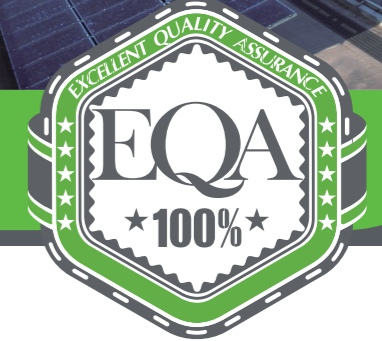




NOARK

Professional Electric System Solution Supplier



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Low Voltage Electric Solutions For Photovoltaic System

2015~2016

NOARK®

Smart your power, Care your heart

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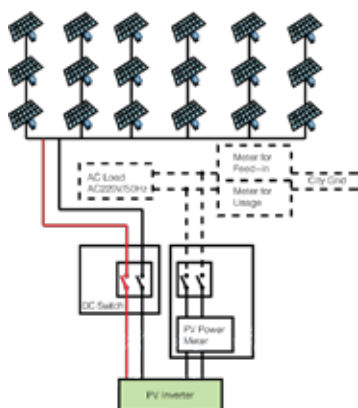


Overview

We need green power, which stands for civilization, innovation and promise for future life. We are promoting low carbon lifestyle, which leads us to sustainable development. So, it is our responsibility to bring human society clean energy by providing more intelligent solutions for various power systems.

As a result of our continuous efforts, NOARK electrics has successfully created Ex9 series of low voltage products for the distribution and protection of alternating current and direct current, which also have been specifically utilised in photovoltaic power system. Usually, photovoltaic power system has specific technical requirements on low voltage electrical components. In this case, NOARK Electrics is proved to be capable of providing comprehensive products line for PV system and offer systemised solution with its reliable products performance.

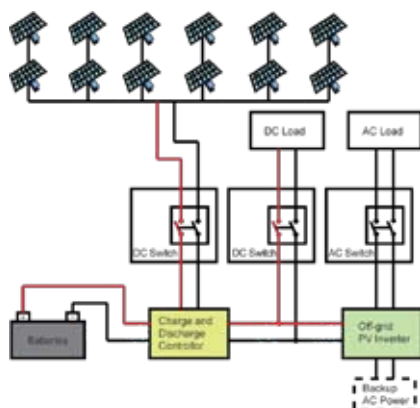
Grid-connected Power System



Applications:

- Commercial plant
- Residential rooftop
- Commercial rooftop
- BIPV

Off-grid Power System



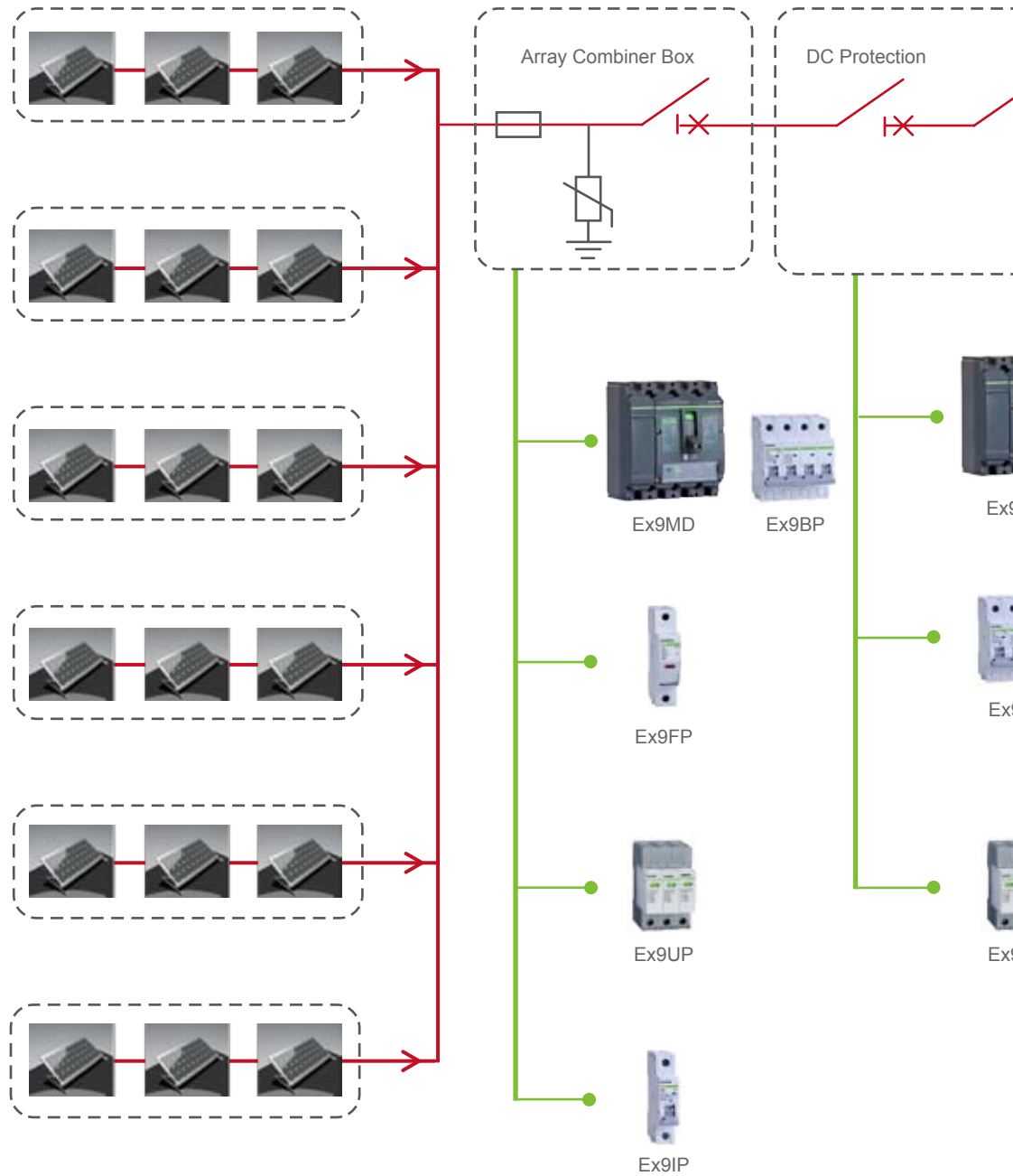
Applications:

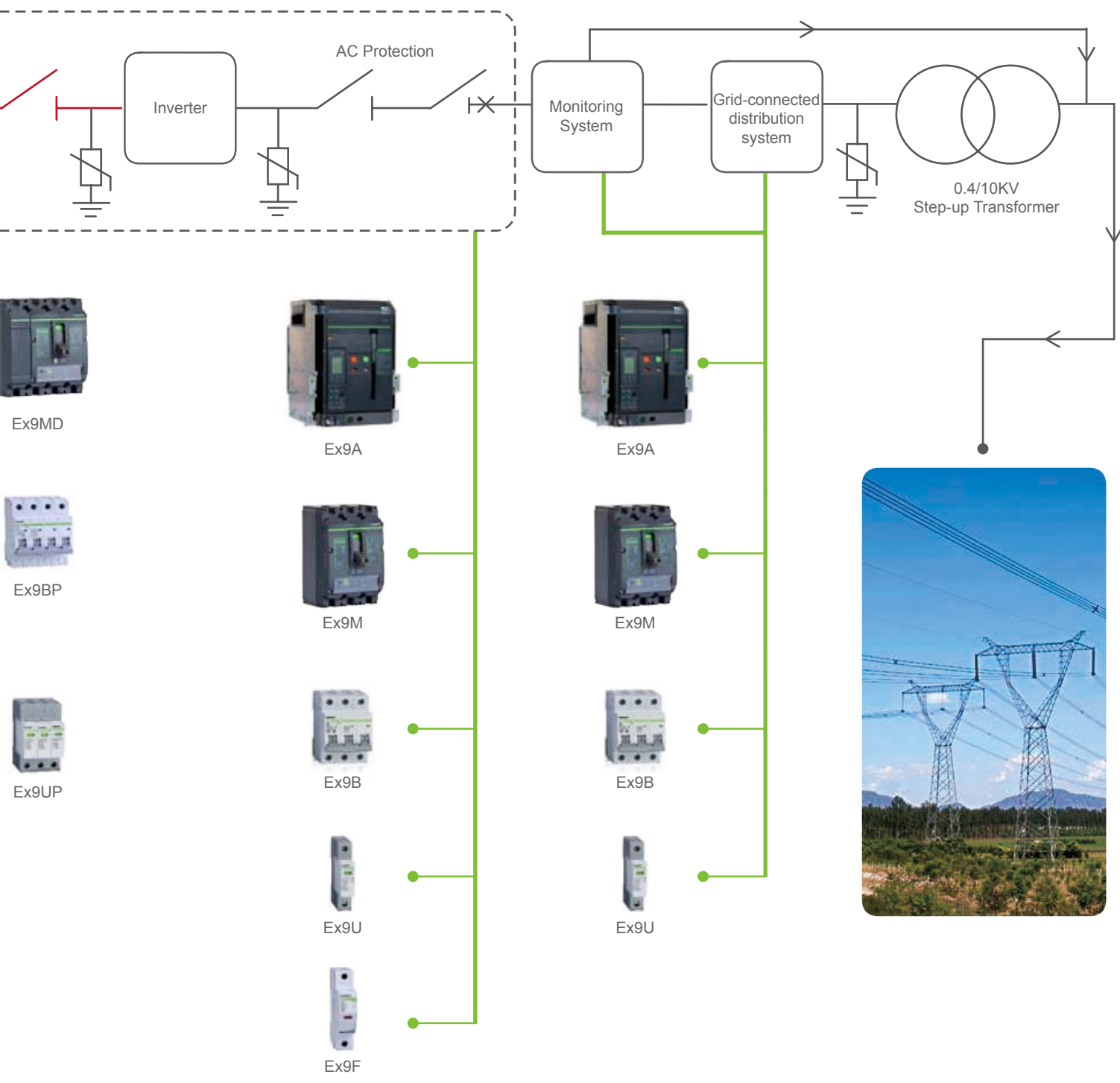
- PV application in highway facility
- PV power for street light, tunnel light, post light and airport runaway light etc.
- PV application in water pump irrigation and fountain system
- Off-grid residential PV system
- Off-grid industrial PV system

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1 Photovoltaic application in grid-connected system

