47	44/55								
430×334(419)×375						430×412(527)×375								
300×300(385)×295						300×378(493)×295								

¹⁾ DDV 3Pole models can be used up to DC 1200V, but if the voltage exceeds DC 1000V, please contact us.

²⁾ Since Utilization category DC-22A is applied, it can not be used for DC circuit with time constant exceeding 2ms.

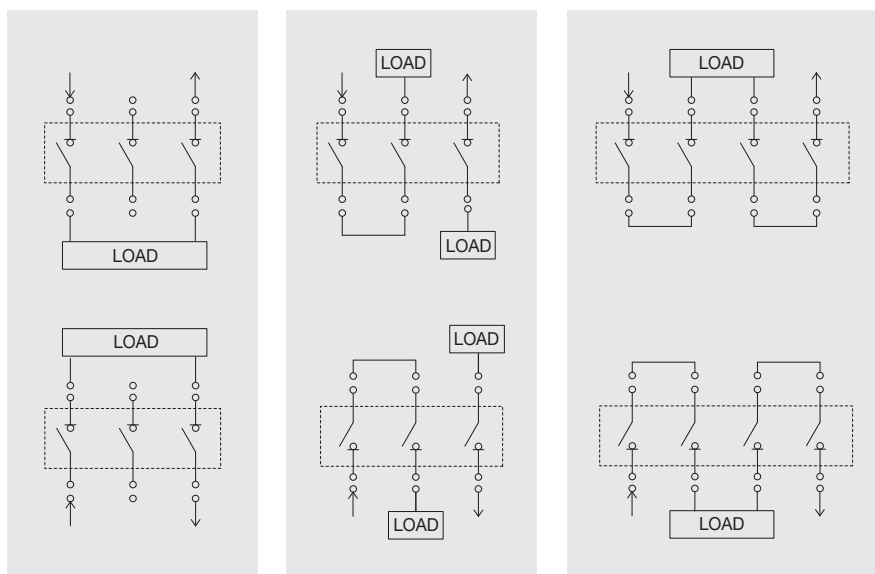
Connection diagram of DC ACB

DDH	500V	750V	1200V
DDV	500V	1000V	1500V



Upper
supply

Lower
supply



※ Refer to the following page for product dimensions with short busbar.

Composition of short busbar

- Short busbars can be ordered as shown in the table below, or customer have to make short busbars in accordance with the specified short busbars according to AF.
- The tightening torque for assembling short busbars is 40~50N.m

Type	AF	Qty. of code	Aspects	Parts (3P)
DDH DDV	E : ~3200AF	70223464603 3P : 1ea 4P : 2ea		Short busbars : 75mm×10T×2ea Bolt : M12×60, 6ea Nut : M12, 6ea Spring washer, Plain washer
DDH DDV	E : 4000AF	70223464604 3P : 1ea 4P : 2ea		Short busbars : 125mm×10T×3ea Bolt : M12×80, 6ea Nut : M12, 6ea Spring washer, Plain washer
DDH DDV	D : 1600AF	70223461600 3P : 1ea 4P : 2ea		Short busbars : 135mm×100mm×10T×1ea (L type) Bolt : M12×45, 4ea Nut : M12, 4ea Spring washer, Plain washer
DDH DDV	D : 2000AF	70223461601 3P : 1ea 4P : 2ea		Short busbars : 135mm×100mm×10T×1ea (L type) Bolt : M12×45, 4ea Nut : M12, 4ea Spring washer, Plain washer, Heat sink
DDV	D : 2500AF	70223461602 3P : 1ea 4P : 2ea		Short busbars : 125mm×10T×1ea Bolt : M12×45, 6ea Nut : M12, 6ea Spring washer, Plain washer, Heat sink

UL DC Switch-Disconnect

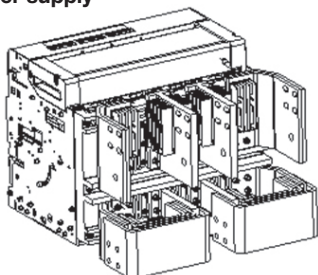


Brand				Susol												
Rated nominal voltage		Vdc		DC 1250 V (4P) / DC 800 V (3P)												
Rated maximum voltage		Vdc		DC 1500 V (4P) / DC 1000 V (3P)												
Poles		(P)		4P / 3P												
Version				Fixed / Draw-out												
Standard				UL 489B, UL 489F												
Type				UDA-08D	UDA-10D	UDA-13D	UDA-16D	UDA-20D	UDA-25D	UDA-08E	UDA-16E	UDA-20E	UDA-25E	UDA-32E	UDA-40E	
Ampere frame		(AF)		800	1000	1250	1600	2000	2500	800	1600	2000	2500	3200	4000	
Short circuit withstand current		(kA)		85						100						
Operating time (ms)	Max. opening time		40ms													
	Max. closing time		80ms under													
Lift cycle (times)	Mechanical		12,500													
	Electrical		3500	2500	1500	1000	600	400	10000		8000	5000	3000	2000		
Weight lb (kg)	Draw-out type	Main body with cradle	3P	154 (70)					165 (75)	214 (97)			245 (111)	326 (148)		
			4P	187 (85)					201 (91)	269(122)			309 (140)	414 (188)		
		Only cradle	3P	71 (32)					82 (37)	99(45)			123 (56)	205 (93)		
			4P	84 (38)					97 (44)	121(55)			152 (69)	256 (116)		
	Fixed type	Motor charging type	3P	77 (35)					90 (41)	101 (46)			110 (50)	196 (89)		
			4P	99 (45)					112 (51)	126 (57)			137 (62)	249 (113)		
		External dimensions Inches (mm)	Draw-out type	H×W×D	3P	16.93×13.15×16.02 (430×334×407)					16.93×16.22×16.02 (430×412×407)					
					4P	16.93×16.5×16.02 (430×419×407)					16.93×20.75×16.02 (430×527×407)					
Fixed type	H×W×D		3P	11.81×11.81×11.61 (300×300×295)					11.81×14.88×11.61 (300×378×295)							
			4P	11.81×15.16×11.61 (300×385×295)					11.81×19.41×11.61 (300×493×295)							
Enclosure dimensions Inches (mm)	H×W×D	3P	19.69×15.75×13.39 (500×400×340)					19.69×19.69×13.39 (500×500×340)								
		4P	19.69×19.69×13.39 (500×500×340)					19.69×24.21×13.39 (500×615×340)								

