SUNGOLDPOWER

SG-C DC MOLDED CASE CIRCUIT BREAKER

PRODUCT INTRODUCTION

The SG-C DC Molded Case Circuit Breaker (MCCB) is suitable for low-voltage DC power generation, transmission and distribution lines with a rated DC voltage of 12~500V and a rated current of 60A~600A. It provides isolation, overload and short-circuit protection, and can also be used for infrequent making and breaking of circuits under normal conditions.
It is widely used in various low-voltage DC high-current scenarios, mainly suitable for battery pack (such as energy storage batteries, power batteries) circuits. It can also be applied in photovoltaic power generation systems (energy storage side), wind power generation systems (DC energy storage circuits), roof building photovoltaic energy storage systems, rail transit vehicles and station DC power distribution, infrastructure energy storage and DC power supply circuits and other fields.

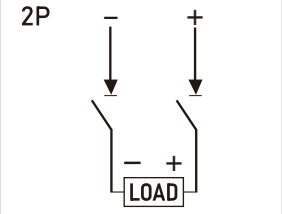
Note: This product adopts an "upper arc extinguishing chamber, lower mechanism" structure, which has strict requirements on installation and wiring: mandatory vertical installation (arc extinguishing chamber on top) and "top-in and bottom-out" wiring are required to ensure safe breaking; this product DC positive and negative poles are interchangeable, and inverted installation is prohibited.

The SG-C DC Circuit Breaker complies with the IEC60947-2 standard. Installation and operation must follow the product manual, with sufficient arc flash safety distance reserved at the top.

Electrical Technical Parameters

Rated Current:
80A, 100A, 125A, 160A, 200A, 250A, 300A, 400A, 500A,600A
Poles: 2P
Rated Voltage Ue: DC12V~500V
Insulation Volage Ui: 1000V
Rated Impulse Withstand Voltage(1.2/50)Uimp: 6kV
Rated Breaking Capacity(Ics): 20kA
Rated Operating Short-circuit Breaking Capacity Icu(kA): 25kA
Thermo-Magnetic Release Characteristic: Curve (4-6In)
Electrical Life: 1000 Cycles
Mechanical Life: 2000 Cycles
Installation: Panel Screw Installation
Ambient Temperature: -10°C ~ +40°C
Terminal Connection Type: Hexagon Screw
Tightening Torque: 5.0N.m
International Standard: IEC/EN60947-2
Arcing Distance: ≤50MM
Use Category: A

Wiring Diagram



Applicable Cables

Rated Current	Recommended Cable Sizes
100A	3 AWG
125A	1 AWG
160A	2/0 AWG
200A	3/0 AWG
250A	250 kcmil
300A	350 kcmil
400A	600 kcmil
500A	900 kcmil
600A	1250 kcmil

Remarks:

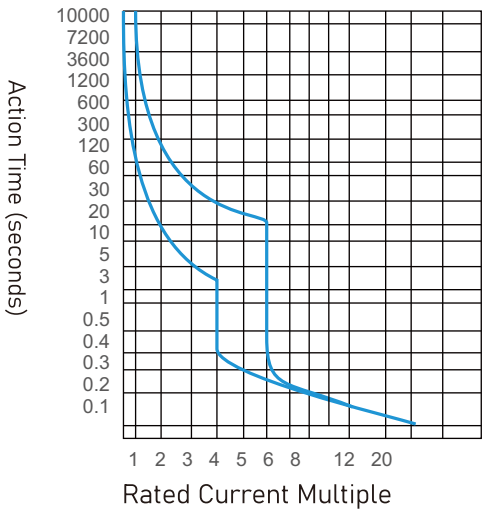
① This bidirectional circuit breaker supports both battery charging and discharging. Its short-circuit breaking capacity varies with wiring direction, while overcurrent withstand performance remains consistent.
② Connect the battery or AC grid power supply to the upper LINE terminals, and the load/inverter to the lower LOAD terminals to achieve full rated Icu breaking performance. Reverse wiring from bottom-in to top-out is forbidden.

