



DC STRING COMBINER BOX SOLUTION

PRODUCT CATALOG

- DC String Combiner Box Solution
- DC Surge Protective Device
- DC Fuse Holder
- Photovoltaic DC Isolation Switch



CQHS SERIES PV Combiner Box



CQHS SERIES PV Combiner Box 600VDC /1000VDC

CHAC PV combiner boxes support DC string collection and protection for solar installations.
Select the breaker or switch disconnecter version to suit the approved system design.

1 INPUT 1 OUTPUT 1000VDC

CQHS-1/1



Product Application

Suitable for PV system, equipped with a surge protector and an isolator, providing isolation, leakage and grounding protection.

DC Surge Arrester

ExS-T2-DC/2P

- Max Operation Voltage 1000V
- Standard Compliance with IEC/EN 61643-31 Type2
- Maximum Discharge Current 40 KA

DC Fuse

CQDF-32

- LED Indicator or without LED indicator
- Rated Working Voltage 1000V
- Fuse Link 10x38mm 16A

DC Switch Disconnecter

CQDS-32

- Rated Insulation Voltage 1200V
- Rated Current 32A

Technical Data

Specification		
	CQHS-1/1	Wiring diagram
Input	1 strings	
Output	1 strings	
Max Voltage	1000V	
Max DC Short Circuit Current Per Input	16A(Changeable)	
Max Current Output	32A	
Enclosure		
Material	PC	
Degree of Protection	IP65	
Impacts	IK09	
Dimensions	DXAT-9; L218*W200*H100mm	
Cable input Entry	PG09 Cable Gland, 2.5-16mm ²	
Output Cable Gland	PG21,2.5-16mm ²	
Environment		
Operating temperature	-20°C - +60°C	
Humidity	99%	
Altitude	2000M	
Installation	Wall Mounting	

2 INPUT 1 OUTPUT 1000VDC

CQHS-2/1



Product Application

Suitable for PV system, equipped with a surge protector and an isolator,providing isolation, leakAge and grounding protection.

DC Surge Arrester

ExS-T2-DC/3P

- Max Operation Voltage 1000V
- Standard Compliance with IEC/EN 61643-31 Type2
- Maximum Discharge Current 40 KA

DC Fuse

CQDF-32

- LED Indicator or without LED indicator
- Rated Working Voltage 1000V
- Fuse Link 10x38mm 16A

DC Switch Disconnecter

CQDS-32

- Rated Insulation Voltage 1200V
- Rated Current 32A

Technical Data

Specification		
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2 INPUT 2 OUTPUT 1000VDC

CQHS-2/2



Product Application

Suitable for PV system, equipped with a surge protector and an isolator,providing isolation, leakAge and grounding protection.

DC Surge Arrester

ExS-T2-DC/3P

- Max Operation Voltage 1000V
- Standard Compliance with IEC/EN 61643-31 Type2
- Maximum Discharge Current 40 KA

DC Fuse

CQDF-32

- LED Indicator or without LED indicator
- Rated Working Voltage 1000V
- Fuse Link 10x38mm 16A

DC Switch Disconnecter

CQDS-32

- Rated Insulation Voltage 1200V
- Rated Current 32A

Technical Data

Specification		<
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4 INPUT 2 OUTPUT 1000VDC

CQHS-4/2



Product Application

Suitable for PV system, equipped with a surge protector and an isolator, providing isolation, leakAge and grounding protection.

DC Surge Arrester

- ExS-T2-DC/3P
- Max Operation Voltage 1000V
 - Standard Compliance with IEC/EN 61643-31 Type2
 - Maximum Discharge Current 40 KA

DC Fuse

- CQDF-32
- LED Indicator or without LED indicator
 - Rated Working Voltage 1000V
 - Fuse Link 10x38mm 16A

DC Switch Disconnecter

- CQDS-32
- Rated Insulation Voltage 1200V
 - Rated Current 32A

Technical Data

Specification		
	CQHS-4/2	Wiring diagram
Input	4 strings	
Output	2 strings	
Max Voltage	1000V	
Max DC Short Circuit Current Per Input	16A(Changeable)	
Max Current Output	32A	
Enclosure		
Material	PC	
Degree of Protection	IP65	
Impacts	IK09	
Dimensions	DXAT-26; L296*W390*H130mm	
Cable input Entry	PG09 Cable Gland, 2.5-16mm²	
Output Cable Gland	PG21,2.5-16mm²	
Environment		
Operating temperature	-20°C - +60°C	
Humidity	99%	
Altitude	2000M	
Installation	Wall Mounting	

CQHD SERIES PV Combiner Box



CQHD SERIES PV Combiner Box 500VDC / 1000VDC

CHAC PV combiner boxes support DC string collection and protection for solar installations.
Select the breaker or switch disconnecter version to suit the approved system design.

1 INPUT 1 OUTPUT 500VDC / 1000VDC

CQHD-1/1



Product Application

IP65 DC string box is designed for 1 string PV system. For surge protection and over-load protection at solar DC side.

DC Breaker

- CQBD-63
- IEC60947-2 PV&DC standard
 - Over-load,short circuit Protection
 - Non Polarity for easier wiring

DC Surge Arrester

- ExS-T2-DC/2P
- Max Operation Voltage 1000V
 - Standard Compliance with IEC/EN 61643-31 Type2
 - Maximum Discharge Current 40 KA

DC Fuse

- CQDF-32
- LED indicator or without LED indicator
 - Rated Working Voltage 1000V
 - Fuse Link 10x38mm 16A

Technical Data

Specification		
	CQHD-1/1	
Input	1 strings	
Output	1 strings	
Max Voltage	500V	1000V
Rated Current of DC Breaker	16A	16A
Max Current Output	32A	32A
Enclosure		
Material	PC	
Degree of Protection	IP65	
Impacts	IK09	
Dimensions	DXAT-9; L218*W200*H100mm	
Input Cable Glands	PG09,2.5-16	
Output Cable Gland	PG21,2.5-16	
Environment		
Operating temperature	-20°C - +60°C	
Humidity	99%	
Altitude	2000M	
Installation	Wall Mounting	

Wiring diagram

The diagram illustrates the electrical connection for String 1. It shows two input lines: a red line labeled "String 1 '+'" and a blue line labeled "String 1 '-'". Both lines pass through a fuse and then through a Surge Protection Device (SPD). The SPD is depicted as a vertical component with two terminals on the left and two on the right, with a ground symbol at the bottom. After the SPD, the lines enter a switch mechanism. The switch has two positions, indicated by 'x' marks. The output of the switch is connected to the MPPT (Maximum Power Point Tracking) output, which is labeled with a red "+" and a blue "-" terminal.

