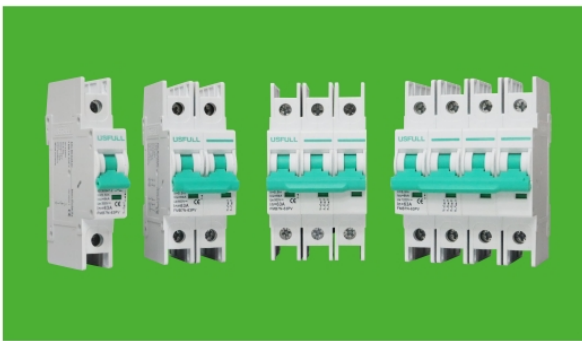


# USFULL<sup>®</sup>

## ZHEJIANG FULLWILL ELECTRIC CO., LTD.



[www.usfull.com](http://www.usfull.com)  
[www.usfull.net](http://www.usfull.net)



Website



## Company Introduction



### **Full of confidence, Will only offer satisfactory quality.**

Zhejiang Fullwill Electric Co., Ltd. (brand: USFULL) was established in 2005. The company focuses on the R&D, manufacture and sales of products in four major areas, including solar pump inverter, PV accessories, low-voltage electrical products, and industrial VFD.

We have strong manufacture department and quality control department, to ensure state-of-art quality, stable performance and in-time delivery.

Full of energy, full of goodwill. USFULL team will keep moving to supply customized solutions to make users happier.



Innovation



Services



Quality



Sincerity

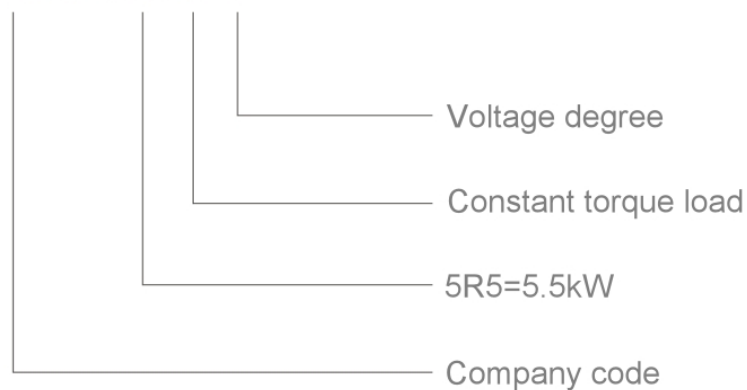
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## Type Designation

<b>USFULL</b>	<b>CE</b>
<b>Model:</b> FU9000SI-5R5G-4	IP20
<b>Power:</b> 5.5kW	
<b>Input:</b> DC 250V-800V AC 3PH 380V(-15%)-440V(+10%) 19.5A 47Hz-63Hz	
<b>Output:</b> AC 3PH 0V-Uinput 14A 0Hz-400Hz	
<b>S/N:</b> <input type="text"/>	
<small>Made in China</small>	
<b>ZHEJIANG FULLWILL ELECTRIC CO., LTD.</b>	

