



Create more value for you!

MV/LV compact substation

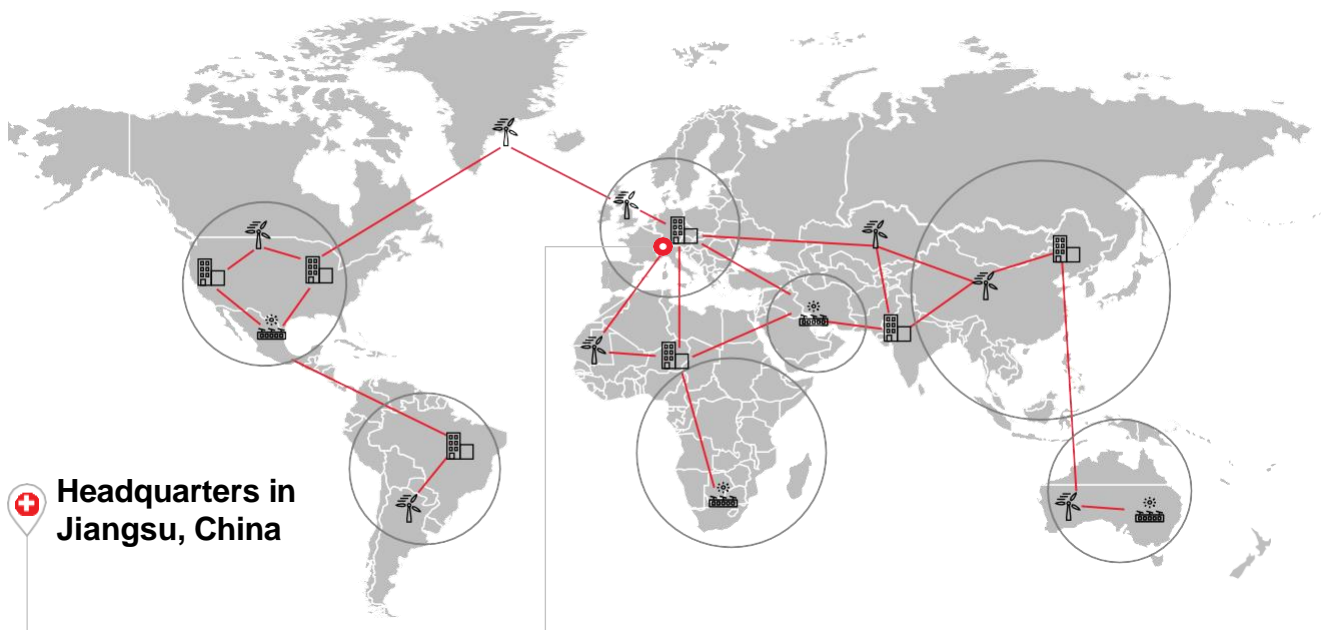


Putuo Electric MV/LV compact substations use the most technologically advanced design to support the extreme conditions present in chemical processing, extra heavy traction, and heavy industrial applications.



PUTUO ELCTRIC

Putuo Electric worldwide



In almost every place where people live and work, you will find at least one transformer. But as long as it keeps working and supplying power to the escalator in the department store, the hotel lift, the office computer, the oven in the local bakery, or the petrochemical plant, no one gives it a second thought. Putuo Electric is a global leader in power technologies, enabling utility and industry customers from around the world to improve performance while lowering environmental impact. As one of the world's leading engineering companies, Putuo Electric helps its customers to use electrical power effectively and to increase industrial productivity in a sustainable way.

Why choose MV/LV compact substations

- Compact structure
- strong complete set
- Environmentally-friendly production
- Safe and reliable operation
- Easy maintenance
- Beautiful appearance

Latest developments: Expanding the portfolio

Putuo Electric introduces **FreeCombination™ Technology** that combines various types of substations production into one united mechanism to improve production efficiency, stabilize product quality, and enhance product performance.

All these substations can be designed, customized, and supplied with a wide variety of accessories, as required.