2 INPUT 1 OUTPUT 1000VDC

CQHD-2/1



Product Application

IP65 DC string box is designed for 2 string PV system. For surge protection and current protection at solar DC side.

DC Breaker

CQBD-63

- IEC60947-2 PV&DC standard
- Over-load,short circuit Protection
- Non Polarity for easier wiring

DC Surge Arrester

ExS-T2-DC/3P

- Max Operation Voltage 1000V
- Standard Compliance with IEC/EN 61643-31 Type2
- Maximum Discharge Current 40 KA

DC Fuse

CQDF-32

- LED indicator or without LED indicator
- Rated Working Voltage 1000V
- Fuse Link 10x38mm 16A

Technical Data

Specification		</
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2 INPUT 2 OUTPUT 500VDC / 1000VDC

CQHD-2/2



Product Application

IP65 DC string box is designed for 2 string PV system. For surge protection and current protection at solar DC side.

DC Breaker

CQBD-63

- IEC60947-2 PV&DC standard
- Over-load,short circuit Protection
- Non Polarity for easier wiring

DC Surge Arrester

ExS-T2-DC/3P

- Max Operation Voltage 1000V
- Standard Compliance with IEC/EN 61643-31 Type2
- Maximum Discharge Current 40 KA

DC Fuse

CQDF-32

- LED indicator or without LED indicator
- Rated Working Voltage 1000V
- Fuse Link 10x38mm 16A

Technical Data

Specification		
	CQHD-2/2	
Input	2 strings	
Output	2 strings	
Max Voltage	500V	1000V
Rated Current of DC Breaker	16A	16A
Max Current Output	32A	32A
Enclosure		
Material	PC	
Degree of Protection	IP65	
Impacts	IK09	
Dimensions	DXAT-18; L386*W230*H120mm	
Input Cable Glands	PG09,2.5-16	
Output Cable Gland	PG21,2.5-16	
Environment		
Operating temperature	-20℃ - +60℃	
Humidity	99%	
Altitude	2000M	
Installation	Wall Mounting	

Wiring diagram	
+ String 1"+" - String 1"-" + String 2"+" - String 2"-" + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT - MPPT + MPPT -	

3 INPUT 1 OUTPUT 500VDC / 1000VDC

CQHD-3/1



Product Application

IP65 DC string box is designed for 3 string PV system. For surge protection and current protection at solar DC side.

DC Breaker

- CQBD-63
- IEC60947-2 PV&DC standard
 - Over-load,short circuit Protection
 - Non Polarity for easier wiring

DC Surge Arrester

- ExS-T2-DC/3P
- Max Operation Voltage 1000V
 - Standard Compliance with IEC/EN 61643-31 Type2
 - Maximum Discharge Current 40 KA

DC Fuse

- CQDF-32
- LED indicator or without LED indicator
 - Rated Working Voltage 1000V
 - Fuse Link 10x38mm 16A

Technical Data

Specification		
	CQHD-3/1	
Input	3 strings	
Output	1 strings	
Max Voltage	500V	1000V
Rated Current of DC Breaker	45A	45A
Max Current Output	63A	63A
Enclosure		
Material		
Degree of Protection	IP65	
Impacts	IK09	
Dimensions	DXAT-13:L296*W230*H120mm	
Input Cable Glands	PG09,2.5-16	
Output Cable Gland	PG21,2.5-16	
Environment		
Operating temperature	-20°C - +60°C	
Humidity	99%	
Altitude	2000M	
Installation	Wall Mounting	

Wiring diagram

String 1"+

String 2"+

String 3"+

String 1"-

String 2"-

String 3"-

SPD

Fuse

Switch

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4 INPUT 2 OUTPUT 500VDC / 1000VDC

CQHD-4/2



Product Application

IP65 DC string box is designed for 4 string PV system. For surge protection and over-load protection at solar DC side.

DC Breaker

CQBD-63

- IEC60947-2 PV&DC standard
- Over-load,short circuit Protection
- Non Polarity for easier wiring

DC Surge Arrester

ExS-T2-DC/3P

- Max Operation Voltage 1000V
- Standard Compliance with IEC/EN 61643-31 Type2
- Maximum Discharge Current 40 KA

DC Fuse

CQDF-32

- LED indicator or without LED indicator
- Rated Working Voltage 1000V
- Fuse Link 10x38mm 16A

Technical Data

Specification			Wiring diagram
	CQHD-4/2		
Input	4 strings		
Output	2 strings		
Max Voltage	500V	1000V	
Rated Current of DC Breaker	32A	32A	
Max Current Output	63A	63A	
Enclosure			
Material	PC		
Degree of Protection	IP65		
Impacts	IK09		
Dimensions	DXAT-26; L296*W390*H130mm		
Input Cable Glands	PG09,2.5-16		
Output Cable Gland	PG21,2.5-16		
Environment			
Operating temperature	-20℃ - +60℃		
Humidity	99%		
Altitude	2000M		
Installation	Wall Mounting		

The wiring diagram illustrates the internal configuration of the CQHD-4/2 DC string box. It features two identical processing modules. Each module receives four input strings: String 1'+', String 2'+', String 1'-', and String 2'-. These strings are connected to a DC breaker (CQBD-63) and a DC surge arrester (ExS-T2-DC/3P). The output strings are connected to an MPPT controller. The diagram also shows the internal wiring for the DC breakers and surge arresters.

6 INPUT 2 OUTPUT 1000VDC

CQHD-6/2



Product Application

IP65 DC string box is designed for 6 string PV system. For surge current protection at solar DC side.

