SOLARC NEW ENERGY

Component Selection Manual


**WENZHOU SOLARC NEW ENERGY CO.,LTD.**

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Scan the QR code to learn

If there are any changes in product size and parameters, the latest instructions will prevail without further notice.

## One-Stop Supporting Services of the PV Center

# CONTENTS



# ABOUT US

## Company Profile

Wenzhou Solarc New Energy Technology Co., Ltd. is a high-tech enterprise specializing in the new energy field, integrating research and development, production, sales, and services. Equipped with a modern production base and a team of professional technicians, the company boasts strong production capabilities and R&D strength. We are committed to providing global customers with efficient and reliable photovoltaic system solutions to contribute to the development of the new energy industry.

## CORPORATE CULTURE

Innovation: We focus on technological innovation, invest in resources, and improve product performance and quality to meet and exceed expectations.

Quality: We always prioritize product quality, strictly controlling the production process to ensure that each product meets high-quality standards.

Service: We offer comprehensive pre-sales, in-sales, and after-sales services to our customers, promptly addressing any issues they encounter during use and establishing long-term, stable cooperative relationships.

## Corporate Development Vision

We are committed to a customer-centric and market-oriented approach, emphasizing technological innovation and continuous product upgrades. Our goal is to establish ourselves as a leading enterprise in the field of new energy, delivering high-quality products and services to users worldwide, and contributing to the advancement of the new energy industry.

## Corporate Strengths

**Technological Leadership:** We have a dedicated professional technical team focused on core technologies and systems, ensuring that our products are at the forefront of the industry in terms of performance and reliability.

**Quality Reliability:** We have a strict quality management system. From raw material procurement to finished product delivery, everything undergoes rigorous testing to ensure the high quality of our products.

**Comprehensive Service:** We offer a comprehensive after-sales service system that provides timely and efficient technical support and after-sales service to our customers, addressing their concerns.use and establishing long-term, stable cooperative relationships.

## PRODUCT OVERVIEW

The SCPV-32 fuse base features a narrower installation width, effectively saving space in combiner boxes. The design includes ventilation slots on both sides, which effectively control the temperature rise when products are installed side by side. The flame-retardant plastic housing ensures enhanced safety. This product is primarily designed for use with the SCPV1038 photovoltaic DC fuse. It is applied in DC combiner boxes, string inverters in the photovoltaic industry, and converters in the energy storage industry, to protect and isolate photovoltaic modules or arrays, as well as chemical (storage) batteries.

## REFERENCE STANDARD

GB13539.1/GB13539.6:IEC60269-1/IEC60269-6;UL248-19/UL4248-19

## MODEL DESCRIPTION DC FUSE

| SCPV | 1038 | - | 32A | 1000V |
|---|---|---|---|---|
| Product code | Size | | rated current | Rated voltage |
| Photovoltaic DC fuse | 10*38mm | | 2A.4A.6A.10A 12A.16A.20A. 25A.30A.32A | DC1000V |

| ELECTRICAL CHARACTERISTICS | | | |
|---|---|---|---|
| Standard | | IEC60269-6 | UL248-19 |
| Rated working voltage | | DC1000V | |
| Frame maximum current | | 32A | 30A |
| Rated current | | 2A-32A | 2A-30A |
| Rated insulation voltage | | 1000V | |
| Rated breaking capacity | | 20KA | |
| Service category | | gPV | |
| Maximum loss (W) | | ≤6W | |
| Service ambient temperature | | -40℃~+90℃ | |
| Storage ambient temperature | | -40℃~+90℃ | |
| Dimensions | a | φ10.3±0.1 | |
| | b | 38±0.1 | |



## MODEL DESCRIPTION DC FUSE Base

| SCPV | - | 32 | 32A | 1000V |
|---|---|---|---|---|
| Product code | | Size | rated current | Rated voltage |
| Photovoltaic Fuse Base | | 32A | 2A.4A.6A.10A 12A.16A.20A. 25A.30A.32A | DC1000V |

| ELECTRICAL CHARACTERISTICS | |
|---|---|
| Standard | IEC60269-6,IEC60947 |
| Rated working voltage | DC1000V |
| Maximum current of shell frame | 32A |
| Rated current | Max32A |
| Rated insulation voltage | 1000V |
| **CONNECTION AND INSTALLATION** | |
| Protection level | IP20 |
| Installation method | Installed on a DIN35 rail |
| Operating ambient temperature | -40°C~+90°C |
| Storage ambient temperature | -40°C~+90°C |
| Altitude | Use it with derating when the altitude is above 2000 meters. |
| Dimensions | See the attached figure. |

## NORMAL WORKING CONDITIONS

The upper limit of the surrounding air temperature shall not exceed 90°C; the lower limit of the surrounding air temperature shall not lower than -40°C; the altitude of the installation site shall not exceed 2000m (if it exceeds 2000m, the requirements shall noted, and the company can manufacture according to the customer's requirements).

## FOR USE

"gPV" indicates a DC fuse with full range of breaking capacity for overcurrent protection of solar photovoltaic systems.

## CONSTRUCTION FEATURES

A solid silver strip of variable cross section is encapsulated in a porcelain tube of high strength, which is filled with quartz sand of high purity and special chemical treatment as arc quenching medium. The ends of the fuse are firmly connected to the end caps by spot welding.

## MAIN TECHNICAL PARAMETERS

Figure 1

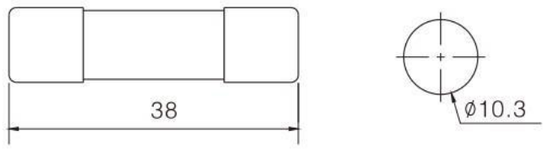
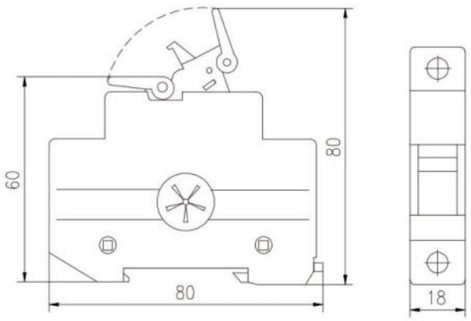
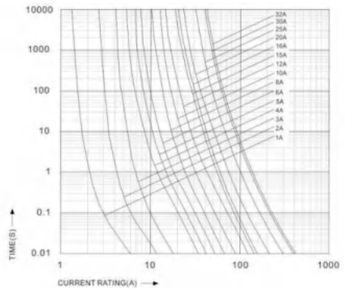



Figure 2

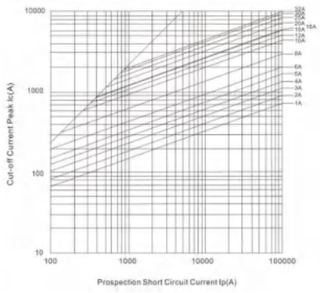



## CHARACTERISTIC CURVE DIAGRAM

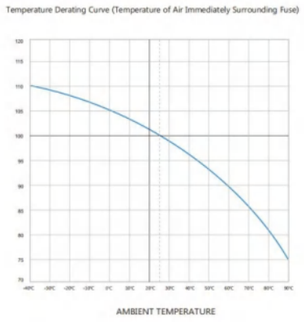
- **Time-current curve diagram**




- **Current interruption curve diagram**




- **Temperature derating curves**






## PRODUCT OVERVIEW

The SCPV-63T fuse base features a narrower installation width, effectively saving space in combiner boxes. The design includes ventilation slots on both sides, which effectively control the temperature rise when products are installed side by side. The flame-retardant plastic housing ensures enhanced safety. This product is primarily designed for use with the SCPV1085 photovoltaic DC fuse. It is applied in DC combiner boxes, string inverters in the photovoltaic industry, and converters in the energy storage industry, to protect and isolate photovoltaic modules or arrays, as well as chemical (storage) batteries.