A PV application with single inverter

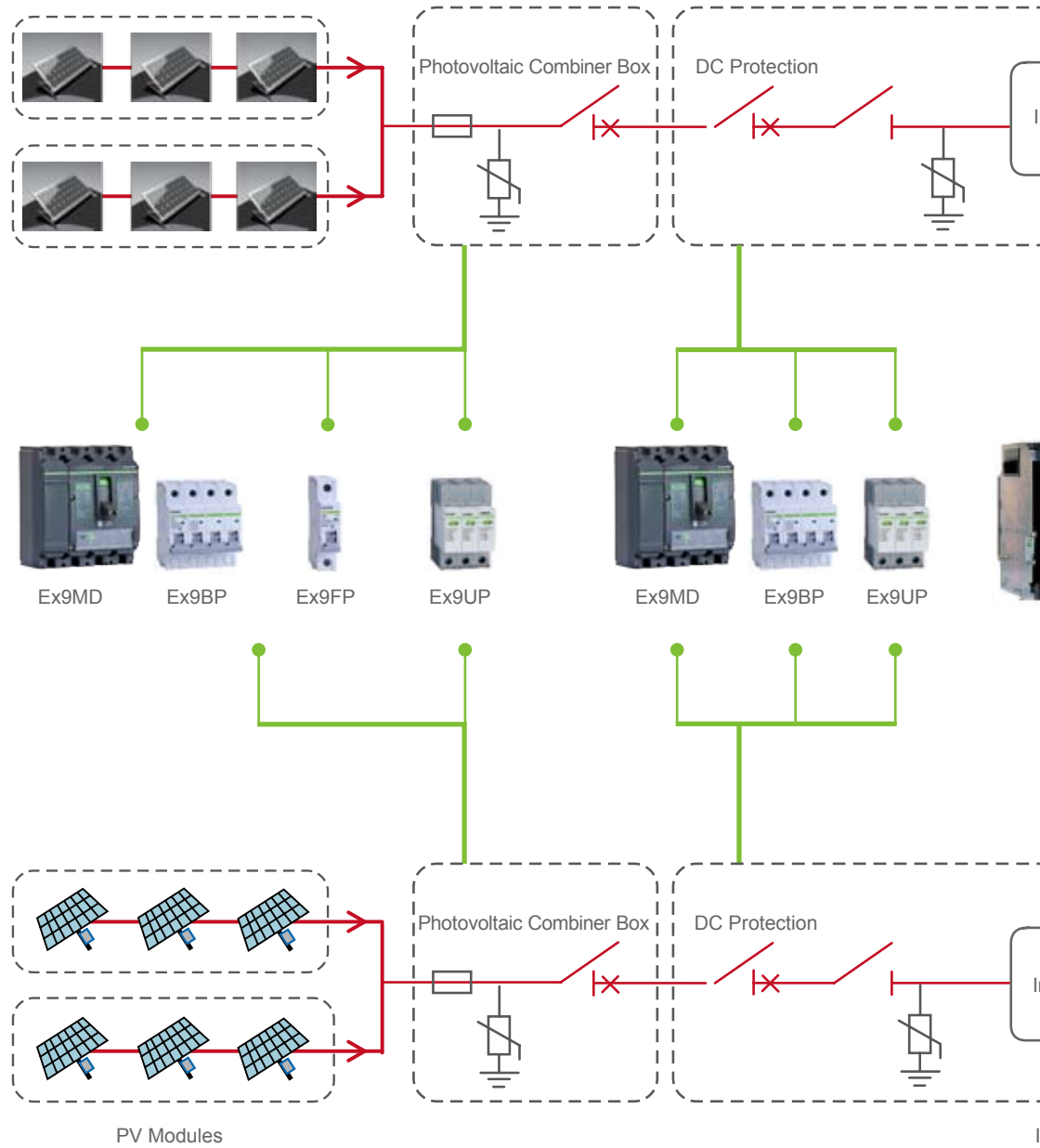




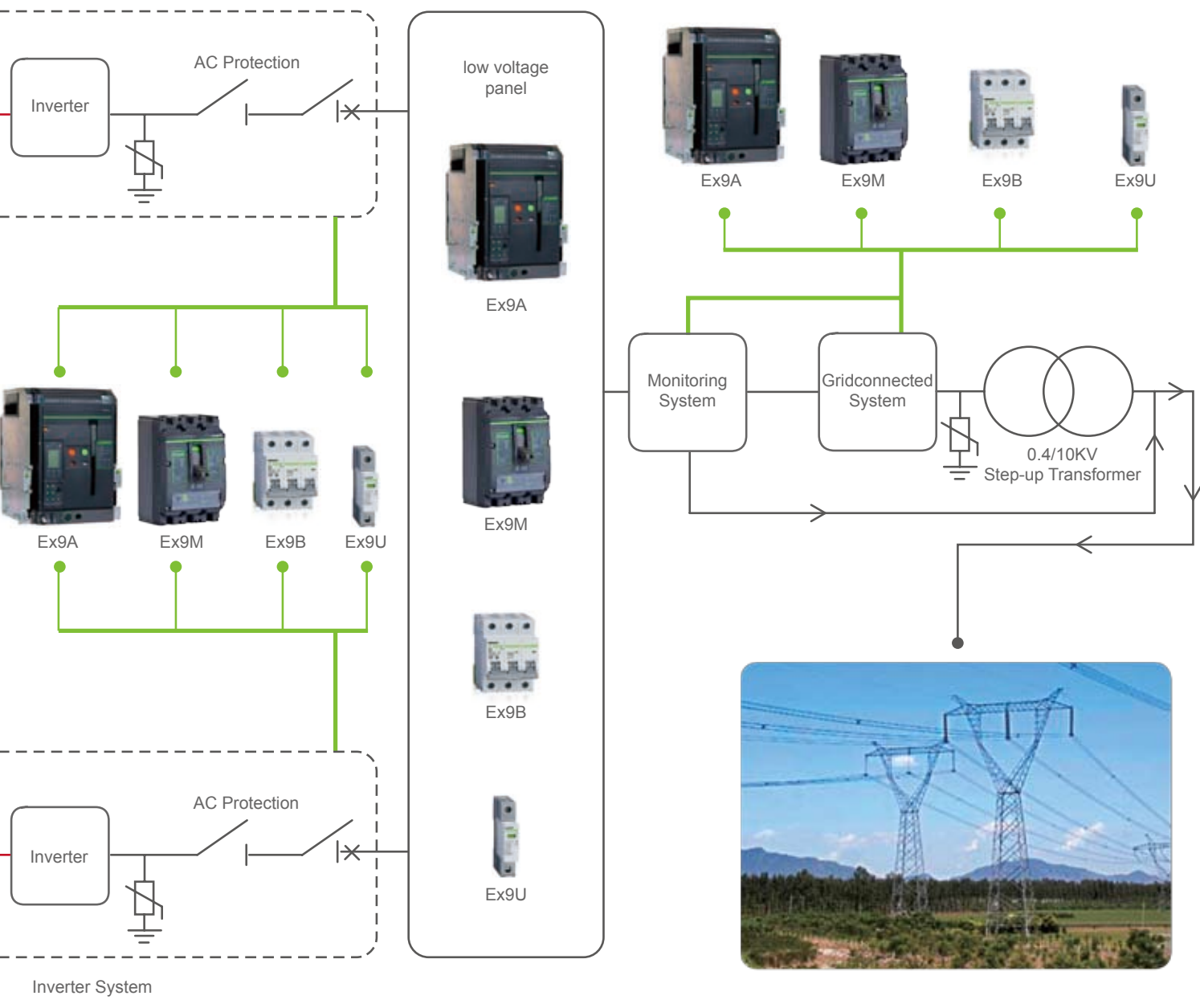
application in grid-connected system

1 Photovoltaic application in grid-connected system

B PV application with multiple inverters



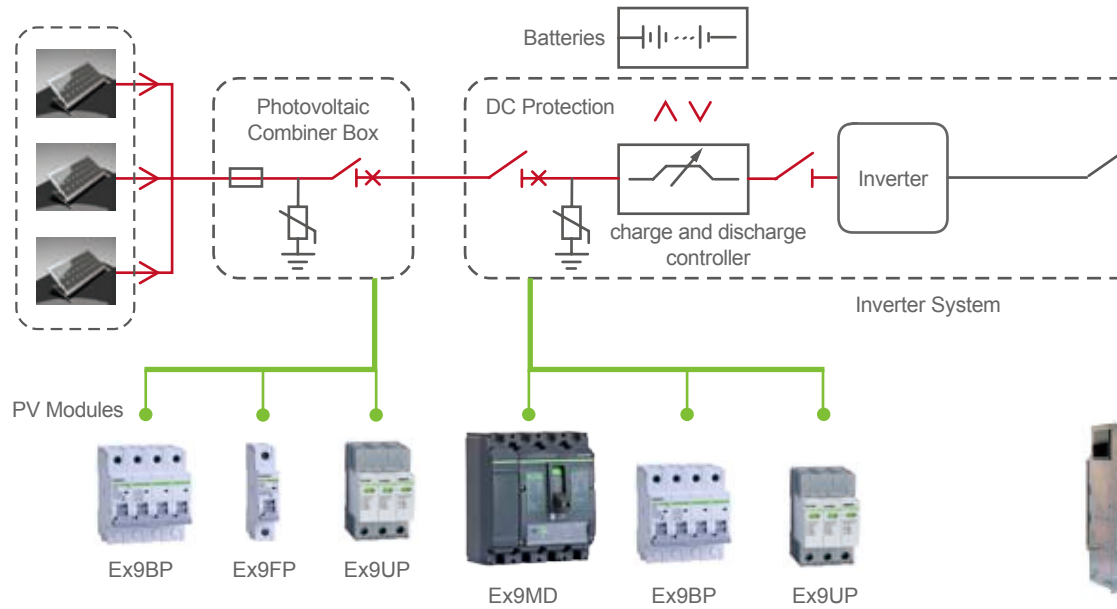
PV Modules



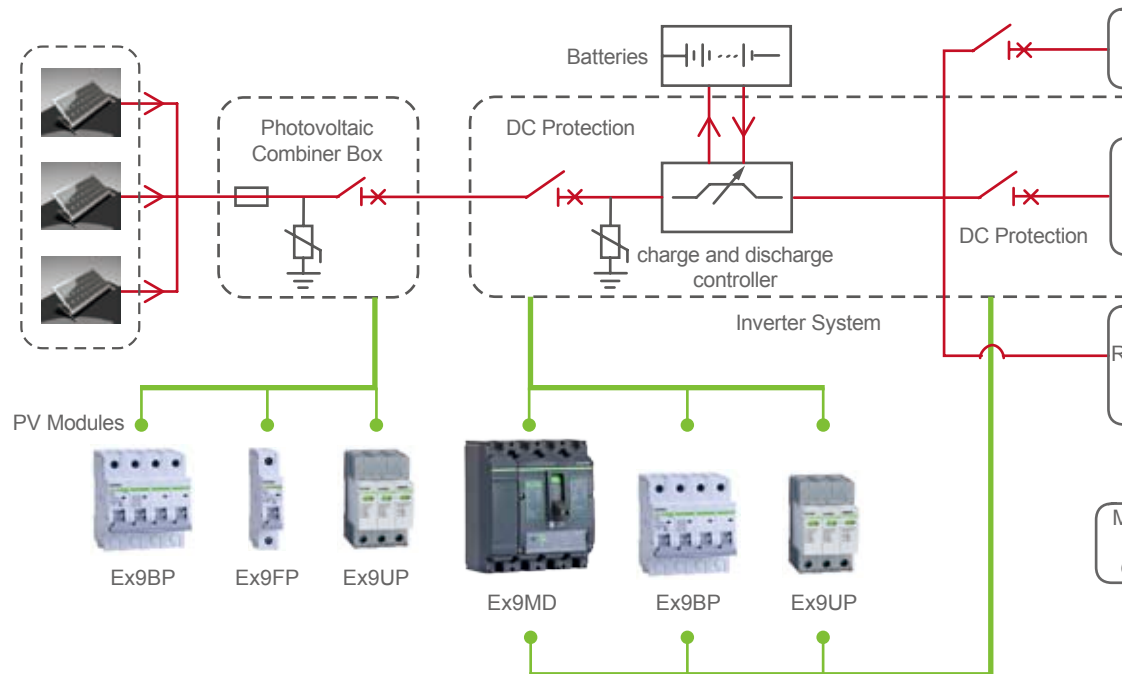
application in residential block

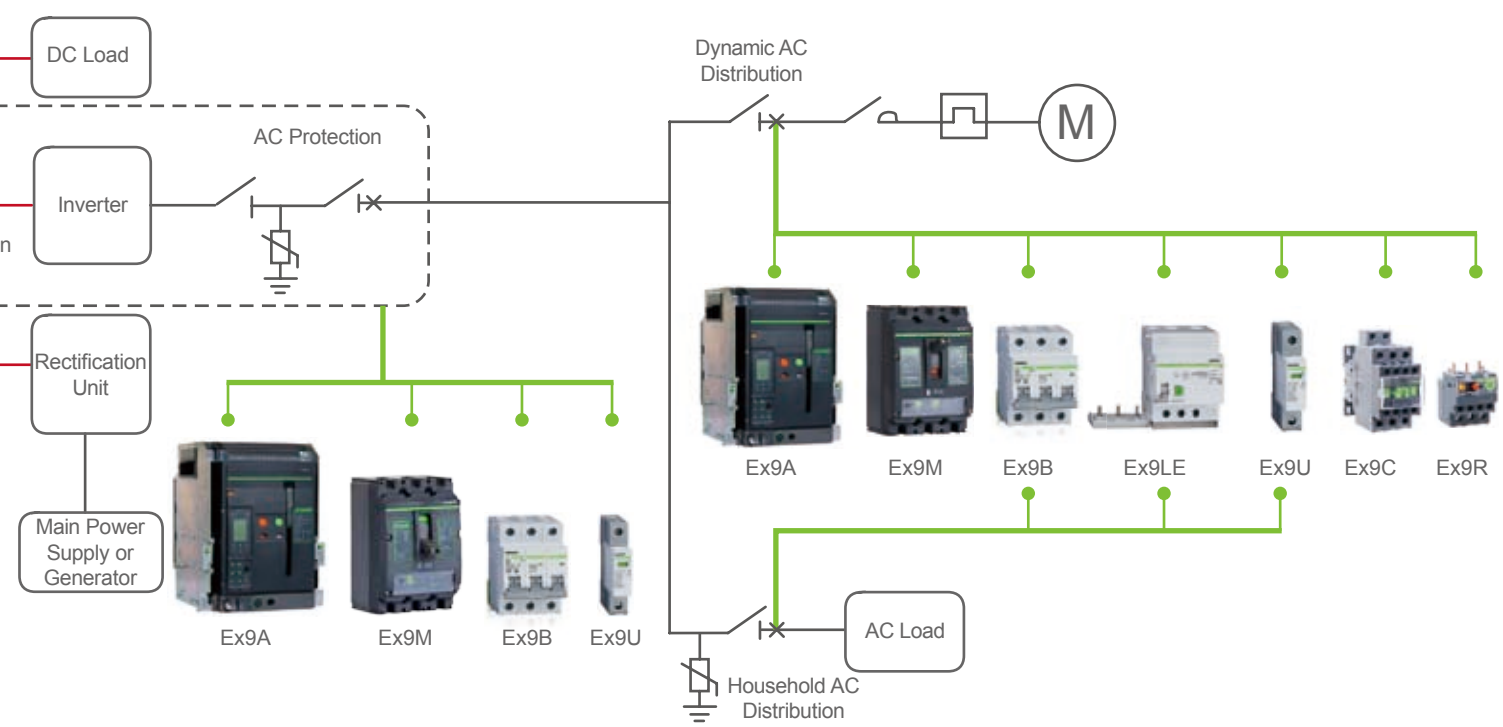
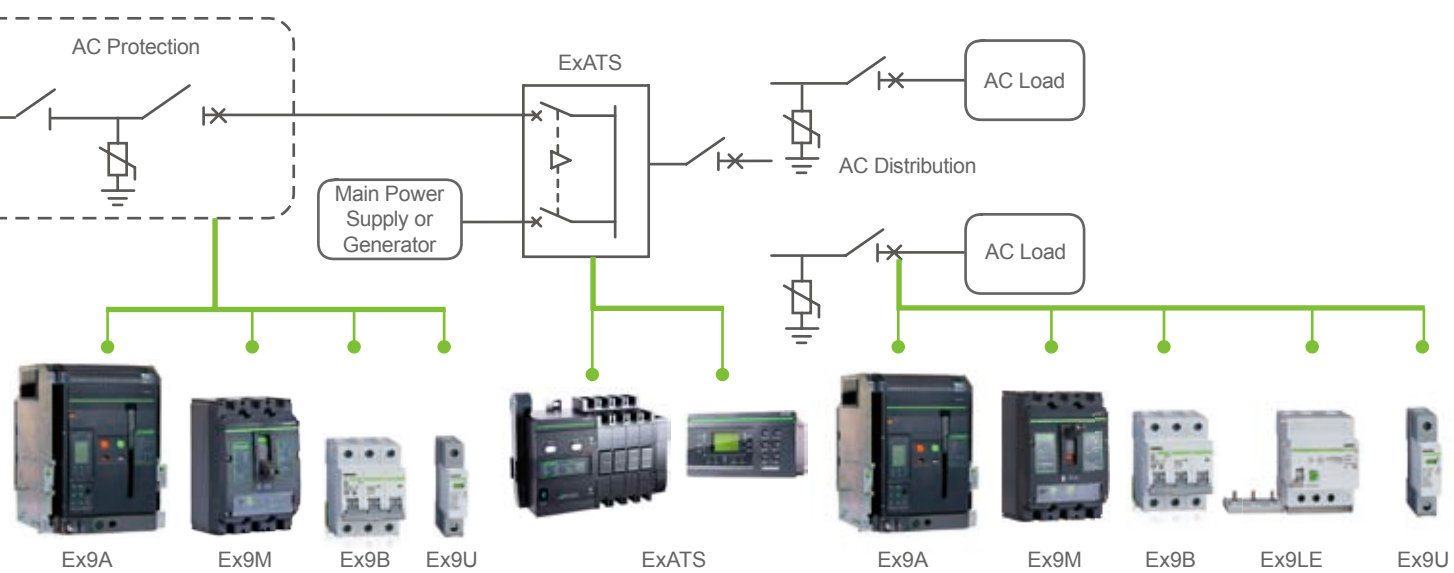
2 Photovoltaic application in residential block

