

Elecnova



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Elecnova

ELECNova ELECTRIC NEW ENERGY PRODUCT FOR EV CHARGER

Product Certification

ABOUT US

Jiangsu Sfer Electric Co., Ltd. is a science and technology innovation enterprises dedicated to providing the energy efficiency management, power monitoring, power quality, electrical safety, intelligent low-voltage appliances (universal circuit breaker, intelligent circuit breaker, dual-power automatic transfer switch, terminal appliances, distribution appliances, control appliances etc.), intelligent equipment and other systematic solutions for smart grid clients. The business of the Company focuses on construction and public facilities, industrial enterprises, transportation infrastructure, information communication, new energy, education and medical care and other industries.

Sfer Electric integrates R&D, manufacturing, sales and services, and has complete ecological system from intelligent terminal components, intelligent equipment to IoT cloud platforms and products. The electrical application solutions of the Company empower users with intelligent and digital energy management, and provide users with reliable data services for energy conservation and consumption reduction, energy security and refined energy management.

As a new high-tech enterprise and software enterprise, Sfer Electric always sticks to the concept of independence and innovation with rich achievements in patents and software copyrights. We have participated in the compilation of national and industrial standards for many times, actively undertaken the key scientific research plans of Jiangsu Province, and successively set up Jiangsu Provincial Engineering Technology Center and Postdoctoral Workstation. We are one of the first batch of national intellectual property demonstration enterprises.





JIANGSU SFERE ELECTRIC CO., LTD. |

New Energy - EV Charger

Sfere EV charger monitoring solution provides intelligent metering terminals, safety protection modules, intelligent switches and intelligent gateways, and covers typical application scenarios of various AC and DC EV chargers in domestic and overseas markets. It has technical characteristics such as comprehensive qualification, high accuracy, small size, multiple communication protocols, and wide temperature range. The products are sold to more than 50 countries and regions, trusted by many EV charger enterprises, and have a good market reputation.

1. Intelligent metering terminal



Typical Application Scheme of DC EV Charger



High-accuracy electrical variables measurement
Energy metering



Communication protocol:
Modbus-RTU
DL/T645



Protection grade:
IP54



Operating temperature range:
-40°C~+70°C



CE Certification
RoHS Certification
IEC62053-41:2021



Executive standards
JG1149

◦ Single charging plug PD195Z-CD31F



◦ Double charging plug PD195Z-CD32F



Product Introduction

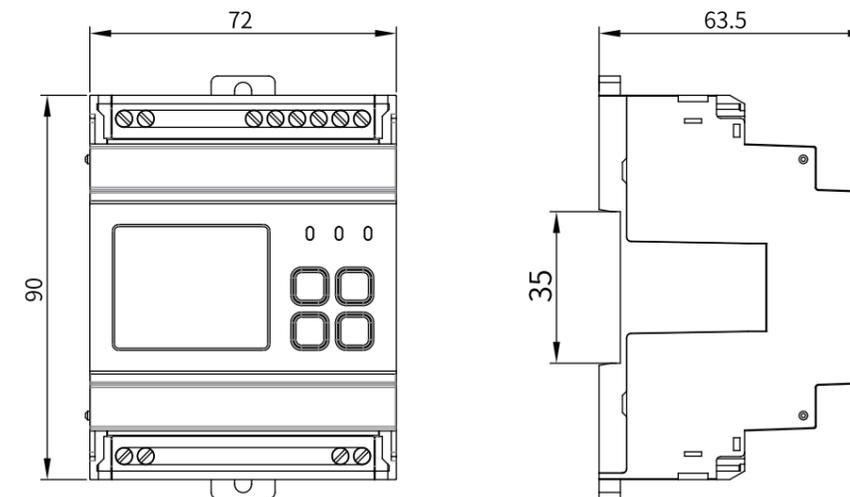
PD195Z-CD31F DC energy meter is applicable to DC EV charger. It can measure the voltage, current and power of one DC circuit, provide accurate metering function, and have RS485 communication interface to realize remote data transmission.



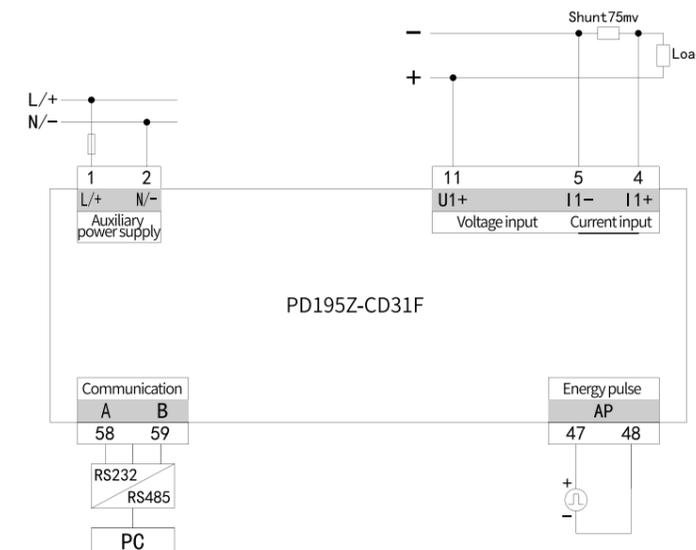
Technical Parameter

Electrical Characteristics		
Accuracy	Voltage, current: Class 0.5, Power: Class 1 Energy: Class B	
Voltage input	Rated voltage U_n	DC 1000V CATII
	Over voltage	Continuous: 1.2 U_n
	Power consumption	≤ 0.2 W
Current input	Rated value I_n	75mV (input via shunt)
	Minimum current	0.05 I_n
	Maximum current	1.2 I_n
	Start-up current	0.004 I_n
	Power consumption	≤ 0.1 W
Working power supply		
Rated range	AC/DC: 80~270V or DC: 9~36V	
Power consumption	≤ 5 VA or ≤ 2 W	
Communication Characteristics		
RS485 communication port	Modbus-RTU protocol or DL/T645 protocol optional, baud rate up to 38400bps	
Multi-functional output interface		
Energy pulse	Pulse width 80ms \pm 20ms	
Real-time clock		
Error	≤ 0.5 s/24h	
Mechanical Characteristics		
Dimension (mm)	72 \times 90 \times 63.5	
IP protection	Front case: IP54, rear case IP20	
Environmental Characteristics		
Working temperature	(-40 ~ 70) $^{\circ}$ C	
Storage temperature	(-40 ~ 70) $^{\circ}$ C	
Relative humidity	(5 ~ 95)% (no condensation)	
Altitude	≤ 2000 m	
Comply to standards		
GB/T 33708-2017		
IEC61326-1		
IEC61010-1		

Dimension (mm)



Wiring



Meter function terminals shall be numbered uniformly, as shown in the following table

Power Supply	1,2	AC/DC
Current signal	4,5	Current input (75mV shunt)
Voltage signal	4,11	Voltage input
Energy pulse output	47,48	Active energy pulse output
RS485 communication	58,59	A and B respectively

Note: 1. 1 and 2 are meter auxiliary power supplies. Please ensure that the power supplies are suitable for this series of products to prevent damage to the products.