## REFERENCE STANDARD

GB13539.1/GB13539.6:IEC60269-1/IEC60269-6;UL248-19/UL4248-19

## MODEL DESCRIPTION DC FUSE

| SCPV | - | 1085 | - | 32A | - | 1500V |
|---|---|---|---|---|---|---|
| Product code | | Size | | rated current | | Rated voltage |
| Photovoltaic DC fuse | | 10*85mm | | 2A.4A.6A.10A 12A.16A.20A. 25A.30A.32A | | DC1500V |

| ELECTRICAL CHARACTERISTICS | | | |
|---|---|---|---|
| Standard | | IEC60269-6 | UL248-19 |
| Rated working voltage | | DC1500V | |
| Frame maximum current | | 32A | 30A |
| Rated current | | 2A-32A | 2A-30A |
| Rated insulation voltage | | 1500V | |
| Rated breaking capacity | | 20KA | |
| Service category | | gPV | |
| Maximum loss (W) | | ≤9.5W | |
| Service ambient temperature | | -40℃~+90℃ | |
| Storage ambient temperature | | -40℃~+90℃ | |
| Dimensions | a | φ10.3±0.1 | |
| | b | 85±0.2 | |

## MODEL DESCRIPTION DC FUSE Base

| SCPV | - | 63T | 20A | 1500V |
|---|---|---|---|---|
| ↓ | | ↓ | ↓ | ↓ |
| Product code | | Size | rated current | Rated voltage |
| Photovoltaic Fuse Base | | 50A | 2A.4A.6A.10A 12A.16A.20A. 25A.30A.32A | DC1500V |

| ELECTRICAL CHARACTERISTICS | |
|---|---|
| Standard | IEC60269-6,IEC60947 |
| Rated working voltage | DC1500V |
| Maximum current of shell frame | 32A |
| Rated current | Max32A |
| Rated insulation voltage | 1500V |
| **CONNECTION AND INSTALLATION** | |
| Protection level | IP20 |
| Installation method | Installed on a DIN35 rail |
| Operating ambient temperature | -40℃~+90℃ |
| Storage ambient temperature | -40℃~+90℃ |
| Altitude | Use it with derating when the altitude is above 2000 meters. |
| Dimensions | See the attached figure. |

## NORMAL WORKING CONDITIONS

The upper limit of the surrounding air temperature shall not exceed 90℃; the lower limit of the surrounding air temperature shall not lower than -40℃; the altitude of the installation site shall not exceed 2000m (if it exceeds 2000m, the requirements shall noted, and the company can manufacture according to the customer's requirements).

## FOR USE

"gPV" indicates a DC fuse with full range of breaking capacity for overcurrent protection of solar photovoltaic systems.



## CONSTRUCTION FEATURES

A solid silver strip of variable cross section is encapsulated in a porcelain tube of high strength, which is filled with quartz sand of high purity and special chemical treatment as arc quenching medium. The ends of the fuse are firmly connected to the end caps by spot welding.

## MAIN TECHNICAL PARAMETERS

Figure 1

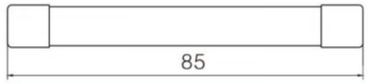
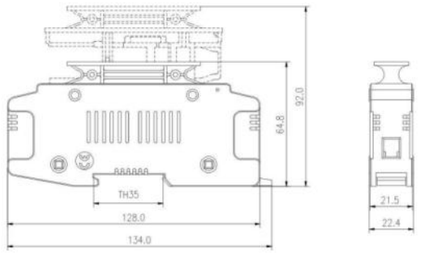



Figure 2

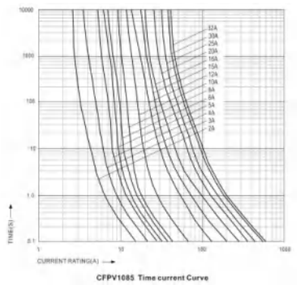




CFPV-63T

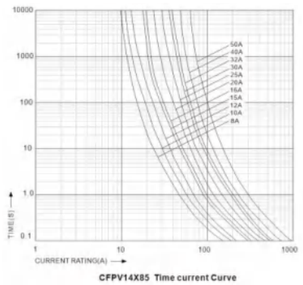
## CHARACTERISTIC CURVE DIAGRAM

- **Time-current curve diagram**



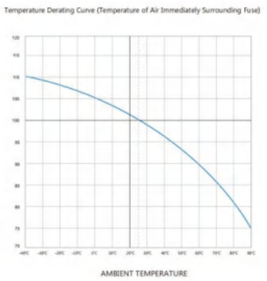
CFPV1085 Time current Curve

- **Current interruption curve diagram**



CFPV14X85 Time current Curve

- **Temperature derating curves**



AMBIENT TEMPERATURE

The SCM1-63DC photovoltaic DC miniature circuit breaker is specially designed for photovoltaic systems and is suitable for DC circuits with a rated voltage of DC1000V and a maximum rated current of 63A. Its main function is to provide overload and short-circuit protection for the DC lines and equipment in photovoltaic and energy storage systems. It can quickly cut off the fault current and protect photovoltaic modules, inverters, energy storage and other equipment.
It complies with the standards: GB/T 14048.2, IEC 60947-2, meets the RoHS environmental protection requirements of the European Union, and has obtained the CE certification.

## APPEARANCE INTRODUCTION


## TYPE INSTRUCTION

SCM1 - 63 - DC - 63A - 4P - 1000V - 4B

| Product code | Frame rated current | Direct current | Rated current | Number of poles | Rated voltage | Wiring method |
|---|---|---|---|---|---|---|
| Photovoltaic DC Circuit Breaker | 63A | DC | 6A.10A. 13A.16A. 20A.25A. 32A.40A. 50A.63A | 1P 2P 3P 4P | 250V 500V 750V 1000V | Selected by the customer |



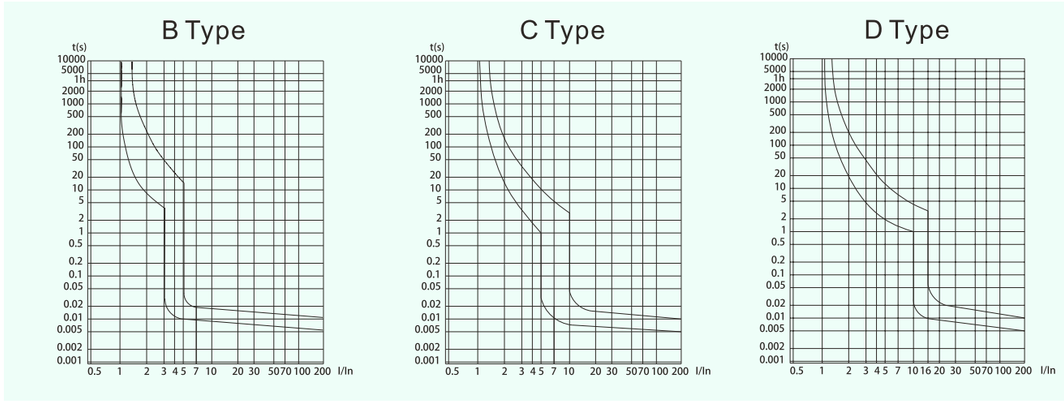
| Electrical Characteristics | | | | |
|---|---|---|---|---|
| Standard | IEC 60947-2 GB/T 14048.2 | | | |
| Number of poles | 1P | 2P | 3P | 4P |
| Rated operating voltage | 250V | 500V | 750V | 1000V |
| Maximum current of the frame | 63A | | | |
| Rated current | 6A,10A,13A,16A,20A,25A,32A,40A,50A.63A | | | |
| Rated insulation voltage | 1000V DC | | | |
| Rated impulse withstand voltage | 6kV | | | |
| Operational breaking capacity | 6kA | | | |
| Ultimate breaking capacity | 6kA | | | |
| Arcing distance | 50mm | | | |
| Tripping type | Thermal-magnetic type | | | |
| **Service life** | | | | |
| Mechanical life | 10,000 | | | |
| Electrical life | 1,500 | | | |
| **Installation and Environment** | | | | |
| Protection level | IP40 on the side, IP20 at the wiring port | | | |
| Wiring capacity | 2.5-25mm² | | | |
| Wiring torque | 2N·m - 2.5N·m | | | |
| Operating ambient temperature | -40℃ to +80℃ | | | |
| Storage ambient temperature | -40℃ to +85℃ | | | |
| Moisture and heat resistance | Class 2 (When the humidity is at 55 , the relative humidity is 95%) | | | |
| Installation and fixation | Fixed on a 35mm DIN rail | | | |

## SCM1-63DC CHARACTERISTICS CURVES

| | ThermalTripping | | | MagneticTripping | | |
|---|---|---|---|---|---|---|
| Asper IEC60898 | No tripping current | Tripping current | Time Limits t | Hold current | Trip current | Time Limits t |
| B Curve | 1.13× IN | | ⩾1h | 3× IN | | ⩾0.1s |
| | | 1.45× IN | <1h | | 5× IN | <0.1s |
| C Curve | 1.13× IN | | ⩾1h | 5× IN | | ⩾0.1s |
| | | 1.45× IN | <1h | | 10× IN | <0.1s |
| D Curve | 1.13× IN | | ⩾1h | 10× IN | | ⩾0.1s |
| | | 1.45× IN | <1h | | 20× IN | <0.1s |

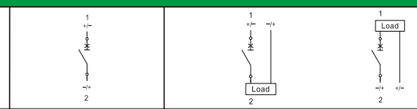
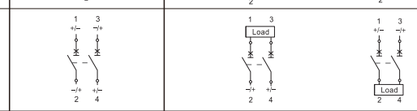
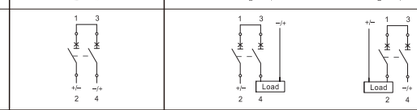
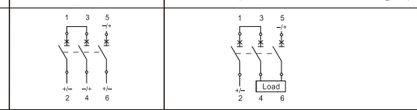
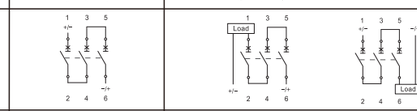
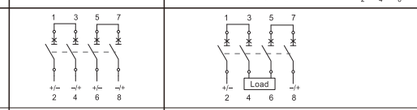
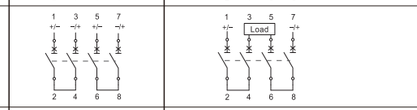
## Circuit Breaker Curve Chart

Default C Curve. For other curves, please contact for customization.