DC Breaker

CQBD-63

- IEC60947-2 PV&DC standard
- Over-load,short circuit Protection
- Non Polarity for easier wiring

DC Surge Arrester

ExS-T2-DC/3P

- Max Operation Voltage 1000V
- Standard Compliance with IEC/EN 61643-31 Type2
- Maximum Discharge Current 40 KA

DC Fuse

CQDF-32

- LED indicator or without LED indicator
- Rated Working Voltage 1000V
- Fuse Link 10x38mm 16A

Technical Data

Specification		Wiring diagram
	CQHD-6/2	
Input	6 strings	
Output	2 strings	
Max Voltage	1000V	
Rated Current of DC Breaker	45A	
Max Current Output	63A	
Enclosure		
Material	PC	
Degree of Protection	IP65	
Impacts	IK09	
Dimensions	DXAT-26:L296*W390*H130mm	
Input Cable Glands	PG09,2.5-16	
Output Cable Gland	PG21,2.5-16	
Environment		
Operating temperature	-20°C - +60°C	
Humidity	99%	
Altitude	2000M	
Installation	Wall Mounting	



CQDS-32

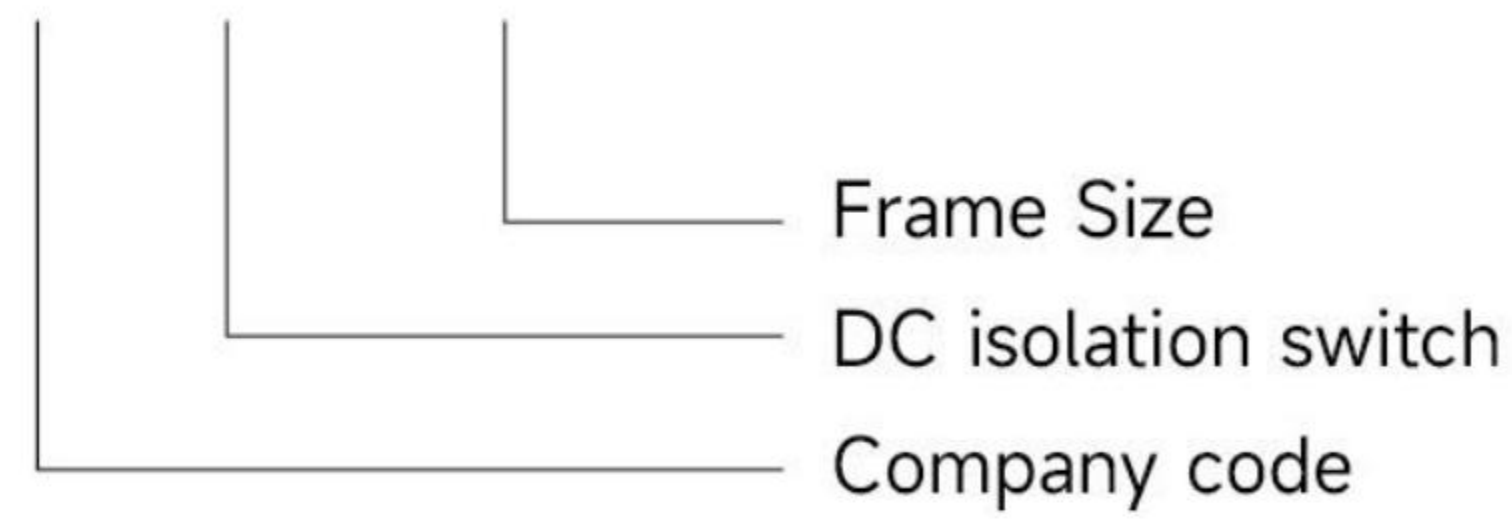
Photovoltaic DC isolation switch

Product application scope

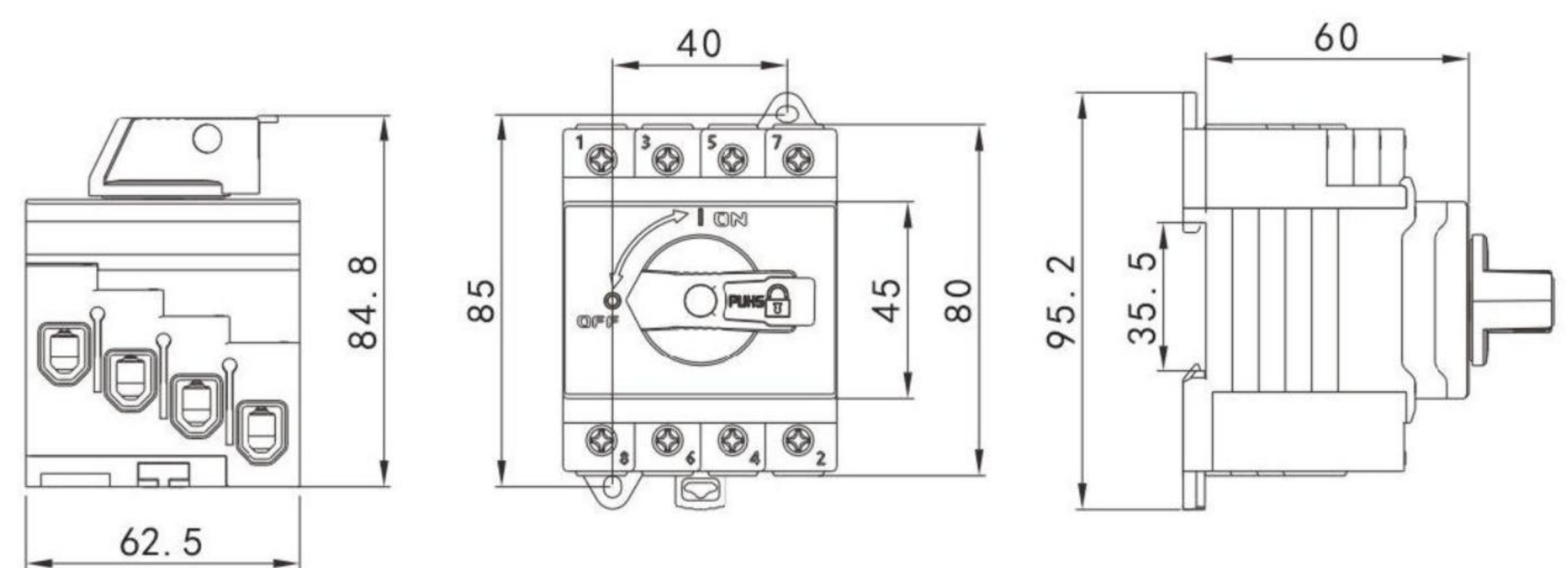
The CQDS-32 photovoltaic DC isolation switch is suitable for DC systems with a rated voltage up to 1200 V and a rated current up to 32 A. It is intended for infrequent switching and isolation, including isolation between PV modules and inverters. The applicable voltage and wiring arrangement depend on the selected configuration.