FU9000SI - 5R5G G - 4



## Voltage Degree

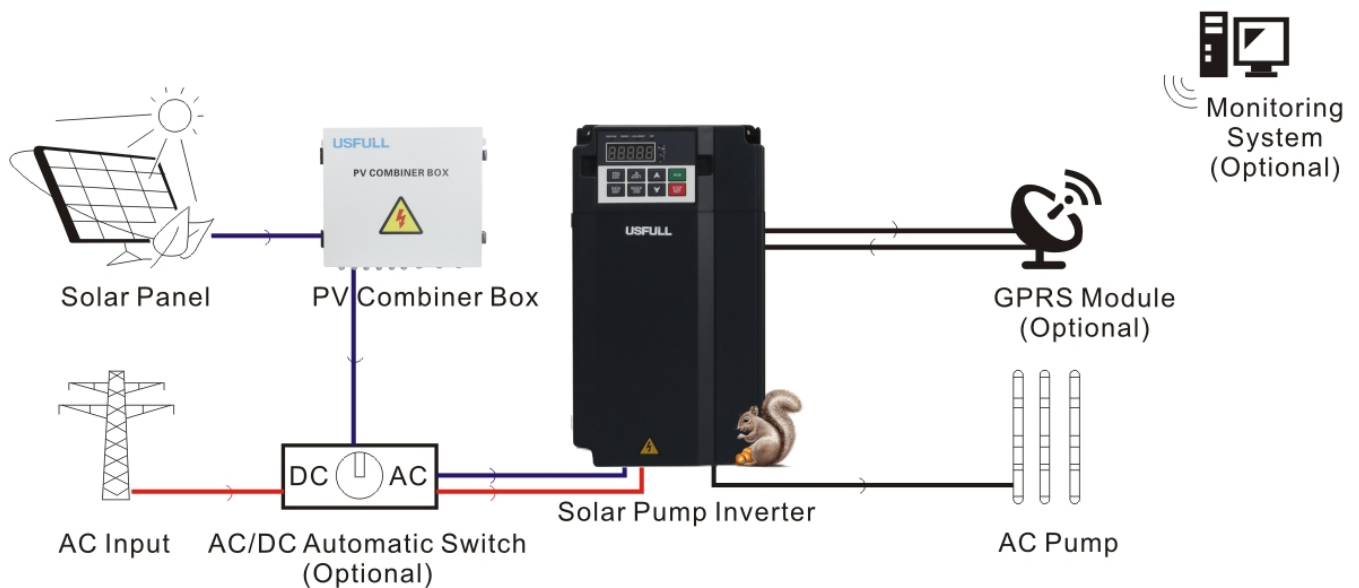
Model	-SS2	-S2	-4
AC Input Voltage (VAC)	1PH 220(-15%)~240(+10%)		3PH 380(-15%)~440(+10%)
Output Voltage (VAC)	1PH 0-220V	3PH 0-220V	3PH 0-380V
Max. DC Voltage (VDC)	450		800
Start-up Voltage (VDC)	200		300
Lowest Working Voltage (VDC)	150		250
Recommend DC Input Voltage Range (VDC)	200~450		300~750
Recommend MPP Voltage (VDC)	330		550
Output Frequency (Hz)	0-400Hz		

## Rated Specifications

Series	Model	Rated Output Power (kW)	Rated Input Current (A)	Rated Output Current (A)
-SS2(0.75kW~4kW)	FU9000SI-0R7G-SS2	0.75	9.3	7.2
	FU9000SI-1R5G-SS2	1.5	15.7	10.2
	FU9000SI-2R2G-SS2	2.2	24	14
	FU9000SI-004G-SS2	4	32	25
-S2(0.75kW~2.2kW)	FU9000SI-0R7G-S2	0.75	9.3	4.2
	FU9000SI-1R5G-S2	1.5	15.7	7.5
	FU9000SI-2R2G-S2	2.2	24	10
-4(0.75kW~315kW)	FU9000SI-0R7G-4	0.75	3.4	2.5
	FU9000SI-1R5G-4	1.5	5	4.2
	FU9000SI-2R2G-4	2.2	5.8	5.5
	FU9000SI-004G-4	4	13.5	9.5
	FU9000SI-5R5G-4	5.5	19.5	14
	FU9000SI-7R5G-4	7.5	25	18.5
	FU9000SI-011G-4	11	32	25
	FU9000SI-015G-4	15	40	32
	FU9000SI-018G-4	18.5	47	38
	FU9000SI-022G-4	22	51	45
	FU9000SI-030G-4	30	70	60
	FU9000SI-037G-4	37	80	75
	FU9000SI-045G-4	45	94	92
	FU9000SI-055G-4	55	128	115
	FU9000SI-075G-4	75	160	150
	FU9000SI-090G-4	90	190	180
	FU9000SI-110G-4	110	225	215
	FU9000SI-132G-4	132	265	260
	FU9000SI-160G-4	160	310	305
	FU9000SI-185G-4	185	345	340
FU9000SI-200G-4	200	385	380	
FU9000SI-250G-4	250	468	465	
FU9000SI-280G-4	280	525	520	
FU9000SI-315G-4	315	590	585	



## Introduction of USFULL Solar Pumping System



### ● High Efficiency Automatic MPPT

Maximum power point tracking function guarantees the system to get the highest power output from solar panel and maximizes the efficiency of pumping system.