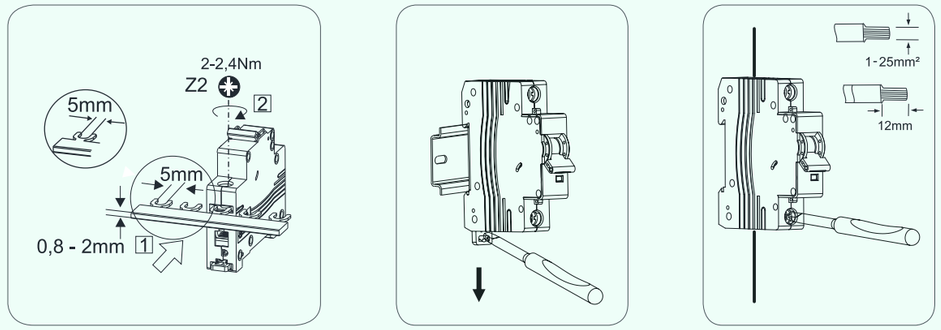

## Wiring method

For alternative wiring methods, please contact for customization.

| Product | Number of poles | | Wiring diagram | |
|---|---|---|---|---|
|  | 1P | 1A<br>Default wiring method |  | |
| | 2P | 2A<br>Default wiring method |  | |
| | | 2B |  | |
| | 3P | 3A<br>Default wiring method |  | |
| | | 3B |  | |
| | 4P | 4A<br>Default wiring method |  | |
| | | 4B |  | |
| | | 4C |  | Customized Wiring Method |

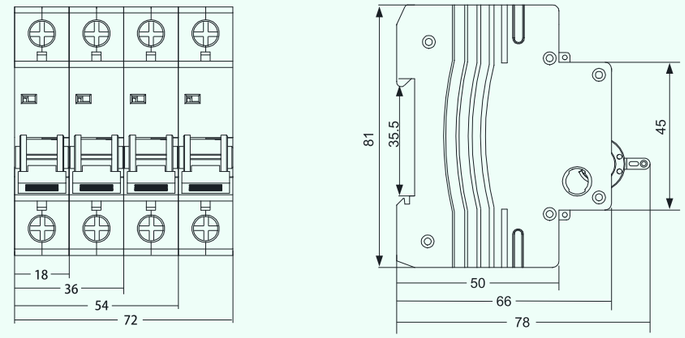


## Installation, Testing, and Operational Use

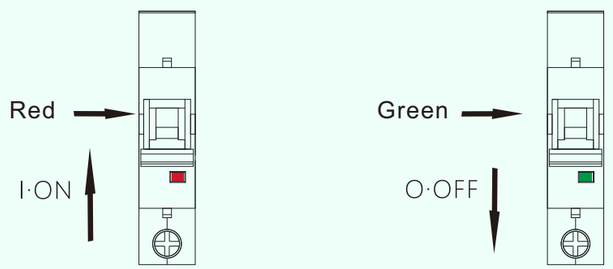



## Overalland Installation Dimension(mm)

**SCM1-63DC**




Before installation and use, check whether the circuit breaker indicator matches the working conditions. The status of the circuit breaker being closed or open is indicated.

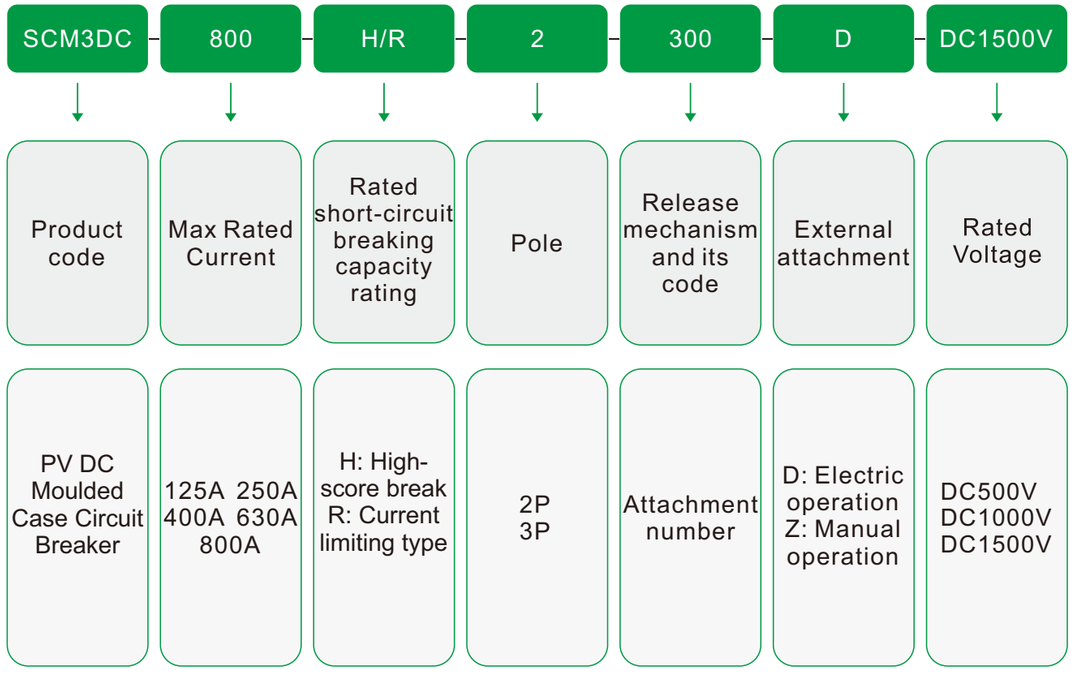


## APPLICATION

The SCM3DC-800 DC molded case circuit breaker is designed for use in circuits with a rated operating voltage of up to DC 1500V and a working current ranging from 63A to 800A. It is a high-performance protective device specifically engineered for applications in photovoltaic (PV), energy storage, and DC circuit systems. This circuit breaker is widely used in PV power generation systems, energy storage systems, DC combiner boxes, the DC input side of inverters, and the input and output sides of DC power supply systems. It provides reliable protection for equipment in the event of overload or short circuit, ensuring stable system operation under various environmental conditions.

## APPEARANCE INTRODUCTION

## TYPE INSTRUCTION






## SRM3DC SERIES DC HIGH VOLTAGE PLASTIC SHELL CIRCUIT BREAKER

Appearance

| SHELL FRAME | | SCM3DC-320 | | | SCM3DC-400 | | | |
|---|---|---|---|---|---|---|---|---|
| Number of poles | | 2 | | 3 | 2 | | | 3 |
| Rated working voltage Ue(V) | | DC500 | DC1000 | DC1500 | DC250/500 | DC750/1000 | DC1250/1500 | DC1250/1500 |
| Rated insulation voltage Ui(V) | | DC1250 | | DC1500 | DC1500 | | | |
| Rated impulse withstand voltage U(kV) | | 8 | | 12 | 12 | | | |
| Rated current In(A) | | 63、80、100、125、140、160、180、200、225、250、280、315、320 | | | 225、250、315、350、400 | | | |
| Rated ultimate short-circuit breaking energy Icu(kA) | H | 50 | 20 | 20 | 65 | 35 | 15 | 15(2-POLE SERIES) 20(3-POLE SERIES) |
| | R | / | / | / | 70 | 40 | 20 | 20(2-POLE SERIES) 25(3-POLE SERIES) |
| Rated operating short-circuit breaking capacity Ics(kA) | | ICS=100%LCU | | | | | | |
| mode of connection | | Top in bottom out, bottom in top out (2P, 320/3P) | | | Bottom in bottom out, top in top out (3P) | | | |
| use classes | | A | | | | | | |
| Whether it has an isolation function | | yes | | | | | | |
| ambient temperature | | -35°C~+70°C | | | | | | |
| Mechanical life (times) | | 2000 | | | 10000 | | | |
| Electrical life (times) | | 3000 | 2000 | 1500 | 1000 | 1000 | 700 | 500 |
| meet a criterion | | IEC/EN 60947-2、GBIT 14048.2 | | | | | | |
| attachment | | Separate excitation, assistance, alarm, manual operation, electrical operation | | | | | | |
| authentication | | CCC、CE、TUV | | | | | | |
| Dimensions (Length x Width x Height) | | 180x76x126(2P) 180x107x126(3P) | | | 250x124x165(2P) 250x182x165(3P) | | | |

Note :320 shell frame does not distinguish H: high breaking capacity, R: current-limiting type.