2. Please connect the detailed wiring terminals according to the wiring diagram on the specific product case.

3. Do not connect the current terminal in suspension to avoid displaying wrong values.

Product model

PD195Z-CD32F DC energy meter is applicable to DC EV charger. It support to measure the voltage, current and power of two DC circuits, provide accurate metering function, and have RS485 communication interface to realize remote data transmission.



Product model	Measurement (2 channels)				Communication	Energy pulse
	Voltage U	Current I	Power P	Energy E		
PD195Z-CD32F	DC 1000V	DC 75mV	■	■	1 channel	2 channels

Product model

Electrical Characteristics

Accuracy	Voltage, current: Class 0.5, Power: Class 1 Energy: Class B	
Voltage input	Rated voltage U_n	DC 1000V CATII
	Over voltage	Continuous: $1.2U_n$
	Power consumption	≤ 0.2 W
Current input	Rated value I_n	75mV (input via shunt)
	Minimum current	0.05 I_n
	Maximum current	1.2 I_n
	Start-up current	0.004 I_n
	Power consumption	≤ 0.1 W

Working power supply

Rated range	AC/DC: 80~270V or DC: 9~36V
Power consumption	≤ 5 VA or ≤ 2 W

Communication Characteristics

RS485 communication port	Modbus-RTU protocol or DL/T645 protocol optional, baud rate up to 38400bps
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Multi-functional output interface

Energy pulse	Pulse width 80ms \pm 20ms
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Real-time clock

Error	≤ 0.5 s/24h
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Mechanical Characteristics

Dimension (mm)	72 \times 90 \times 63.5
IP protection	Front case: IP54, rear case IP20

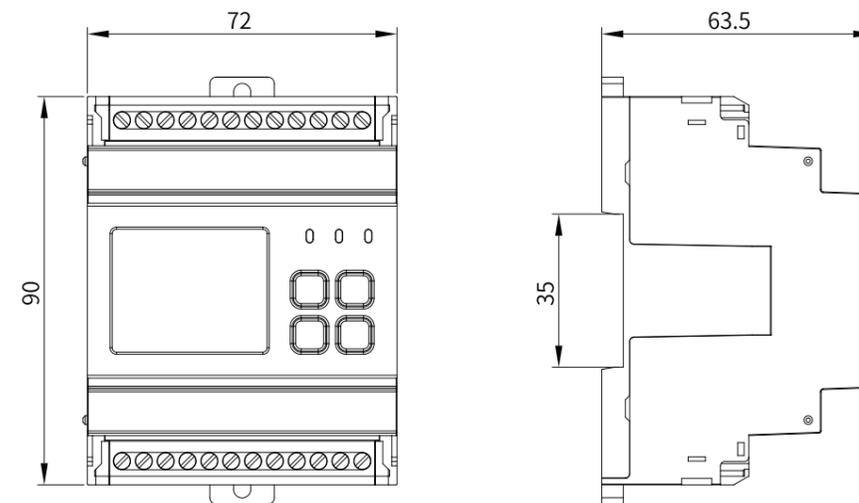
Environmental Characteristics

Working temperature	(-40~70) $^{\circ}$ C
Storage temperature	(-40~70) $^{\circ}$ C
Relative humidity	(5~95)%(no condensation)
Altitude	≤ 2000 m

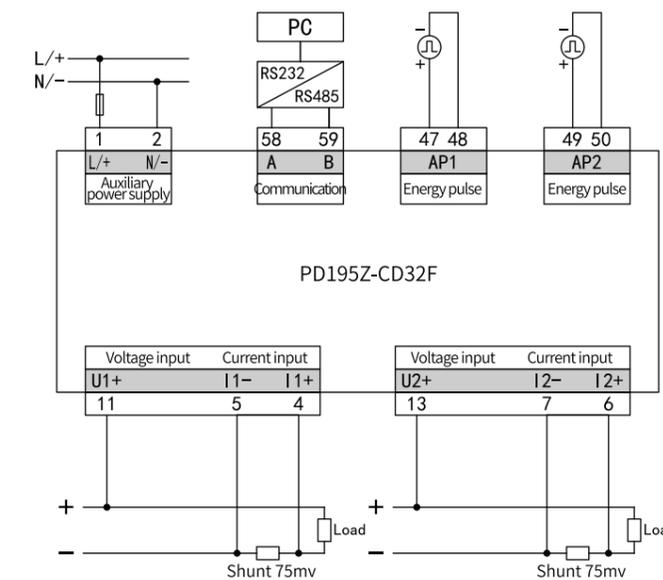
Comply to standards

GB/T 33708-2017
IEC61326-1
IEC61010-1

Dimension (mm)



Wiring



Meter function terminals shall be numbered uniformly, as shown in the following table:

Power Supply	1,2	Auxiliary working power supply
Current signal	4,5,6,7	75mV input
Voltage signal	11,13	DC voltage input
Energy pulse output	47,48,49,50	47,49 is the positive end of the passive output, which is connected to the positive end of the external power supply
RS485	58,59	A and B respectively

- Note: 1. 1 and 2 are meter auxiliary power supplies. Please ensure that the power supplies are suitable for this series of products to prevent damage to the products.
2. Please connect the detailed wiring terminals according to the wiring diagram on the specific product case.
3. Do not connect the current terminal in suspension to avoid displaying wrong values.

Typical application scheme of AC and DC EV charger



JIANGSU SFERE ELECTRIC CO.,LTD.



High-accuracy electrical variables measurement
Energy metering



Communication protocol:
Modbus-RTU
DL/T645



Protection grade:
IP54



Operating temperature range:
-40°C~+70°C



CE Certification
MID Certification
PA Certification
RoHS Certification



Executive standards:
JJG1148
GB/T28569

Single-phase DDS1946-2M



Three-phase DTS1946-4M-01



Product Introduction

DDS (F) 1946 AC single-phase energy meter is applicable to AC EV charger. It can measure single-phase AC voltage, current and power, provide accurate metering function, and have RS485 communication interface to realize remote data transmission.



Model selection

Function		Model	Single phase energy meter	
			DDS1946-2M	DDSF1946-2M
Wiring mode	Single-phase		✓	✓
Voltage range	230V		✓	✓
Current specification	Direct input	0.25 ~5(63)A		
Real-time measurement	Voltage and current		✓	✓
	Active/reactive/apparent power		✓	✓
	Power factor		✓	✓
	Frequency		✓	✓
Energy metering	Bidirectional active/reactive energy		✓	✓
	Four-quadrant reactive energy		✓	✓
	Tariff energy		-	✓
Demand			✓	✓
Max/Min			✓	✓
Event record			✓	✓
RS485 communication interface			✓	✓
Energy pulse			✓	✓
Display mode			LCD	LCD