### ● Best Off-grid Solution

For off-grid area, solar pump inverter without battery is the most ideal solution for pumping.

### ● Professional Pump Protection

Automatic start and stop in the morning, for full tank and water shortage of water well.

### ● Easy Operation Program

The inverter is fully automatic. After connect cables correctly, power on and it will run.

## Water Proof Solution

USFULL offer several solutions for water and dust proof. Two classic methods are displayed as below.



---

Rated Power: 0.75kW-4kW (220V)  
0.75kW-7.5kW (380V)

---

Feature: Flexible for installation, no need enclosure for protection.

---



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Rated Power: 0.75kW-4kW (220V)  
0.75kW-31.5kW (380V)

---

Feature: High quality enclosure.  
Support electrical components build in.

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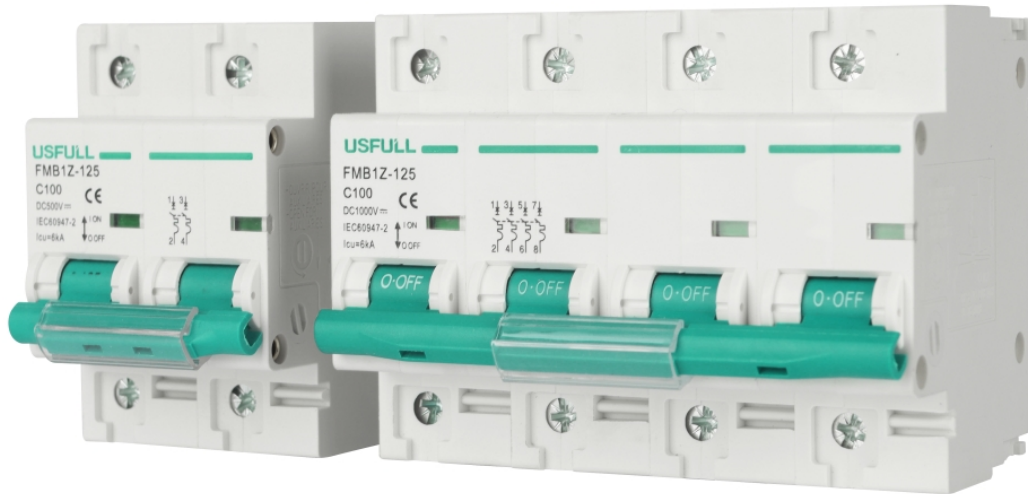


FMB7N-63PV DC Breaker (DC MCB)

### Specification

FMB7 Series Circuit Breaker		FMB7N-63PV			
Frame Degree Rated Current		63A			
Pole		1P, 2P, 3P, 4P			
Rated Operating Voltage (VDC)		12V, 24V, 48V, 300V, 600V, 900V, 1200V			
Rated Current In (A)		10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A			
Rated Insulation Voltage Ui (VDC)		1250VDC			
Rated Impact Voltage Uimp (kV)		6			
Ultimate Breaking Capacity Icu (kA)		6			
Run Breaking Capacity Ics (%Icu)		100			
Curve Type		C			
Trip Type		Thermal-magnetic			
Mechanical	Actual average value	20000 times			
	Standard value	8500 times			
Electrical	Actual average value	2500 times			
	Standard value	1500 times			
Wiring Capacity (mm <sup>2</sup> )		In ≤ 32A, 1.5~6mm <sup>2</sup> ; In ≥ 40A, 10~16mm <sup>2</sup>			
Ambient Temperature (°C)		-20°C~+70°C			
Altitude		≤2000m			
Relative Humidity		≤9.5%			
Pollution Level		2, 3			
Installation Environment		No obvious shock and vibration			
Installation Category		Class II, Class III			
Installation		Standard din rail			
Dimensions (W)*(H)*(D) (mm)	W	18	36	54	72
	H	98	98	98	98
	D	71	71	71	71
Weight (KG)		0.12	0.24	0.36	0.48