# SRM3DC SERIES DC HIGH VOLTAGE PLASTIC SHELL CIRCUIT BREAKER

Appearance

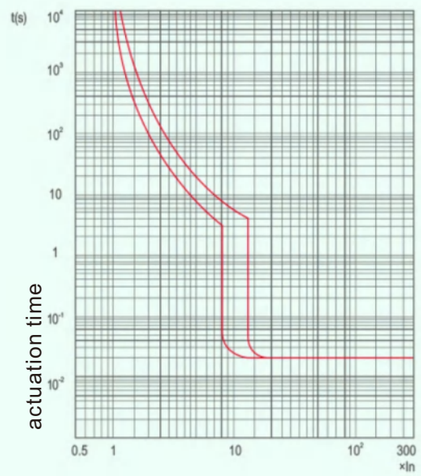
| SHELL FRAME | | SCM3DC-630 | | | SCM3DC-800 | | | |
|---|---|---|---|---|---|---|---|---|
| Number of poles | | 2 | | 3 | 2 | | | 3 |
| Rated working voltage Ue(V) | | DC1000 | DC1500 | DC1500 | DC250/500 | DC750/1000 | DC1250/1500 | DC1250/1500 |
| Rated insulation voltage Ui(V) | | DC1500 | | DC1500 | DC1500 | | | |
| Rated impulse withstand voltage U(kV) | | 12 | | 12 | 12 | | | |
| Rated current In(A) | | 500、630 | | | 700、800 | | | |
| Rated ultimate short-circuit breaking energy Icu(kA) | H | 35 | 15 | 20 | 65 | 35 | 15 | 15(2-POLE SERIES) 20(3-POLE SERIES) |
| | R | 40 | 20 | 25 | 70 | 40 | 20 | 20(2-POLE SERIES) 25(3-POLE SERIES) |
| Rated operating short-circuit breaking capacity Ics(kA) | | ICS=100%LCU | | | | | | |
| mode of connection | | Top in bottom out, bottom in top out (2P, 320/3P) Bottom in bottom out, top in top out (3P) | | | | | | |
| use classes | | A | | | | | | |
| Whether it has an isolation function | | yes | | | | | | |
| ambient temperature | | -35°C~+70°C | | | | | | |
| Mechanical life (times) | | 5000 | | | 5000 | | | |
| Electrical life (times) | | 1000 | 1000 | 700 | 1000 | 1000 | 700 | 500 |
| meet a criterion | | IEC/EN 60947-2、GBIT 14048.2 | | | | | | |
| attachment | | Separate excitation, assistance, alarm, manual operation, electrical operation | | | | | | |
| authentication | | CCC、CE、TUV | | | | | | |
| Dimensions (Length x Width x Height) | | 250x124x165(2P) 250x182x165(3P) | | | 250x124x165(2P) 250x182x165(3P) | | | |

Note :320 shell frame does not distinguish H: high breaking capacity, R: current-limiting type.

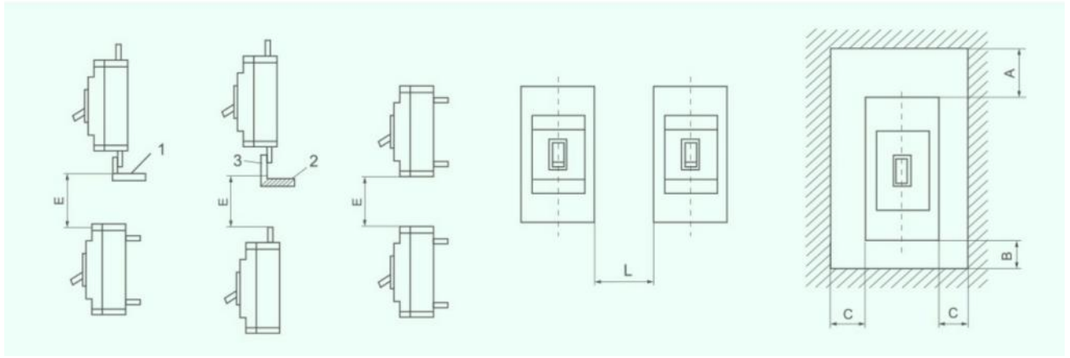


# SCM3DC SERIES DC HIGH VOLTAGE MOLDED CASE CIRCUIT BREAKERS

SCM3DC action characteristic curve




# THE SAFE DISTANCE WHEN INSTALLING CIRCUIT BREAKERS




| Type number | L | A | | B | C | E | |
|---|---|---|---|---|---|---|---|
| | | No zero flight arc cover | With zero flight arc cover | | | No zero flight arc cover | With zero flight arc cover |
| SCM3DC-320 | 40 | 50 | 65 | 25 | 25 | 50 | 130 |
| SCM3DC-400 | 70 | 100 | 65 | 25 | 25 | 100 | 130 |
| SCM3DC-630 | | 100 | 65 | 25 | 25 | 100 | 130 |
| SCM3DC-800 | | 100 | 65 | 25 | 25 | 100 | 130 |

In the figure :1. No insulated link; 2 Insulated wires; 3 Cable terminal blocks

# SCM3DC SERIES AC/DC HIGH VOLTAGE MOLDED CASE CIRCUIT BREAKERS

## The type of the release device and the code of its accessories

300 indicates: delay protection + instantaneous protection


| Attachment code | Attachment Name | SCM3HU-250/320 | SCM3HU-400630/800 | SCM3DC-250/320 | SCM3DC-400/630/800 |
|---|---|---|---|---|---|
| 300 | No internal attachments | —— | —— | —— | —— |
| 310 | hunt release | | | | |
| 320 | Auxiliary contact (1NO1NC) | | | | |
| 340 | Shunt release unit + auxiliary contact (1NO1NC) | | | | |

# SCM3DC DC HIGH VOLTAGE MOLDED CASE CIRCUIT BREAKERS

## shunt release

Generally installed in phase A of the circuit breaker, the shunt trip unit should ensure reliable tripping of the circuit breaker under all operating conditions when the rated control power supply voltage is between 70% and 110%.

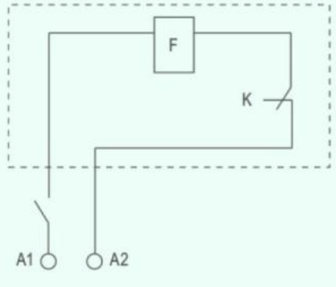
Control voltage: conventional AC50Hz, 110 v, 230 v, 400 v, DC 24 v, 110 v, 220 v.

Note: When the power supply of the control loop is DC24V, it is recommended to use the following figure for the design of the shunt control loop.

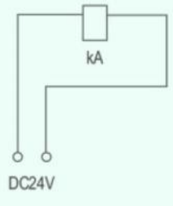
KA: It is a DC24V intermediate relay with a contact current capacity of 1A.

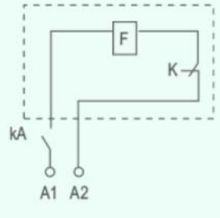
K: The miniature switch inside the shunt trip unit, which is connected in series with the coil, is a normally closed contact. When the circuit breaker opens, this contact opens automatically and closes when the circuit breaker closes

## Wiring diagram of shunt trip unit




mains input




mains input

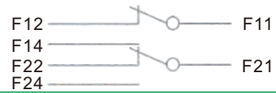
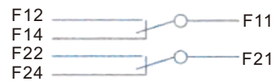


## auxiliary contact

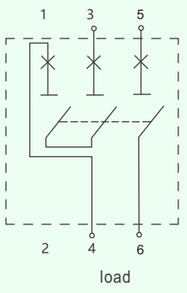
### Auxiliary contact current parameters

| Rated current of the shell frame grade | Agree on the heating current Ith | Agree on the heating current Ith |
|---|---|---|
| Inm<250 | 3A | 0.30A |
| Inm>400 | 6A | 0.40A |

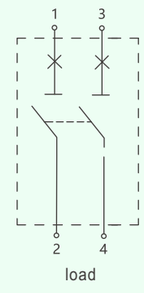
### Auxiliary contacts and their combinations

| | |
|---|---|
| When the circuit breaker is in the "open" position |   |
| |   |
| When the circuit breaker is in the "closed" position |   |
| |   |

## Wiring method of DC circuit breaker

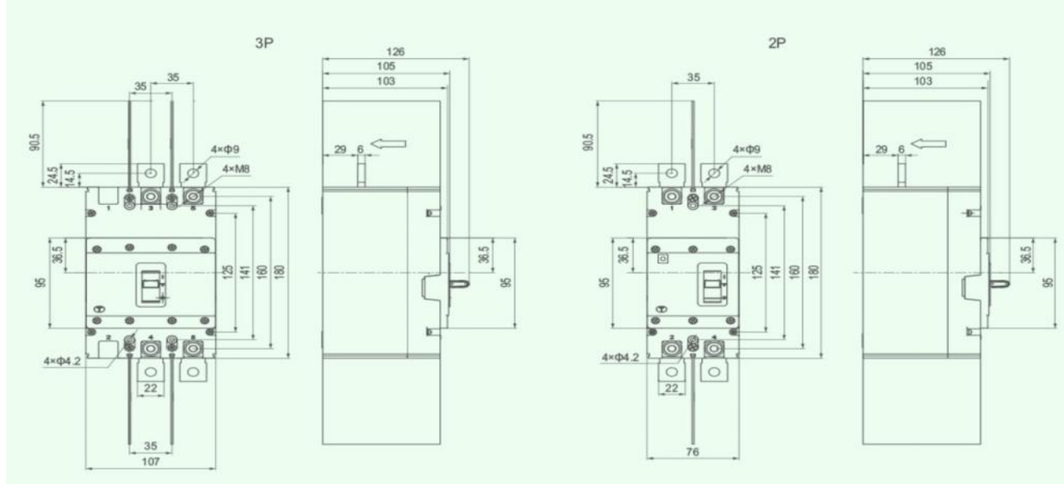



3P shape (3-pole string)