NORMAL OPERATING CONDITIONS

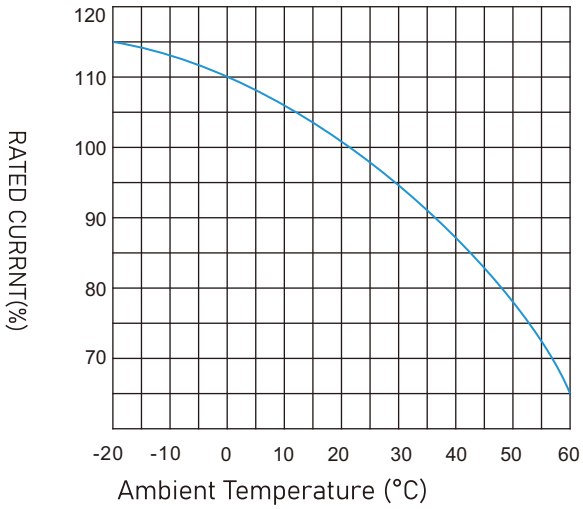
- Ambient air temperature: -10°C~+40°C, and average temperature in 24h is below +35°C.
- Altitude: The altitude of the installation site is not more than 2000m.
- Atmospheric conditions: The air relative humidity in the highest temperature +40°C is not more than 50%; In the low temperature can have higher relative humidity. The maximum average relative humidity is 90%, while the average monthly minimum temperature is +25°C, and consider the temperature changes in product on the surface of the gel.
- Pollution Degree: 3.

TRIPPING CHARACTERISTIC CURVE

Action Characteristic Curve



Temperature Compensation Curve



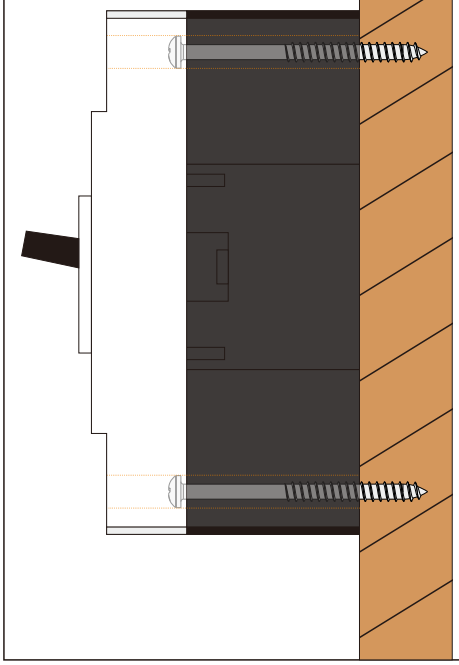
When the ambient temperature is not a benchmark of 20°C , the reference correction factor is as folows .

Ambient Temperature	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C
Current Correction Coefficient	1.15	1.13	1.10	1.05	1.00	0.95	0.85	0.75	0.65

INSTALLATION & WIRING SPECIFICATIONS

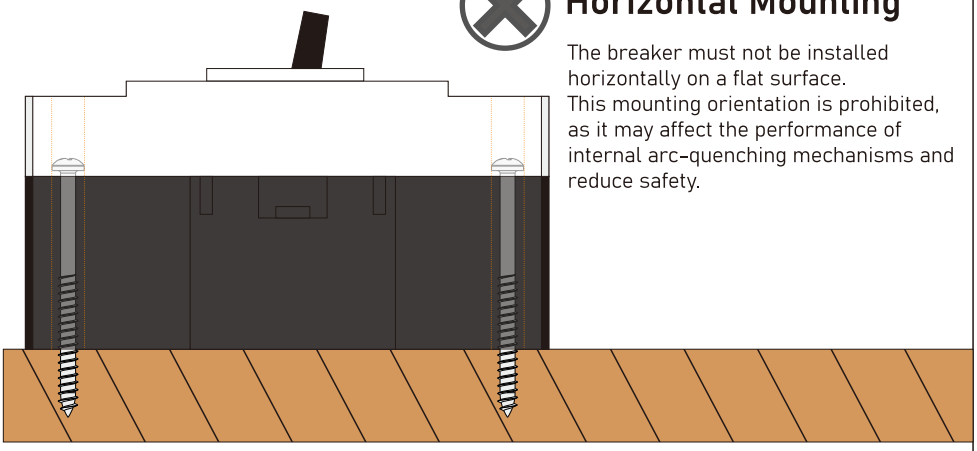
Forward Mounting

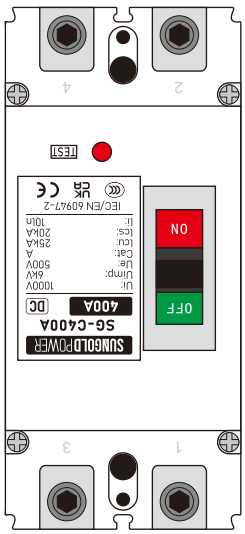
The breaker must be installed with the text/label facing the correct orientation (arc chamber on top). This vertical orientation is the only approved mounting method for reliable and safe operation.



Horizontal Mounting

The breaker must not be installed horizontally on a flat surface.
This mounting orientation is prohibited, as it may affect the performance of internal arc-quenching mechanisms and reduce safety.