A Direct Interchange between PV power and city grid



B Indirect interchange between PV power and city grid

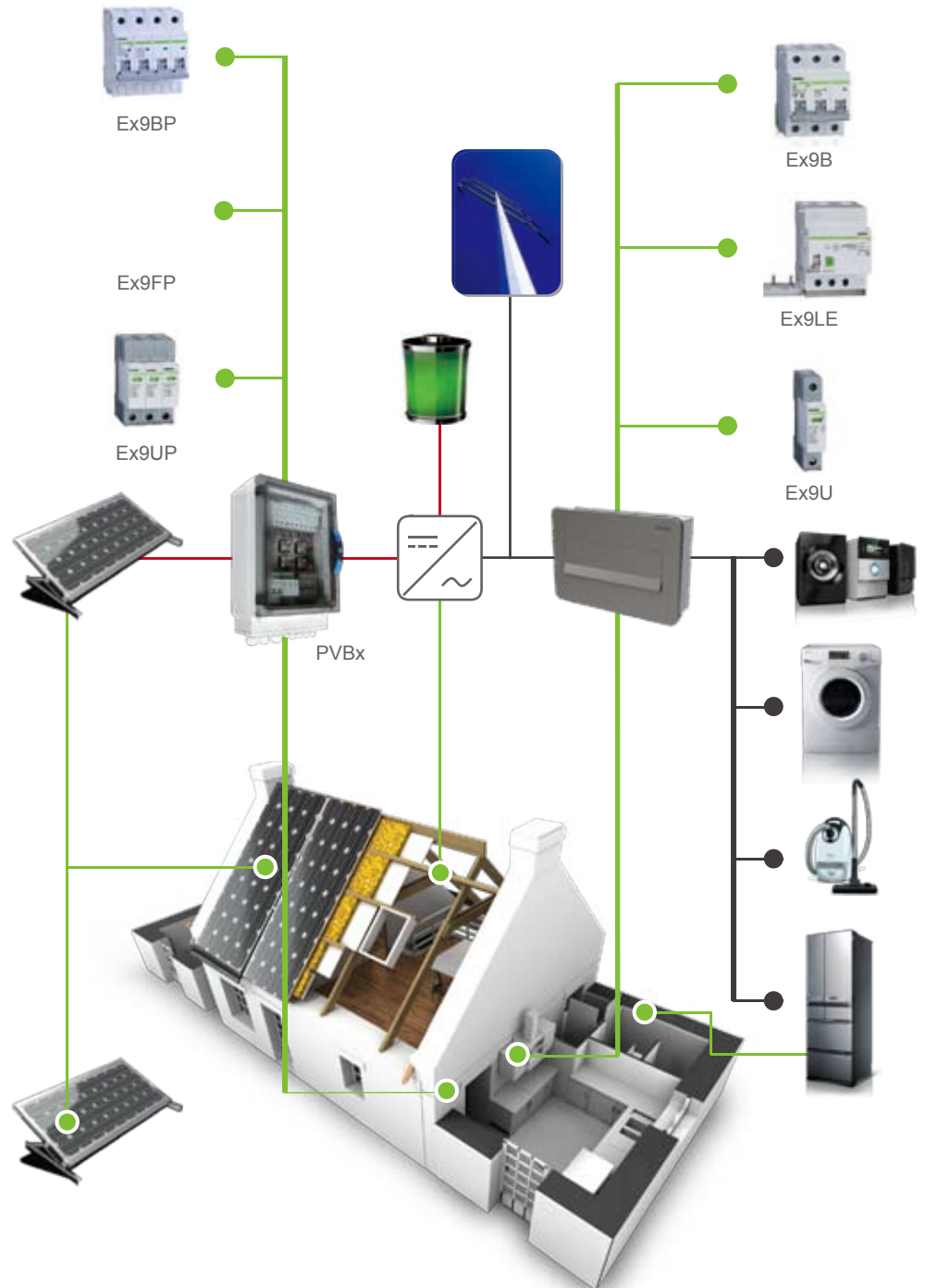




application in domestic house

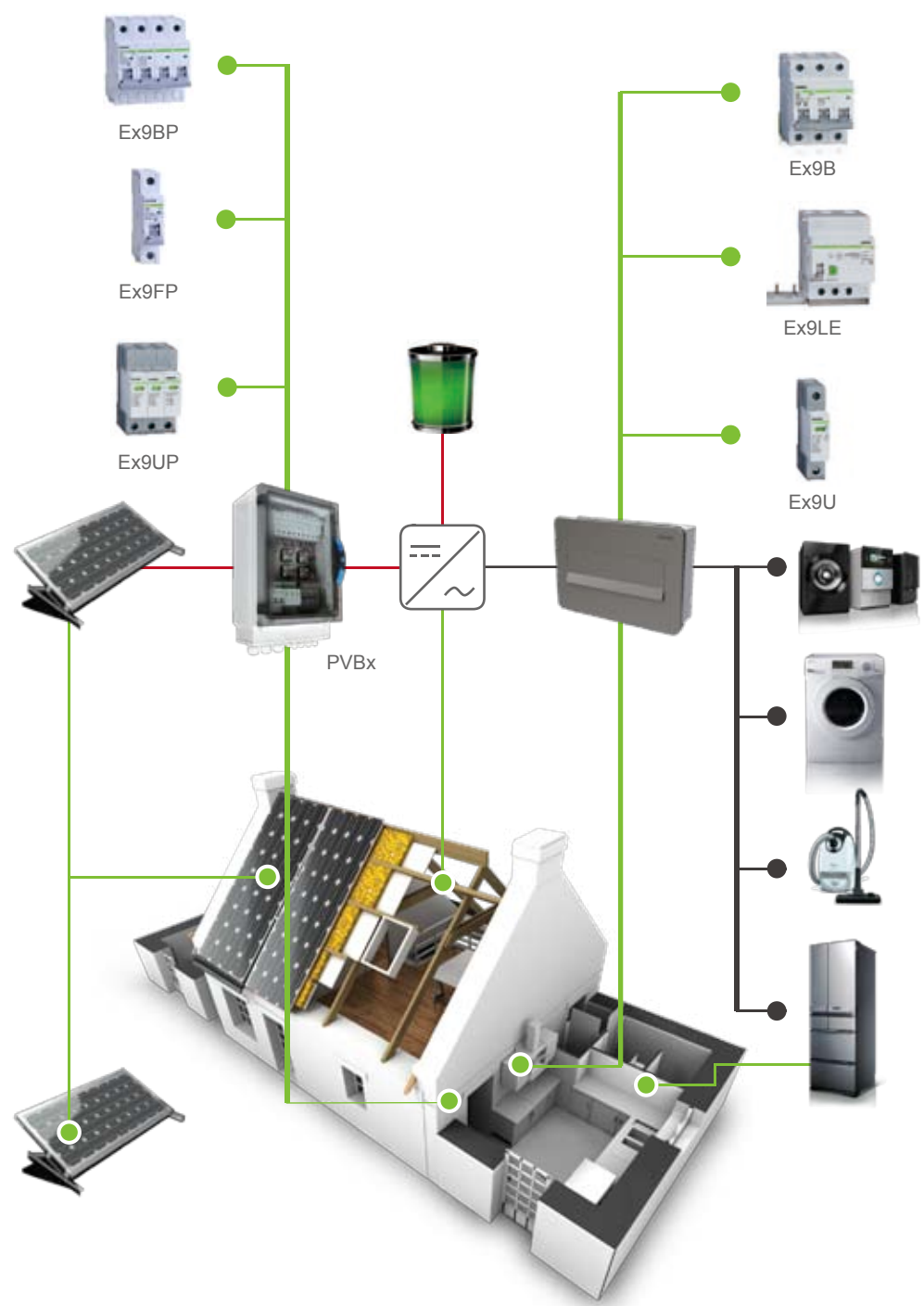
3 Photovoltaic application in domestic house