Product model and meaning

CQ DS - 32



Product dimensions



Product features

Complies with IEC/EN 60947-3 and AS 60947.3

DC-PV1 / DC-PV2 utilization categories

Non-polar design

IP20 protection level

Lockable operating handle

UV-resistant, V-0 flame-retardant housing material

Fast arc extinguishing design



Parameter table

Electrical Characteristics	
model	DS1-32
function	Isolation and control
standard	IEC60947-3, AS60947.3
Usage category	DC-PV1 / DC-PV2
series	4P
rated frequency	DC
Rated working voltage (Ue)	300V/600V/800V/1000V/1200V
Rated insulation voltage (Ui)	1200V
Rated short-time withstand current (Icw)	1KA/1S(4, 4S,4B) , 1.7KA/1S(2H)
Rated impulse withstand voltage (Uimp)	8.0KV
overvoltage category	II
polarity	Mechanical polarity is non-polar, and the "+" and "-" polarities can be interchanged.
Service life/number of operations	
mechanical life	9700
electrical life	300
Installation environment	
Protection level	IP20
Storage temperature	-40°C~+85°C
Installation Type	Vertical or horizontal
pollution level	3

Wiring swap – corresponding diagrams

	4-pole	4T Four pole with input terminalOutput top	4-pole Bottom input and output	4-pole top input, bottom output
Specifications	4		4B	4S
Contact point connection line graph				
switch example				

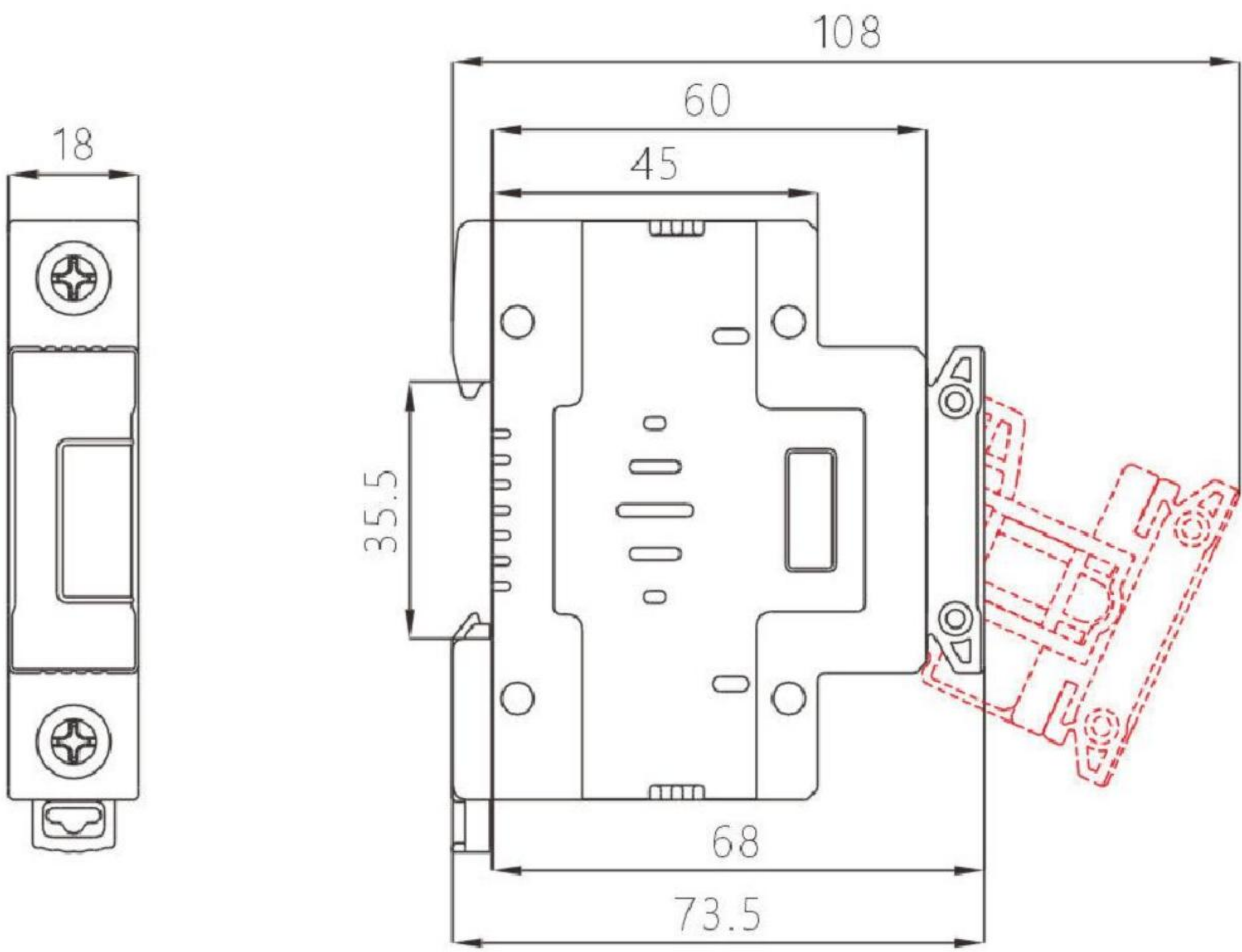
CQDF-32
DC fuse holder



Parameter table

Model of fuse base	Install fuse link size	rated voltage	Rated current (Max)	power loss
CQDF-32	10x38mm	1000V DC	32A	6W