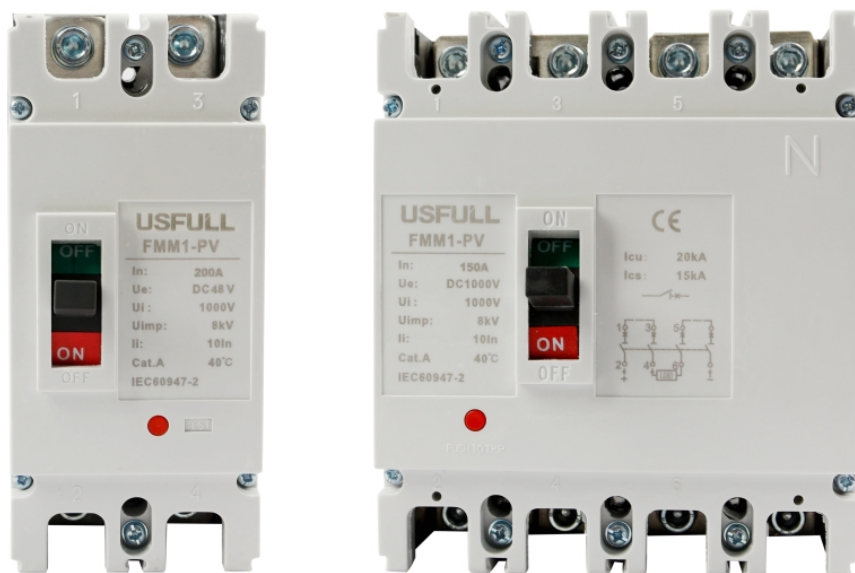




FMB1Z-125 DC Breaker (DC MCB)

## Specification

FMB1Z Series Circuit Breaker	FMB1Z-125				
Frame Degree Rated Current	125A				
Pole	1P, 2P, 3P, 4P				
Rated Operating Voltage (VDC)	12V, 24V, 48V, 250V, 500V, 750V, 1000V				
Rated Current In (A)	80A, 100A, 125A				
Rated Insulation Voltage Ui (VDC)	1050VDC				
Rated Impact Voltage Uimp (kV)	6				
Ultimate Breaking Capacity Icu (kA)	6				
Run Breaking Capacity Ics (%Icu)	100				
Curve Type	C				
Trip Type	Thermal-magnetic				
Mechanical	Actual average value	20000 times			
	Standard value	8500 times			
Electrical	Actual average value	2500 times			
	Standard value	1500 times			
Wiring Capacity (mm <sup>2</sup> )	25~50mm <sup>2</sup>				
Ambient Temperature (°C)	-20°C ~ +70°C				
Altitude	≤2000m				
Relative Humidity	≤9.5 %				
Pollution Level	2, 3				
Installation Environment	No obvious shock and vibration				
Installation Category	Class II, Class III				
Installation	Standard din rail				
Dimensions (W)*(H)*(D) (mm)	W	27	54	81	108
	H	80	80	80	80
	D	71	71	71	71
Weight (KG)		0.18	0.36	0.54	0.72



FMM1-PV DC Breaker (DC MCCB)