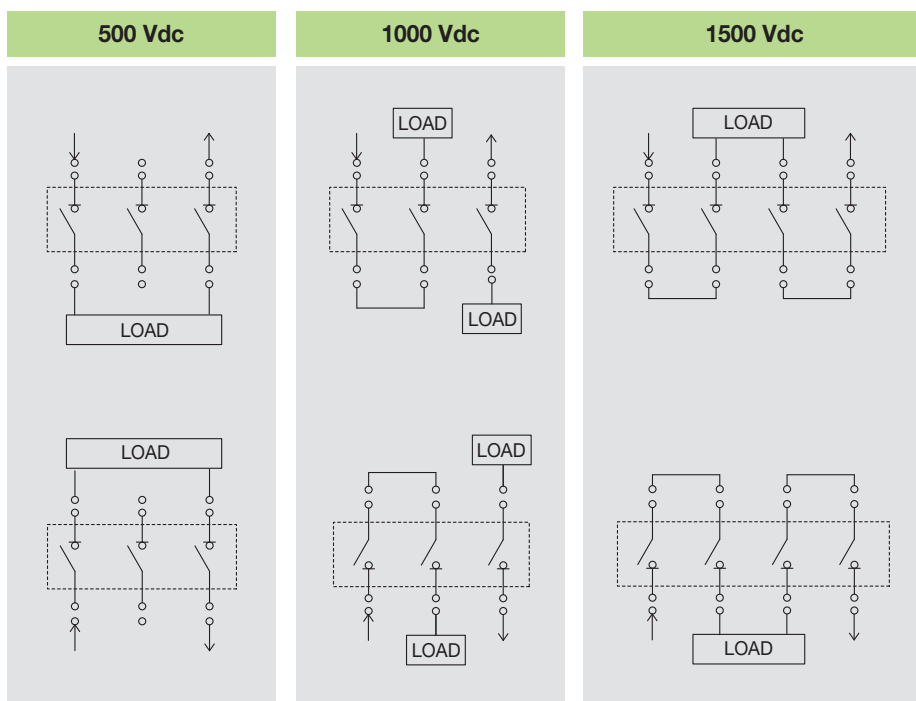
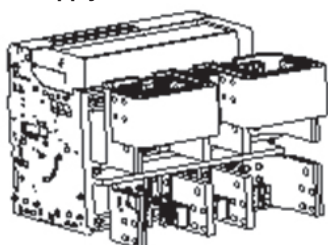
Note 1) External dimensions are excluded external terminal.
Note 2) UL certificate(UL489B/F) is listed on UL site.

Connection type

Upper supply



Lower supply



Note) If you set up connections not involved in the instruction above, ask the LS technical team.

Specification

Type	AF	Ordering number	3D configuration	Configuration
UDA series	D: 2000AF	70223466502 3P : 1 ea 4P : 2 ea		Short busbar: 140mm × 10T × 2ea Bolt: M12 × 55, 8ea Nut: M12, 8ea Spring washer, Plain washer, Heat sink
	D: 2500AF	70223466500 3P : 1 ea 4P : 2 ea		Short busbar: 125mm × 12T × 1ea Bolt: M12 × 45, 8ea Nut: M12, 8ea Spring washer, Plain washer, Heat sink
	E: 2500AF	70223467601 3P : 1 ea 4P : 2 ea		Short busbar: 75mm × 10T × 2ea Bolt: M12 × 50 × 4ea Nut: M12, 4ea Spring washer, Plain washer
	E: 3200AF	70223467602 3P : 1 ea 4P : 2 ea		Short busbar: 75mm × 10T × 2ea Bolt: M12 × 50 × 4ea Nut: M12, 4ea Spring washer, Plain washer
	E: 4000AF	70223467603 3P : 1 ea 4P : 2 ea		Short busbar: 125mm × 10T × 3ea Spacer busbar: 125mm × 10T × 2ea Bolt: M12 × 50 × 8ea Nut: M12, 4ea Spring washer, Plain washer

DC Compact Switch-Disconnecter

- Rated current 800 ~ 1600A
- Rated operational voltage:
 - DDH type (3P: 750Vdc, 4P: 1200Vdc)
 - DDV type (3P: 1000Vdc, 4P: 1500Vdc)
- Rated short-time current (I_{cw}): 50kA/1s
- Operation durability without maintenance: 12,500 times
- Various control power sources
- Various accessories
- Application Standards and Certification:
 - IEC 60947-3 (DEKRA CB certification),
 - GB 14048.3 (CCC certification)



Fixed type

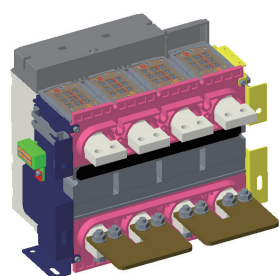


Drawable type

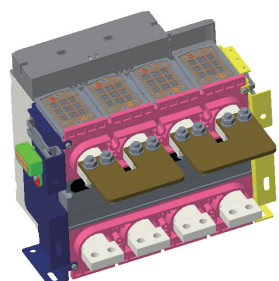
Type and ratings

Commonness														
Rated insulation voltage (Ui)	(V)		1500											
Rated impulse withstand voltage (Uimp)	(kV)		12											
Rated operational voltage (Ue)	(V)		750V DC (3P), 1200V DC (4P)				750V DC (2P)				1000V DC (3P), 1500V DC (4P)			
Number of poles	(P)		3, 4				2				3, 4			
Installation type			Fixed / Draw-out				Fixed				Fixed / Draw-out			
Related standards			IEC 60947-3 (DEKRA CB certification), GB 14048.3 (CCC certification)				IEC 60947-3				IEC 60947-3 (DEKRA CB certification), GB 14048.3 (CCC certification)			
Type			DDH				DDV				DDV			
			DDH-08C	DDH-10C	DDH-13C	DDH-16C	DDV-08C	DDV-10C	DDV-13C	DDV-16C	DDV-08C	DDV-10C	DDV-13C	DDV-16C
Ampere frame	(AF)		800AF	1000AF	1250AF	1600AF	800AF	1000AF	1250AF	1600AF	800AF	1000AF	1250AF	1600AF
Utilization category (According to IEC 60947-3)			DC-22A				DC-22A				DC-23A			
Rated making capacity (Icm)	(kA peak)	DC	50				50				50			
Rated short-time withstand current (Icw)	(kA/1s)	DC	50				50				50			
Operation time	(ms)	Opening time	Less than 25ms under Icw/Less than 75ms over Icw											
		Closing time	80ms under											
Connection	Horizontal type		○				○				○			
	Vertical type		● (Default)				● (Default)				● (Default)			
Mechanical and electrical life cycle														
Endurance (times) (Without maintenance)	Mechanical (120 times/hr)		12,500											
	Electrical (L/R 2ms) (30 times/hr)		2,000	1,000	500	500	2,000	1,000	500	500	4,000	2,000	1,000	1,000
Demension and weight														
Weight (3P/4P)	(kg)	Draw-out	15.5(3P) / 19(4P)				-				15.5(3P) / 19(4P)			
		Without cradle	22(3P) / 26(4P)				-				22(3P) / 26(4P)			
		With cradle	15.5(3P) / 19(4P)				14(2P)				15.5(3P) / 19(4P)			
External dimensions (W×H×D)	(mm)	Draw-out	361.3×267×255.4(3P), 361.3×267×326(4P)				-				361.3×267×255.4(3P), 361.3×267×326(4P)			
		Fixed	283×219.5×272.4(3P), 283×219.5×342.4(4P)				283×219.5×272.4(2P)				283×219.5×272.4(3P), 283×219.5×342.4(4P)			

Product connection



Upper Supply



Lower Supply

Operation voltage and connection diagram of DC ACB series

Poles	3P	3P	4P
DDH type	500 Vdc	750 Vdc	1200 Vdc
DDV type	500 Vdc	1000 Vdc	1500 Vdc
Connection diagram			

Note) If different circuit configurations are needed, please contact LS.