A Residential grid-connected system





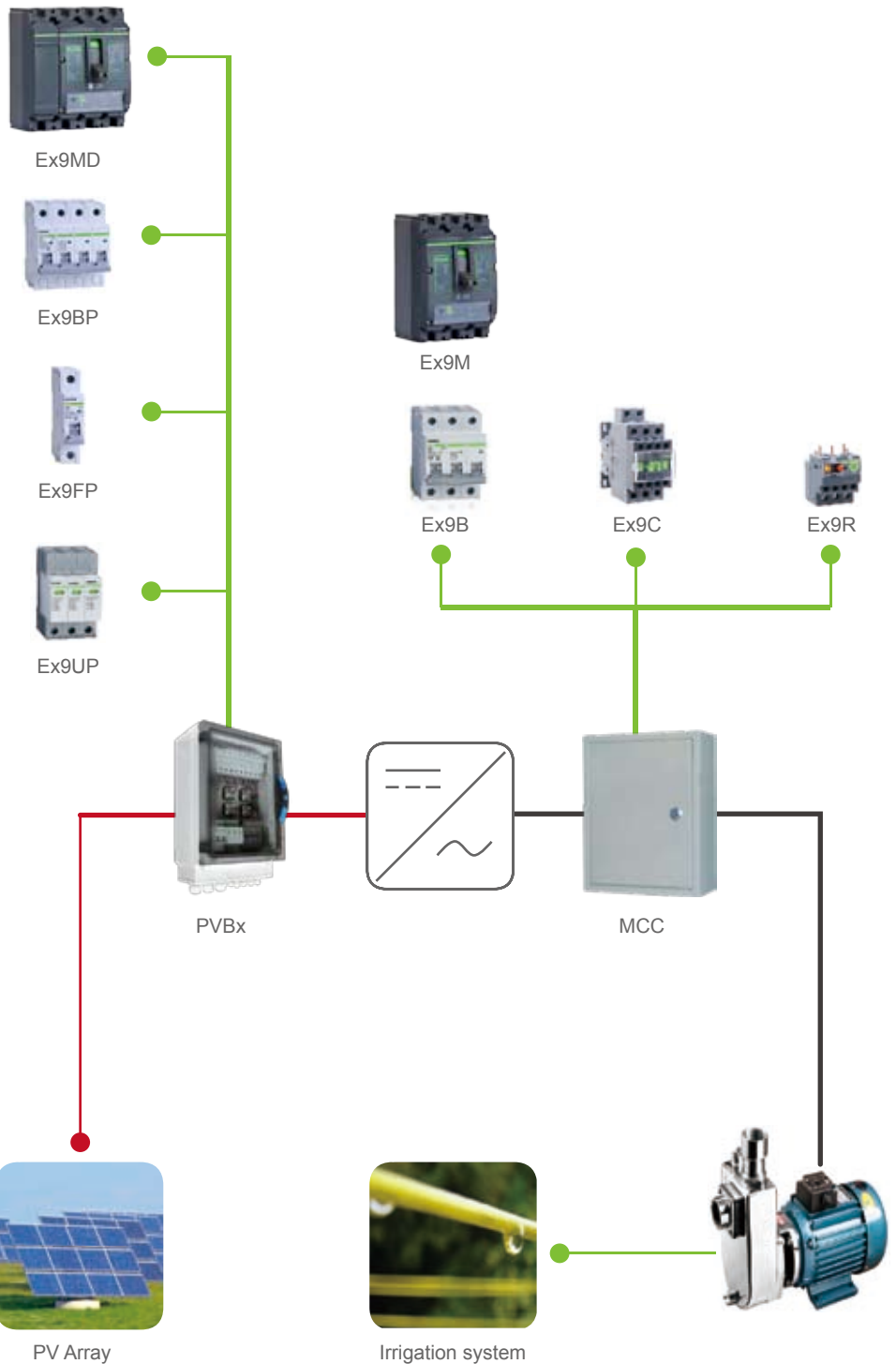
B Residential off-grid system



application in off-grid water pump system

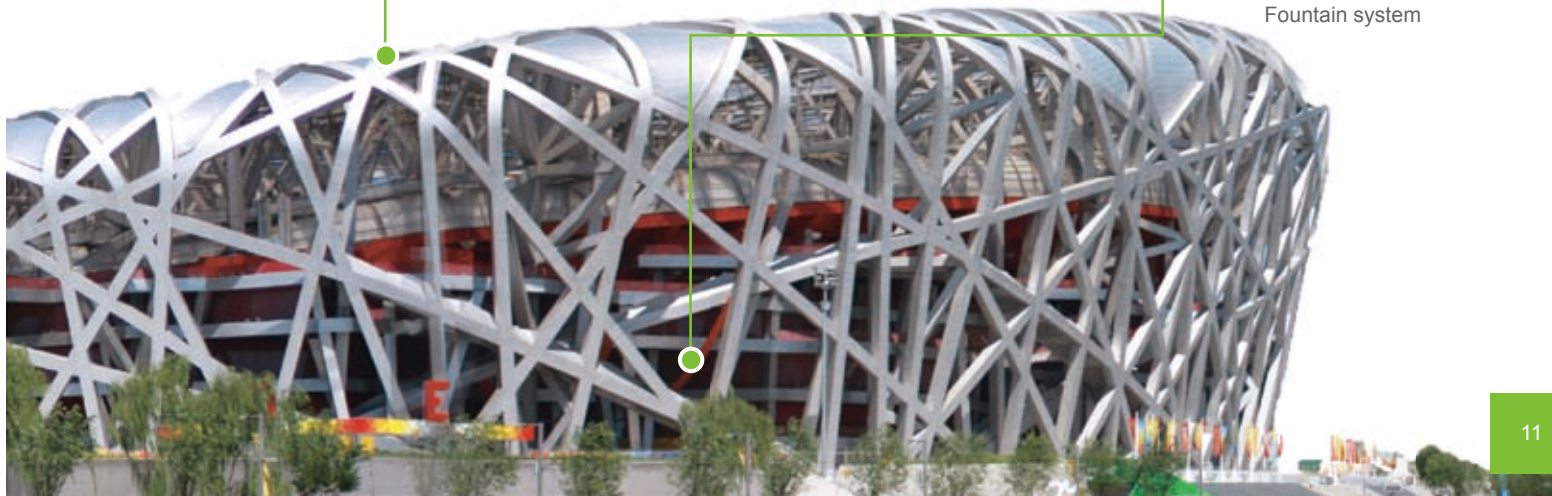
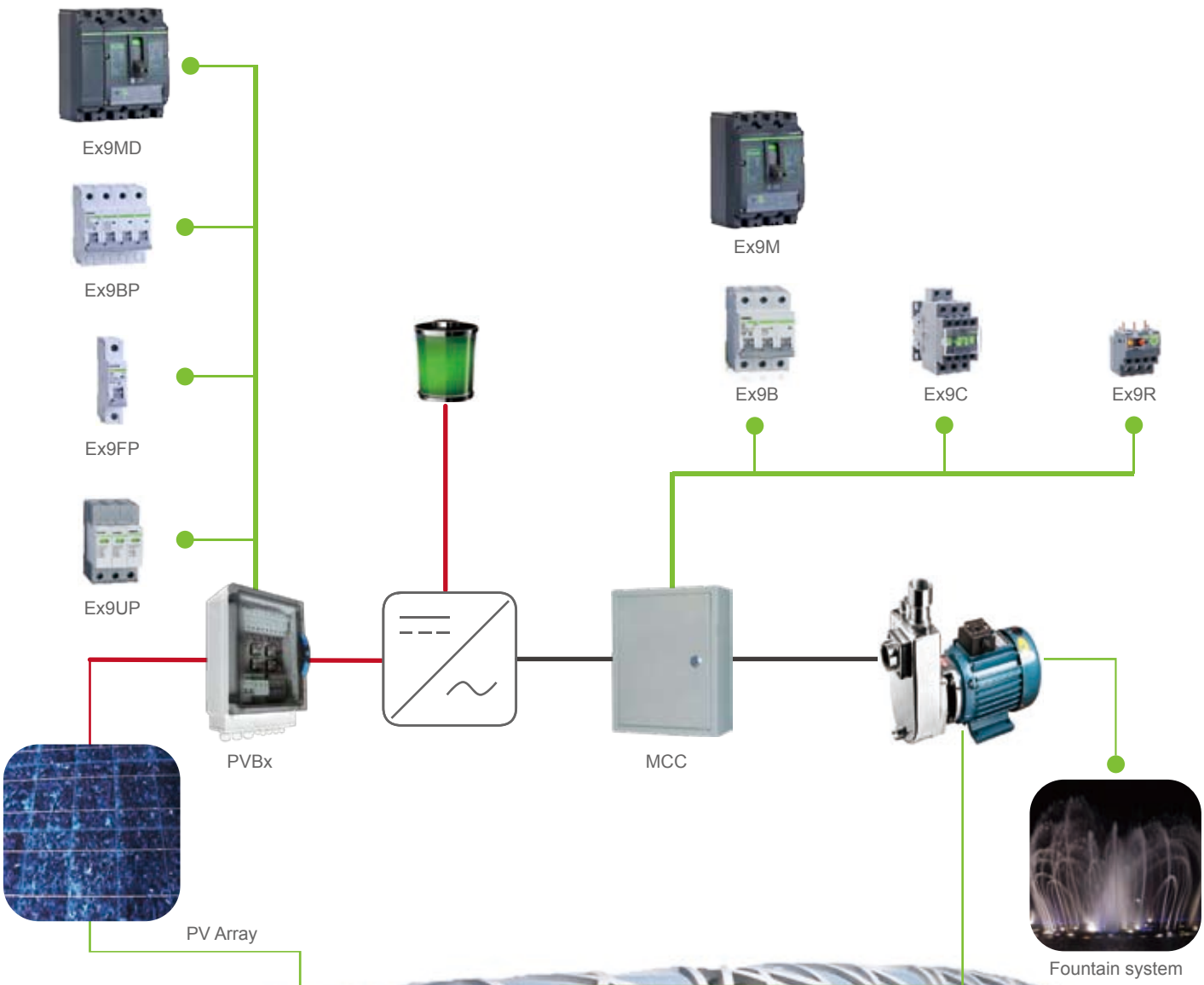
4 Photovoltaic application in off-grid water pump system

A Irrigation system





B Fountain system



Equipments for Photovoltaic System

Combiner Box



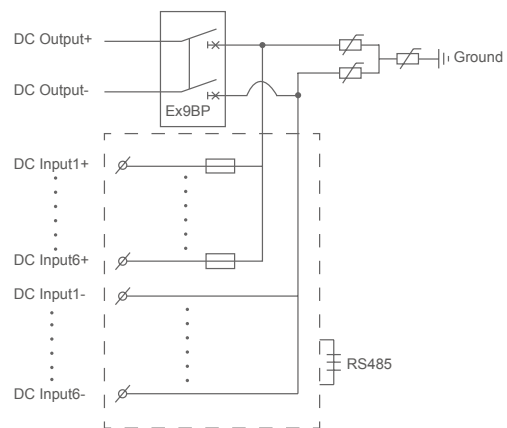
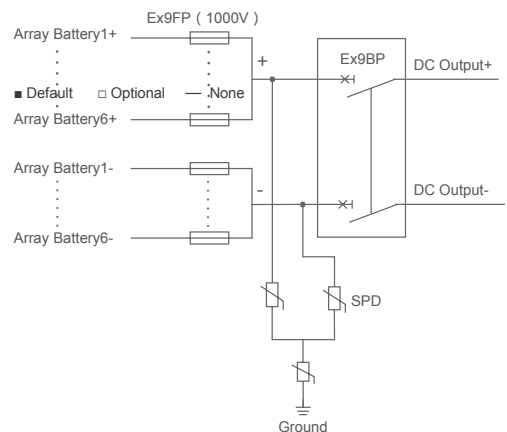
In photovoltaic system, both the voltage and direct current deriving from single PV panel is very low. They need to be combined to a high level before current flowing to inverter. PV Combiner Box is used to consolidate the direct current of every string in PV system before DC protection switchboard.

Low voltage products in String Combiner Box

- Moulded Case Circuit Breakers—Ex9MD (750/1000V DC, 16~250A)
- Miniature Circuit Breakers—Ex9BP (250/500/750/1000V DC, 10~63A)
- Surge Protection Device—Ex9UP (500/1000V DC)
- Fuse—Ex9FP (1000 V DC , 1~30A)
- Switch Disconnecter—Ex9IP (1000 V DC , 32A , 63A)

Specifications	Standard Photovoltaic Combiner Box	Smart Photovoltaic Combiner Box
Electrical performance		
Voltage range of PV array(V DC)		1000
Max. string input in parallel		20
Max. current each fuse input(A)		15
Max. diameter of each input cable(mm)		10
Max. diameter of each output cable(mm)		40
Protection function		
PV only input fuse/breaker		■
PV only output breaker		■
PV only surge arrester		■
Environmental adaptability		
Protection level		IP65
Relative humidity		0~99%
Installation temperature(°C)		-25~+70
Anti-corrosion		corrosin of rain,hail and snow
Temperature resistance(Box)		-40°C to +120°C
Position-free materials		exclusive of silicon and halogen
Flame retardant		conform to IEC 60695-2-11,UL Subject 94V-2
Chemical resistance		Prevent 10% of acid,alkali,gasoline and heavy oil
UV resistance		UV resistance tested for outdoor installation
Degree of resistance to impact		Degree of resistance to impact IK08(5 Joule)
Smart communication		
Communication interface	—	RS485
	—	Modbus
Each circuit current measurement	—	■
	—	□
Voltage measurement system	—	■
Switch state upload	—	□
Surge protector state upload	—	□
Temperature measurement inside box	—	□
Alarm	—	□

Diagram





Inverters



Inverter is one of the most important component in photovoltaic system. This device is comprised of inverter bridge unit, logic control unit, filter unit, protection unit of AC and DC unit. It is used to convert direct current (DC) to alternating current (AC).

It is regulated by IEC 60364-7-712 that "isolation should be added to both sides of AC and DC when maintaining inverter unit of PV system". Besides, Ex9MD DC MCCBs offer protection function for both DC and AC, the whole range of low voltage products are fully complying with Standard IEC 60947-1, especially on the requirements for isolation. Therefore, NOARK Electrics provide protection and isolation of shortload for inverter from 1 to 500KW.

Low voltage products in Inverters system

- Moulded Case Circuit Breakers—Ex9MD1 (750/1000V DC)
Ex9MD2 (750/1000V DC)
Ex9MD3 (750/1000V DC)
Ex9MD4 (750/1000V DC)
Ex9MD5 (750/1000V DC)
- Rotary handle—RHD
- Miniature Circuit Breakers—Ex9BP (750/1000V DC)
- Surge Protection Device—Ex9UP (750/1000V DC)



Ex9MD



RHD

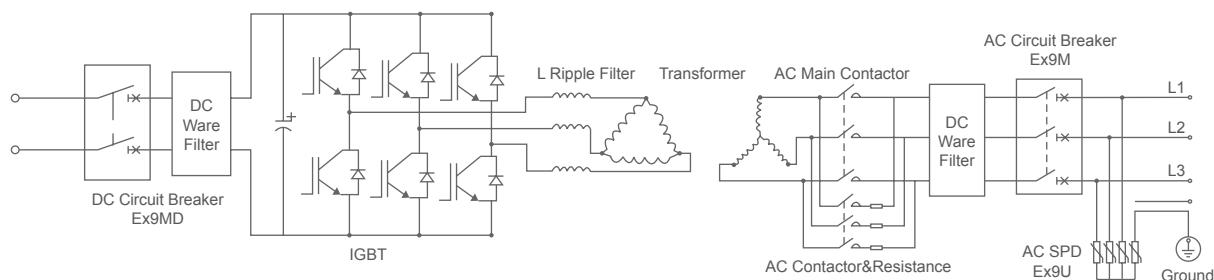


Ex9BP



Ex9UP

Diagram



Equipments for Photovoltaic System

Switchboard for DC protection and isolation



This switchboard has both input and output interface for direct current. The main purpose of positioning this device between String Combiner Box and Inverter system or other DC charging equipment is to exemplify the direct current out of String Combiner Box in a large PV system with multiple PV arrays. NOARK Electrics can supply relative DC circuit breakers, surge protection devices and other low voltage products for switchboard from 10kw to 500kw.

Low voltage products in DC switchboard

- Moulded Case Circuit Breakers—Ex9MD1 (750/1000V DC)
Ex9MD2 (750/1000V DC)
Ex9MD3 (750/1000V DC)
Ex9MD4 (750/1000V DC)
Ex9MD5 (750/1000V DC)
- Miniature Circuit Breakers—Ex9BP (250/500/750/1000V DC)
- Surge Protection Device—Ex9UP (500/1000V DC)



Ex9MD

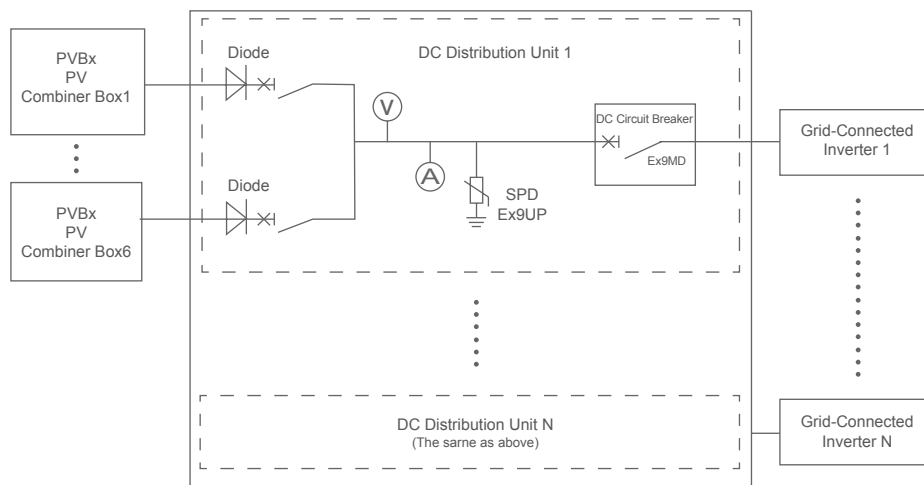


Ex9BP



Ex9UP

Diagram





Switchboard for AC protection and isolation



In contrast of using AC circuit breaker in off-grid system to distribute electricity, AC switchboard offers the interface with power grid for inverters. On the upstream and downstream of power grid or generators, there are basically circuit breakers, PV surge protection device, and meters (RS485) right after inverters. On top of them, AC grid has current and voltage meters for concise measurement and easy system management. NOARK Electrics is able to supply all required components in AC switchboard.