Product dimensions



Product features

Standard 10 × 38 mm fuse-link size

Rated voltage: 1000 V DC

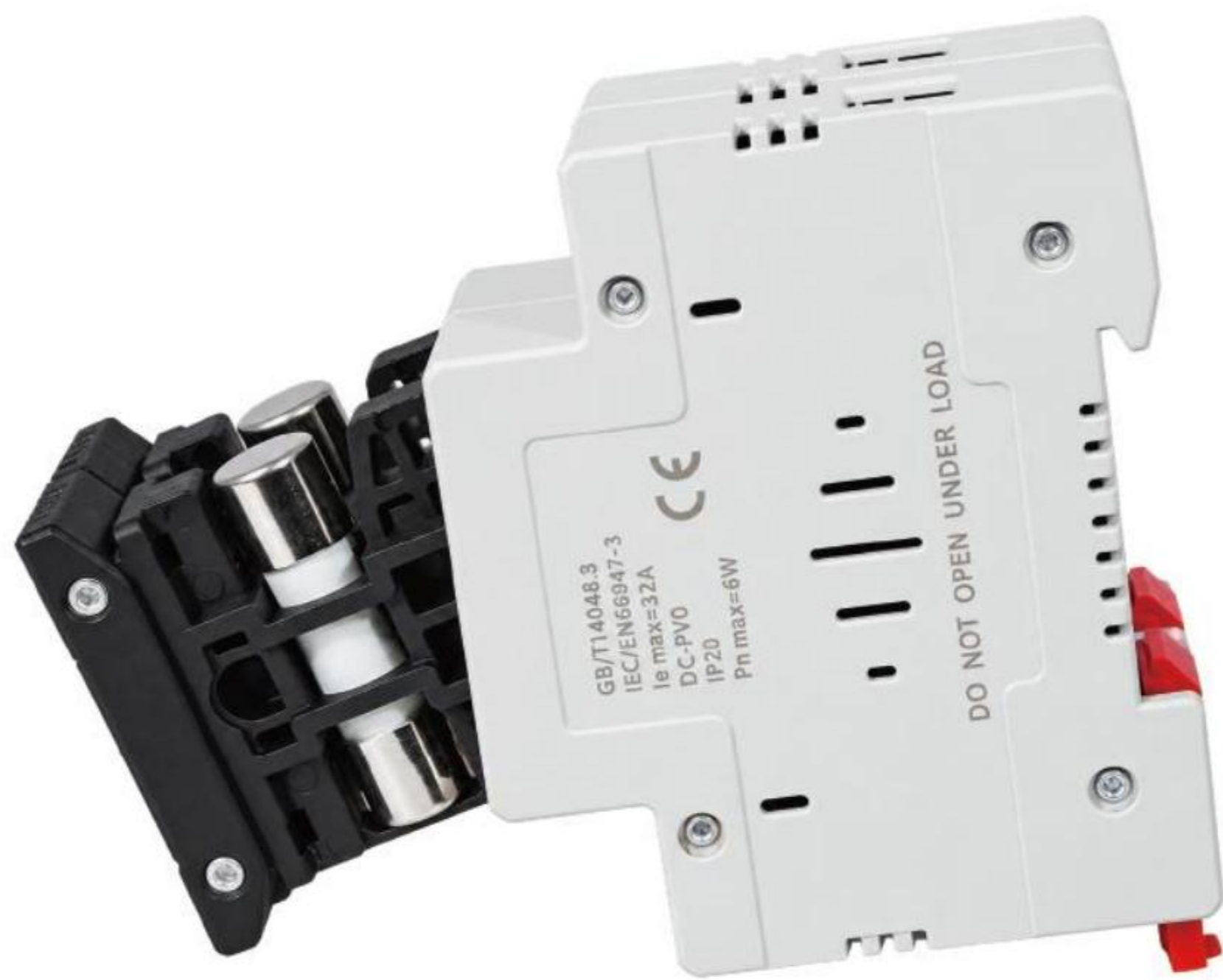
Maximum operating current: 32 A

Utilization category: DC-PV0

Power loss: 6 W

UL 94 V-0 flame-retardant housing material

Optional indicator version





ExS-T2-DC

DC surge protector

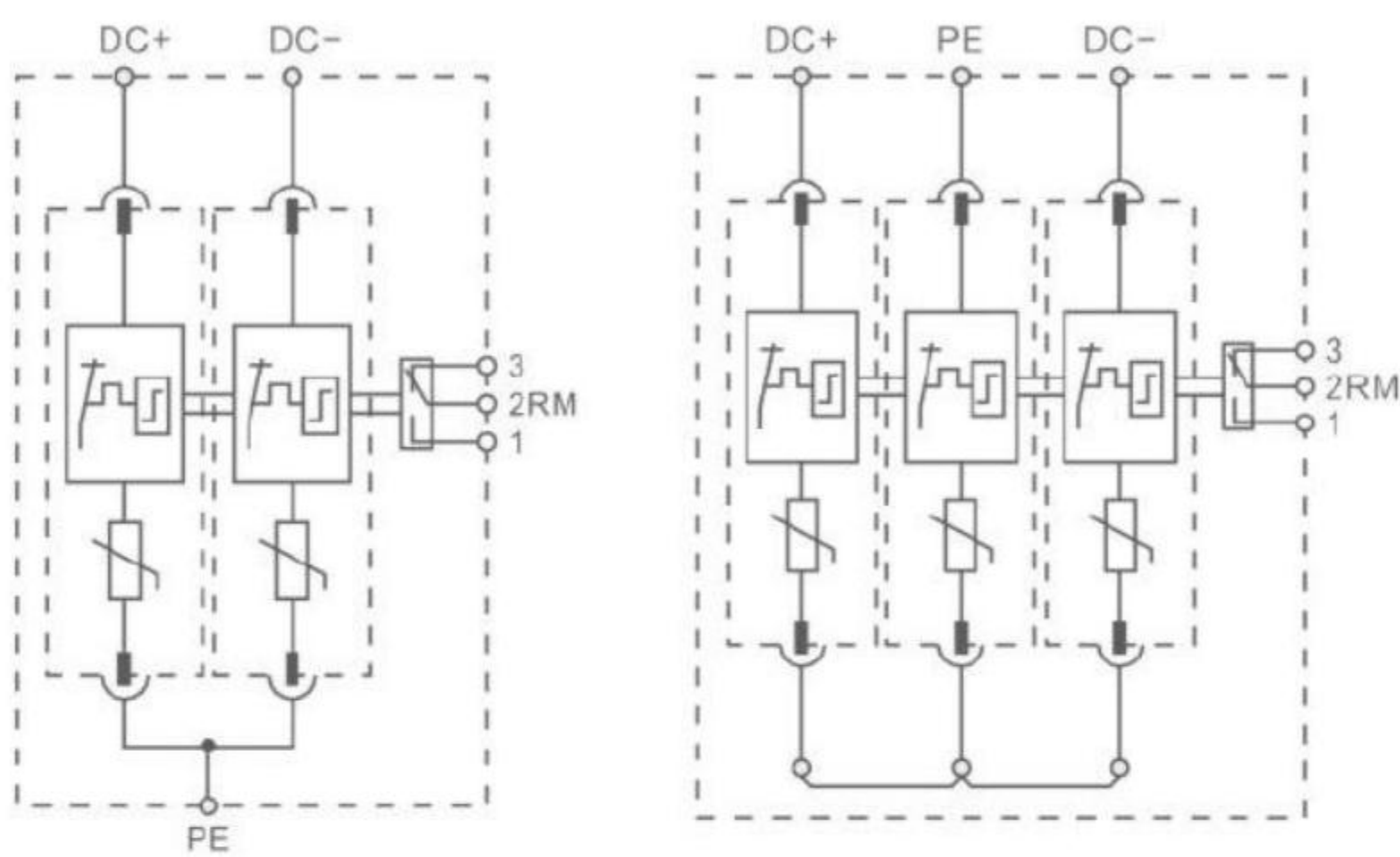
Product application scope

The ExS-T2-DC surge protective device is designed for photovoltaic DC systems. Its plug-in module facilitates installation and maintenance. The device provides a status indication window and supports installation on a standard 35 mm DIN rail.

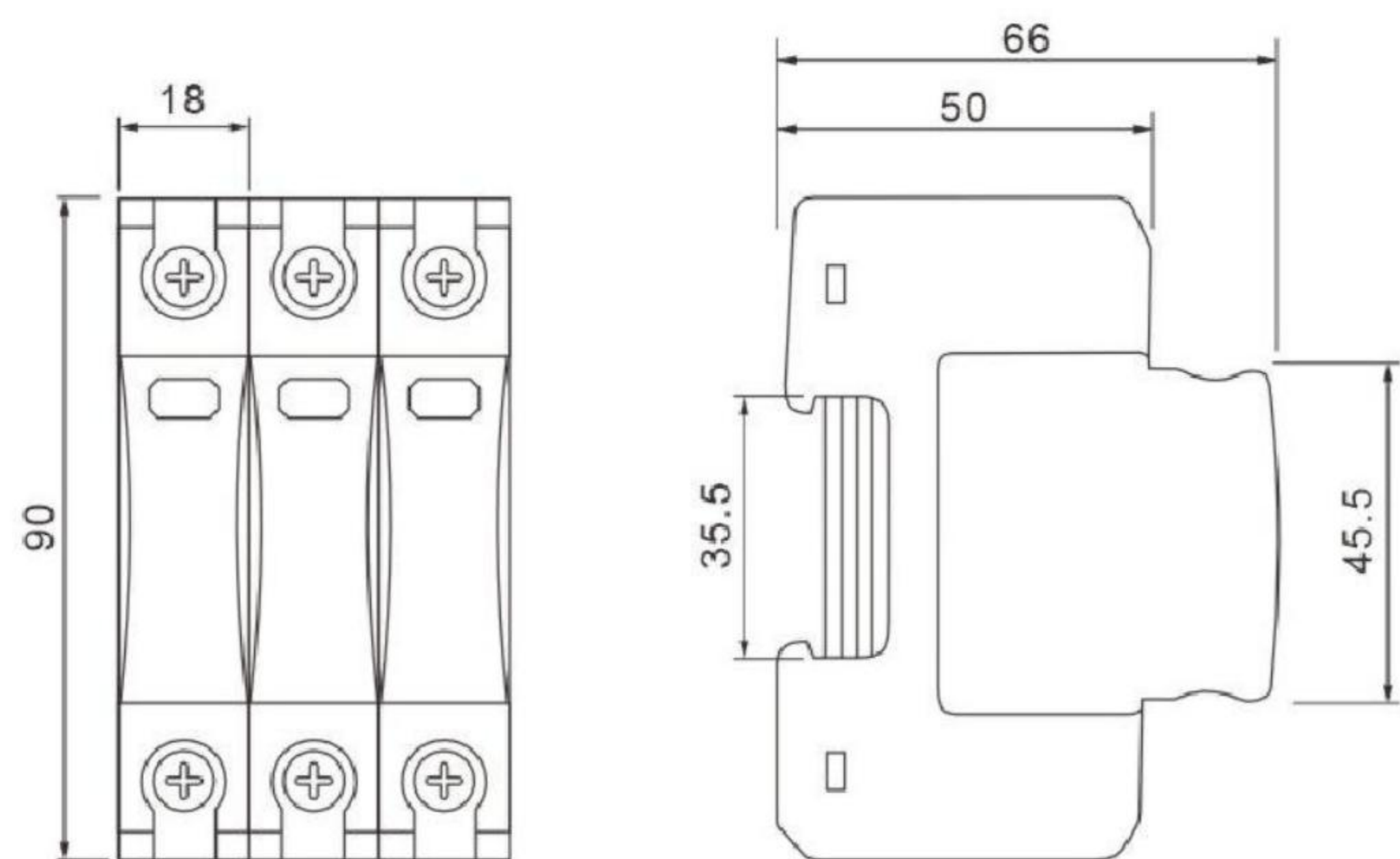
Parameter table

Model	ExS-T2-DC			
Polar Number	2P	2P	3P	3P
Maximum Continuous Operating Voltage Uc (v)	DC600	DC1000	DC1000	DC1500
U1ma Pressure-sensitive Voltage (v)	750	1500	750	1100
Maximum Discharge Current Imax (8/20us) (ka)	40			
Nominal Discharge Current In (ka)	20			
Voltage Protection Level Up (kv)	≤2.8	≤4.0		≤5.2
Response Time (ns)	≤25			
Maximum Backup Fuse	125AgL/gG			
Working Temperature (°C)	-40~+70； Relative humidity<95%			
Connecting Wire Cross-section (mm ²)	1.5-25mm²			
Installation Method	35mm standard guide rail			
Housing Material	Flame retardant material PA6, UL94 V-0			
Protection Level	IP20			
Number Of Ports	One port			
Unipolar Width (mm)	eighteen			