Type	Rated current	Busbar connection	Order code	Edifice	Order quantity	Weight (kg/set)
Fixed / Draw-out type	800~1600A	Vertical / Horizontal	70223472600	Short busbar : 1ea/unit, Heatsink : 1ea/unit M10 Bolt Set : 4ea/unit, M6 Bolt: 4ea/unit M4 Screw : 1ea/unit 	3P : 1 unit 4P : 2 unit	2kg/unit
Fixed type	800~1000A	Front	70223472603	Short busbar : 1ea/unit M10 Nut Set : 4ea/unit 	3P : 1 unit 4P : 2 unit	0.6kg/unit
	1250A		70223472601	Short busbar : 1ea/unit, Heatsink : 1ea/unit M10 Nut Set : 4ea/unit, M6 Bolt: 2ea/unit 	3P : 1 unit 4P : 2 unit	0.7kg/unit
	1600A		70223472602	Short busbar : 1ea/unit Heatsink : 1ea/unit, Barrier Pad : 1ea/unit M10 Nut Set : 4ea/unit, M6 Bolt: 4ea/unit 	3P : 1 unit 4P : 2 unit	5kg/unit

UL DC Compact Switch Disconnecter



Fixed type

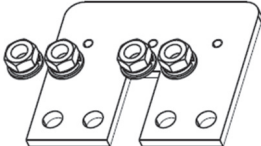
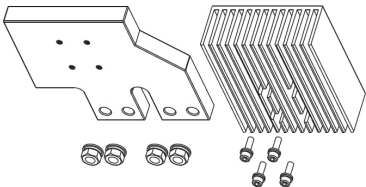
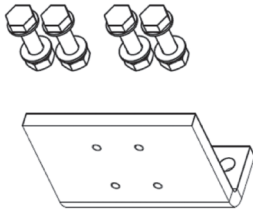


Drawable type

Commonness		
Rated operational voltage (Ue)		(V)
Rated insulation voltage (Ui)		(V)
Rated impulse withstand voltage (Uimp) (kV)		
Poles		(P)
Installation type		
Related standards		
Type		
Ampere frame		(AF)
Rated making capacity	(kA peak)	DC
Rated short-time withstand current (Icw)	(kA/1s)	DC
Interrupting rating	(kA)	DC 1500V (4P) DC 1000V (3P) (L/R=8ms)
Operation time	(ms)	Opening time
		Closing time
Busbar connection method	Fixed type, Draw-out type	Horizontal
		Vertical
		Mixed
	Flat	Flat
Durability		
Opening and closing durataion (times) (Unpaid)		Mechanical
		Electrical (L/R=3ms)
Common Demension and weight		
Weight (3P/4P)	(kg)	Draw-out
		Without cradle
		With cradle
Dimensions (W×H×D)	(mm)	Fixed
		Draw-out
		Fixed

Characteristics		
DC 1000V (3P), DC 1500V (4P)		
1500		
12		
3, 4		
Fixed type / Draw-out type		
UL 489B (PV system), UL 489F (ESS system)		
UDA		
UDA-08C	UDA-10C	UDA-12C
800AF	1000AF	1200AF
50		
50		
8	10	12
max.40		
max.80		
☐		
☒ (Default)		
☐		
☐		
12,500		
800	500	400
19.5(3P) / 24.5(4P)		
35.5(3P) / 43(4P)		
16(3P) / 19.5(4P)		
361.3×267×255.4(3P), 361.3×267×326(4P)		
283×219.5×272.4(3P), 283×219.5×342.4(4P)		

DC Short Busbar

Type	Busbar connection	Rated current	Order code	Edifice	Order quantity	Weight (kg/set)
Fixed type	Flat	800A	70223472603	Short busbar: 1ea/unit M10 Nut Set: 4ea/unit 	3P: 1 unit 4P: 2 unit	0.7kg/unit
		1000-1200A	70223472605	Short busbar: 1ea/unit, Heatsink: 1ea/unit M10 Nut Set: 4ea/unit, M6 Bolt: 4ea/unit Barrier Pad: 1ea/unit 	3P: 1 unit 4P: 2 unit	5kg/unit
Fixed / Draw-out type	Vertical / Horizontal	800-1200A	70223472604	Short busbar: 1ea/unit M10 Nut Set: 1ea/unit 	3P: 1 unit 4P: 2 unit	1.5kg/unit

DC ACB

- Basic rating
 - Rated voltage: 1500Vdc (4p) / 1000Vdc (3p) - Rated current: 800 ~ 3200A
 - Short-time capacity: 65kA/1sec - Breaking capacity: 70kA @ 750Vdc, 60kA @ 1500Vdc
- Multi-function relays dedicated to DC protect and enhancing user convenience
 - Precise measurement of current, voltage, power and various protection relay functions
 - Self diagnosis function, event and fault waveform recording
- Electrical endurance:
 - 10,000 operations (1600A @ 1500Vdc), 3,000 operations (3200A @ 1500Vdc)
- Isolation function convenient for withstand voltage test of switchgears
- Optional Short-Busbar considering temperature performance
- Compatible with existing Susol ACB
 - Accessories including closing and trip coils
 - Physical sizes for installation
- Applicable standards and tests: IEC 60947-2, DEKRA CB certification



Type and ratings

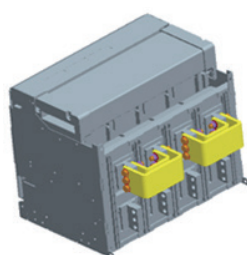
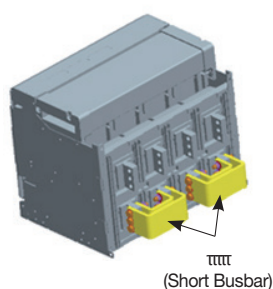
Type			
Number of poles			(P)
Rated operational voltage (Ue)			(Vdc)
Rated insulation voltage (Ui)			(V)
Rated impulse withstand voltage (Uimp)			(kV)
Version			
Suitability for isolation			
Degree of pollution		IEC60661-1	
Certification			
Brand name			
Ampere Frame			
Rated current (In) at 40°C			(A)
Rated ultimate breaking capacity (Icu)	(3P)	500V DC	(kA)
		750V DC	(kA)
		1000V DC	(kA)
	(4P)	750V DC	(kA)
		1000V DC	(kA)
		1200V DC	(kA)
Rated service breaking capacity (Ics)			(kA)
Rated service breaking capacity (Ics)			(%)
Rated short-time withstand current (Icw)	(3P)	500V DC	(kA/1s)
		750V DC	(kA/1s)
		1000V DC	(kA/1s)
	(4P)	750V DC	(kA/1s)
		1000V DC	(kA/1s)
		1200V DC	(kA/1s)
Rated making capacity (Icm)			(kA peak)
Utilization category (according to IEC 60947-2)			
Overcurrent protection	Electronic trip units for DC applications		
Operation time	Total Breaking < Icw		(ms)
	time	> Icw	(ms)
	Closing time		(ms)
Mechanical and Electrical Life cycle			
Endurance (times) (Without maintenance)	Mechanical		(times)
	Electrical (at 1000 V DC)	lessw than 1600A	(times)
		2000A	(times)
		2500A	(times)
Demension and Weight			
Weight (3P/4P)	Drawout	Without cradle	(kg)
		With cradle	(kg)
	Fixed		(kg)
External dimensions (H×W×D)	Drawout	3P(4P)	(mm)
	Fixed	3P(4P)	(mm)