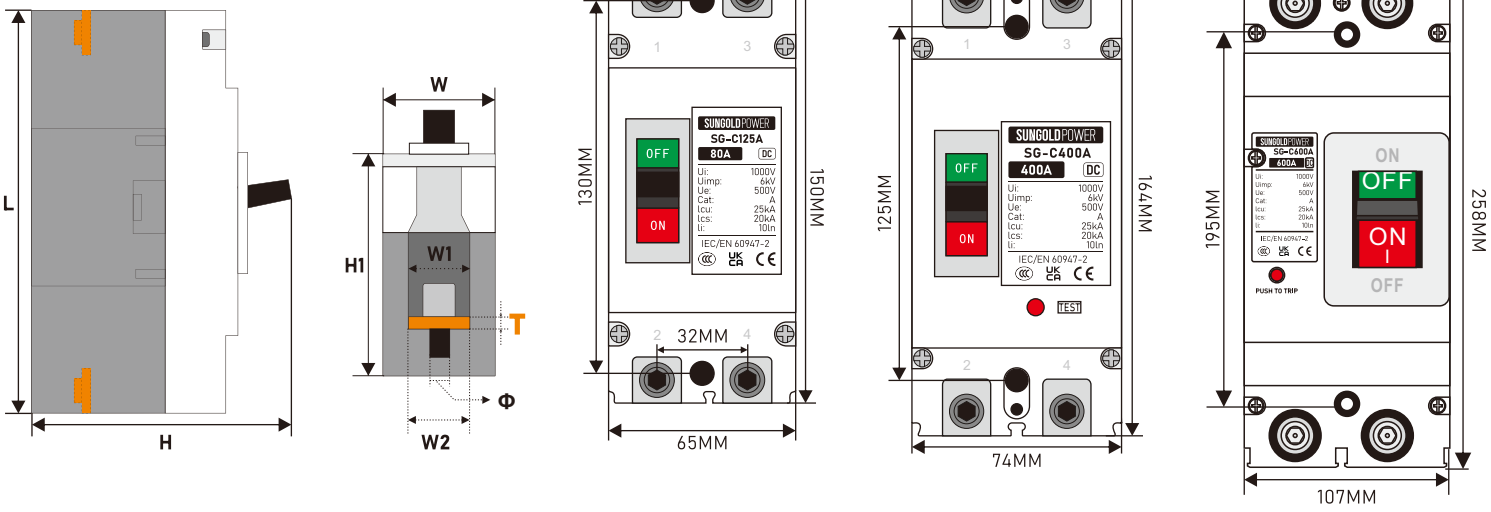




Inverted Mounting

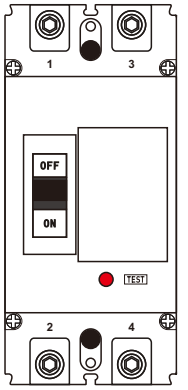
This DC circuit breaker shall only be installed vertically in the designated standard orientation. Reversed vertical mounting is strictly forbidden, as it impairs arc quenching and breaking capacity, creating severe electrical safety risks.

Model	H (MM)	L (MM)	H1 (MM)	W (MM)	W1 (MM)	W2 (MM)	Φ (MM)	T (MM)
2P 80-125A	86	150	67	65	18	15	8	3
2P 160-400A	108	164	85	74	24	22	8	5
2P 500-600A	153	258	105	107	30	24	10	6 / 2.5