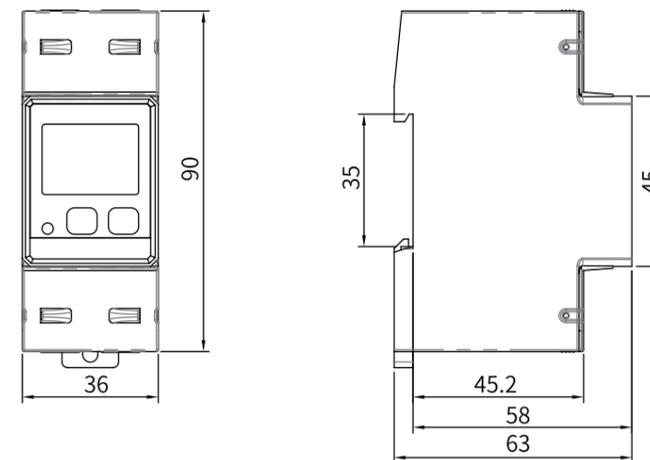
Technical parameter

Electrical characteristics		
Model	DDS1946-2M/DDSF1946-2M	
Accuracy class	Class B	
Rated voltage	230V	
Itr	Direct input	0.5A
Iref	Direct input	5A
Ist	Direct input	0.02A
Imin	Direct input	0.25A
Imax	Direct input	63A
Frequency	50/60 Hz	
Wiring mode	Single-phase	
Operating voltage range	0.8Un ~ 1.2Un	
Power consumption	Power consumption of voltage circuit	< 4VA
	Power consumption of current circuit	< 1VA
Energy pulse	1 channel active energy pulse, pulse width	
Clock error	≤ 0.5s/day	

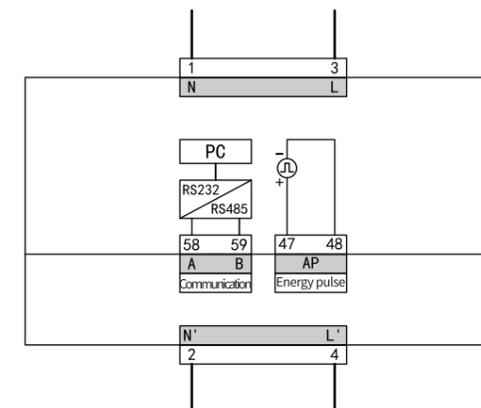
Technical parameter

Communication characteristics	
RS485 communication interface	Modbus RTU or DL/T645-2007 communication protocol, baud rate up to 9600bps
Mechanical properties	
Dimensions(mm)	36 × 90 × 63.5
IP protection	Front case IP54, rear case IP20
Working environment conditions	
Working temperature	-25° C ~ +70° C
Storage temperature	-40° C ~ +80° C
Relative humidity	(5~95)%, Non condensing
Operating altitude	Altitude ≤ 2000m
Pollution degree	No corrosive gas
No corrosive gas	Front case IP54, rear case IP20
Insulation	Resistance of signal, power supply and output terminals to case ≥ 100MΩ
EMC	
Electrostatic discharge immunity	IEC 61000-4-2- III level
Radio frequency electromagnetic field radiation immunity	IEC 61000-4-3- III level
Electrical fast transient immunity	IEC 61000-4-4- IV level
Impact (surge) immunity	IEC 61000-4-5- IV level
Immunity to conducted interference induced by RF field	IEC 61000-4-6- III level
Power frequency magnetic field immunity	IEC 61000-4-8- III level
Immunity to voltage sags and short interruptions	IEC 61000-4-11- III level

Dimensions(mm)



Wiring



Product introduction

DTS (F) 1946 AC three-phase energy meter is applicable to AC EV charger. It can measure three-phase AC voltage, current and power, provide accurate metering function, and have RS485 communication interface to realize remote data transmission.



Model selection

Function		Model	Three phase energy meter	
			DTS1946-4M-01	DTSF1946-4M-01
Wiring mode	Three phase four wire	✓	✓	
Voltage range	3 × 230/400V	✓	✓	
Current specification	Direct input	0.25-5(63)A		
Real-time measurement	Voltage and current	✓	✓	
	Active/reactive/apparent power	✓	✓	
	Power factor	✓	✓	
	Frequency	✓	✓	
	THD rate	✓	✓	
Energy metering	Bidirectional active/reactive energy	✓	✓	
	Four-quadrant reactive energy	✓	✓	
	Tariff energy	-	✓	
Demand		✓	✓	
Max/Min		✓	✓	
Event record		✓	✓	
RS485 communication interface		✓	✓	
Energy pulse		✓	✓	
Display mode		LCD	LCD	

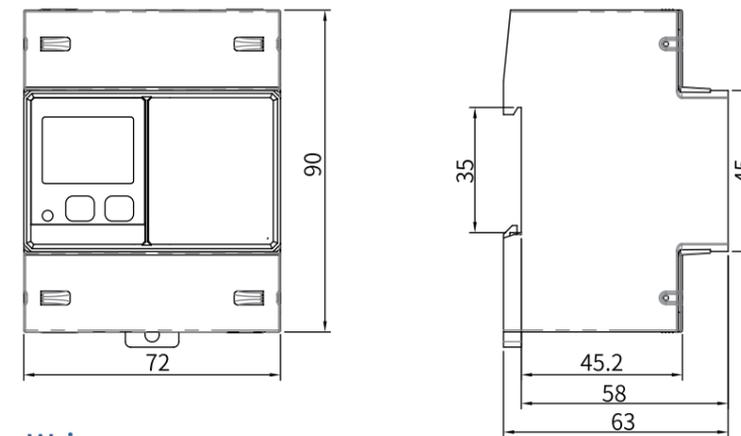
Technical parameter

Electrical characteristics		
型号	DTS1946-4M-01/DTSF1946-4M-01	
Accuracy class	Class B	
Rated voltage	3 × 230/400V	
Itr	Direct input	0.5A
Iref	Direct input	5A
Ist	Direct input	0.02A
Imin	Direct input	0.25A
Imax	Direct input	63A
Frequency	50/60 Hz	
Wiring mode	Three phase four wire	
Operating voltage range	0.8Un ~ 1.2Un	
Power consumption	Power consumption of voltage circuit	< 4VA
	Power consumption of current circuit	< 1VA
Energy pulse	1 channel active energy pulse, pulse width	
Clock error	≤ 0.5s/day	

Technical parameter

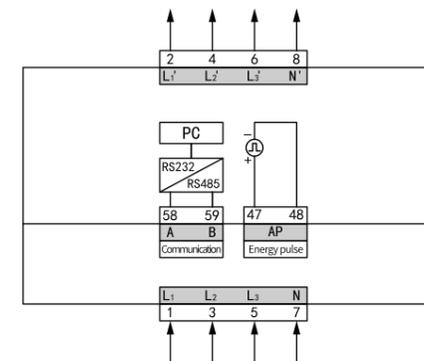
Communication characteristics	
RS485 communication interface	Modbus RTU or DL/T645-2007 communication protocol, baud rate up to 9600bps
Mechanical properties	
Dimensions(mm)	72 × 90 × 63.5
IP protection	Front case IP54, rear case IP20
Working environment conditions	
Working temperature	-40° C ~ +70° C
Storage temperature	-40° C ~ +80° C
Relative humidity	(5~95)%, Non condensing
Operating altitude	Altitude ≤ 2000m
Pollution degree	No corrosive gas
Degree of protection	Front case IP54, rear case IP20
Insulation	Resistance of signal, power supply and output terminals to case ≥ 100MΩ
EMC	
Electrostatic discharge immunity	IEC 61000-4-2- III level
Radio frequency electromagnetic field radiation immunity	IEC 61000-4-3- III level
Electrical fast transient immunity	IEC 61000-4-4- IV level
Impact (surge) immunity	IEC 61000-4-5- IV level
Immunity to conducted interference induced by RF field	IEC 61000-4-6- III level
Power frequency magnetic field immunity	IEC 61000-4-8- III level
Immunity to voltage sags and short interruptions	IEC 61000-4-11- III level

Dimensions (mm)



Wiring

DTS1946-4M-01 (Three phase, down in and up out)



2. Surge Protector

Product Overview

SDX series surge protectors are suitable for AC power distribution systems of charging stations and charging piles. They are used for the protection against lightning strikes or other transient overvoltage surges.