Product dimensions



Product dimensions



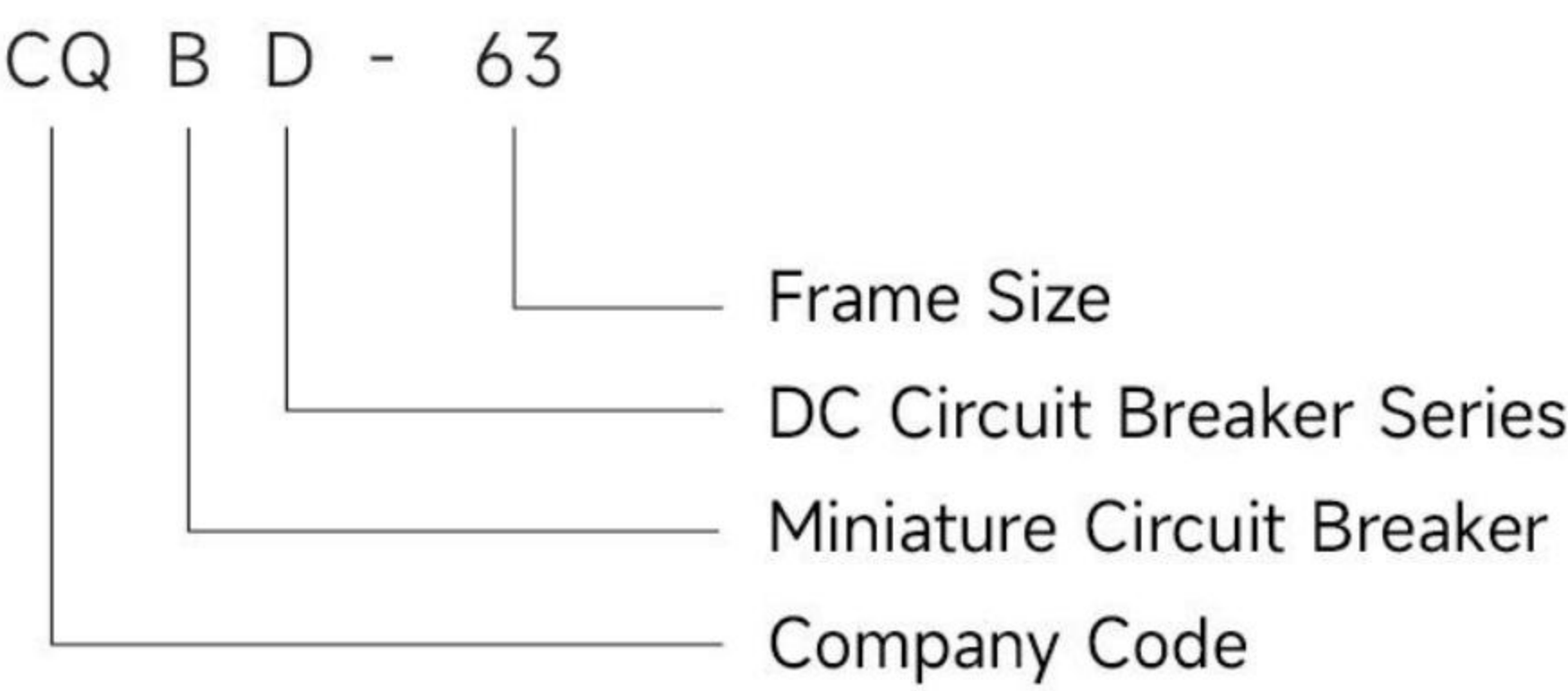
CQBD-63
Small DC circuit breaker



Product description

- Innovative design,layered structural design,simpler installation,and the ability to achieve
- Integrated functionality of mechanical components,simplified parts,fewer size chains,
- Contact position indicator window,with clear working status at a glance;
- Rail type installation,with a large travel of the installation buckle,the product can be quickly
- Meet the energy level 3 requirements of the EU EN standard to enhance the safety of electrical
- Complete accessory configuration;
- The breaking capacity isoptional at 4.5kA/6kA/10kA;
- DC polarity free,with a maximum voltage of DC1200V;
- Built in short-circuit wiring.