DC 1200V							DC 1500V						
3 / 4							3 / 4						
750 (3P) / 1200 (4P)							1000 (3P) / 1500 (4P)						
1500							1500						
12kV							12kV						
Fixed / Withdrawable							Fixed / Withdrawable						
3							3						
CB certification according to IEC 60947-2							CB certification according to IEC 60947-2						
Susol							Susol						
ADH-08E	ADH-10E	ADH-13E	ADH-16E	ADH-20E	ADH-25E	ADH-32E	ADV-08E	ADV-10E	ADV-13E	ADV-16E	ADV-20E	ADV-25E	ADV-32E
800AF	1000AF	1250AF	1600AF	2000AF	2500AF	3200AF	800AF	1000AF	1250AF	1600AF	2000AF	2500AF	3200AF
400, 630, 800	630, 800, 1000	630, 800, 1000, 1250	800, 1000, 1250, 1600	1600, 2000	1600, 2000, 2500	1600, 2000, 2500, 3200	400, 630, 800	630, 800, 1000	630, 800, 1000, 1250	800, 1000, 1250, 1600	1600, 2000	1600, 2000, 2500	1600, 2000, 2500, 3200
60				85			-						
40							60				70		
-							50				60		
50							-						
-							60				70		
35				40			-						
-							50				60		
100							100						
60 ^{Note1)}				65			-						
40				40			50 ^{Note1)}				60		
-							50 ^{Note1)}				50		
50 ^{Note1)}				50			-						
-							50 ^{Note1)}				65		
35				40			-				-		
-							50 ^{Note1)}				50		
100							100						
B							B						
●							●						
Less than 25ms under I _{cw} / Less than 75ms over I _{cw}							Less than 25ms under I _{cw} / Less than 75ms over I _{cw}						
80ms under							80ms under						
15,000							15,000						
10,000							10,000						
8,000							8,000						
-				5,000		3,000	-				5,000		3,000
43 / 53							43 / 53						
87 / 103							87 / 103						
44 / 55							44 / 55						
430×412(527)×375							430×412(527)×375						
300×378(493)×295							300×378(493)×295						

Note 1) Duration of rated short-time withstand current (Icw) is 0.5s

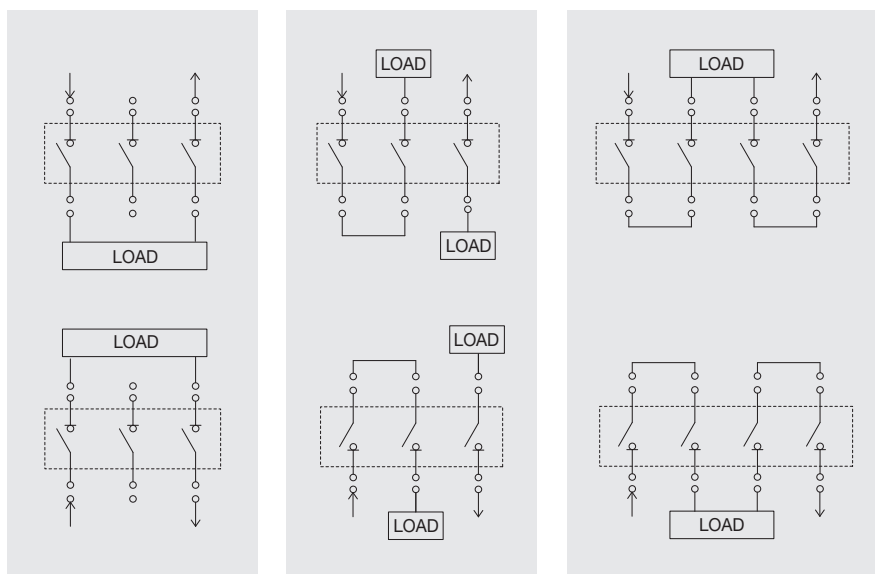
Connection diagram of DC ACB

ADV	750V	1000V	1500V
ADH	500V	750V	1200V



Upper supply

Lower supply



※ Refer to the following page for product dimensions with short busbar.

Composition of short busbar

- Short busbars can be ordered as shown in the table below, or customer have to make short busbars in accordance with the specified short busbars according to AF.
- The tightening torque for assembling short busbars is 40~50N.m

Type	AF	Qty. of code	Aspects	Parts (3P)
ADH ADV	E : ~2500AF	70223464603 3P : 1ea 4P : 2ea		Short busbars : 75mm × 10T × 2ea Bolt : M12 × 60, 6ea Nut : M12, 6ea Spring washer, Plain washer
ADH ADV	E : 3200AF	70223464620 3P : 1ea 4P : 2ea		Short busbars : 100mm × 10T × 1ea 120mm × 105mm × 10T × 1ea (L type) Bolt : M12 × 60, 8ea Nut : M12, 8ea Spring washer, Plain washer, Heat sink

High Voltage DC Relay

What is LS High Voltage DC Relay?

The LS High Voltage DC Relay serves to supply and disconnect DC power, and contains hydrogen and nitrogen gas, which is optimized to withstand making and breaking. Therefore, it has excellent electrical durability, compact size, and low noise.



GPR Specifications

Rating



Model		GPR010	GPR040	
Number of poles		1 Pole	1 Pole	
Operating voltage, Ue		DC 450V	DC 450V	
Rated impulse withstand voltage, Uimp		4kV	4kV	
Conventional thermal current, Ith		10A	40A	
Short time withstand current	120s	-	100A	
	15Min	15A	60A	
Durability	Mechanical (*) (3,600 operations per hour)	200,000 cycles	200,000 cycles	
	Electrical	10A, 450VDC, 150,000cycles (at 360cycles/Hr)(only Making)	40A, 450VDC, 1,000cycles (at 1,200cycles/Hr)	
Voltage drop (Initial)		0.5V @ 10A	0.2V @ 20A	
Operating time		Max. 50ms	Max. 50ms	
Release time		Max. 30ms	Max. 30ms	
Insulation strength (Initial)		Min. 100MΩ(@500VDC)	Min. 100MΩ(@500VDC)	
Size, W × H × D(mm)		56×28×45	67×35×47	
Temperature range		-40 ~ 85℃	-40 ~ 85℃	
Humidity		5-95% R.H.	5-95% R.H.	
Weight		85g	145g	
Certification		CE CCC	CE CCC	

* The number of Mechanical times is the number that meets the basic performance after durability.

Features

Compact Design

Achieved compact size by filling with hydrogen and nitrogen gas to improve the breaking performance.

Proven Safety

High value of short circuit current withstanding.