Feature

- ☑ Large protection flow capacity, fast response
- ☑ Stable and reliable

Technical Parameter

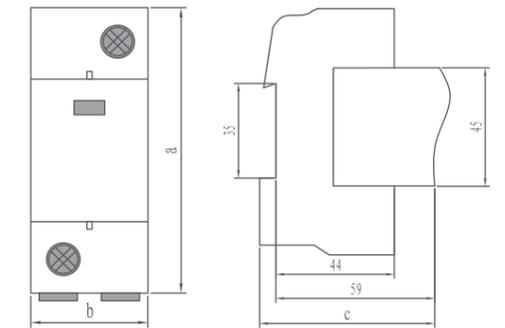
Item	Parameter		
Model	SDX DG42	SDX DG53	SDX DG54
Maximum continuous working voltage (Uc)	350V (50HZ)	420V (50HZ)	
Voltage protection level	1.5kA	2.4kA	2.4kA
Maximum inrush current Iimp (10/350 μs)	25kA	15kA	-
Maximum discharge current Imax (8/20 μs)	-	160kA	120kA
Rated discharge current In(8/20 μs)	-	80kA	60kA
Response time(ta)	< 25ns		
Applicable standard	GB 18802.1-2011 Class I		Class II
Working temperature	Nominal range: -5°C~+40°C, Limit range: -40°C~+70°C		
Relative humidity	≤90%RH		
Protection level	IP20		
Outline dimension(mm)	90 × 36 × 66 i.e. 4 modulo	90 × 36 × 66	90 × 27 × 66
Terminal wiring capability	Hard wire:10~35mm ² Flexible wire:10~25mm ²	16~35mm ²	

Technical Parameter

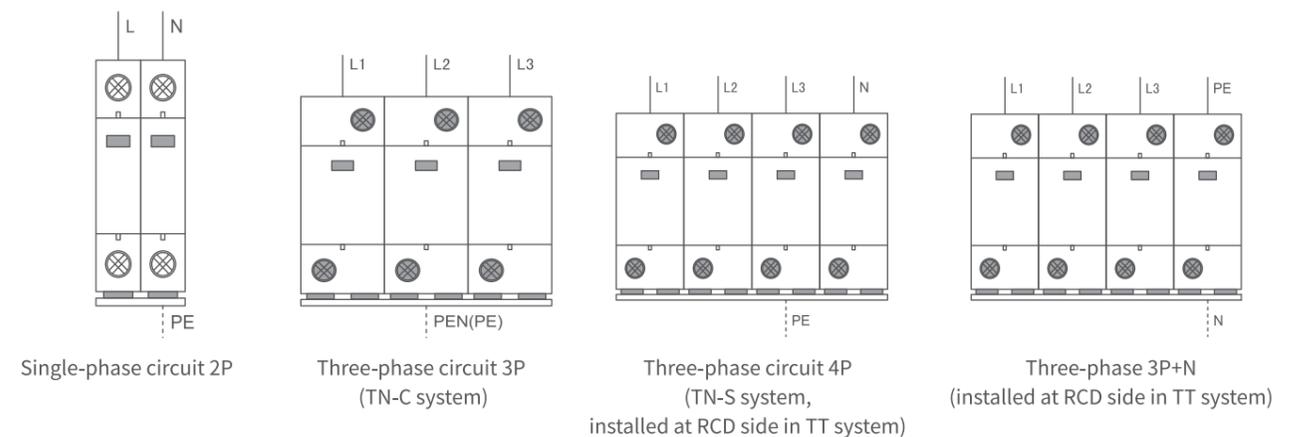
Item	Parameter			
Model	SDX DG55	SDX D56	SDX D57	SDX D58
Maximum continuous working voltage (Uc)	420V(50~60HZ)			
Voltage protection level	2.4kV	2.2kV	1.8kV	1.6kV
Maximum discharge current Imax (8/20 μs)	80kV	60kV	40kV	20kV
Rated discharge current In(8/20 μs)	40kV	30kV	20kV	10kV
Response time(ta)	< 25ns			
Applicable standard	GB 18802.1-2011 Class II			
Working temperature	Nominal range: -5°C~+40°C, Limit range: -40°C~+70°C			
Relative humidity	≤90%RH			
Protection level	IP20			
Outline dimension(mm)	90 × 27 × 66mm	90 × 18 × 66mm		
Terminal wiring capability	16~35mm ²			

Dimensions

Model	a	b	c
SDX DG42	90mm	36mm	66mm
SDX DG53		27mm	
SDX DG54			
SDX DG55		18mm	
SDX D56			
SDX D57			
SDX D58			



Typical wiring



3. Intelligent switch

Product Overview

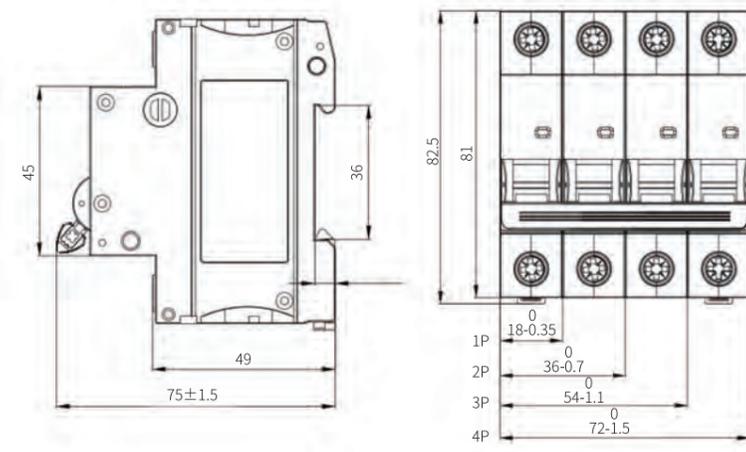
SFB1-63 series miniature circuit breakers are applicable to low-voltage power distribution system of EV chargers, which can protect the power distribution lines and equipment against overload and short circuit.