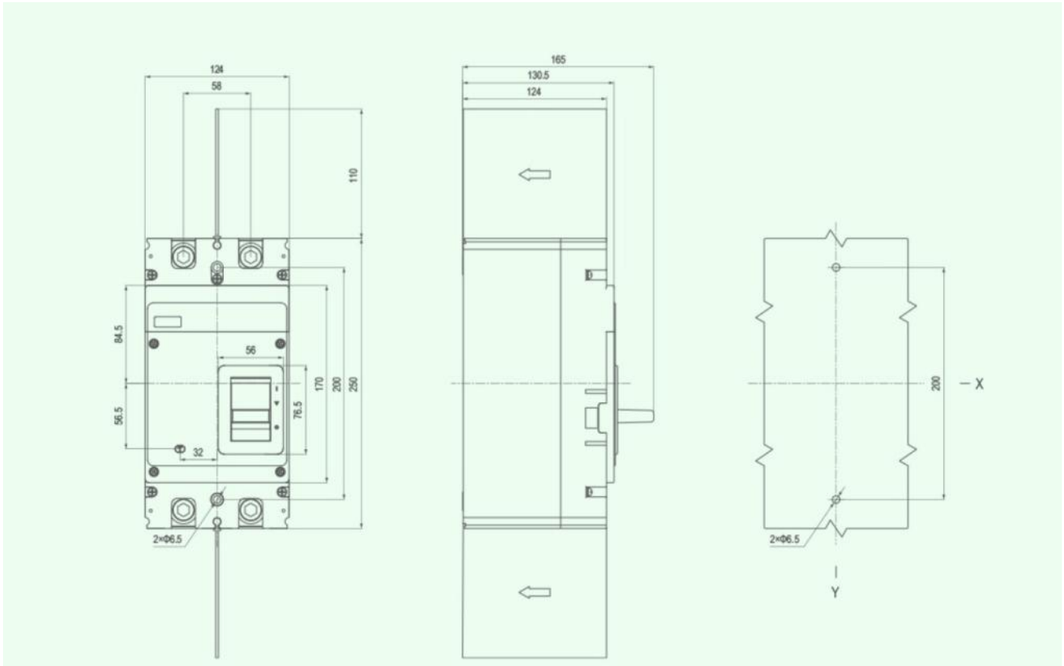



2P shape (2-pole series)

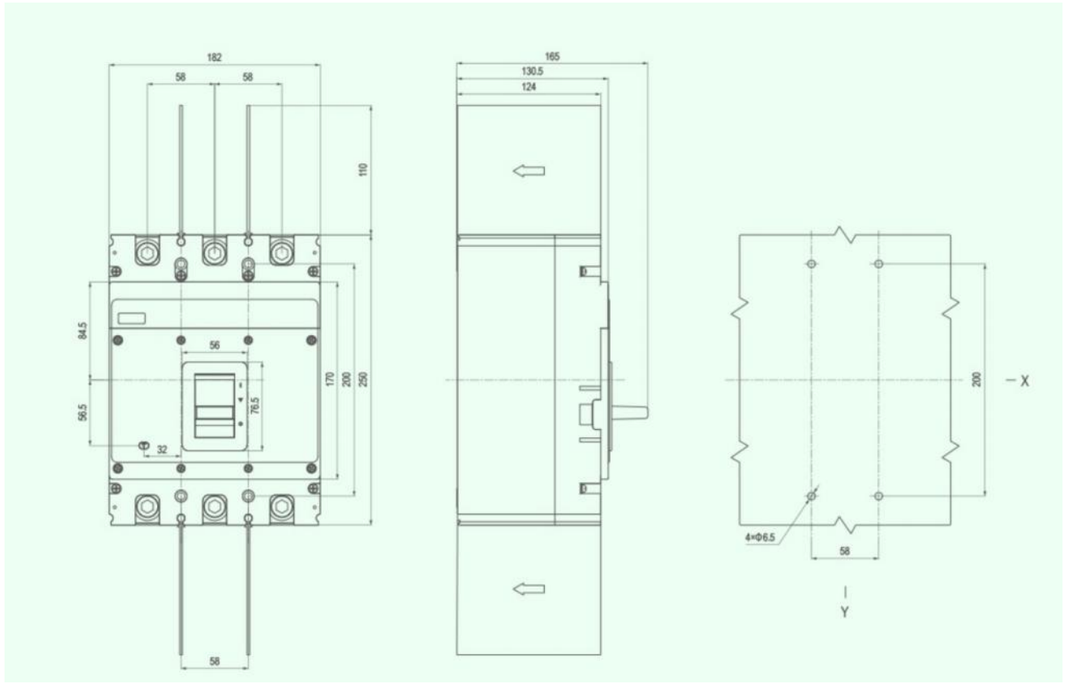
The appearance and installation opening dimensions of SCM3DC-250/320



SCM3DC-400/630/800 Profile and Installation Opening Size (2P)




SCM3DC-400/630/800 Profile and Installation Opening Size (3P)






## APPLICATION

The SC3MHU-800 high-voltage AC molded case circuit breaker is designed for use in AC circuits with a frequency of 50/60Hz and a rated operating voltage up to AC1140V. It is suitable for rated operating currents ranging from 10A to 800A. This circuit breaker is used for making, breaking, and carrying rated currents, and provides reliable protection for circuits and electrical equipment in the event of overload, short circuit, and undervoltage.

## APPEARANCE INTRODUCTION


## TYPE INSTRUCTION

| SCM3HU- | - 800 | - H/R | - 2 | - 300 | - D | - AC1140V |
|---|---|---|---|---|---|---|
| Product code | Max Rated Current | Rated short-circuit breaking capacity grade | Pole | The formula of the trip unit and its code | External attachment | Rated Voltage |
| Moulded Case Circuit Breaker | 125A 250A 400A 630A 800A | H: High score R: Current-limiting type | 2P 3P | Attachment code | D: Electrical operation Z: Manual operation | AC415V AC690V AC800V AC1140V |

# SCM3HU SERIES AC HIGH VOLTAGE MOLDED CASE CIRCUIT BREAKERS

**Appearance**

| Shell frame | | SCM3HU-320 | | | | SCM3HU-400 | | | |
|---|---|---|---|---|---|---|---|---|---|
| Number of poles | | 3 | | | | 3 | | | |
| Rated working voltage Ue(V) | | AC415 | AC500/690 | AC800 | AC1000/1140 | AC415 | AC500/690 | AC800 | AC1000/1140 |
| Rated insulation voltage Ui(V) | | AC1150 | | | | | | | |
| Rated Impact withstand voltage Uimp(kV) | | 8 | | | | 12 | | | |
| Rated current In(A) | | 63、80、100、125、140、160、180、200、225、250、280、315、320 | | | | 250、280、315、320、350、400 | | | |
| Rated ultimate short-circuit breaking energy Icu(kA) | H | 85 | 50 | 36.5 | 10 | 85 | 50 | 36.5 | 10 |
| | R | / | / | / | / | 100 | 60 | 50 | 15 |
| Rated operating short-circuit breaking capacity Ics(kA) | | Ics=100%cu | | | | | | | |
| use classes | | A | | | | | | | |
| Whether it has an isolation function | | yes | | | | | | | |
| ambient temperature | | -35°C~+70°C | | | | | | | |
| Mechanical life (times) | | 20000 | | | | 1000 | | | |
| Electrical life (times) | | 3000 | 3000 | 3000 | 2000 | 1000 | 1000 | 1000 | 700 |
| meet a criterion | | IECJEN 60947-2,GB/T 14048.2 | | | | | | | |
| attachment | | Separate excitation, assistance, alarm, manual operation, electrical operation | | | | | | | |
| authentication | | CCC,CE,TUV | | | | | | | |
| Dimensions (Length x Width x Height) | | 180X107X126（3P） | | | | 250X182X165（3P） | | | |

Note :320 shell frame does not distinguish H: high breaking rate, R flow pattern.