Low voltage products in AC switchboard

- Air Circuit Breaker—Ex9A (690V AC)
- Moulded Case Circuit Breakers—Ex9M (690V AC)
- Moulded Case Circuit Breakers—Ex9B (400V AC)
- Surge Protection Device—Ex9U (275~440V AC)



Ex9A



Ex9M

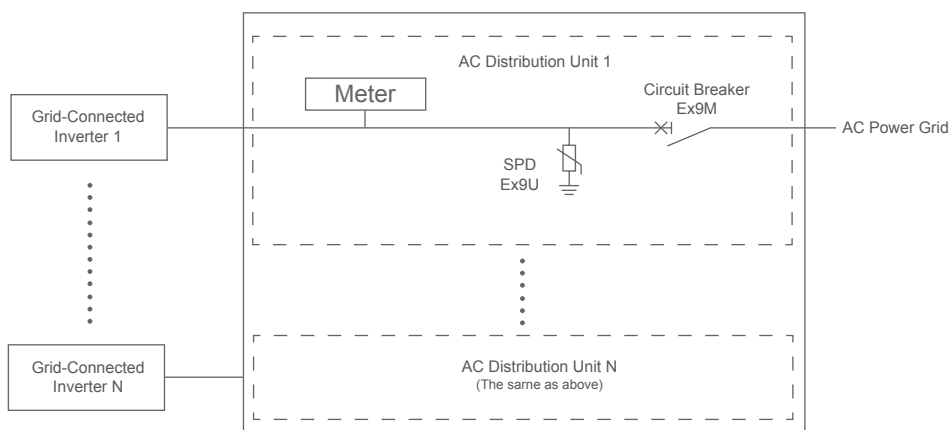


Ex9B






Ex9U

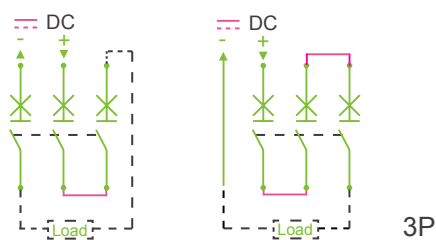
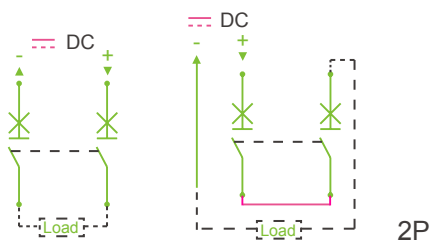
Diagram



DC Electrical Components For PV System

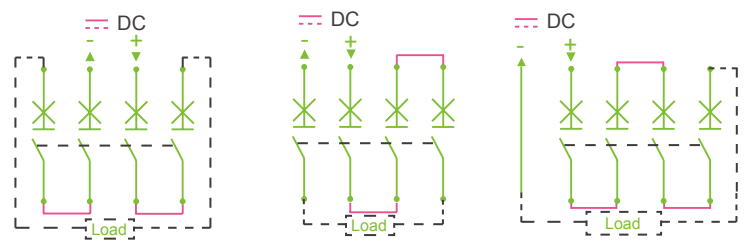
Ex9MD Series DC Moulded Case Circuit Breaker			Ex9MD1				Ex9MD2							
DC distribution protection for PV system														
Number of poles			2P/3P/4P				2P/3P/4P							
Rated frame current			125				250							
Electrical performance														
Rated working voltage U_e (V)			500/750/1000				500/750/1000							
Rated current I_n (A)			16-20-25-32-40-50-63-80-100-125				125-160-180-200-225-250							
Rated insulation voltage U_i (V)			1000				1000							
Rated impulse withstand voltage U_{imp} (kV)			8				8							
Breaking type			B	S	N	Q	R	H	B	S	N	Q	R	H
Ultimate breaking capacity I_{cu} 1000V DC (kA)			25	36	50	70	85	100	25	36	50	70	85	100
Service breaking capacity I_{cs} (% I_{cu})			100%				100%							
Isolation function			■				■							
Use category			A				A							
Service life (O~C)	Mechanic	Actual value	15000				15000							
		Standard value	7000				7000							
	Electric	Actual value	5000				5000							
		Standard value	1000				1000							
Protection														
Thermal magnetic type		Long-time delay	$(0.8-0.9-1.0) \times I_n$				$(0.8-0.9-1.0) \times I_n$							
		Short-time delay	—				—							
		Instantaneous	$10 \times I_n$				$(5-6-7-8-9-10) \times I_n$							
Control and indication														
Control mode	Manual	Direct (RHD)	□				□							
		Extended (ERH)	□				□							
	Electric (MOD)	□				□								
Shunt release (SHT)			□				□							
Under-voltage release (UVT)			□				□							
Auxiliary contact (AX)			□				□							
Alarm contact (AL)			□				□							
Connection and indication														
Degree of protection		All sides	IP40				IP40							
		Wiring terminal	IP20				IP20							
		Wiring assembly	Front/rear				Front/rear							
Wiring	Plug-in assembly (PIA)	□				□								
	Draw-out assembly (DOB)	—				—								
	Shorted row (DCB)	■				■								
Handle lock (KLK)		ON/OFF position				ON/OFF position								
Phase board (PHS)		■				■								
Mechanical interlock (MIT)		□				□								
Dimension (mm) W×H×D			a (2*/3/4)	62/90/120				70/105/140						
			b	140				157						
			c	81.6				91.5						
Weight (kg)		2P	0.9				1.2							
		3P	1.2				1.7							
		4P	1.7				2.2							

■ YES □ Optional — NO * 2P for Ex9MD1, Ex9MD2 only; 2P: 500V, 3P: 750V, 4P: 1000V.





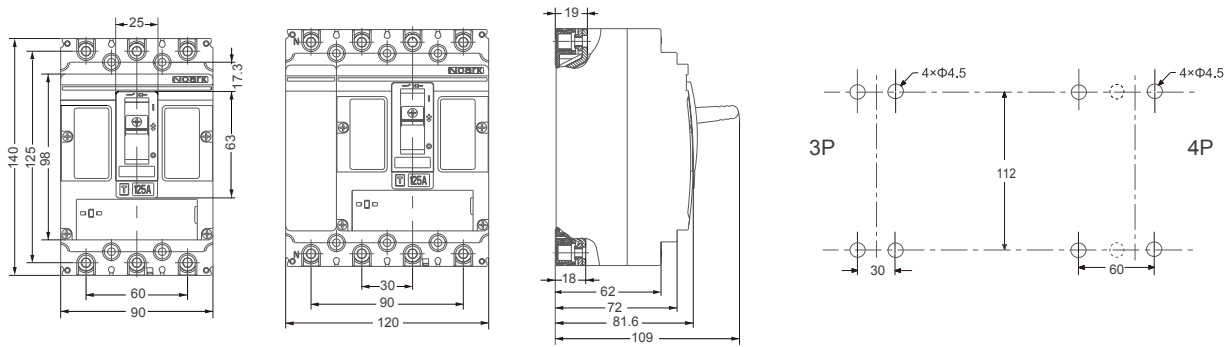
Ex9MD3							Ex9MD4						Ex9MD5					
3P/4P 400							3P/4P 630						3P/4P 800					
750/1000 250-315-350-400							750/1000 400-500-630						750/1000 630-700-800					
1000							1000						1000					
8							8						8					
B	S	N	Q	R	H		B	S	N	Q	R	H	B	S	N	Q	R	H
25	36	50	70	85	100		25	36	50	70	85	100	25	36	50	70	85	100
100%							100%						100%					
■							■						■					
A							A						A					
10000							10000						5000					
4000							4000						2500					
2000							2000						1000					
1000							1000						500					
(0.8-0.9-1.0)×I _n							(0.8-0.9-1.0)×I _n						(0.8-0.9-1.0)×I _n					
—							—						—					
(5-6-7-8-9-10)×I _n							(5-6-7-8-9-10)×I _n						(5-6-7-8-9-10)×I _n					
□							□						□					
□							□						□					
□							□						□					
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□							□						□					
□							□						□					
□							□						□					
IP40							IP40						IP40					
IP20							IP20						IP20					
Front/rear							Front/rear						Front/rear					
□							—						—					
□							□						□					
■							■						■					
ON/OFF position							ON/OFF position						ON/OFF position					
■							■						■					
□							□						□					
140/185							195/260						195/260					
255							300						300					
118.5							142						142					
—							—						—					
5.0							10.2						10.2					
6.6							13.5						13.5					



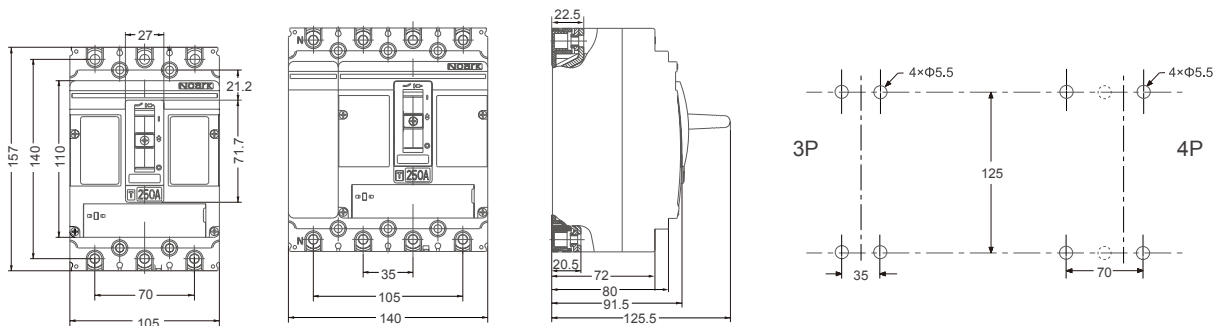
4P

Products Technical Specifications (DC Electrical Apparatus)

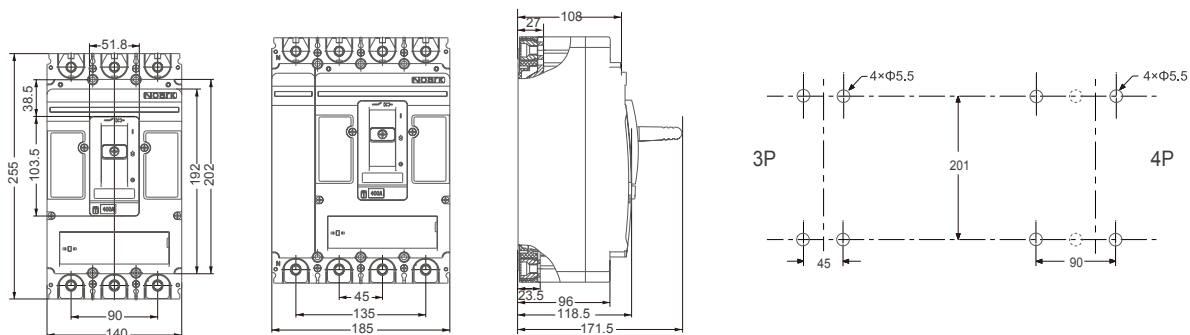
Ex9MD1 Appearance and Installation Dimension



Ex9MD2 Appearance and Installation Dimension

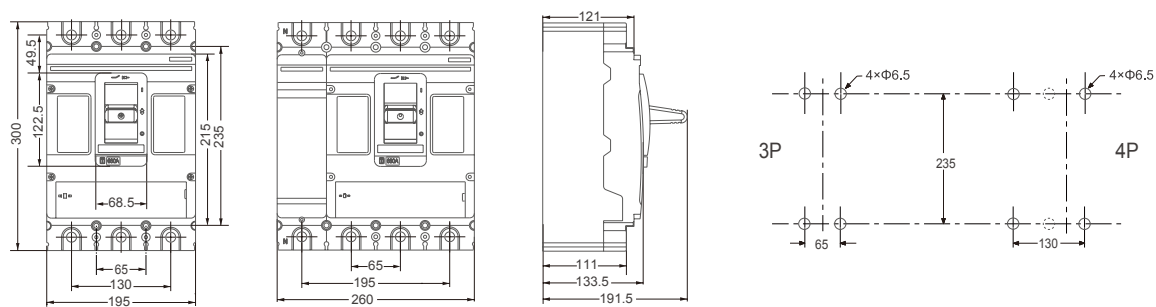


Ex9MD3 Appearance and Installation Dimension

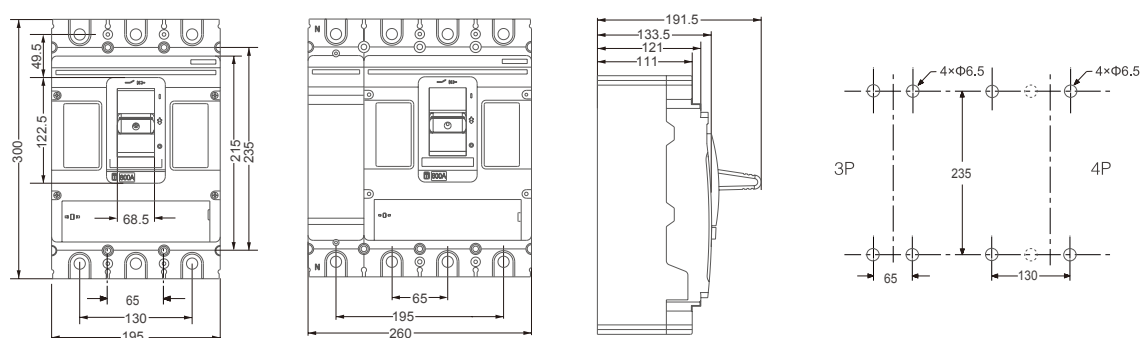







Ex9MD4 Appearance and Installation Dimension



Ex9MD5 Appearance and Installation Dimension








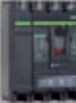
DC Electrical Components For PV System

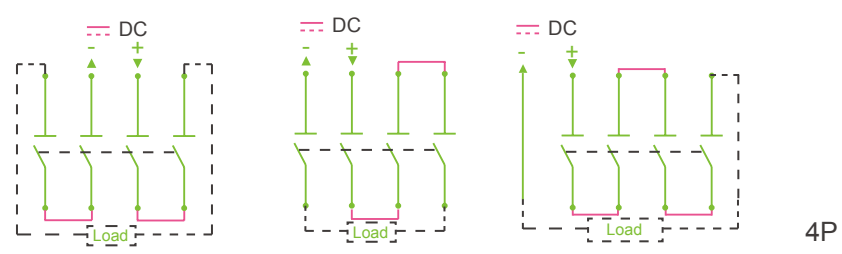
Ex9MSD Series Switch Disconnecter			Ex9M1SD		Ex9M2SD	
DC switch disconnecter for PV system						
Number of poles			2P/3P/4P		2P/3P/4P	
Rated frame current (A)			125		250	
Electrical performance						
Rated working voltage	U_e	(V DC)	500/750/1000		500/750/1000	
Rated working current	I_n	(A DC)	125		250	
Rated insulation voltage	U_i	(V)	1000		1000	
Rated impulse withstand voltage	U_{imp}	(kV)	8		8	
Rated short-time withstand current I_{cw} (A)	1s		1800		3200	
	3s		1800		3200	
	20s		700		1350	
Isolation function			■		■	
Use category	DC		DC22A/DC23A		DC22A/DC23A	
Service life (C-O)	Mechanic	Actual value	15000		15000	
		Standard value	7000		7000	
	Electric	Actual value	5000		5000	
		Standard value	1000		1000	
Control and indication						
Control mode	Manual	Direct (RHD)	<input type="checkbox"/>		<input type="checkbox"/>	
		Extended (ERH)	<input type="checkbox"/>		<input type="checkbox"/>	
	Electric (MOD)	<input type="checkbox"/>		<input type="checkbox"/>		
Shunt release (SHT)			<input type="checkbox"/>		<input type="checkbox"/>	
Under-voltage release (UVT)			<input type="checkbox"/>		<input type="checkbox"/>	
Auxiliary contact (AX)			<input type="checkbox"/>		<input type="checkbox"/>	
Alarm contact (AL)			<input type="checkbox"/>		<input type="checkbox"/>	
Connection and installation						
Degree of protection	All sides		IP40		IP40	
	Wiring terminal		IP20		IP20	
	Wiring assembly		Front/rear		Front/rear	
Wiring	Plug-in assembly (PIA)		<input type="checkbox"/>		<input type="checkbox"/>	
	Draw-out assembly (DOB)		—		—	
	Terminal shield (TCV)		<input type="checkbox"/>		<input type="checkbox"/>	
Handle lock (KLK)			ON/OFF position		ON/OFF position	
Phase board (PHS)			■		■	
Mechanical interlock (MIT)			<input type="checkbox"/>		<input type="checkbox"/>	
Dimension (mm) W×H×D		a (2*/3/4)	62/90/120		70/105/140	
		b	140		157	
		c	81.6		91.5	
Weight (kg)	2P		0.6		1.1	
	3P		1.0		1.5	
	4P		1.5		2.0	