Superior Reliability

Excellent performance with electrical and mechanical dururances.



	GPR100	GPR150	GPR250	GPR400
	1 Pole	1 Pole	1 Pole	1 Pole
	DC 450V	DC 450V	DC 450V	DC 450V
	4kV	4kV	4kV	4kV
	100A	150A	250A	400A
	225A	320A	500A	900A
	150A	225A	350A	600A
	200,000 cycles	200,000 cycles	200,000 cycles	200,000 cycles
	100A, 450VDC, 1,000cycles (at 1,200cycles/Hr)	150A, 450VDC, 1,000cycles (at 1,200cycles/Hr)	250A, 450VDC, 1,000cycles (at 360cycles/Hr)	400A, 450VDC, 1,000cycles (at 360cycles/Hr)
	0.04V @ 20A	0.04V @ 20A	0.02V @ 20A	0.02V @ 20A
	Max. 50ms	Max. 50ms	Max. 30ms	Max. 30ms
	Max. 30ms	Max. 30ms	Max. 10ms	Max. 10ms
	Min. 100MΩ(@500VDC)	Min. 100MΩ(@500VDC)	Min. 100MΩ(@500VDC)	Min. 100MΩ(@500VDC)
	81×39×70	81×39×70	92×45×87	100×58×91
	-40 ~ 85℃	-40 ~ 85℃	-40 ~ 85℃	-40 ~ 85℃
	5-95% R.H.	5-95% R.H.	5-95% R.H.	5-95% R.H.
	330g	330g	500g	630g
	CE (CCC)	CE cULus (CCC)	CE (CCC)	CE (CCC)

High Voltage DC Relay

GPR-M Specifications (Operating voltage DC1000V)



Model		GPR-M010	GPR-M040	GPR-M100	
Number of poles		1 Pole	1 Pole	1 Pole	
Operating voltage, Ue		DC 600V	DC 1000V	DC 1000V	
Rated impulse withstand voltage, Uimp		4kV	4kV	6kV	
Conventional thermal current, Ith		10A	40A	100A	
Short time withstand current	2Min	-	100A	225A	
	15Min	15A	60A	150A	
Durability	Mechanical (*) (3,600 operations per hour)	200,000 cycles	200,000 cycles	200,000 cycles	
	Electrical	5A, 600VDC, 10,000cycles (at 360cycles/Hr)(only Making)	20A, 1000VDC, 1,000cycles (at 360cycles/Hr)	50A, 1000VDC, 1,000cycles (at 360cycles/Hr)	
Voltage drop(Initial)		0.5V @ 10A	0.2V @ 20A	0.04V @ 20A	
Operating time		Max. 50ms	Max. 50ms	Max. 50ms	
Release time		Max. 30ms	Max. 30ms	Max. 30ms	
Insulation strength(Initial)		Min. 100MΩ(@1000VDC)	Min. 100MΩ(@1000VDC)	Min. 100MΩ(@1000VDC)	
Size, W × H × D(mm)		56 × 28 × 45	67 × 35 × 47	81 × 39 × 70	
Temperature range		-40 ~ 85℃	-40 ~ 85℃	-40 ~ 85℃	
Humidity		5-95% R.H.	5-95% R.H.	5-95% R.H.	
Weight		80g	145g	330g	
Certification		CE cULus CCC	CE cULus CCC	CE cULus CCC	

* The number of Mechanical times is the number that meets the basic performance after durability.



*Bi-directional

	GPR-M150	GPR-M250	GPR-M400	GPR-M400-A	GPR-M400-A BI
	1 Pole	1 Pole	1 Pole	1 Pole	1 Pole
	DC 1000V	DC 1000V	DC 1000V	DC 1000V	DC 1000V
	6kV	6kV	6kV	6kV	4kV
	150A	250A	400A	400A	400A
	320A	500A	750A	750A	750A
	225A	350A	500A	500A	500A
	200,000 cycles	200,000 cycles	200,000 cycles	200,000 cycles	200,000 cycles
	75A, 1000VDC, 1,000cycles (at 360cycles/Hr)	125A, 1000VDC, 1,000cycles (at 360cycles/Hr)	200A, 1000VDC, 1,000cycles (at 360cycles/Hr)	200A, 1000VDC, 3,000cycles (at 360cycles/Hr)	100A, 1000VDC, 6,000cycles 220A, 800VDC, 1500cycles (at 360cycles/Hr)
	0.04V @ 20A	0.02V @ 20A	0.02V @ 20A	0.02V @ 20A	0.04V @ 20A
	Max. 50ms	Max. 30ms	Max. 30ms	Max. 30ms	Max. 30ms
	Max. 30ms	Max. 10ms	Max. 10ms	Max. 10ms	Max. 10ms
	Min. 100MΩ(@1000VDC)	Min. 100MΩ(@1000VDC)	Min. 100MΩ(@1000VDC)	Min. 100MΩ(@1000VDC)	Min. 100MΩ(@1000VDC)
	81 × 39 × 70	92 × 45 × 87	100 × 58 × 91	100 × 58 × 99	100 × 58 × 99
	-40 ~ 85℃	-40 ~ 85℃	-40 ~ 85℃	-40 ~ 85℃	-40 ~ 85℃
	5-95% R.H.	5-95% R.H.	5-95% R.H.	5-95% R.H.	5-95% R.H.
	330g	500g	630g	750g	800g
	CE cRU ^{US} CCC	CE cRU ^{US} CCC	CE cRU ^{US} CCC	CE cRU ^{US}	CE cRU ^{US} CCC

High Voltage DC Relay

GPR-H Specifications (Operating voltage DC1500V)



* Bi-directional



* Bi-directional

Model		GPR-H500-A	GPR-H600-A
Number of poles		1 Pole	1 Pole
Operating voltage, Ue		DC 1500V	DC 1500V
Rated impulse withstand voltage, Uimp		8kV	8kV
Conventional thermal current, Ith		500A	600A
Short time withstand current	2Min	900A	1000A
	15Min	750A	800A
Durability	Mechanical (*) (3,600 operations per hour)	200,000 cycles	200,000 cycles
	Electrical	200A, 1500VDC, 1,000cycles (at 360cycles/Hr)	200A, 1500VDC, 1,500 cycles 150A, 1500VDC, 6,000 cycles (at 360cycles/Hr)
Voltage drop (Initial)		0.04V @ 20A	0.04V @ 20A
Operating time		Max. 35ms	Max. 35ms
Release time		Max. 15ms	Max. 15ms
Insulation strength (Initial)		Min. 100MΩ(@1000VDC)	Min. 100MΩ (at DC1000V)
Size, W × H × D (mm)		118 × 70 × 108	118 × 70 × 110.5
Temperature range		-40 ~ 85	-40 to 85
Humidity		5-95% R.H.	5 to 95% R.H.
Weight		1.3kg	1.3kg
Certification		CE cULus CCC	CE cULus CCC

* The number of Mechanical times is the number that meets the basic performance after durability.

Ordering Information

GPR-M 400 -A DC12V SM BI □

1
2
3
4
5
6
7

1 Operating Voltage

R | 450V
R-M | 1,000V
R-H | 1,500V~

2 Conventional thermal Current

010	10A	250	250A
040	40A	400	400A
100	100A	500	500A
150	150A		

3 Aux Type

-A | Aux.
blank | No Aux.