# SCM3HU SERIES AC HIGH VOLTAGE MOLDED CASE CIRCUIT BREAKERS

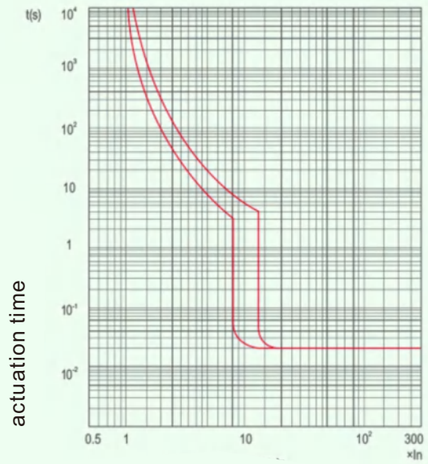
**Appearance**

| Shell frame | | SCM3HU-630 | | | | SCM3HU-800 | | | |
|---|---|---|---|---|---|---|---|---|---|
| Number of poles | | 3 | | | | 3 | | | |
| Rated working voltage Ue(V) | | AC415 | AC500/690 | AC800 | AC1000/1140 | AC415 | AC500/690 | AC800 | AC1000/1140 |
| Rated insulation voltage Ui(V) | | AC1150 | | | | | | | |
| Rated Impact withstand voltage Uimp(kV) | | 8 | | | | 12 | | | |
| Rated current In(A) | | 500、630 | | | | 700、800 | | | |
| Rated ultimate short-circuit breaking energy Icu(kA) | H | 85 | 50 | 36.5 | 10 | 85 | 50 | 36.5 | 10 |
| | R | 100 | 60 | 50 | 15 | 100 | 60 | 50 | 15 |
| Rated operating short-circuit breaking capacity Ics(kA) | | Ics=100%cu | | | | | | | |
| use classes | | A | | | | | | | |
| Whether it has an isolation function | | yes | | | | | | | |
| ambient temperature | | -35°C~+70°C | | | | | | | |
| Mechanical life (times) | | 5000 | | | | 1000 | | | |
| Electrical life (times) | | 1000 | 1000 | 1000 | 700 | 1000 | 1000 | 1000 | 700 |
| meet a criterion | | IECJEN 60947-2,GB/T 14048.2 | | | | | | | |
| attachment | | Separate excitation, assistance, alarm, manual operation, electrical operation | | | | | | | |
| authentication | | CCC,CE,TUV | | | | | | | |
| Dimensions (Length x Width x Height) | | 250X182X165（3P） | | | | 250X182X165（3P） | | | |

Note :320 shell frame does not distinguish H: high breaking rate, R flow pattern.

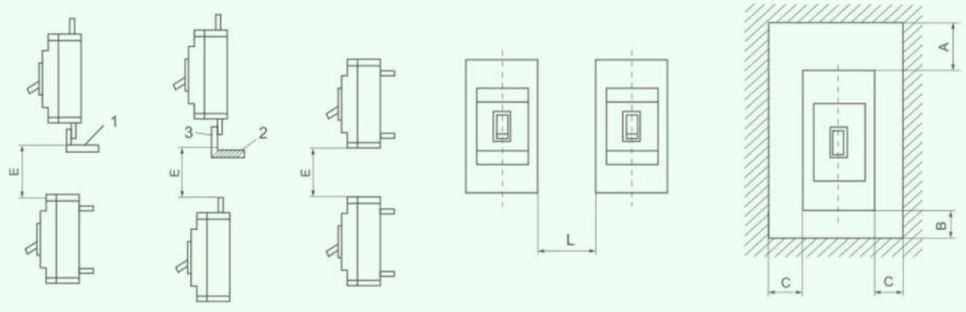
# SCM3HU SERIES AC HIGH VOLTAGE MOLDED CASE CIRCUIT BREAKERS

SCM3HU action characteristic curve




X 100% rated current

# THE SAFE DISTANCE WHEN INSTALLING CIRCUIT BREAKERS




| Type number | L | A | | B | C | E | |
|---|---|---|---|---|---|---|---|
| | | No zero flight arc cover | With zero flight arc cover | | | No zero flight arc cover | With zero flight arc cover |
| SCM3HU-320 | 40 | 50 | 65 | 25 | 25 | 50 | 130 |
| SCM3HU-400 | 70 | 100 | 65 | 25 | 25 | 100 | 130 |
| SCM3HU-630 | | 100 | 65 | 25 | 25 | 100 | 130 |
| SCM3HU-800 | | 100 | 65 | 25 | 25 | 100 | 130 |

In the figure :1. No insulated link; 2 Insulated wires; 3 Cable terminal blocks



# SCM3HU SERIES AC HIGH VOLTAGE MOULDED CASE CIRCUIT BREAKERS

## The type of the release device and the code of its accessories

300 indicates: delay protection + instantaneous protection


| Code | Attachment Name | SCM3HU-250/320 | SCM3HU-400/630/800 | SCM3DC-250/320 | SCM3DC-400/630/800 |
|---|---|---|---|---|---|
| 300 | No internal attachments | —— | —— | —— | —— |
| 308 | Alarm contact | | | | |
| 310 | Shunt trip device | | | | |
| 320 | Auxiliary contact (1NO1NC) | | | | |
| 302 | Auxiliary contact (2NO2NC) | —— | | —— | |
| 330 | Undervoltage release device | —— | —— | —— | —— |
| 340 | Shunt trip device + auxiliary contact (1NO1NC) | | | | |
| 312 | Shunt trip device + auxiliary contact (2NO2NC) | —— | —— | —— | —— |
| 350 | Shunt trip device + undervoltage release device | —— | —— | —— | —— |
| 360 | Two sets of auxiliary contacts (2NO2NC) | | —— | | —— |
| 322 | Two sets of auxiliary contacts (3NO3NC) | —— | —— | —— | —— |
| 323 | Two sets of auxiliary contacts (4NO4NC) | —— | —— | —— | —— |
| 370 | Undervoltage release device + auxiliary contact (1NO1NC) | —— | —— | —— | —— |
| 332 | Undervoltage release device + auxiliary contact (2NO2NC) | —— | —— | —— | —— |
| 318 | Shunt trip device + alarm contact | —— | | —— | |
| 328 | Auxiliary contact (1NO1NC) + alarm contact | | | | |
| 338 | Undervoltage release device + alarm contact | —— | —— | —— | —— |
| 348 | Shunt trip device auxiliary contact (1NO1NC) + alarm contact | —— | | —— | |
| | Shunt trip device auxiliary contact (2NO2NC) + alarm contact | —— | —— | —— | —— |
| 368 | Two sets of auxiliary contacts (2NO2NC) + alarm contact | | | | |
| | Two sets of auxiliary contacts (4NO4NC) + alarm contact | —— | —— | —— | —— |
| 305 | Two sets of auxiliary contacts (3NO3NC) + alarm contact | —— | —— | —— | —— |
| 378 | Two sets of auxiliary contacts (1NO1NC) + undervoltage release device + alarm contact | —— | —— | —— | —— |
| | Two sets of auxiliary contacts (2NO2NC) + undervoltage release device + alarm contact | —— | —— | —— | —— |

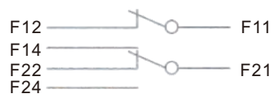
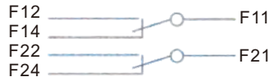
# SCM3HU SERIES AC HIGH VOLTAGE MOULDED CASE CIRCUIT BREAKER

## Auxiliary contact

**Current parameters of the auxiliary contact**

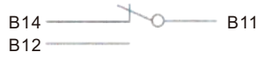
| Rated current of frame level | Conventional heating current Ith | Rated operating current at AC 400V |
|---|---|---|
| Inm＜250 | 3A | 0. 30A |
| Inm＞400 | 6A | 0. 40A |

**Auxiliary contacts and their combinations**

| | |
|---|---|
| When the circuit breaker is in the "open" position |  |
| |  |
| When the circuit breaker is in the "closed" position |  |
| |  |

## Alarm contact

**Alarm contact and its combination**

| Alarm contact Ue=220V, Ith=3A | |
|---|---|
| When the circuit breaker is in the "open" or "closed" position |  |
| When the circuit breaker is in the "free trip" position |  |



# SCM3HU SERIES AC HIGH VOLTAGE MOULDED CASE CIRCUIT BREAKER

## Shunt Trip

It is generally installed on phase A of the circuit breaker. When the rated control power supply voltage is between 70% and 110%, the shunt trip should make the circuit breaker trip reliably under all operating conditions.

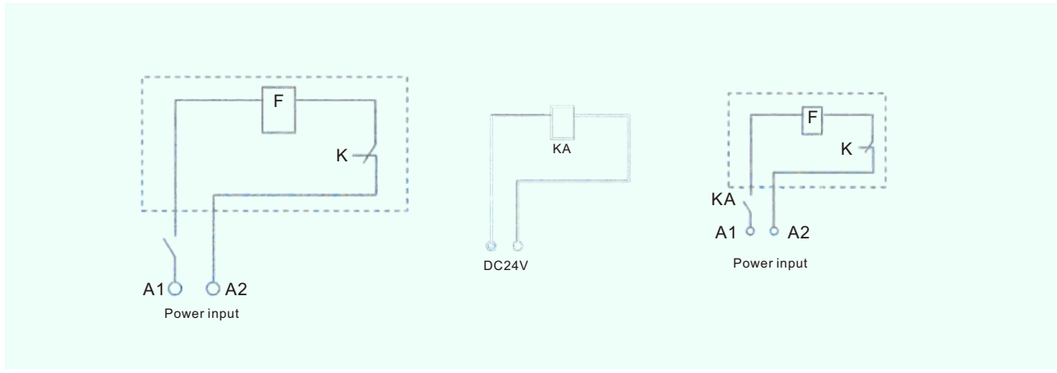
Control Voltage: Conventional: AC 50Hz, 110V, 230V, 400V; DC 24V, 110V, 220V.