■ Yes □ Optional — No * 2P for Ex9M1SD、Ex9M2SD only; 2P: 500V DC, 3P: 750V DC, 4P: 1000V DC.





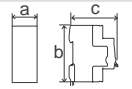




	Ex9M3SD	Ex9M4SD	Ex9M5SD
	 	 	 
	3P/4P	3P/4P	3P/4P
	400	630	800
	750/1000	750/1000	750/1000
	400	630	800
	1000	1000	1000
	8	8	8
	5000	8000	10000
	5000	8000	10000
	2400	3000	3800
	■	■	■
	DC22A/DC23A	DC22A/DC23A	DC22A/DC23A
	10000	5000	5000
	4000	4000	2500
	2000	2000	2000
	1000	1000	500
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	IP40	IP40	IP40
	IP20	IP20	IP20
	Front/rear	Front/rear	Front/rear
	<input type="checkbox"/>	—	—
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	—	—	—
	ON/OFF position	ON/OFF position	ON/OFF position
	■	■	■
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	140/185	195/260	195/260
	255	300	300
	118.5	142	142
	—	—	—
	4.5	9.5	9.5
	6.0	12.7	12.7

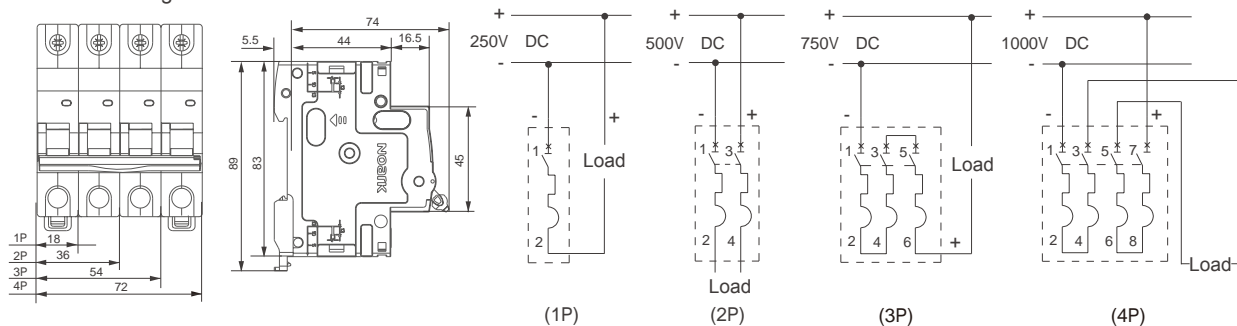


DC Electrical Components For PV System

Ex9BP Series Miniature Circuit Breaker		Ex9BP				
For PV system (IEC/EN 60947-2)						
Poles		1P	2P	3P	4P	
Rated frame current (A)		63				
Electrical performance						
Rated working voltage	U_e (V DC)	250	500	750	1000	
Rated current	I_n (A)	10, 16, 20, 25, 32, 40, 50, 63				
Rated insulated voltage	U_i (V DC)	1000				
Rated implused voltage	U_{imp} (kV)	4				
Type of breaking		N/H				
Ultimate breaking capacity	(kA)	6/10				
Service breaking capacity	(%Icu)	100%				
Curve type		C/K				
Tripping type		Thermal magnetic type				
Service life (C-O)	Mechanical	Actual value	20000			
		Standard value	8500			
	Electrical	Actual value	10000			
		Standard value	1500			
Control and indication						
Auxiliary contact		<input type="checkbox"/>				
Alarm contact		<input type="checkbox"/>				
Shunt release		<input type="checkbox"/>				
Undervoltage release		<input type="checkbox"/>				
Overvoltage release		<input type="checkbox"/>				
Connection and installation						
Protection degree	All sides	IP40				
	Connection terminal	IP20				
Padlock		ON/OFF position				
Wire	(mm ²)	1~35				
Working temperature	(°C)	-30~+70				
Resistance to humidity and heat		Class 2				
Altitude	(m)	≤2000				
Relative humidity		+20°C, ≤95%; +40°C, ≤50%				
Pollution degree		3				
Installation environment		Avoid obvious shock and vibration				
Installation class		Class III				
Mounting		DIN35 rail				
Dimension(mm) (WxHxL)		a	18	36	54	72
		b	89	89	89	89
		c	72	74	74	74
Weight	(kg)	0.12	0.24	0.36	0.48	

■ Default □ Optional — None




Dimension and wiring



Note: Products are non-polarised. The wiring above is just example.

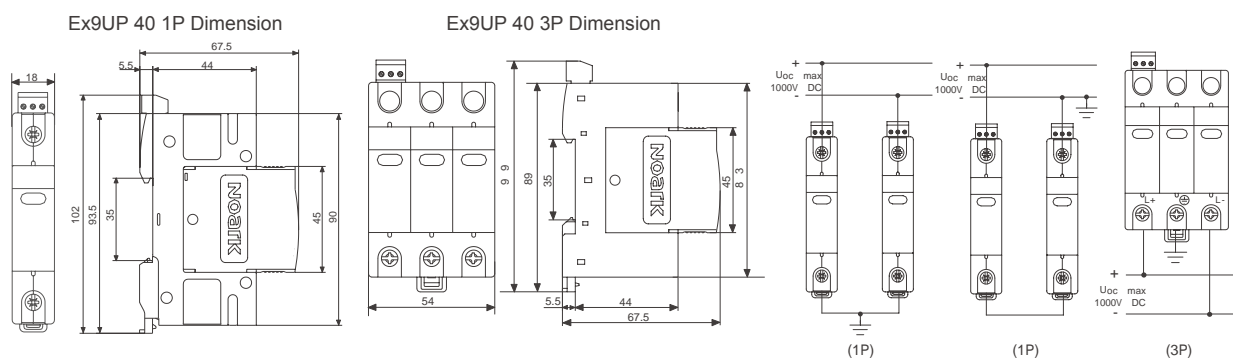


DC Electrical Components For PV System





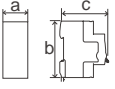
Ex9UP Series Surge Protective Device			Ex9UP	
For PV system (IEC 61643-1/ EN 61643-11)				
Poles			1P	3P
Electrical specification				
Test classification			II	
Open voltage	$U_{oc\ max}$	(V DC)	500	1000
Max continuous operational voltage	U_c	(V DC)	500	1000
Nominal discharge current	$I_n(8/20)us$	(kA)	20	
Maximum discharge current	$I_{max}(8/20)us$	(kA)	40	
Voltage protection level	U_p	(kV)	2.0	3.8
Control and indication				
Instruction			■	
Insertable module			■	
Remote contact			□	
Remote contact			Max working voltage (V) 250V AC / 30V DC	
Remote contact			Max working current (Resistive/ Inductive) 1A (250V AC)	
Remote contact			Max working current (Resistive/ Inductive) 1A (30V DC)	
Connection and Installation				
Wire	Hard calbe	(mm ²)	4~25	
	Flexible calbe	(mm ²)	4~16	
Stripping length	(mm)		10	
Terminal screws			M5	
Torque (Nm)	Main circuit		3.5	
	Remote contact		0.25	
Protection degree	All sides		IP40	
	Connection terminal		IP20	
Installation environment			Avoid obvious shock and vibration	
Altitude	(m)		≤2000	
Working temperature	(°C)		-30~+70	
Relative humidity			30%~90%	
Installation category			TH35-7.5/DIN35 rail	
Dimension (mm) (W×H×L)		a	18	54
		b	102	99
		c	67.6	67.6
Weight	(kg)		0.12	0.36

■ Default □ Optional — None

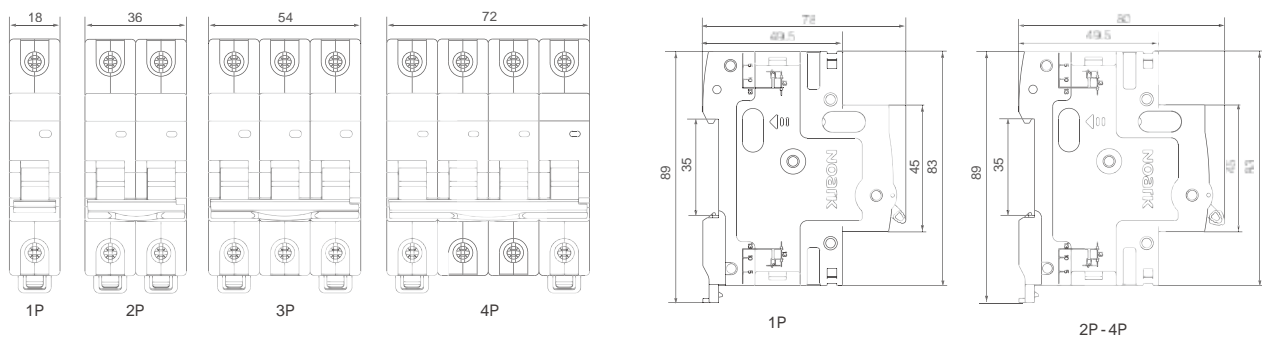
Dimension and wiring



DC Electrical Components For PV System





Ex9IP Series PV Switch Disconnecter			Ex9IP			
For PV system (IEC/EN 60947-3)						
Number of poles			1P	2P	3P	4P
Electrical performance						
Rated working voltage	U_e	(VDC)	250	500	750	1000
Rated current	I_n	(A)	32、63			
Rated insulated voltage	U_i	(V)	1000			
Rated short-time withstand current	I_e	1s	12			
Rated short-current making capacity	I_e	0.1s	20			
Service life (C-O)	Mechanical	Actual value	10000			
		Standard value	1700			
	Electrical	Actual value	1000			
		Standard value	300			
Connection and installation						
Protection degree	All sides		IP40			
	Connection terminal		IP20			
Use category			DC-22B			
Wire	(mm ²)		1~35			
Working temperature	(°C)		-30~+70			
Resistance to humidity and heat			Class 2			
Altitude	(m)		≤2000			
Relative humidity			+20°C , ≤95% ; +40°C , ≤50%			
Pollution degree			3			
Installation environment			Avoid obvious shock and vibration			
Installation category			Class III			
Installation class			TH35-7.5/DIN35 rail			
Dimension (mm) (WxHxL)		a	18	36	54	72
		b	89			
		c	80			
Weight	(kg)		0.12	0.24	0.36	0.48

Dimension

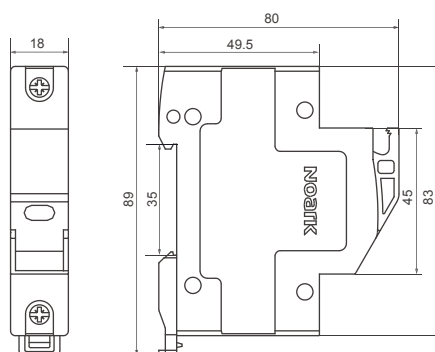








DC Electrical Components For PV System

Ex9FP Series PV fuse		Ex9FP	
For PV system (IEC/EN 60269)			
Number of poles		1P	
Electrical performance			
Rated working voltage	U_e (V DC)	1000	
Rated current	I_n (A)	1、 2、 3、 4、 5、 6、 8、 10、 12、 15	20
Breaking capacity	(kA)	33	30
Max power dissipation	(w)	3	
Connection and Installation			
Protection degree	All sides	IP40	
	Connection terminal	IP20	
Wire	(mm ²)	1~6	
Working temperature	(°C)	-30~+70	
Resistance to humidity and heat		Class 2	
Altitude	(m)	≤2000	
Relative humidity		+20°C , ≤95% ; +40°C , ≤50%	
Pollution degree		3	
Installation environment		Avoid obvious shock and vibration	
Installation class		Class III	
Installation category		TH35-7.5/DIN35 rail	
Dimension (mm) (WxHxL)		a	18
		b	89
		c	80
Fuse size	(mm)	ø10x38	
Weight	(kg)	0.07	