Technical Parameter

Product Name	SFB1-63	SFB1-63H
Applicable standard	GB/T 10963.1 IEC60898-1	
Product certification	CCC	
Electrical characteristics	SFB1-63	SFB1-63H
Number of poles	1P、2P、3P、4P	1P、2P、3P、4P
Rated frequency (Hz)	50/60	50/60
Housing current , I _{nm} (A)	63	63
Rated current , I _n (A)	6A/10A/16A/20A/25A/32A/40A/50A/63A	6A/10A/16A/20A/25A/32A/40A/50A/63A
Rated voltage , U _e (V)	AC230、AC400(1P)、AC400(2P/3P/4P)	AC230、AC400(1P)、AC400(2P/3P/4P)
Rated insulation voltage ,U _i (V)	500V	500V
Rated impulse withstand voltage , U _{imp} (kV)	4kV	4kV
Rated operating short-circuit breaking capacity, I _{cs} (kA)	4.5kV	6kV
Instantaneous tripping characteristics	C (5I _n -10I _n) D (10I _n -20I _n)	C (5I _n -10I _n) D (10I _n -20I _n)
Tripping form	Thermal magnetic trip	Thermal magnetic trip
Pollution class	Class 2	Class 2
Mechanical Characteristics	SFB1-63	SFB1-63H
Electrical life	10000	
Mechanical life	20000	
Protection level	IP20	
Normal Operating Conditions and Installation Characteristics	SFB1-63	SFB1-63H
Operating ambient temperature	-35°C~+70°C	-35°C~+70°C
Installation altitude	Up to 2000m	Up to 2000m
Wiring terminal	Screw crimping	Screw crimping
Maximum wiring capacity	25mm ²	25mm ²
Maximum limit torque	2N·m	2N·m
Installation category	Category II and Category III	Category II and Category III
Installation mode	TH35-7.5(1.0) standard rail	TH35-7.5(1.0) standard rail
Incoming mode	Incoming either from up or down	Incoming either from up or down

Dimensions (mm)



Product Overview

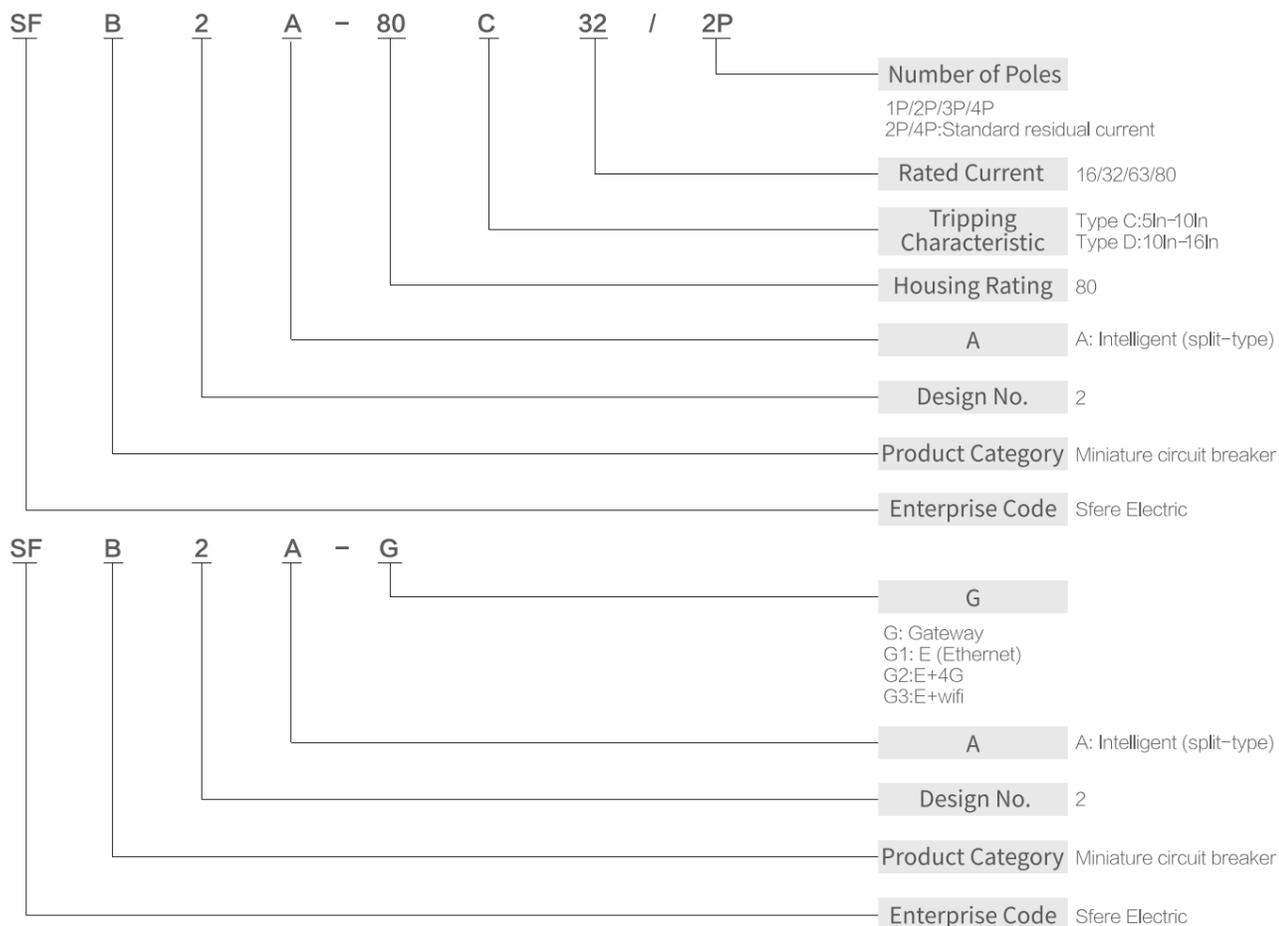
SFB2A series intelligent miniature circuit breakers are applicable to low-voltage power distribution system of EV chargers, monitoring the over voltage and under voltage, overload, electric leakage and operating equipment overheating of circuits, and have multiple functions such as remote control, data measurement and safety condition monitoring.



Technical Parameter

Items	SFB2A-80□□ / 1P	SFB2A-80□□ / 2P	SFB2A-80□□ / 3P	SFB2A-80□□ / 4P
Rated voltage (Ue)	AC 230V	AC 230V	AC 230V	AC 230V
Rated current (In)	10A/16A/20A/25A/32A/40A/50A/63A/80A	10A/16A/20A/25A/32A/40A/50A/63A/80A	10A/16A/20A/25A/32A/40A/50A/63A/80A	10A/16A/20A/25A/32A/40A/50A/63A/80A
Rated residual operating current (IΔn)	-	30mA Type A	-	30mA Type A
Rated running short-circuit breaking capacity (Ics)	6000A	6000A	6000A	6000A
Rated frequency (f)	50Hz	50Hz	50Hz	50Hz

Model Selection Table



Feature

- Automatic re-making
- Leakage self-inspection
- Overvoltage/undervoltage automatic protection
- Surge, overtemperature & short-circuit protection
- 6000A breaking capacity
- Mechanical structure overload protection
- Cloud platform remote monitoring & data analysis
- GB/T 10963.1, GB/T 16917.1