### Specification

Type	FMM1-PV-125	FMM1-PV-250	FMM1-PV-400	FMM1-PV-630
Pole	2P, 4P			
Max. Rated Current	125A	250A	400A	630A
Rated Current In (A)	16/20/25/32/40/ 50/63/80/100/125	100/125/150/ 200/225/250	250/300/ 350/400	400/500/630
Rated Working Voltage Ue (VDC)	500V, 1000V			
Rated Insulated Voltage Ui (V)	1500V			
Rated Impulse Withstand Voltage	8 kV			
Short-Circuit Breaking Capacity (kA)	500V	25	35	35
Icu (Ics=75% Icu)	1000V	10	20	15
Isolator Capacity	Yes			
Operating Temperature	-25°C~+50°C			
Protection Grade	IP20			
Flashover Distance	≥ 50			
Instantaneous Action Value	10In±10%			
Installation Method	Fixed type			
Technical Standard	IEC60947-2, IEC60947-1, GB14048.1, GB14048.2			



FMM3-PV DC Breaker (DCMCCB)

## Specification

Type	FMM3-PV 320		FMM3-PV 400		FMM3-PV 630		FMM3-PV 800	
Pole	3P		2P	3P	2P	3P	2P	3P
Rated Current of Shell Frame Grade In (A)	320A		400A		630A		800A	
Rated Current In (A)	140/160/180/200/ 225/250/280/315/320		225/250/315/ 350/400		500/630		700/800	
Rated Working Voltage Ue (VDC)	1500V							
Rated Insulated Voltage Ui (V)	1500V							
Rated Impulse Withstand Voltage Uimp (kA)	12 kV							
Short-Circuit Breaking Capacity (kA)	H Type	20	20	20 <sup>①</sup> 40 <sup>②</sup>	20	20 <sup>①</sup> 40 <sup>②</sup>	20	20 <sup>①</sup> 40 <sup>②</sup>
	R Type	/	40	40 <sup>①</sup> 50 <sup>②</sup>	40	40 <sup>①</sup> 50 <sup>②</sup>	40	40 <sup>①</sup> 50 <sup>②</sup>
Wiring Mode	Up incoming and Down outgoing, Down incoming and Up outgoing (2P,320/3P) Down incoming and Down outgoing, Up incoming and Up outgoing (3P)							
Mechanical Life (Total times)	20000		10000		5000			
Electrical Life (Total times)	1500		700	500	700	500	700	500
Isolator Capacity	Yes							
Standard	IEC60947-2, GB/T 14048.2							
Operating Temperature	-40°C ~ +70°C							
Protection Grade	IP20							
Arcing Distance (mm)	≤ 50 (Zero arc, with arcing cover)							
Transient Action Value	10In							
With Accessories	Auxiliary, Alarm, Off load, Hand operation, Electric operation							
Overall Dimensions L*W*H (mm)	L	180	250	250	250	250	250	250
	W	107	124	182	124	182	124	182
	H	126	165	165	165	165	165	165

Note:

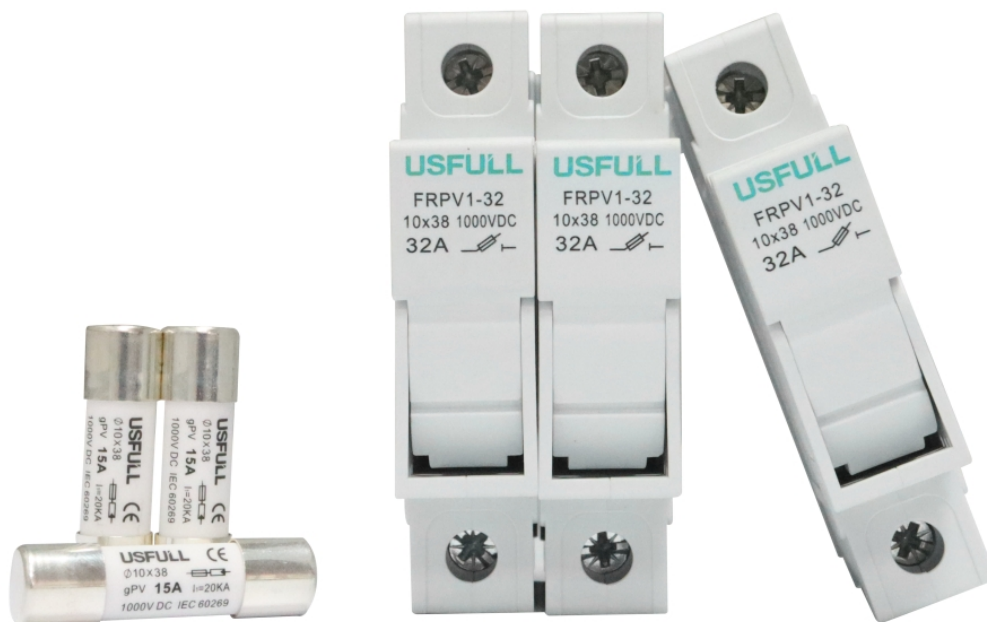
- ① 2P connection in series
- ② 3P connection in series