Model meaning



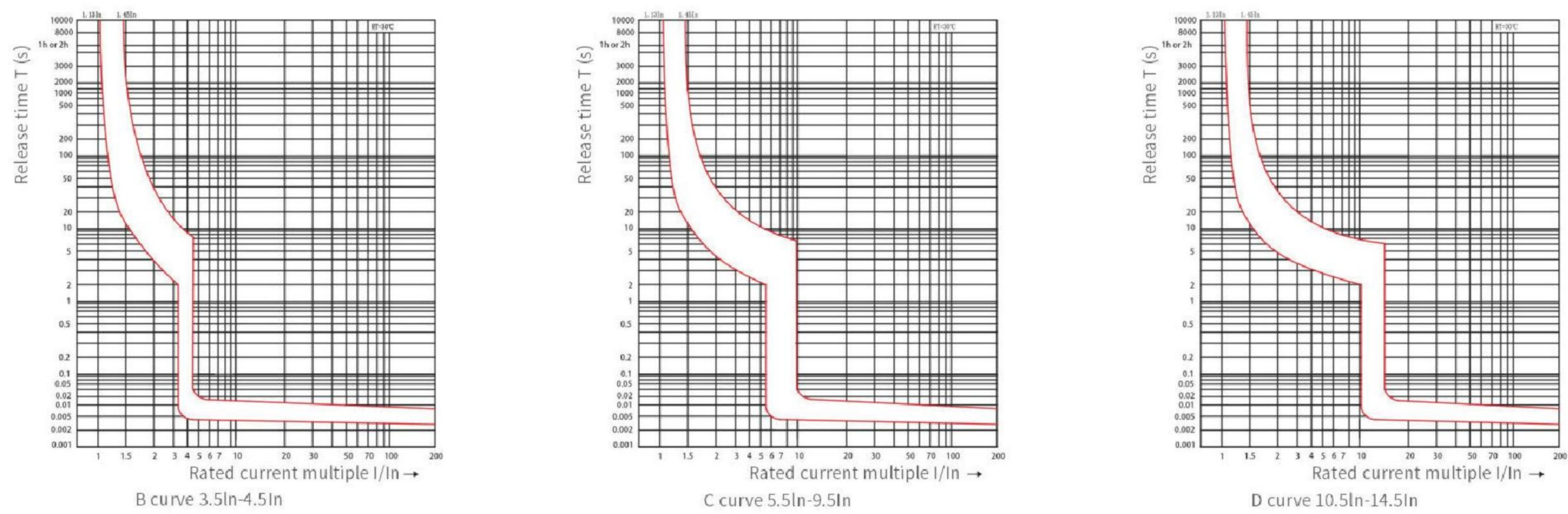
Product description

Project	Parameter
Rated Shell Current	63A
Meet The Standard	GB/T 14048.2, IEC 60947-2
Rated Insulation Voltage Ui	1200V
Rated Impulse Withstand Voltage Uimp	6kV
Rated Current	1A, 2A, 3A, 4A, 6A, 10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A
Rated Voltage	DC300V(1P),600V(2P),900V(3P),1200V(4P)
Release Curve	B(4In-7In), C:8In±20%, D:12In±20%
Polar Number	1P, 2P, 3P, 4P
Unipolar Width	18mm
Ultimate Short-circuit Breaking Capacity Icu	10kA
Operating Short-circuit Breaking Capacity Ics	7.5kA
Reference Temperature	30°C
Usage Category	A
Mechanical Life	20000 times
Electrical Life	More than 1500 times
Protection Level	IP20
Wiring Capacity (mm²)	16
Wiring Method	Both up and down incoming lines are acceptable

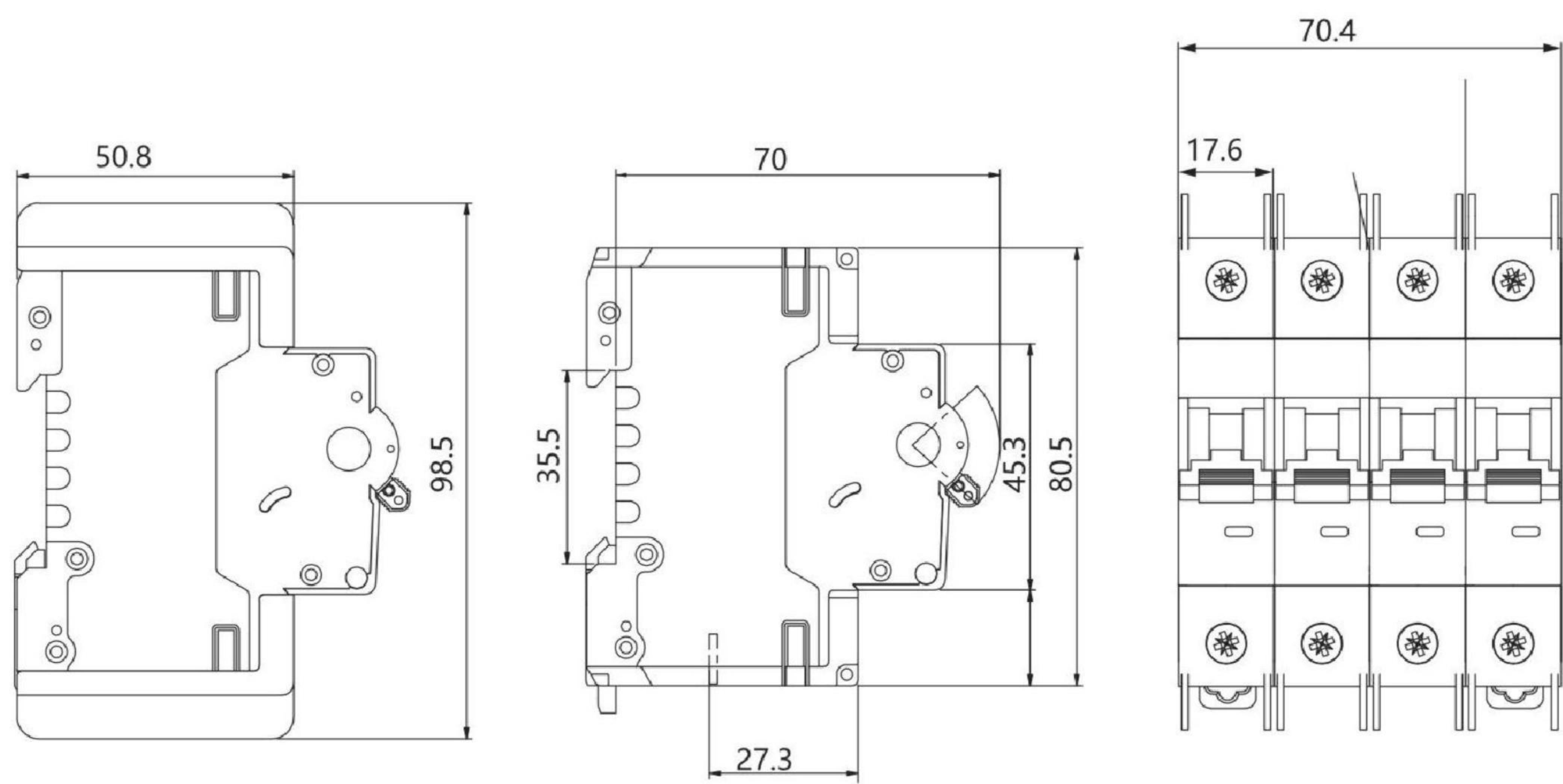
Product release characteristics

Rated current (A)	Overload tripping characteristic		Instantaneous release characteristic (A)
	1.05I _n agreed non trip time H (cold state)	1.30I _n agreed release time H (hot state)	
I _n ≤ 63	1	1	B(4I _n -7I _n) C:8I _n ±20%, D:12I _n ±20%

Time-current characteristics



Product appearance and installation dimensions



ZHEJIANG CHUANGQI ELECTRIC CO.,LTD.

-  Wenzhou Base
No. 18, Shahong Road, Beibaixiang Town, Yueqing City,Wenzhou, Zhejiang Province, China
-  Jiaxing Base
No. 61, Zhengyang West Road, Xiuzhou District, Jiaxing, Zhejiang Province, China
-  0577-27878806
-  marketing@ chac-en.com
-  www.chac-electric.com



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