4 Control Voltage

DC12V
DC24V

5 Mounting Type

blank | Bottom Mounting
SM | Side Mounting

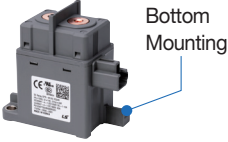
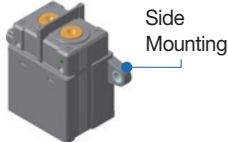
6 Breaking Direction

blank | Uni-directional
BI | Bi-directional

7 Special feature

blank | General
Special feature

Option detail

No	Item		Shape	Type	Remarks
3	Auxiliary contact			GPR-M400-A	ON / OFF detection of main contact
				GPR-H500-A	
4	Control voltage		-	See coil rating on page 10	Coil voltage 12/24V
5	Mounting type	Bottom mounting		ALL	Vertical mounting
		Side mounting		GPR150 / GPR-M150 GPR250 / GPR-M250	Horizontal mounting

DC MCB

Characteristics

- Solar power, renewable suitable for DC power source
- SEMKO CB
- Maximum working voltage: DC1,000V
- Rating and number of poles:
1~63A, 1/2/3/4 pole
- Rated voltage: DC250/500/750/1000V
- Rated breaking capacity: 10kA
- Trip characteristic: B, C
- Accessorys: AX, AL, SHT



Rating



ON / OFF
Display Indicator



AX, AL

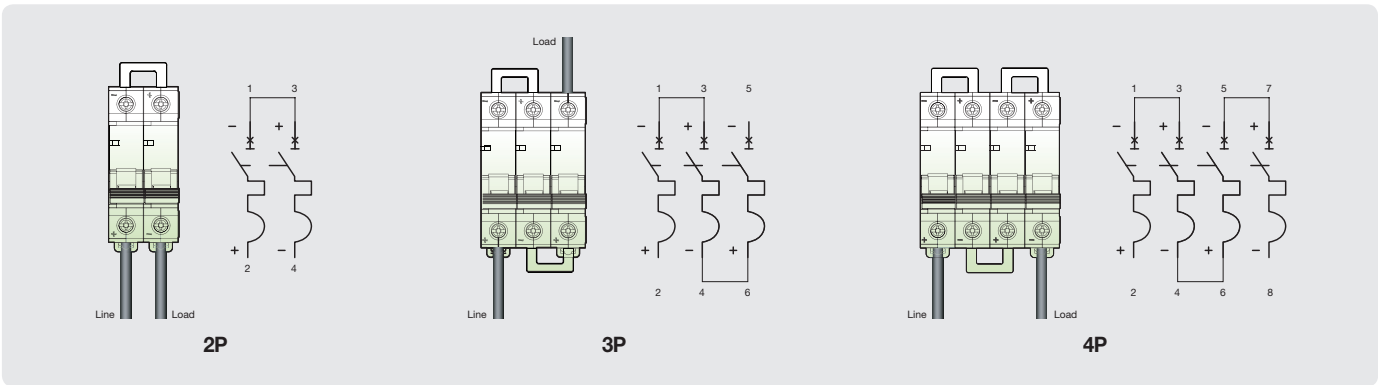


SHT, UVT

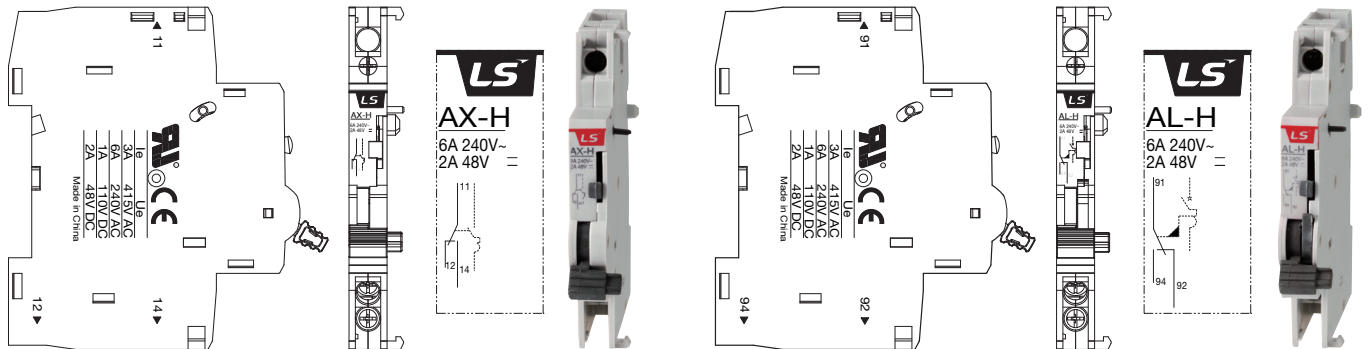
Type		
Frame size		
No. of poles		
Rated current, In		
Rated operational voltage, Ue DC	Reference standard	Poles
	IEC 60947-2, Icu	Rated voltage
		Breaking current
Rated insulation voltage, Ui AC		
Rated impulse withstand voltage, Uimp AC		
Trip characteristic		
Protection		
Endurance life (times)	Electrical	
	Mechanical	
Degree of protection		
Tightening torque		
Installation		
Type of Terminal		
Type of trip		
Ambient temperature		
Approval		

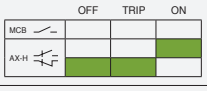
BK63H DC			
63AF			
1P, 2P, 3P, 4P			
1, 2, 3, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63A			
1P	2P	3P	4P
250V	500V	750V	1000V
10kA	10kA	10kA	10kA
500V			
6kV			
B (5In), C (8In)			
Overload and short circuit			
1,500			
20,000			
IP20			
18-4 AWG (0.75 ... 25mm²) / 20 Kgf.cm			
Mounting on 35mm DIN rail			
Lug type			
Thermal-Magnetic			
40°C (Standard), -25~ +55°C (Use)			
CE, SEMKO, CB			