NORMAL CONNECTION【Recommend】

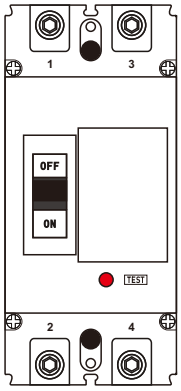
Top: LINE / BATTERY



DISCHARGE
100%Icu
25kA

Bottom: LOAD

Top: LINE / BATTERY

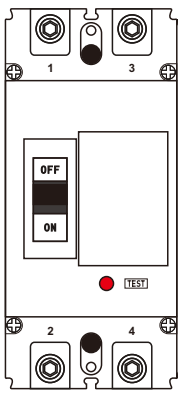


CHARGE
60%Icu
15kA

Bottom: LOAD

REVERSE CONNECTION

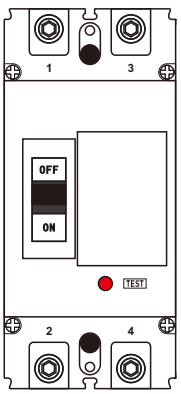
Top: LOAD



CHARGE
60%Icu
15kA

Bottom: LINE / BATTERY

Top: LOAD



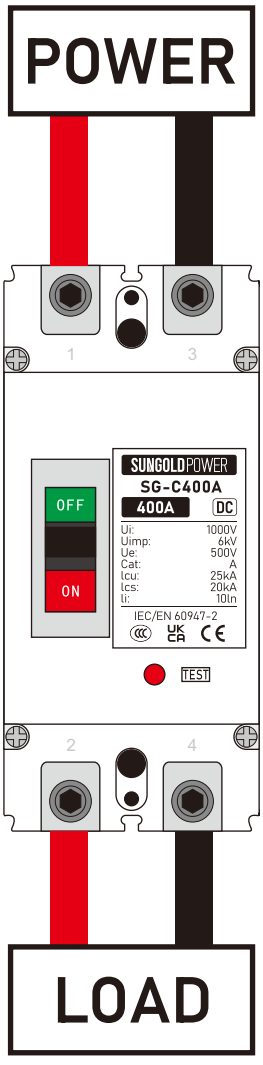
DISCHARGE
100%Icu
25kA

Bottom: LINE / BATTERY

Technical Performance Note

The overcurrent protection characteristics (thermal overload trip, instantaneous short-circuit trip curve) of this DC circuit breaker remain fully consistent under both standard forward wiring and reverse power supply wiring modes, with no deviation to overload / short-circuit tripping action values.
Only the ultimate short-circuit breaking capacity Icu differs between the two wiring configurations, as detailed below:
Calculation Reference for Prospective Short-Circuit Current
The maximum prospective short-circuit current at the installation point shall be calculated per the formula: I= U / R
Wiring Mode & Corresponding Icu Rating Limits
Reverse power supply wiring (reverse connection)
Reverse connection is mechanically and electrically permissible only if the calculated prospective short-circuit current at the installation location ≤ 15 kA. Under this wiring mode, the circuit breaker's ultimate short-circuit breaking capacity is limited to 15 kA.
Standard forward wiring (normal connection, recommended)
For installation sites where the prospective short-circuit current exceeds 15 kA (up to the full rated breaking capacity), the breaker must adopt standard forward wiring. This configuration enables the full rated ultimate short-circuit breakingcapacity of 25 kA (Icu=25kA) to be realized, meeting high short-circuit current working conditions.

Wiring Requirements



Batteries
Capacitors
Energy Storage Systems
Solar Photovoltaic Modules
etc.

Solar & Energy Storage Systems:

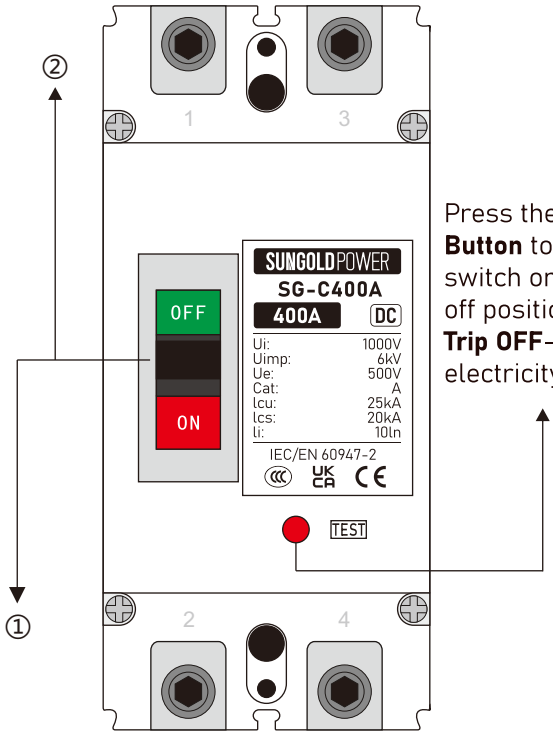
The upper (power) terminal of the DC circuit breaker shall be connected to the battery or other DC power sources.

The lower (load) terminal shall be connected to the inverter or other loads, enabling bidirectional charging and discharging functions.

The product must be wall-mounted. Wiring must be strictly in accordance with the diagram instructions.

Inverters
DC motors
Charging Pile Modules
Lighting Equipment
etc.

Operating Instructions



Press the **RED Button** to trip in the switch on or switch off positions.
Trip OFF-No electricity

① Step: Push the handle **DOWN**--(switch off)
② Step: Push the handle **UP**--(switch on)

Note: Unable to push the handle UP in the **Trip OFF** state. Perform **Step** ① first, then **Step** ②. On power

SAFETY & WARNINGS

- Do not use this product without reading the user manual.
- Cut off the electrical current before assembling the product.
- Do not use the product other than the conditions specified by product protection class.
- Installations of the product must be carried out by specialists.
- Do not use the product if the power cables are damaged.
- Do not use the product in places where electricity leakage may occur.
- Make sure the product is complete and correctly connected.