FLY1-PV DC Surge Protect Device (DC SPD)

### Specification

Model	FLY1-20PV	FLY1-40PV	FLY1-60PV
Pole	2P/3P		
Rated Voltage	2P	DC 500V 600V, 800V, 1000V	
	3P	DC 500V 600V, 800V, 1000V, 1200V, 1500V	
Min. Discharge Current (In)	10kA	20kA	30kA
Max. Discharge Current (Imax)	20kA	40kA	60kA
Voltage Protection Level	1.9kV~5.5kV		
Operating Temperature	-40°C to +85°C		
Relative Humidity	≤95% (25°C)		
Installation Method	35mm Din Rail		
Window Indicates	Normal: Green Feailure: Red		
Degree of Protection	IP20		
Leakage	<20		



FRPV Series DC Fuse

## Specification

Model	FRPV1-32	FRPV-63
Pole	1P/2P	
Rated Voltage	DC 1000V	DC 1500V
Rated Current (A)	4, 5, 6, 8, 10, 12, 15, 20, 25, 30, 32	4, 5, 6, 8, 10, 12, 15, 20, 25, 30, 32, 40, 50, 63
Short-Circuit Breaking Capacity	20kA	33kA
Max. Power Attenuation	4.0W	6.0W
Protection Grade	IP20	
Connection	1.5-16mm <sup>2</sup>	
Operation Ambient Temperature	-30°C to +70°C	
Resistance and Damp Hot	Class 2	
Elevation	≤ 2000m	
Installation Way	TH35-7.5/DIN35 Rail Installation	
RH (relative air humidity)	when +20°C, not exceed 95%; when +40°C, not exceed 50%	
Pollution Class	2/3	
Installation Environment	the place of no obvious vibrate & impact	
Installation Class	III	
W*H*L (mm)	18*69*80	24*65*136