Technical Parameter

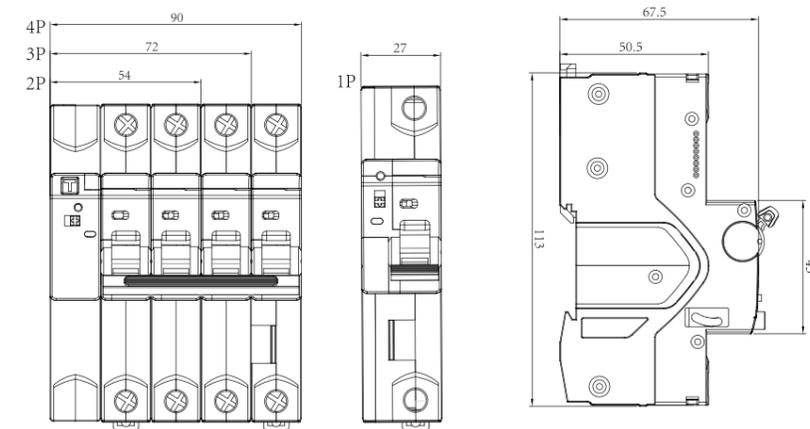
Items	Parameters
Rated current (A)	16/32/63/80 (1P/2P) 、 63/80 (3P/4P)
Dimension (L × W × H)	27 × 76 × 113 (1P) , 54 × 76 × 113 (2P) , 72 × 76 × 113 (3P) 90 × 76 × 113 (4P)
Rated working voltage, Ue (V)	AC230 (1P/2P) 、 AC400 (3P/4P)
Rated impulse withstand voltage (kV)	4
Standard	1P/3P: GB/T 10963.1 2P/4P: GB/T 16917.1
Rated frequency	50Hz
Rated insulation voltage	500V
Rated short-circuit capacity	6000A
Tripping type	Type C/Type D
Communication type	RS-485
Leakage type	2P/4P: leakage current >20mA; disconnection in 40ms
Overvoltage protection value	1P/2P alarm: >250V, breaking: >270V, re-making: 230V 3P/4P alarm: >430V, breaking: >475V, re-making: 400V
Undervoltage protection value	1P/2P alarm: <195V, breaking: <175V, re-making: 230V 3P/4P alarm: <350V, breaking: <335V, re-making: 400V
Overtemperature protection value	Alarm: >80°C, breaking: >85°C
Mechanical/electrical life	10000 times
Power-on delay time	7s
Automatic making time	3s
Automatic breaking time	2s
Protection level	IP20
Pollution class	Class 2
Use environment	The ambient air temperature shall be -5° C to +40° C, and the daily average temperature shall not be more than +35° C. Atmospheric conditions: +40P, relative humidity of air: 50% or higher at lower temperature Altitude: W2000M
Installation environment	In the places with no obvious vibration or impact, the product shall be installed on TH35-7.5 standard rails specified in GB/T 19334-2003.

Model Selection

Items	SFB2A-series Miniature Circuit Breaker
Local leakage self-inspection	■
APP operating leakage self-inspection	■
Leakage self-inspection	■
Voltage/current monitoring	■
Load limit	■
Short-circuit protection	■
Overload mechanical protection	■
Leakage protection	■
Overload & overcurrent protection	■
Undervoltage alarm	■
Electric energy metering	■
Overvoltage protection	■
Switch overtemperature protection	■
Lightning surge protection	■
Local manual push rod	■
Maintenance safety switch	■
Electric control	■
Remote control	■
Safety information recording	■
Mobile APP management	■
Power consumption statistics	■
Platform centralized management	■

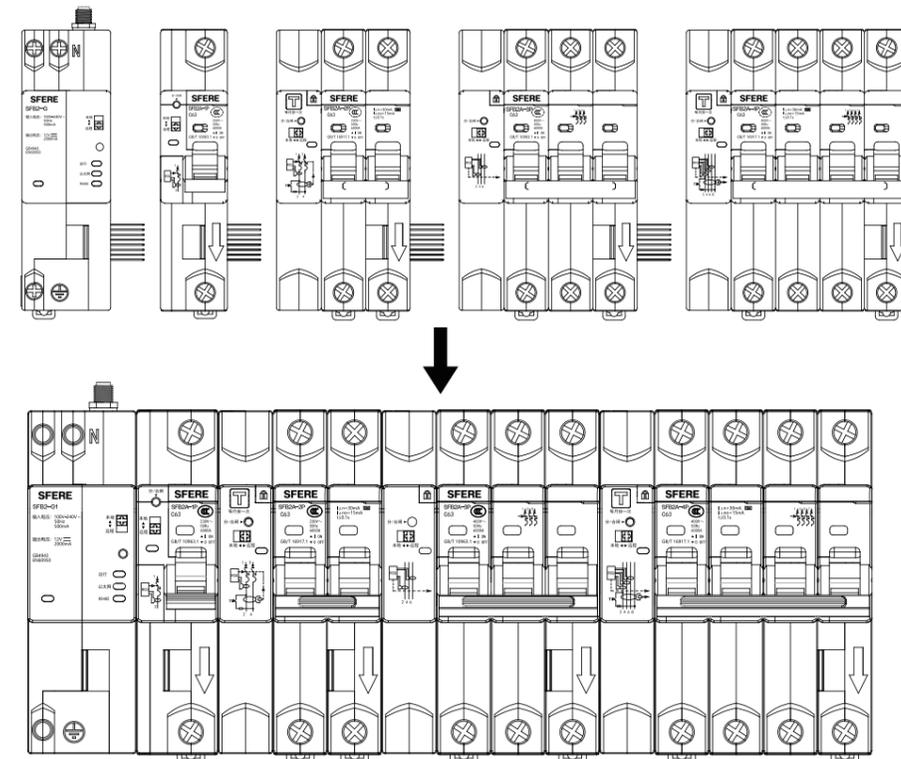
Note: "■" Yes, "□" No.

Dimensions (mm)

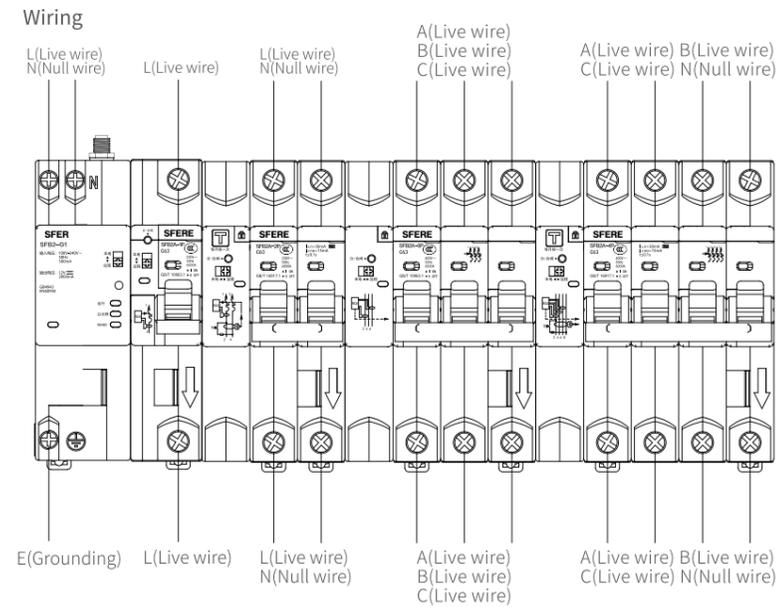


Typical wiring

Installation Combination



Typical wiring



Product Overview

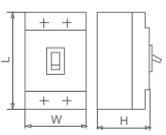
SFM3 series molded case circuit breaker is applicable to low-voltage power distribution system of EV charger, which can protect the distribution lines and equipment against the damage of overload and short circuit.