Note: When the control circuit power supply is DC 24V, it is recommended to design the shunt trip control circuit according to the diagram below.

KA: It is a DC 24V intermediate relay, and the contact current capacity is 1A.

K: It is a micro switch in series with the coil inside the shunt trip, which is a normally closed contact. When the circuit breaker trips, this contact will open automatically and close when the circuit breaker closes.

**Wiring Diagram of Shunt Trip**

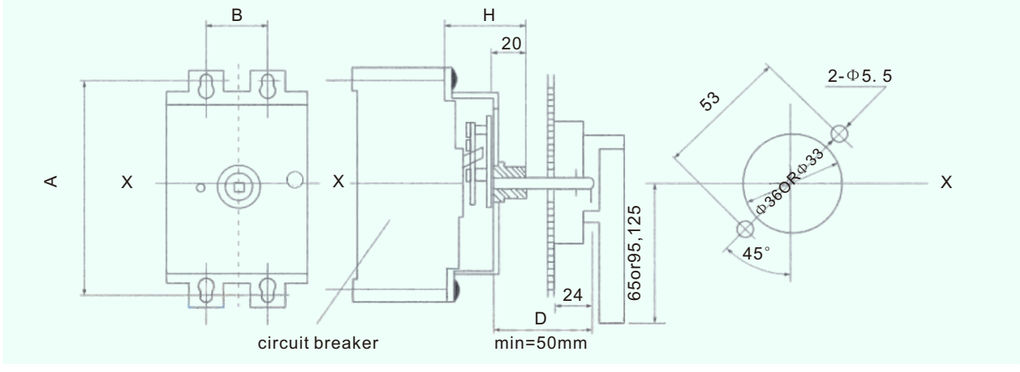



## Installation method and overall dimensions of external accessories

Model and specification of the rotating operating handle mechanism

| type number | installation dimension | | | | The position of the operating handle relative to the center of the circuit breaker (mm) |
|---|---|---|---|---|---|
| | A | B | H | D | |
| CZ2-320/SCM3 | 157 | 35 | 55 | 50-150 | 0 |
| CZ2-400/SCM3 | 224 | 48 | 78 | 50-150 | ±5 |

Schematic diagram of the mounting hole for the CS1-A type handle

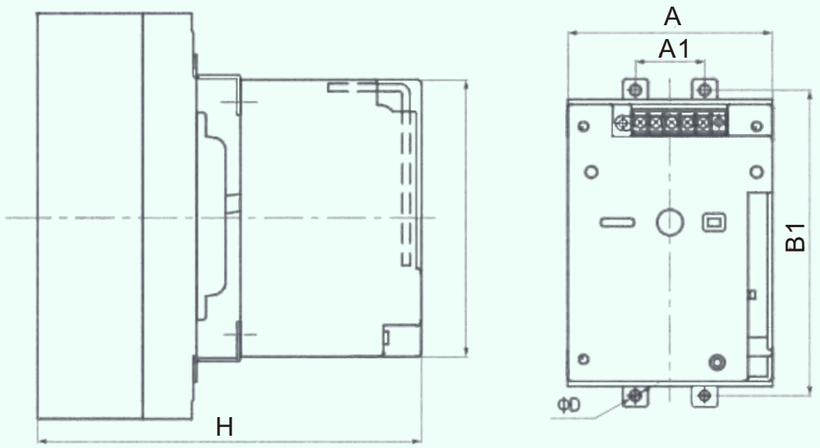


# SCM3HU SERIES AC HIGH VOLTAGE MOULDED CASE CIRCUIT BREAKER

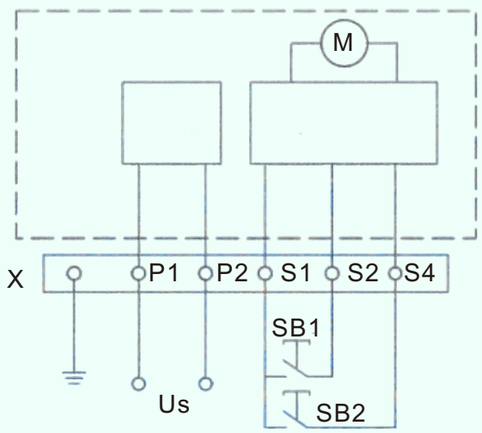
## Model and specification of the electric operating mechanism

| type number | H | B | B1 | A | A1 | D |
|---|---|---|---|---|---|---|
| SRM3-320 | 188.5 | 116 | 126 | 90 | 35 | 4.2 |
| SCM3HU-400/630/800 | 244 | 176 | 194 | 130 | 48 | 6.5 |

**CD2 Outline and Installation Dimensions Schematic Diagram**




**Wiring Diagram of the Electric Operating Mechanism**

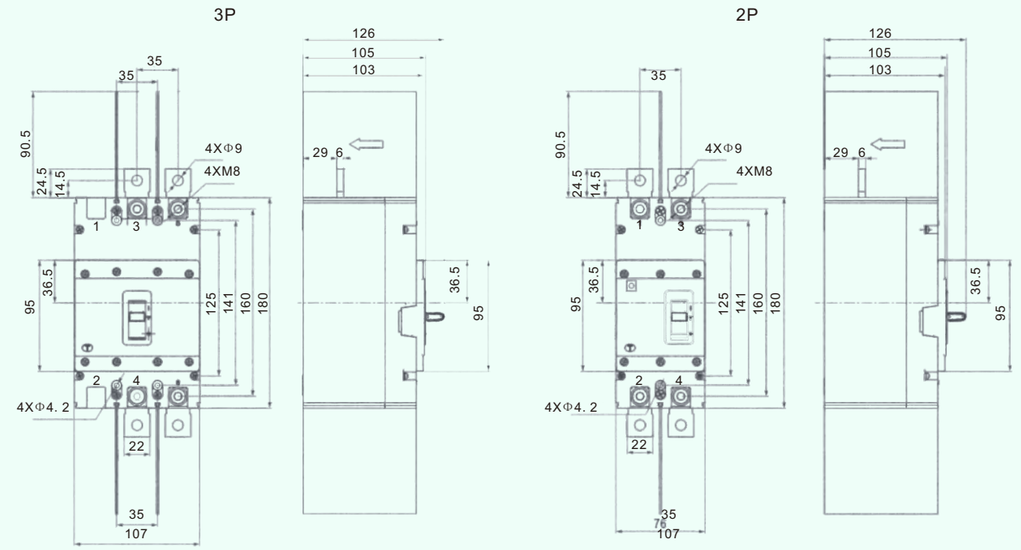



Explanation of Symbols:
SB1 and SB2 are operating buttons (provided by the user).
X is the terminal block.
P1 and P2 are external power supplies.