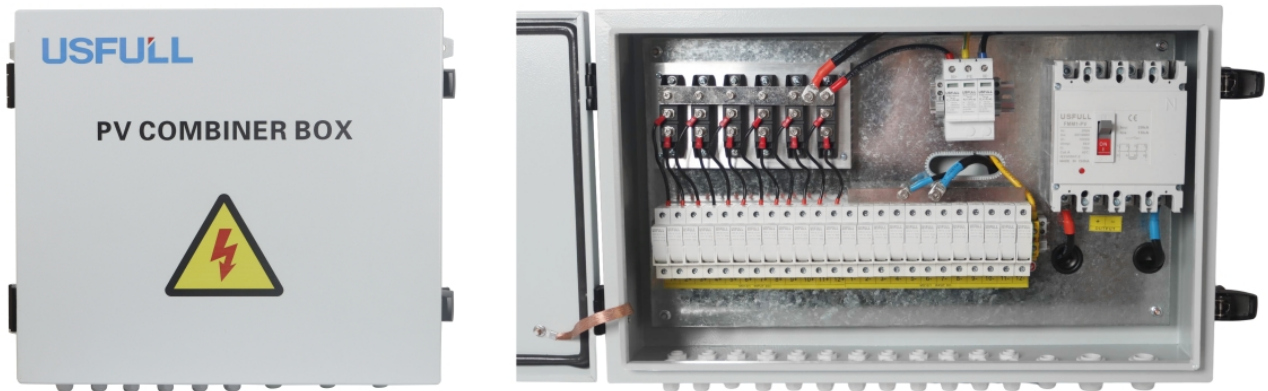


**Specification**

Model	FUCB-MDP2/1N	FUCB-MDP3/1N	FUCB-MDP4/1N
Number of DC Inputs	2	3	4
Material of Box	ABS		
Max. Rated Voltage DC	1000V		
DC Fuse	15A (Recommend 15A, support other ampere)		
Fuse Holder	1000V DC 32A		
DC Breaker	32A	50A	63A
Surge Protection DC	Type II, In =20kA, I <sub>max</sub> =40kA, U <sub>cpv</sub> =1000V DC		
Over-Voltage Category	Cat III		
Connection Type DC Input	PG09/PV Connector, IP68		
Input Cable Size for Negative and Positive	Φ4-8mm		
Number of DC Outputs	1 (Support customize for output number)		
Connection Type DC Output	PG13.5		
Ambient Temperature Range/Humidity	Temperature: -20°C~ +60°C, Humidity: 0-99%		
Altitude	≤ 2000m Derating for above 2000m		
Installation	Wall mounting/ Padlockable latch		

Optional Customized Service:

1. Support PV connector
2. Support drawing customization
3. Support installation of DC isolators switch
4. Support 2 input 2 output, 4 input 2 output, etc.



## Specification

Model (FUCB Series)	MD2/1	MD4/1	MD6/1	MD8/1	MD10/1	MD12/1	MD14/1	MD16/1	MD18/1	MD20/1	MD22/1	MD24/1
Number of DC Inputs	2	4	6	8	10	12	14	16	18	20	22	24
Material of Box	Coated Iron											
Protection Level	IP65											
IK Impact Resistance Class	IK08											
Max. Rated Voltage DC	1000V (Support 1500V)											
DC Fuse	15A (Recommend 15A, support other ampere)											
Fuse Holder	1000V DC 32A											
DC Breaker	32A	63A	100A	125A	150A	200A	225A	250A	275A	300A	315A	350A
Surge Protection DC	Type II, In=20kA, I <sub>max</sub> =40kA, U <sub>cpv</sub> =1000V DC (Support 1500V)											
Over-Voltage Category	Cat III											
Diode for The Function of Anti-reflux	Bulid in											
Connection Type DC Input	PG09/PV connector, IP68											
Input Cable Size for Negative and Positive	Φ4-8 mm											
Number of DC Outputs	1 (Support customize for output number)											
Connection Type DC Output	PG11	PG11	PG13.5	PG19	PG19	PG19	PG25	PG25	PG29	PG29	PG29	PG29
Gland Connectors	Material: Nylon Plastic, Seals: Nitrile Rubber Buna, IP68											
Ambient Temperature Range/Humidity	Temperature: -20°C~ +60°C, Humidity: 0-99%											
Altitude	≤2000m Derating for above 2000m											
Installation	Wall mounting/Padlockable latch											

### Optional Customized Service:

1. Support 1500V
2. Support PV connector
3. Support monitoring function
4. Support installation of DC isolator switch
5. Support 2 input 2 output, 4 input 2 output, etc.



FMPV32-NL1 DC Isolator Switch

**Specification**

Type	FMPV32-NL1
Function	Isolating, Controlling
Standard	IEC60947-3, AS60947.3
Pole Number	4P
Max. Rated Current	32A
Rated Working Voltage (Ue)	1200VDC
Rated Current (Ie)	16A, 25A, 32A
Rated Insulated Voltage (Ui)	1200VDC
Rated Short-time Withstand Current (Icw)	1 kA, 1S
Rated Implused Voltage (Uimp)	8 kV
Overvoltage Category	II
Polarity	Non polarity, " + "and" - " polarities could be interchanged
Mechanical Life	18000 times
Electrical Life	2000 times
Ingress Protection	IP20
Storge Temperature	-40°C~+85°C
Mounting Type	Vertically / Horizontally
Pollution Degree	3