Technical Parameter

Model	SFM3-63				SFM3-125				SFM3-250				
Housing rating Inm (A)	63				125				250				
Rated current In (A)	10/16/20/25/32/40/50/63				16/20/25/32/40/50/63/80/100/125				100/125/140/160/180/200/225/250				
Operating frequency(Hz)	50/60												
Rated working voltage Ue (V)	AC 415/690												
Rated insulation voltage Ui (V)	AC 1000												
Rated impulse withstand voltage Uimp(kV)	8								12				
Number of poles(kV)	3	3	4	3	3	3	4	3	3	3	4		
Rated limit short-circuit breaking capacity level	L	M	M	L	M	H	M	L	M	H	M		
Rated limit short-circuit breaking capacity Icu (kA)	AC690V	8	12	12	12	20	25	20	16	20	30	20	
	AC415V	36	55	55	50	70	100	70	50	70	100	70	
Rated operating short-circuit breaking capacity Ics (kA)	AC690V	5	10	10	10	15	18	15	8	15	20	15	
	AC415V	36	40	40	40	50	70	50	40	50	70	50	
Mechanical life (times)	With machine maintenance	40000				40000				40000			
	Without machine maintenance	20000				20000				20000			
Model	SFM3-400				SFM3-630				SFM3-800				
Housing rating Inm (A)	400				630				800				
Rated current In (A)	200/250/315/350/400				400/500/630				630/700/800				
Operating frequency(Hz)	50/60												
Rated working voltage Ue (V)	AC 415/690												
Rated insulation voltage Ui (V)	AC 1000												
Rated impulse withstand voltage Uimp(kV)	8								12				
Number of poles(kV)	3	3	4	3	3	3	4	3	3	3	4		
Rated limit short-circuit breaking capacity level	L	M	M	L	M	H	M	L	M	H	M		
Rated limit short-circuit breaking capacity Icu (kA)	AC690V	8	12	12	12	12	25	20	16	20	30	20	
	AC415V	36	55	55	50	70	100	70	50	70	100	70	
Rated operating short-circuit breaking capacity Ics (kA)	AC690V	5	10	10	10	15	18	15	8	15	20	15	
	AC415V	36	40	40	40	50	70	50	40	50	70	50	
Mechanical life (times)	With machine maintenance	40000				40000				40000			
	Without machine maintenance	20000				20000				20000			

Dimensions (mm)

Model		SFM3-63	SFM3-125	SFM3-250	SFM3-400	SFM3-630	SFM3-800
Outline dimension 	L	130	150	165	257	257	280
	W (3P/4P)	75/100	92/122	107/142	150/198	150/198	210/280
	H (L/M, H)	60	64.5/82.5	86/103	100	100	110

Unit: mm

Optional

Under-voltage Trip



- When the rated voltage is 35%~70%, the under-voltage release should reliably trip the circuit breaker;
- At 85%~110% of the rated voltage, the under-voltage release should ensure that the circuit breaker can be closed;
- When the rated voltage is lower than 35%, the under-voltage release shall prevent the circuit breaker from closing.

Warning: The under-voltage release must be energized before the circuit breaker can be tripped and closed. Otherwise, the circuit breaker will be damaged! Note: The lead-out length of the direct wire is 30cm by default at the factory. If it exceeds, please order instructions.

Shunt Trip

The rated control voltage of the shunt release is: AC230V, AC400V, DC24V. When the rated control power supply voltage is between 70% and 110%, the shunt release should reliably trip the circuit breaker.

Option 1: Use DC24V or DC24~30V shunt release, but the following conditions should be met: The maximum length of copper wires (the length of each of the two wires) must meet the following conditions, and the power supply at the release terminals must be Meet the minimum 50W requirement.



Note: When the rated control power supply voltage is DC24V or DC24~30V, there are two solutions

Option 2: Use DC24V intermediate relay AC23V or AC400V shunt release, and the contact capacity of the intermediate relay is not less than 1A.

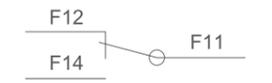
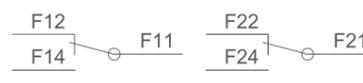
Applied voltage	Maximum copper wire length (each length of two wires)	
	1.5mm ²	2.5mm ²
100% power supply voltage	150m	250m
85% power supply voltage	100m	160m

Note: The lead-out length of the direct wire is 30cm by default in the factory.

Optional

Auxiliary contact

Auxiliary contacts are used for automatic control of the control circuit of the circuit breaker. (such as the signal indication of the opening and closing status of the circuit breaker)

Circuit breaker status	Auxiliary wiring diagram of circuit breaker below housing rating 250	Auxiliary wiring diagram of circuit breaker with housing rating 400 and above
Closing position		
Opening position		

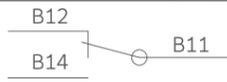


Auxiliary contact

Note: The lead-out length of the direct wire is 50cm by default in the factory.

Alarm contact

The alarm contact is used for the alarm contact not to alarm when the circuit breaker is normally closed and opened, and to alarm when the circuit breaker is overloaded, short-circuited, and under-voltage of the line and equipment to ensure the opening.

Circuit breaker status	Alarm contact wiring diagram
Closing and opening positions	
Free trip position	

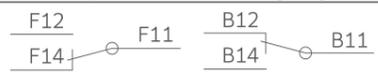
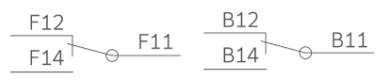
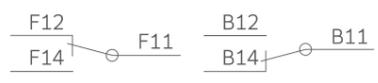


Alarm contact

Note: The lead-out length of the direct wire is 30cm by default at the factory. If it exceeds, please order instructions.

Auxiliary alarm contact

The auxiliary alarm contact is used for automatic control of the control circuit of the circuit breaker and for alarming when the circuit breaker is overloaded, short-circuited, and under-voltage faults of lines and equipment are opened.

Circuit breaker status	Auxiliary alarm contact wiring diagram
Closing position	
Opening position	
Free trip position	

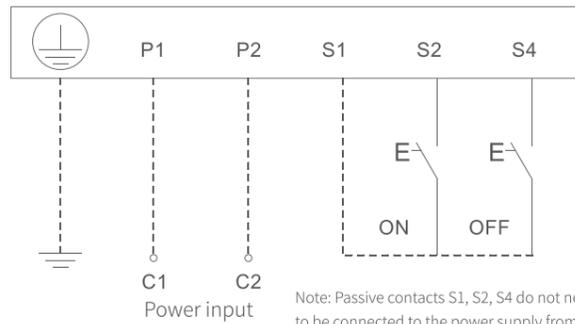


Auxiliary alarm contact

Note: The lead-out length of the direct wire is 30cm by default at the factory. If it exceeds, please order instructions.