Dimension







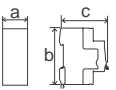
AC Electrical Components For PV System

Ex9A Series Air Circuit Breaker			Ex9A16	Ex9A32	Ex9A40	Ex9A63			
(IEC / EN 60947-2)									
Rated frame current (A)			1600	3200	4000	6300			
Electrical performance									
Number of poles (P)			3P/4P	3P/4P	3P/4P	3P/4P			
Operating frequency (Hz)			50/60	50/60	50/60	50/60			
Version			Fixed / Withdrawable	Fixed / Withdrawable	Fixed / Withdrawable	Withdrawable			
Rated voltage U_e (V)			380/400/415/660/690						
Rated current +40°C I_n (A)			400-630-800-1000-1250-1600	1600-2000-2500-2900-3200	2000-2500-2900-3200-4000	4000-5000-6300			
Rated insulation voltage U_i (V)			1000						
Rated impulse withstand voltage U_{imp} (kV)			12						
Type of breaking capacity			N/Q	Q/R/H	Q/R/H	V			
Ultimate breaking capacity I_{cu} (kA)			415V 690V	55/65 30	65/85/100 50/65/75	65/85/100 50/65/75	120 85		
Rated service breaking capacity I_{cs} (100% I_{cu}) (kA)			415V 690V	75% 100%	100% 100%	100% 100%	100% 100%		
Short-time withstand current I_{cw} (kA) 1s			415V 690V	42 25	50/65/85 35/40/50	50/65/85 35/40/50	100 85		
Rated making current I_{cm} (kA)			415V 690V	121 63	143/187/220 105/143/165	143/187/220 105/143/165	220 187		
Breaking and closing time (ms)			Breaking Closing	20~30			< 60 < 70 < 70 < 70		
Arcing distance			0						
Service life (C-O)	Mechanical	Maintenance-free	12500	10000	8000	2000			
		Maintenance	25000	15000	15000	5000			
	Electrical	(415V)	6000	5000	3000	500			
		(690V)	3000	1500	1000	500			
Isolation function			■						
Protection									
Smart unit			■						
N-pole protection capacity (only available for 4P&3P+N)			□						
Connection and Installation									
Service category			B						
Installing category	Circuit breaker(including coil at primary side)		IV						
	Auxiliary circuit(except coil at primary side)		III						
Pollution degree			3						
Connection mode			Horizontal/Vertical/Hybrid						
Power supply			Top/Bottom						
Installation mode			Fixed	Withdrawable	Fixed	Withdrawable	Fixed	Withdrawable	Withdrawable
W (3P/4P)			254/324	282/382	424/539	437/552	424/539	437/552	835/928
Dimension (mm)	H		323	352	354	430	354	430	471
	D		255	394	329	401	329	401	440
	Weight (kg)	3P	22	38	52.5	98	72.5	118	200
4P		26.5	55	66.5	121	86.5	141	230	

■ Standard □ Optional — No





AC Electrical Components For PV System

Ex9B Series Miniature Circuit Breaker			Ex9B			
For protection of general power distribution (IEC/EN 60898-1)						
Poles			1P	2P	3P	4P
Electrical performance						
Functions			short circuit protection, overload protection, isolation, control			
Rated frequency	f	(Hz)	50/60			
Rated working voltage	U _e	(V AC)	230/400			
Rated current	I _n	(A)	1、 2、 3、 4、 6、 10、 16、 20、 25、 32、 40、 50、 63			
Rated insulated voltage	U _i	(V AC)	690			
Impulse withstand voltage	U _{imp}	(kV)	4			
Current limiting level			3			
Instantaneous tripping type		Ex9BN	B/C/D			
		Ex9BH	C/D			
Rated short circuit	I _{cn}	(kA)	Ex9BN 6			
		Ex9BH	10			
Release type			Thermal magnetic type			
Service life (O~C)	Mechanical	Actual value	20000			
		Standard value	4000			
	Electrical	Actual value	10000			
		Standard value	4000			
Control and indication						
Auxiliary contact			<input type="checkbox"/>			
Alarm contact			<input type="checkbox"/>			
Shunt release			<input type="checkbox"/>			
Undervoltage release			<input type="checkbox"/>			
Overvoltage release			<input type="checkbox"/>			
Connection and installation						
Protection degree	All sides		IP40			
	Connection terminal		IP20			
Padlock			ON/OFF position			
Wire	(mm ²)		1~35			
Working temperature	(°C)		-30~+70			
Resistance to humidity and heat			Class 2			
Altitude	(m)		≤2000			
Relative humidity			+20°C, ≤95%; +40°C, ≤50%			
Pollution degree			2			
Installation environment			Avoid obvious shock and vibration			
Installation class			Class III			
Installation category			DIN35 rail			
Dimension (mm) WxHxL		a	18	36	54	72
		b	89	89	89	89
		c	72	74	74	74
Weight	(kg)		0.12	0.24	0.36	0.48

■ Default □ Optional — None

AC Electrical Components For PV System

Ex9M Series AC Moulded Case Circuit Breaker			Ex9M1								Ex9M2								
For protection of general power distribution																			
Number of poles			2P/3P/4P								2P/3P/4P								
Rated frame currents (A)			125								250								
Electrical performance																			
Frequency (Hz)			50/60								50/60								
Rated working voltage U_e (V)			380/400/415/660/690								380/400/415/660/690								
Rated current I_n (A)			16-20-25-32-40-50-63-80-100-125								125-160 ^① -180-200-225-250 ^①								
Rated insulation voltage U_i (V)			800								800								
Rated impulse withstand voltage U_{imp} (kV)			8								8								
Breaking type			S	N	Q	R	H	V	P	S	N	Q	R	H	V	P			
Ultimate breaking capacity I_{cu} (kA)			380/400/415V	36	50	70	85	100	120	150	36	50	70	85	100	120	150		
Service breaking capacity I_{cs} (% I_{cu})			415V	5	5	5	5	6	6	8	6	6	6	6	8	8	10		
			690V	100%								100%							
Isolation function			■								■								
Use category			A								A								
Service life (O~C)	Mechanic	Actual value	15000								15000								
		Standard value	7000								7000								
	Electric	Actual value	5000								5000								
		Standard value	1000								1000								
Protection																			
Thermo-Magnetic		Long-time delay	$(0.8-0.9-1.0) \times I_n$								$(0.8-0.9-1.0) \times I_n$								
		Instantaneous	$10 \times I_n$								$(5-6-7-8-9-10) \times I_n$								
Electric SU20S basic		Long-time delay	—								$(0.4 \sim 1.0) \times I_n$								
		Short-time delay	—								$(1.5 \sim 10) \times I_n$								
		Instantaneous	—								$(1.5 \sim 12) \times I_n$								
Leakage protection			RCD1(0.03A-0.1A-0.3A-1A); RCD2(0.05A-0.2A-0.5A-2A)																
Control and indication																			
Control mode	Manual	Direct (RHD)	□								□								
		Extended (ERH)	□								□								
Electric (MOD)			□								□								
Shunt release (SHT)			□								□								
Under-voltage release (UVT)			□								□								
Auxiliary contact (AX)			□								□								
Alarm contact (AL)			□								□								
Connection and installation																			
Protection degree		All sides	IP40								IP40								
		Wiring terminal	IP20								IP20								
Wiring		Wiring assembly	Front/rear								Front/rear								
		Plug-in assembly (PIA)	□								□								
Terminal shield (TCV)		Front	□								□								
		Rear	—								—								
Handle lock (KLK)			ON/OFF position								ON/OFF position								
Phase board (PHS)			■								■								
Mechanical interlock (MIT)			□								□								
Dimension (mm) W×H×D		a (2*/3/4)	62/90/120								70/105/140								
		b	140								157								
		c	81.6								91.5								
		2P	0.9								1.2								
Weight (kg)		3P	1.2								1.7								
		4P	1.7								2.2								



■ Yes □ Optional — No * 2P for Ex9M1, Ex9M2 only.

Note①: Rated current of electronic MCCB, rated current of electronic Ex9M2 is 250A, 160A, 100A, 63A and 32A.



Ex9M3								Ex9M4								Ex9M5							
																							
3P/4P 400								3P/4P 630								3P/4P 800							
50/60 380/400/415/660/690 250-315-350-400 ^① 800 8								50/60 380/400/415/660/690 400-500-630 ^① 800 8								50/60 380/400/415/660/690 630-700-800 ^① 800 8							
S	N	Q	R	H	V	P		S	N	Q	R	H	V	P		S	N	Q	R	H	V	P	
36	50	70	85	100	120	150		36	50	70	85	100	120	150		36	50	70	85	100	120	150	
10	10	10	10	12	12	15		10	10	10	10	12	12	15		10	10	10	10	12	12	15	
100%								100%								100%							
100%								100%								100%							
■								■								■							
A								A								A							
10000								10000								5000							
4000								4000								2500							
2000								2000								1000							
1000								1000								500							
(0.8-0.9-1.0)×I _n								(0.8-0.9-1.0)×I _n								(0.8-0.9-1.0)×I _n							
(5-6-7-8-9-10)×I _n								(5-6-7-8-9-10)×I _n								(5-6-7-8-9-10)×I _n							
(0.4~1.0)×I _n								(0.4~1.0)×I _n								(0.4~1.0)×I _n							
(1.5~10)×I _r								(1.5~10)×I _r								(1.5~10)×I _r							
(1.5~12)×I _n								(1.5~12)×I _n								(1.5~12)×I _n							
RCD3(0.05A-0.2A-0.5A-1A); RCD4(0.1A-0.3A-1A-2A)								—								—							
<input type="checkbox"/>								<input type="checkbox"/>								<input type="checkbox"/>							
<input type="checkbox"/>								<input type="checkbox"/>								<input type="checkbox"/>							
<input type="checkbox"/>								<input type="checkbox"/>								<input type="checkbox"/>							
<input type="checkbox"/>								<input type="checkbox"/>								<input type="checkbox"/>							
<input type="checkbox"/>								<input type="checkbox"/>								<input type="checkbox"/>							
<input type="checkbox"/>								<input type="checkbox"/>								<input type="checkbox"/>							
IP40								IP40								IP40							
IP20								IP20								IP20							
Front/rear								Front/rear								Front/rear							
<input type="checkbox"/>								—								—							
<input type="checkbox"/>								<input type="checkbox"/>								<input type="checkbox"/>							
<input type="checkbox"/>								<input type="checkbox"/>								<input type="checkbox"/>							
—								—								—							
ON/OFF position								ON/OFF position								ON/OFF position							
■								■								■							
<input type="checkbox"/>								<input type="checkbox"/>								<input type="checkbox"/>							
140/185								195/260								195/260							
255								300								300							
118.5								142								142							
—								—								—							
5.0								10.2								10.2							
6.6								13.5								13.5							

AC Electrical Components For PV System

Ex9M Series AC Moulded Case Circuit Breaker			Ex9M1M							Ex9M2M								
For motor protection																		
Number of poles			2P/3P/4P							2P/3P/4P								
Rated frame current (A)			125							250								
Electrical performance																		
Frequency (Hz)			50/60							50/60								
Rated working voltage U_e (V)			380/400/415/660/690							380/400/415/660/690								
Rated current I_n (A)			16-20-25-32-40-50-63-80-100-125							125-160 ^① -180-200-225-250 ^①								
Rated insulation voltage U_i (V)			800							800								
Rated impulse withstand voltage U_{imp} (kV)			8							8								
Breaking type			S	N	Q	R	H	V	P	S	N	Q	R	H	V	P		
Ultimate breaking capacity I_{cu} (kA)			36	50	70	85	100	120	150	36	50	70	85	100	120	150		
			5	5	5	5	6	6	8	6	6	6	6	8	8	10		
Service breaking capacity I_{cs} (% I_{cu})			100%							100%								
			100%							100%								
Isolation function			■							■								
Use category			A							A								
Service life (O~C)	Mechanic	Actual value	15000							15000								
		Standard value	7000							7000								
	Electric	Actual value	5000							5000								
		Standard value	1000							1000								
Protection																		
Magnetic	Long-time delay		—							—								
	Short-time delay		—							—								
	Instantaneous		$12 \times I_n$							$(9-10-11-12-13-14) \times I_n$								
Electric	SU20S Basic	Long-time delay	—							—								
	SU20C Enhancement	Instantaneous	—							$(1.5 \sim 14) \times I_n$								
Leakage protection			RCD1(0.03A-0.1A-0.3A-1A); RCD2(0.05A-0.2A-0.5A-2A)															
Control and indication																		
Control mode	Manual	Direct (RHD)	<input type="checkbox"/>							<input type="checkbox"/>								
		Extended (ERH)	<input type="checkbox"/>							<input type="checkbox"/>								
		Electric (MOD)	<input type="checkbox"/>							<input type="checkbox"/>								
Shunt release (SHT)			<input type="checkbox"/>							<input type="checkbox"/>								
Under-voltage release (UVT)			<input type="checkbox"/>							<input type="checkbox"/>								
Auxiliary contact (AX)			<input type="checkbox"/>							<input type="checkbox"/>								
Alarm contact (AL)			<input type="checkbox"/>							<input type="checkbox"/>								
Connection and installation																		
Protection degree	All sides		IP40							IP40								
	Wiring terminal		IP20							IP20								
	Wiring assembly		Front/rear							Front/rear								
Wiring	Plug-in assembly (PIA)		<input type="checkbox"/>							<input type="checkbox"/>								
	Draw-out assembly (DOB)		—							—								
Terminal shield (TCV)	Front		<input type="checkbox"/>							<input type="checkbox"/>								
	Rear		—							—								
Handle lock (KLK)			ON/OFF position							ON/OFF position								
Phase board (PHS)			■							■								
Mechanical interlock (MIT)			<input type="checkbox"/>							<input type="checkbox"/>								
Dimension (mm) W×H×D			a (2*/3/4)		62/90/120							70/105/140						
			b		140							157						
			c		81.6							91.5						
Weight (kg)	2P		0.9							1.2								
	3P		1.2							1.7								
	4P		1.7							2.2								




■ Yes □ Optional — No * 2P for Ex9M1M、Ex9M2 Monly.

Note①: Rated current of electronic MCCB, rated current of electronic Ex9M2 is 250A, 160A, 100A, 63A and 32A.