**Specification**

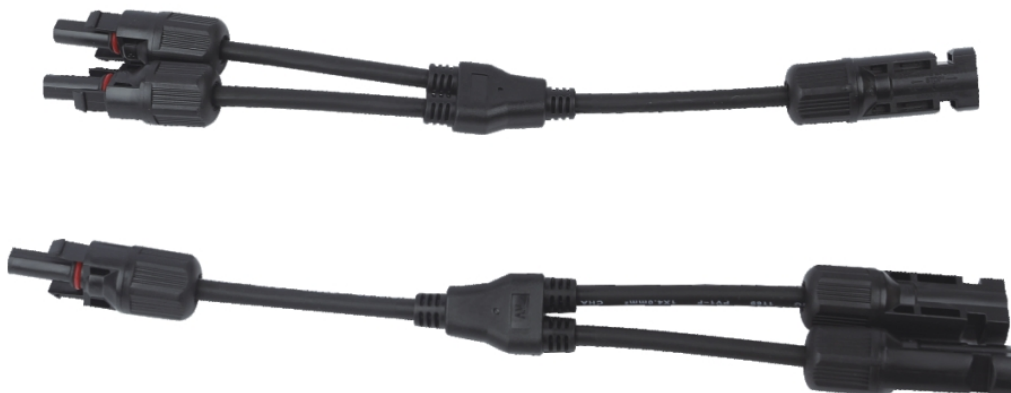
Connector System	φ4mm
Rated Voltage	1000V/ 1500V DC
Rated Current	17A(1.5mm <sup>2</sup> ) 22A(2.5mm <sup>2</sup> ; 14AWG) 30A(4.6mm <sup>2</sup> ; 10,12AWG)
Test Voltage	6kV(50Hz, 1 min.)
Ambient Temperature Range	IEC: -40℃ ~ +90℃ UL: -40℃ ~ +75℃
Upper Limiting Temperature	IEC: +105℃
Degree of Protection, Mated, Unmated	IP67,IP2X
Contact Resistance of Plug Connector	0.5mΩ
Safety Class	II
Contact Material	copper alloy, tin plated
Insulation Material	PC/ PPO
Locking System	Snap-in
Flame Class	UL94-V0
Salt Mist Spray Test, Degree of Severity 5	IEC 60068-2-52
Connector Type	General tye, Diode type, Fuse type



T Type

## Specification

Connector Type	2T/ 3T/ 4T/ 5T/ 6T
Rated Voltage	1000VDC
Rated Current	20A(4mm <sup>2</sup> ) 30A(6mm <sup>2</sup> )
Single Core Cable Section	1.5mm <sup>2</sup> ~ 6mm <sup>2</sup>
Cable Outer Diameter	1.5mm <sup>2</sup> ~ 6mm <sup>2</sup>
Ambient Temperature Range	-40°C ~ +105°C
Degree of Protection, Mated	IP67
Contact Resistance	≤0.5mΩ
Insulation Resistance	>500mΩ
Contact Material	Copper alloy, tin plated
Insulation Material	PPO, Black
Terminal Connection	Crimping
Flame Class	UL94-V0
Safety Class	II



Y Type

**Specification**

Connector Type	2Y/ 3Y/ 4Y
Rated Voltage	1000VDC
Rated Current	20A(4mm <sup>2</sup> ) 30A(6mm <sup>2</sup> )
Single Core Cable Section	1.5mm <sup>2</sup> ~ 6mm <sup>2</sup>
Cable Outer Diameter	1.5mm <sup>2</sup> ~ 6mm <sup>2</sup>
Ambient Temperature Range	-40°C ~ +105°C
Degree of Protection, Mated	IP67
Contact Resistance	≤0.5mΩ
Insulation Resistance	>500mΩ
Contact Material	Copper alloy, tin plated
Insulation Material	PPO, Black
Terminal Connection	Crimping
Flame Class	UL94-V0
Safety Class	II