DC Type connection wiring diagram



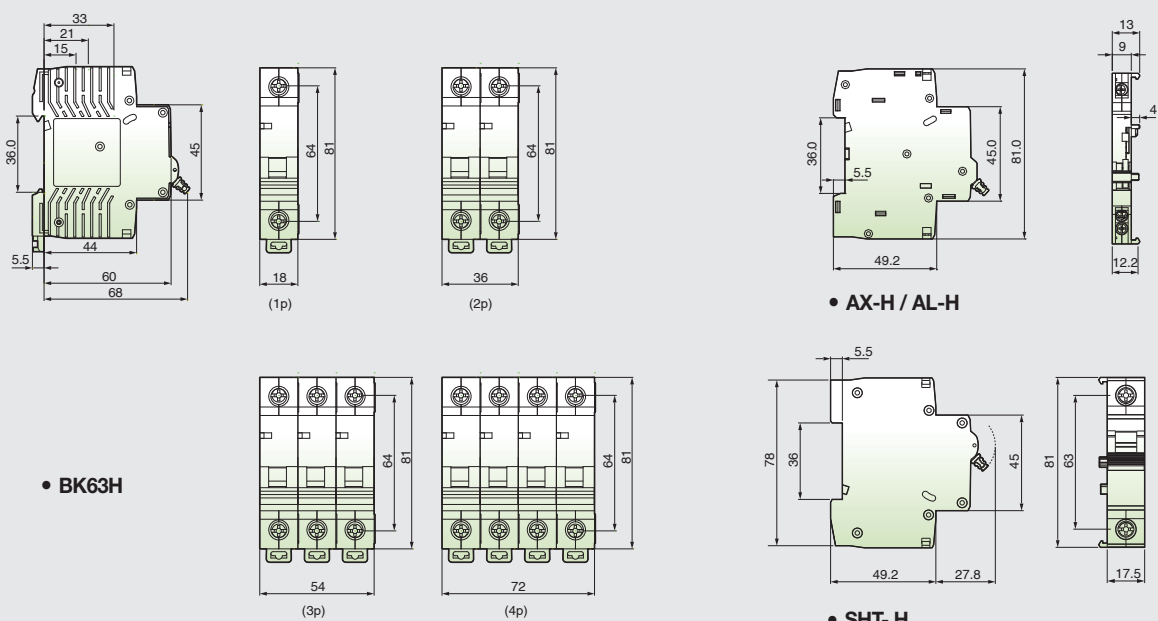
Accessory



Type	AX-H	AL-H	SHT-H
Appearance			
Rated Operational Current (A)	AC 6A@240V / 3A@415V DC 6A@24V / 2A@48V / 1A@125V		DC 24-220V, AC 110-380V
Rated voltage (Ue)	-		85%-110%Ue
Working voltage	-		-
Mechanical Endurance	10,000		-
Cable capacity	0.75~2.5mm ²		≤ 2.5mm ²
Contact			-
Weight (g)	48	48	100

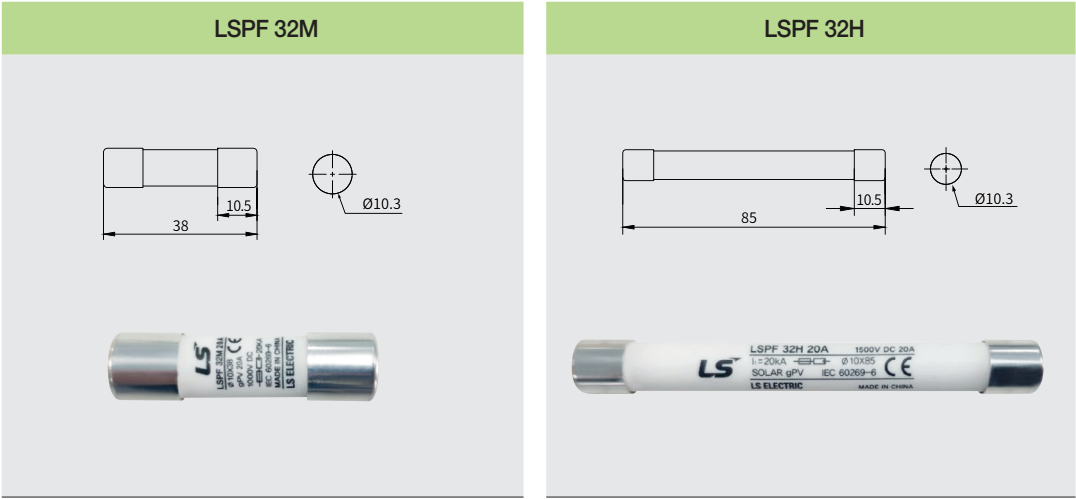
* 24V only SHT product. Please note when ordering.

Dimensions



DC FUSE

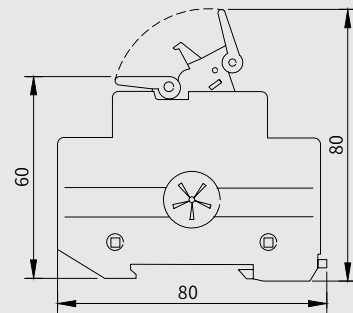
Fuse rating



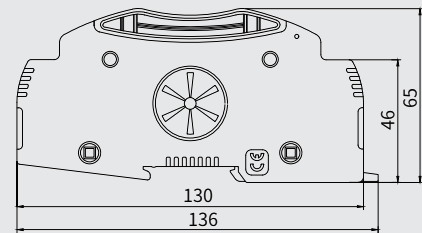
Type	FUSE	
Model	LSPF 32M	LSPF 32H
Rated voltage	DC 1000V	DC 1500V
Rated current	2A ~ 32A	2A ~ 32A
Class of operation	gPV	gPV
Breaking capacity	20kA	20kA
Time constant	1 ~ 3ms	1 ~ 3ms
Size (mm)	10×38mm	10×85mm
Standard	IEC 60269-6	IEC 60269-6
Certificate	CE	CE

Fuse holder rating

LSPF 32M B



LSPF 32M B



Type	FUSE HOLD	
Model	LSPF 32M B	LSPF 32H BL
Rated voltage	DC 1000V	DC 1500V
Rated current	32A	50A
Class of operation	gPV	gPV
Signal indicator	LED	LED
Wire range	1 ~ 10mm ²	1 ~ 16mm ²
Torque	2 ~ 2.5 N.m	2.5 N.m
Size (W×H×D, mm)	18×80×60mm	24×136×65mm
Standard	IEC 60269-6	IEC 60269-6
Certificate	CE	CE

DC Contactors

Characteristics

Products application & Function

- Two normally open main contacts for DC circuit
- Positive and negative poles indicated on the front plate
- Eternal magnet installed for the effective arc extinguishing
- DIN rail or screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- AC/DC control voltage
- CE, UL Certified

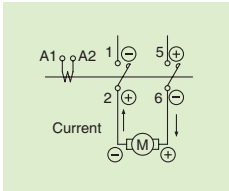


Selection

Contactor types	DC-2~5 ratings			DC-1	Continuous current, Ith	Auxiliary contacts
	125V	250V	500V	1000V		
MD-30a	40A	30A	20A	10A	60A	2a(NO)+2b(NC)
MD-60a	80A	60A	40A	25A	100A	2a(NO)+2b(NC)
MD-100a	120A	100A	60A	35A	135A	2a(NO)+2b(NC)

Ratings of auxiliary contacts

UA-1	AC15 duty						DC13 duty				
	120V	240V	380V	480V	500V	600V	125V	250V	400V	500V	600V
Rated currents	6A	3A	1.9A	1.5A	1.4A	1.2A	1.1A	0.55A	0.31A	0.27A	0.2A
Continuous current, Ith	16A										