D-type Electric Operating Mechanism (D)

Wiring Diagram



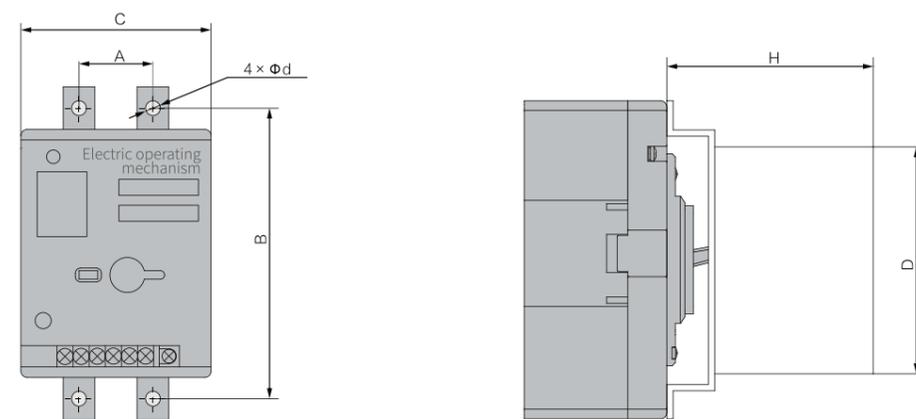
Note: Passive contacts S1, S2, S4 do not need to be connected to the power supply from P1, P2 or outside, otherwise the electric operating mechanism will be burned down.



Outline and Installation Dimension of Motor

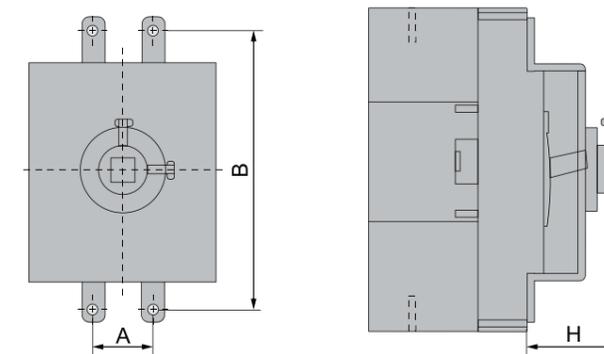
Model & specification	Adaptive circuit breaker					
	A	B	C	D	H	d
D-63L/M	25	117	74	102	90	3.5
D-125L/M/H	30	129	90	116	92	4.5
D-250L/M/H	35	126	90	118	92	4.5
D-400L/M/H	44	215	130	176	145	3.5
D-630L/M/H	44	215	130	176	145	6.5
D-800L/M/H	70	243	130	176	146	6.5

Installation Diagram



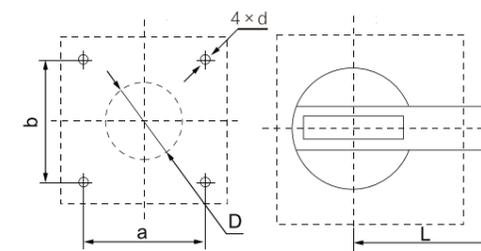
Manual operating mechanism (T)

Installation dimension and diagram

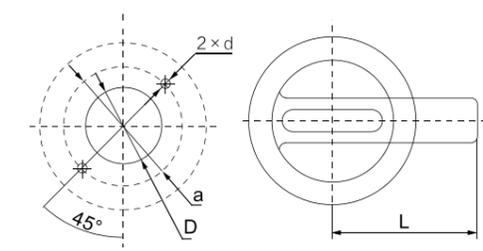


Operating mechanism outline and installation dimension table

Model Specifications	Installation dimension			Type A handle installation dimensions					Type B handle installation dimensions			
	A	B	H	D	d	a	b	L	D	d	a	L
D-63L/M	25	117	51	φ35	φ4.5	65	65	65	φ35	φ5.5	53	65
D-125L/M/H	30	129	52	φ35	φ4.5	65	65	65	φ35	φ5.5	53	65
D-250L/M/H	35	126	56	φ35	φ4.5	65	65	95	φ35	φ5.5	53	95
D-400L/M/H	44	215	97	φ35	φ4.5	65	65	125	φ35	φ5.5	53	125
D-630L/M/H	44	215	97	φ35	φ4.5	65	65	125	φ35	φ5.5	53	125
D-800L/M/H	70	243	87	φ35	φ4.5	65	65	125	φ35	φ5.5	53	125



Type A handle installation dimension diagram



Type B handle installation dimension diagram

4. Intelligent Gateway

Product introduction

S15 gateway is a small gateway device that can collect multiple communication protocols and upload data to the cloud platform or local monitoring system. It is applicable to AC and DC s. It collects and transmits the data in the , transmits and backs up the status data of the to the cloud platform, uploads the data to the cloud platform via Ethernet or 4G on the uplink, and realizes wired/wireless networking via RS485 or LoRa on the downlink.



Characteristic

- Wireless networking
- Rich communication protocols
- Intelligent configuration and debugging
- Double network port exchange function
- Device management

Technical parameter

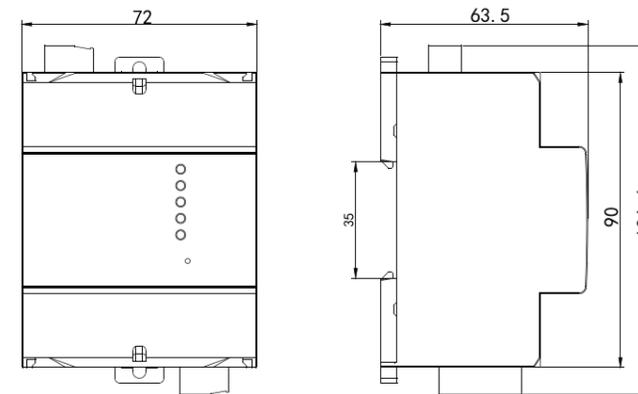
Item	Parameter	
Uplink Interface	Ethernet	Support Modbus TCP, MQTT and other communication protocols
	WiFi	Support Modbus TCP and other communication protocols
	4G	MQTT and other communication protocols
Downlink Interface	RS-485	Support various serial communication protocols such as Modbus RTU, DL/T645 Baud rate up to 38400bps
	LoRa	Frequency band:470/868/915/923 MHz
Power Supply	AC 85~265V 50Hz	
Power consumption	<5VA	
Working temperature	-25℃~+70℃	

Model selection

Item	S15	S15-T	S15-N
Uplink Interface	Ethernet	10/100 Mbps Ethernet	
	WiFi	-	-
	4G	-	1 channels
Uplink Interface	RS-485	2 channels	2 channels
	LoRa	1 channel can be added	

Note: LoRa function can be added to all models. When LoRa function is added, -L is added to the product model. For example, the LoRa function is optional for S15-F, and the model is S15-F-L.

Dimension (mm)



Typical wiring