Ex9M3M								Ex9M4M								Ex9M5M							
3P/4P								3P/4P								3P/4P							
400								630								800							
50/60								50/60								50/60							
380/400/415/660/690								380/400/415/660/690								380/400/415/660/690							
250-315-350-400 ^①								400-500-630 ^②								630-700-800 ^③							
800								800								800							
8								8								8							
S	N	Q	R	H	V	P		S	N	Q	R	H	V	P		S	N	Q	R	H	V	P	
36	50	70	85	100	120	150		36	50	70	85	100	120	150		36	50	70	85	100	120	150	
10	10	10	10	12	12	15		10	10	10	10	12	12	15		10	10	10	10	12	12	15	
100%								100%								100%							
50%								100%								100%							
■								■								■							
A								A								A							
10000								10000								5000							
4000								4000								2500							
2000								2000								1000							
1000								1000								500							
—								—								—							
—								—								—							
(9-10-11-12-13-14)×I _n								(9-10-11-12-13-14)×I _n								(9-10-11-12-13-14)×I _n							
—								—								—							
(1.5~14)×I _n								(1.5~14)×I _n								(1.5~14)×I _n							
RCD3(0.05A-0.2A-0.5A-1A); RCD4(0.1A-0.3A-1A-2A)								—								—							
□								□								□							
□								□								□							
□								□								□							
□								□								□							
□								□								□							
□								□								□							
□								□								□							
IP40								IP40								IP40							
IP20								IP20								IP20							
Front/rear								Front/rear								Front/rear							
□								—								—							
□								□								□							
□								□								□							
—								—								—							
ON/OFF position								ON/OFF position								ON/OFF position							
■								■								■							
□								□								□							
140/185								195/260								195/260							
255								300								300							
118.5								142								142							
—								—								—							
5.0								10.2								10.2							
6.6								13.5								13.5							

AC Electrical Components For PV System



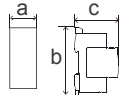
Ex9M Series AC Switch Disconnecter			Ex9M1SD	Ex9M2SD
AC switch disconnecter				
Number of poles			2P/3P/4P	2P/3P/4P
Rated frame current (A)			125	250
Electrical performance				
Frequency (Hz)			50/60	50/60
Rated working voltage U_e (V AC)			380/400/415/660/690	380/400/415/660/690
Rated working current I_n (AAC)			125	250
Rated insulation voltage U_i (V)			1000	1000
Rated impulse withstand voltage U_{imp} (kV)			8	8
Rated short-time withstand current I_{cw} (A)			1s	1800
			3s	1800
			20s	700
Isolation function			■	■
Use category AC			AC22A/AC23A	AC22A/AC23A
Service life (C-O)	Mechanic	Actual value	15000	15000
		Standard value	7000	7000
	Electric	Actual value	5000	5000
		Standard value	1000	1000
Control and indication				
Control mode	Manual	Direct (RHD)	<input type="checkbox"/>	<input type="checkbox"/>
		Extended (ERH)	<input type="checkbox"/>	<input type="checkbox"/>
	Electric (MOD)	<input type="checkbox"/>	<input type="checkbox"/>	
Shunt release (SHT)			<input type="checkbox"/>	<input type="checkbox"/>
Under-voltage release (UVT)			<input type="checkbox"/>	<input type="checkbox"/>
Auxiliary contact (AX)			<input type="checkbox"/>	<input type="checkbox"/>
Alarm contact (AL)			<input type="checkbox"/>	<input type="checkbox"/>
Connection and installation				
Degree of protection	All sides		IP40	IP40
	Wiring terminal		IP20	IP20
	Wiring assembly		Front/rear	Front/rear
Wiring	Plug-in assembly (PIA)		<input type="checkbox"/>	<input type="checkbox"/>
	Draw-out assembly (DOB)		—	—
	Terminal shield (TCV)	Front	<input type="checkbox"/>	<input type="checkbox"/>
Rear		—	—	
Handle lock (KLK)			ON/OFF position	ON/OFF position
Phase board (PHS)			■	■
Mechanical interlock (MIT)			<input type="checkbox"/>	<input type="checkbox"/>
Dimension (mm) W×H×D		a (2*/3/4)	62/90/120	70/105/140
		b	140	157
		c	81.6	91.5
Weight (kg)	2P		0.6	1.1
	3P		1.0	1.5
	4P		1.5	2.0

■ Yes □ Optional — No * 2P for Ex9M1SD、Ex9M2SD only.



	Ex9M3SD	Ex9M4SD	Ex9M5SD
	 	 	 
	3P/4P	3P/4P	3P/4P
	400	630	800
	50/60	50/60	50/60
	380/400/415/660/690	380/400/415/660/690	380/400/415/660/690
	400	630	800
	1000	1000	1000
	8	8	8
	5000	8000	10000
	5000	8000	10000
	2400	3000	3800
	■	■	■
	AC22A/AC23A	AC22A/AC23A	AC22A/AC23A
	10000	5000	5000
	4000	4000	2500
	2000	2000	2000
	1000	1000	500
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	IP40	IP40	IP40
	IP20	IP20	IP20
	Front/rear	Front/rear	Front/rear
	<input type="checkbox"/>	—	—
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	—	—	—
	ON/OFF position	ON/OFF position	ON/OFF position
	■	■	■
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	140/185	195/260	195/260
	255	300	300
	118.5	142	142
	—	—	—
	4.5	9.5	9.5
	6.0	12.7	12.7





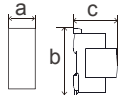
AC Electrical Components For PV System

Ex9U Series Surge Protective Device			Ex9U1 35	Ex9U1 50
For protection of general power distribution (IEC 61643-1/EN 61643-11)				
Number of poles			1P	
Electrical performance				
Test classification			I	
Frequency	f	(Hz)	50/60	
Nominal discharge current	I_n	(kA)	35	50
Max discharge current	$I_{imp}(10/350us)$	(kA)	35	50
Voltage protection level	U_p	(kV)	4.0	
Max steady state voltage	U_c	(V)	275/320/380/440	
Control and indication				
Instruction			—	
Withdrawable module			—	
Remote contact			—	
Connection and Installation				
Wire	Hard cable	(mm ²)	4~35	
	Flexible cable	(mm ²)	4~25	
Stripping length		(mm)	10	
Protection degree	All sides		IP40	
	Connection terminal		IP20	
Installation environment			Avoid obvious shock and vibration	
Altitude		(m)	≤2000	
Working temperature		(°C)	-30~+70	
Relative humidity			30%~90%	
Installation category			TH35-7.5/DIN35 rail	
Dimension (mm) (WxHxL)		a	18	36
		b	91	91
		c	67.6	67.6
Weight		(kg)	0.17	0.34

Default
 Optional
 — None





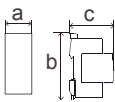
AC Electrical Components For PV System

Ex9U Series Surge Protective Device			Ex9U2 30	Ex9U2 40	Ex9U2 65	Ex9U2 120
For protection of general power distribution (IEC 61643-1/EN 61643-11)			 1P*	 1P*	 1P*	 1P*
Number of poles			1P/2P/3P/4P			
Electrical performance						
Test classification			II			
Frequency	f	(Hz)	50/60			
Nominal discharge current	I_n	(kA)	15	20	30	65
Max discharge current	I_{imp}	(kA)	30	40	65	120
Voltage protection level	U_p	(kV)	1.3-1.5-1.8-2.2		1.5-1.8-2.0-2.5	2.0-2.5-2.8-3.0
Max steady state voltage	U_c	(V)	3.5			
Control and indication						
Instruction			■			
Withdrawable module			■			
Remote contact			□			
Remote contact			Max working voltage V			
			250V AC / 30V DC			
Remote contact			Max working current (Resistive/ Inductive)			
			1A (250V AC)			
Remote contact			Max working current (Resistive/ Inductive)			
			1A (30V DC)			
Connection and Installation						
Wire (mm ²)	Hard calbe		2.5~25			
	Flexible calbe		2.5~16			
Stripping length		(mm)	10			
Protection degree	All sides		IP40			
	Connection terminal		IP20			
Installation environment			Avoid obvious shock and vibration			
Altitude		(m)	≤2000			
Working temperature		(°C)	-30~+70			
Relative humidity			30%~90%			
Installation category			TH35-7.5/DIN35 rail			
Dimension (mm) (WxHxL)		a	18		36	
		b	102		102	
		c	67.6		67.6	
Weight		(kg)	0.12		0.24	

■ Default □ Optional — None

1P*:Dimension of multi times as much as that of one pole.



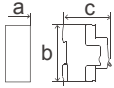
AC Electrical Components For PV System

Ex9U Series Surge Protective Device			Ex9U3 10	Ex9U3 20
For protection of general power distribution (IEC 61643-1/EN 61643-11)				
Number of poles			2P	
Electrical performance				
Test classification			III	
Frequency	f	(Hz)	50/60	50/60
Open voltage	$U_{oc}(1.2/50\mu s)$	(kV)	10	20
Short circuit current	$I_{sc}(8/20\mu s)$	(kA)	5	10
Voltage protection level	U_p	(kV)	1-1.2-1.5	1.2-1.5-1.6
Control and indication				
Instruction			■	
Withdrawable module			■	
Remote contact			□	
Remote contact Max working voltage (V)			250V AC / 30V DC	
Remote contact Max working current(Resistive/ Inductive)			1A (250V AC)	
Remote contact Max working current(Resistive/ Inductive)			1A (30V DC)	
Connection and Installation				
Wire	Hard calbe	(mm ²)	input terminal : 0.2~10; outlet terminal: 2.5~25	
	Flexible calbe	(mm ²)	input terminal : 0.2~6; outlet terminal: 2.5~16	
Stripping length		(mm)	10	
Protection degree	All sides		IP40	
	Connection terminal		IP20	
Installation environment			Avoid obvious shock and vibration	
Altitude		(m)	≤2000	
Working temperature		(°C)	-30~+70	
Relative humidity			30%~90%	
Installation category			TH35-7.5/DIN35 rail	
Dimension (mm) (WxHxL)			a	18
			b	102
			c	67.6
Weight		(kg)	0.12	

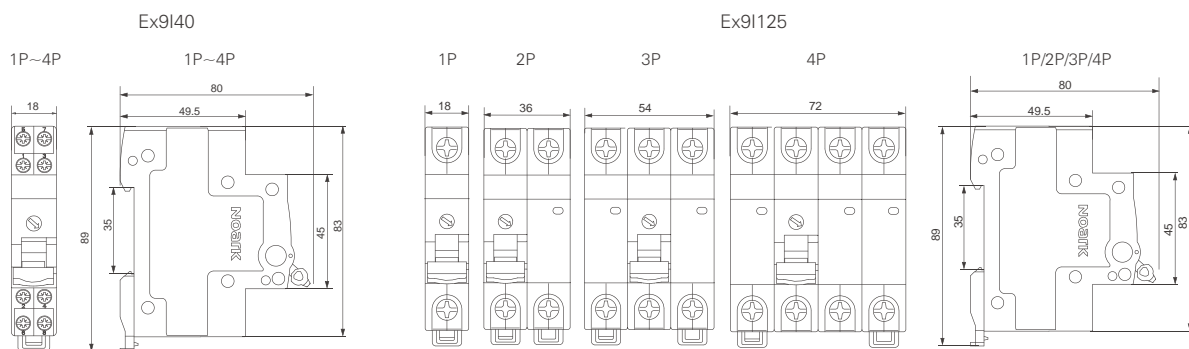
■ Default □ Optional — None







AC Electrical Components For PV System

Ex9I Series Switch Disconnecter			Ex9I40				Ex9I125				
For protection of general distribution system (IEC/EN 60947-3)											
Number of poles			1P	2P	3P	4P	1P	2P	3P	4P	
Rated frame current (A)			40				125				
Electrical performance											
Rated working voltage		U_e	(V AC)			230/400					
Rated insulated voltage		U_i	(V)			500					
Rated current		I_n	(A)			32, 40		32, 40, 63, 80, 100, 125			
Rated short-time withstand current		I_e	1s			12					
Rated short-current making capacity		I_e	(t=0.1s)			20					
Service life (C-O)	Mechanical	Actual value			20000						
		Standard value			8500						
	Electrical	Actual value			4000						
		Standard value			1500						
Connection and Installation											
Protection degree		All sides			IP40						
		Connection terminal			IP20						
Mounting			TH35-7.5/DIN35 rail								
Use category			AC-22A								
Wire	Hard cable (mm ²)		1~10			10~50					
	Flexible calbe (mm ²)		1~10			10~40					
Working temperature		(°C)			-30~+70						
Resistance to humidity and heat			Class 2								
Altitude (m)		≤2000									
Relative humidity			+20°C, ≤95%; +40°C, ≤50%								
Pollution degree			2								
Installation category			Class III								
Installation environment			Avoid obvious shock and vibration								
Dimension (mm) (WxHxL)		a	18			18	36	54	72		
		b	89			89					
		c	80			80					
Weight (kg)		0.06			0.09	0.18	0.27	0.36			

Dimension



AC MCB

Ex9F Series fuse			
For AC/DC (IEC/EN 60269)			
Number of poles		1P	
Electrical performance			
Rated working voltage	U_e	(V AC/ V DC)	690V AC/500V DC
Rated current	I_n	(A)	1、 3、 4、 5、 30
Breaking capacity		(kA)	100
Max power consumption		(w)	7.5
Rated working voltage			600V AC/400V DC
Rated current			6、 8、 10、 12、 16、 20、 25、 32
Breaking capacity			200
Connection and Installation			
Protection degree	All sides		IP40
	Connection terminal		IP20
Wire		(mm ²)	1~6
Working temperature		(°C)	-30~+70
Resistance to humidity and heat			Class 2
Altitude			≤2000
Relative humidity			+20°C , ≤95% ; +40°C , ≤50%
Pollution degree			3
Installation environment			Avoid obvious shock and vibration
Installation class			Class III
Installation			TH35-7.5/DIN35 rail
Dimension (mm) (WxHxL)		a	18
		b	89
		c	80
Fuse size		(mm)	∅10x38
Weight		(kg)	0.07

Dimension