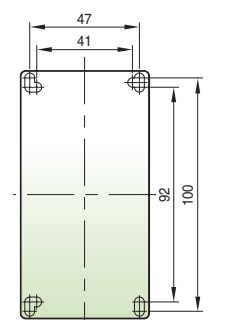
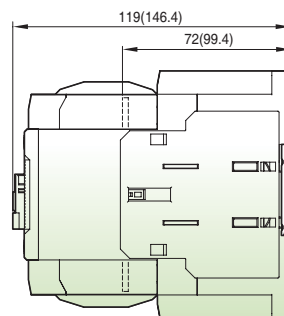
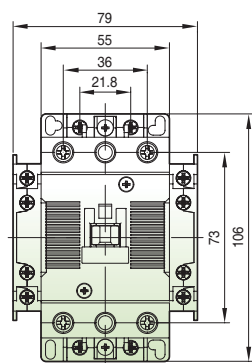
Coil voltage

AC	50/60Hz	24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 400, 415, 440, 500, 550V
DC	DC	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V

Dimensions

MD-30a AC(DC)

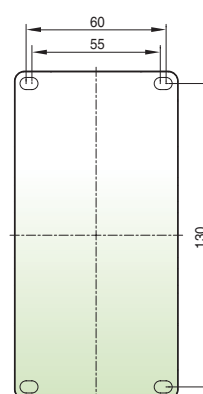
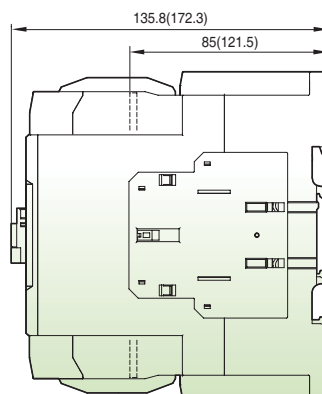
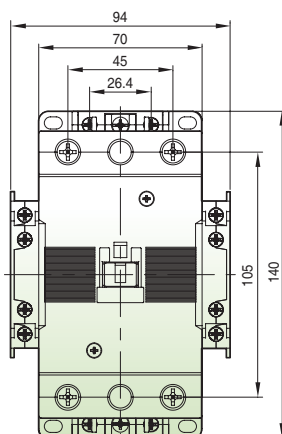
2NO2NC



[mm]

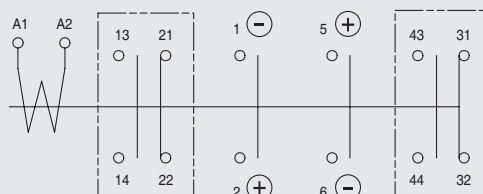
MD-60a,100a AC(DC)

2NO2NC

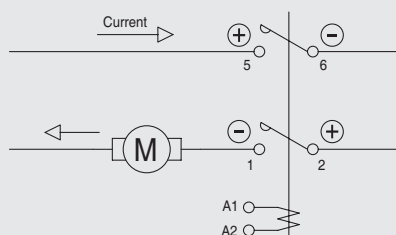


Composition

MD-30a, 60a, 100a



Contact arrangement



SPD BK Series (DC/DIN type)

Characteristics

- DC system surge voltage protection
- Rating: ~ DC 1500V
- Pole: 2P, 3P
- Grades: Class II
- Status indication
 - Steady state: Green
 - After the accident: colorless (black)



Rating

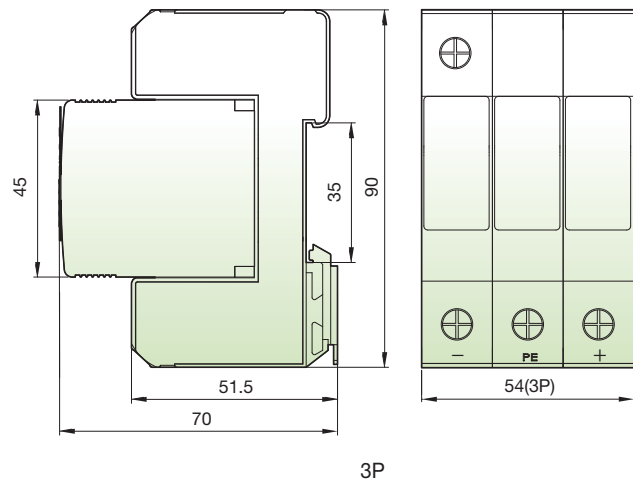
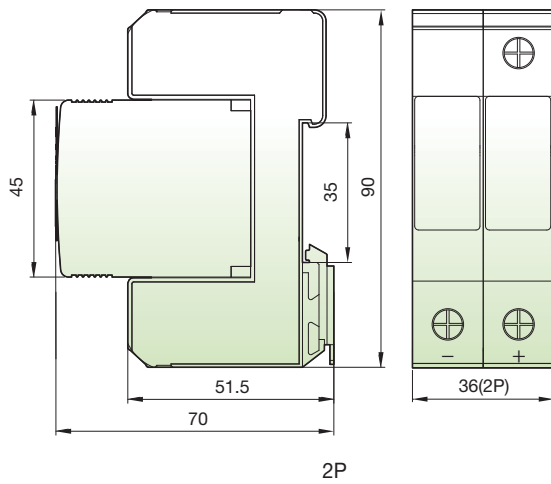
Type		DC Type			
		BK20S-DC110	BK20S-DC600	BK20S-DC1000	BK20S-DC1500
No. of poles	[Pole]	2P	3P		
Rated voltages	Un [V]	DC110	DC600	DC1000	DC1500
Max. continued-operation voltage	Uc [V]	DC220	DC700	DC1200	DC1500
Voltage protection level	Up [kV]	≤1.0	≤2.5	≤3.9	≤4.5
Nominal discharge current	In [kA]	20	20	20	20
Max. discharge current	I _{max} [kA]	40	40	40	40
Impulse current	I _{imp} [kA]	-	-	-	-
Grades	Test Class	Class II			
Reaction time		< 25ns			
Status indication		Have Status indication			
Operating temperature range		-40℃~80℃			
Cross-sectional area of the connecting		6mm ² or more			
Accessories		AL ^{Note1)}			
Standard		IEC 61643-11 / UL1449			
Certification		CE	CE	CE	CE
SPD Disconnector	MCCB	TD100 2P 32A	TD100 3P 32A	TD100 4P 32A	TSD250N/H 4P 63A
	MCB	BK63H-DC 2P 40A	BK63H-DC 3P 40A	BK63H-DC 4P 40A	-

Note) 1. The AL contact accessories are not sole separately. You need to choose these accessories when you place your order for the product. Please be mindful of this fact when you place your order.

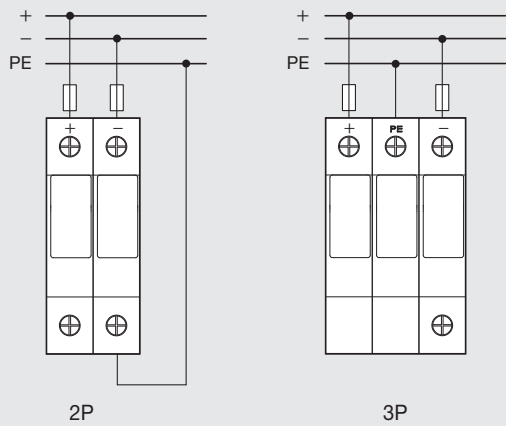
Dimensions

BK20S-DC

[Unit : mm]



Installation wiring method



Wiring Diagram