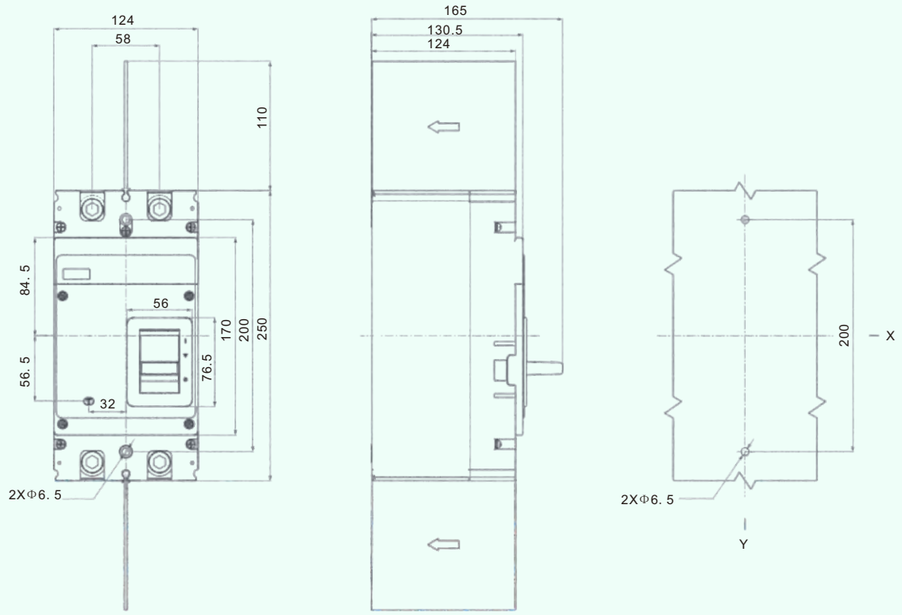


## Outline and Installation Dimensions

**Outline and Mounting Hole Dimensions of SCM3HU-250/320**

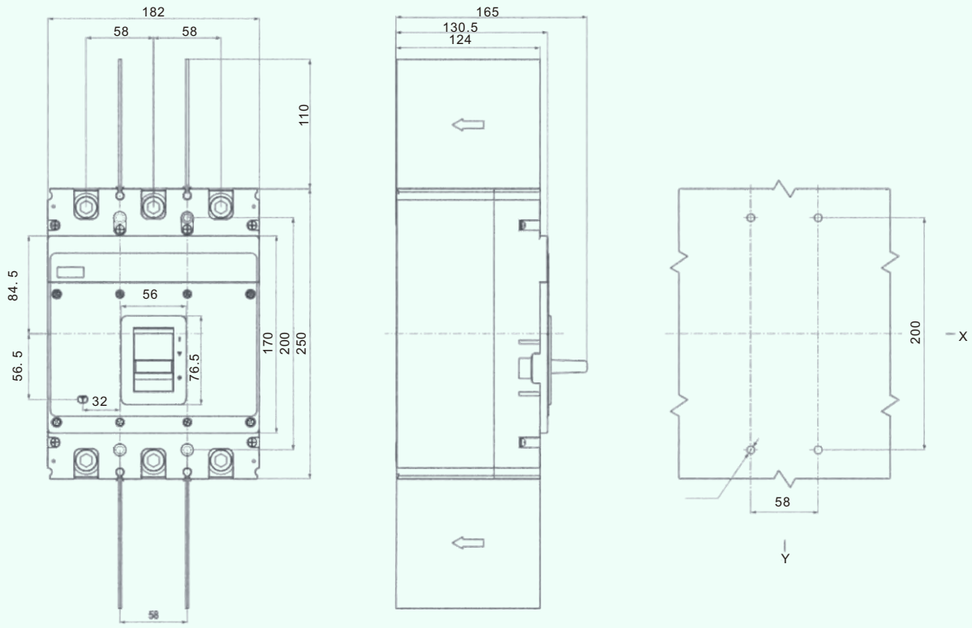



**Outline and Mounting Hole Dimensions of SCM3HU - 400/630 1800 (2P)**

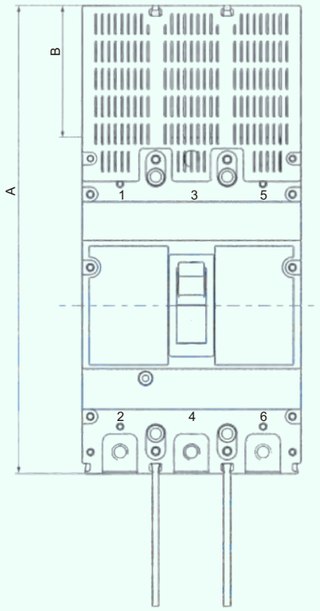


# SCM3HU SERIES AC HIGH VOLTAGE MOULDED CASE CIRCUIT BREAKER

**Outline and Mounting Hole Dimensions of SCM3HU-400/630/800 (3P)**




**Installation Diagram of SCM3 with Arcing Shield**




| circuit breaker | The length of the arcing shield is A | The total length is B |
|---|---|---|
| SCM3HU-320 | 64 | 245 |
| SCM3HU-400/630/800 | 64 | 314 |



# APPLICATION

The SCSP - 20/3P DC1500V photovoltaic DC surge protector device is specifically designed for the DC side of photovoltaic systems. It is suitable for DC circuits with a maximum rated voltage of DC1500V, a nominal discharge current of 20kA, and a maximum discharge current of 40kA.

It is mainly used to protect electrical equipment in photovoltaic systems from damage caused by lightning electromagnetic pulses, switching transients, and resonant over - voltages. It is widely applied in over - voltage protection of DC power supply systems such as photovoltaic power generation systems and energy storage systems.

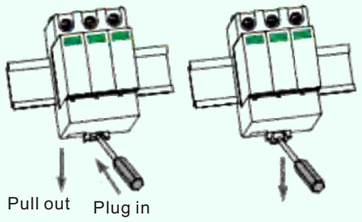
# APPEARANCE INTRODUCTION


# TYPE INSTRUCTION

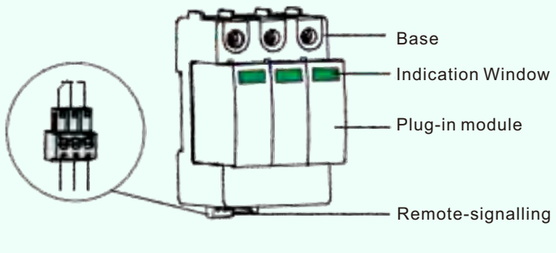
| SCS | - | P | - | 20 | - | R | - | 3P | - | DC1500V |
|---|---|---|---|---|---|---|---|---|---|---|
| Product code | | Photovoltaic DC System | | Nominal discharge current | | Teleindication Contact | | number of poles | | Maximum continuous operating voltage Ucpv of SPD in photovoltaic systems |
| Photovoltaic DC surge protector | | P | | 20KA | | R: To the teleindication contact Default: No teleindication contact | | 2P<br>3P | | DC48V<br>DC500V<br>DC800V<br>DC1000V<br>DC1200V<br>DC1500V |

| Model / Technical Parameters | SCSP20-40/24V | SCSP20-40/220V | SCSP20-40/500V | SCSP20-40/690V | SCSP20-40/1000V | SCSP20-40/1500V |
|---|---|---|---|---|---|---|
| Specifications | 2P36mm | 2P 36mm | 3P54mm | 3P54mm | 3P54mm | 3P54mm |
| Nominal discharge current In(kA 8/20μs) | 20 | 20 | 20 | 20 | 20 | 20 |
| Max.continious working voltage ImaxlkA 8/20μs | 40 | 40 | 40 | 40 | 40 | 40 |
| Protection level | DC220V | DC220V | 18kV | 1.8kV | 1.8kV | 5.0kV |
| Response time (ns) | 24 | 25 | 25 | 25 | 25 | 25 |
| Rated working voltage (VDC) | 24 | 220 | 500 | 690 | 1000 | 1500 |
| continious work voltage (VDC) | 48 | 275 | 750 | 780 | 1100 | 1800 |
| 0.75U 1mA(μA)Leakage current | ≤2 | ≤2 | ≤20 | ≤20 | ≤20 | ≤20 |
| Working temperature(℃) | -40~+85 | | | | | |

**Removal Disassemble**

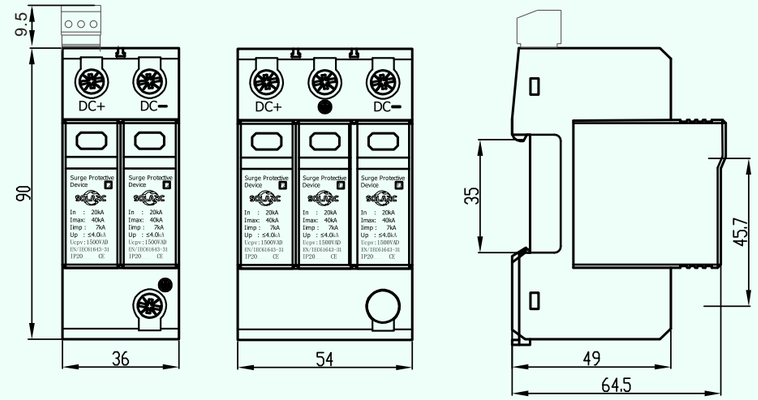



**Remote Signalling Contact instructions**

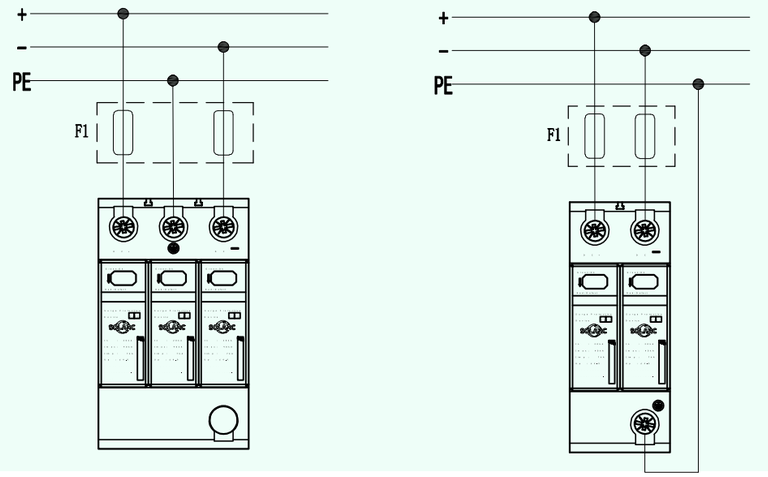



| Normal | | Delerioraled | |
|---|---|---|---|
| Green | | Red | |
| Umax/Imax | 250V/1A | | |
| Umax/Imax | 30V/1A | | |
| Connection | 0.14mm²~1.5mm² | | |
| Temminal size for cable | 7mm | | |
| Productwiring torque | 0.20N·m~0.30N·m | | |






| Level | Minimum cross-sectional area of the upper lead wire (phase wire) | Minimum cross-sectional area of the grounding wire |
|---|---|---|
| I | 10 | 16 |
| II | 6 | 10 |
| III | 2.5 | 4 |




| Level | Minimum cross-sectional area of the upper lead wire (phase wire) | Minimum cross-sectional area of the grounding wire |
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| I | 10 | 16 |
| II | 6 | 10 |
| III | 2.5 | 4 |