Putuo MV/LV compact substations are able to reach 3150 kVA and operating voltages of up to 40.5 kV. This product is a kind of new type complete set equipment which could achieve energy saving and cost reducing in urban and rural substation construction and transformation.



Reliable solutions for all applications

A large variety of applications demand technologies which contribute to high safety performance, cost savings, and environmental respect.

Putuo Electric has expertise in producing transformers for optimum space utilization, special requirements, and the most demanding conditions.

Putuo Electric is one of the global leaders in power technologies, providing the broadest experience in all applications, ranges, and customized projects:

- Industrial & mining enterprises
- Stations
- Docks
- Airports
- Streets
- Public places
- Residential areas
- Ring power supply
- Terminal power supply





Our product structure designing: What makes us different?

Putuo Electric uses the most advanced structure designing and the most demanding control systems to guarantee the highest product quality and total product reliability.

1. The product is composed of medium voltage power distribution equipment, transformer and low voltage power distribution equipment, divided into three functional compartments, which are medium voltage room, transformer room and low voltage room. The medium and low voltage rooms are fully functioned. Preliminary power distribution system at medium voltage side can be arranged in looped network power supply, terminal power supply, dual power supply and other power supply methods. Medium voltage metering components can be installed to meet medium voltage metering requirements. The transformer room could be S11,S11-M R and other low loss oil immersed transformer and dry transformer. Transformer room is equipped with automatic start forced air cooling system and lighting system, The low voltage room could use panel or cabinet structure according to the user's requirements to constitute the required power supply program, with power distribution, lighting power distribution, reactive power compensation, power metering and power measurement functions, to meet the user's different requirements, to facilitate user's power supply management and improve power supply quality.

2. Medium and low voltage rooms are arranged compact and reasonable, convenient to operate and overhaul. Medium voltage circuit breaker has anti-misoperation interlock function. According to the user's requirements, the transformer could access transformer main door from the track, In addition, the transformer door is equipped with labyrinth ventilation. Every room is equipped with automatic lighting device. In addition, the performance of selected elements for medium and low voltage switchgears has features of reliable performance. simple operation and convenient overhaul. The top cover of substation is dual-layer insulation structure, which could reduce solar radiation. The surrounding eaves have ventilation holes, forming convection function with every functional room, to facilitate ventilation and heat dissipation, The bottom base is steel structure. with sufficient strength and rigidity.

3. Natural and forced ventilation two cooling methods are adopted to keep good ventilation and cooling performance. Transformer room has temperature controller which could automatically control the transformer temperature, ensuring full capacity operation of the transformer.

4. Depending on application conditions, different structural forms and materials could be used to meet different use requirements and ensure normal operation of the substation, The enclosure of substation could be made of ordinary steel, stainless steel, aluminum alloy plate, colored composite plate, partially or completely going through surface treatment, so that the shell could have long-term outdoor use conditions, ensuring waterproof, dustproof performance, with long service life and beautiful appearance. The basic structure can be roughly divided into:

- General substation which is made of ordinary steel plate
- High anti-corrosion type substation which is made of stainless steel or aluminum alloy plate
- Heat preservation and insulation type substation which is made of colored composite plate
- Other kinds of substations

5. Incoming and outgoing line are cables, and we also can use other types according to customer's special requirements.

H-HV room , T-transformer room, L-LV room



Figure 1

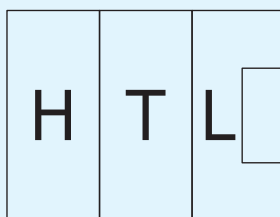


Figure 2

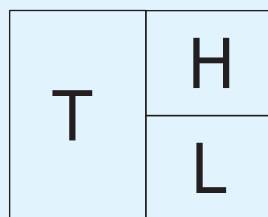


Figure 3

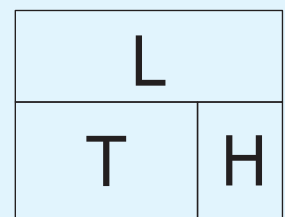
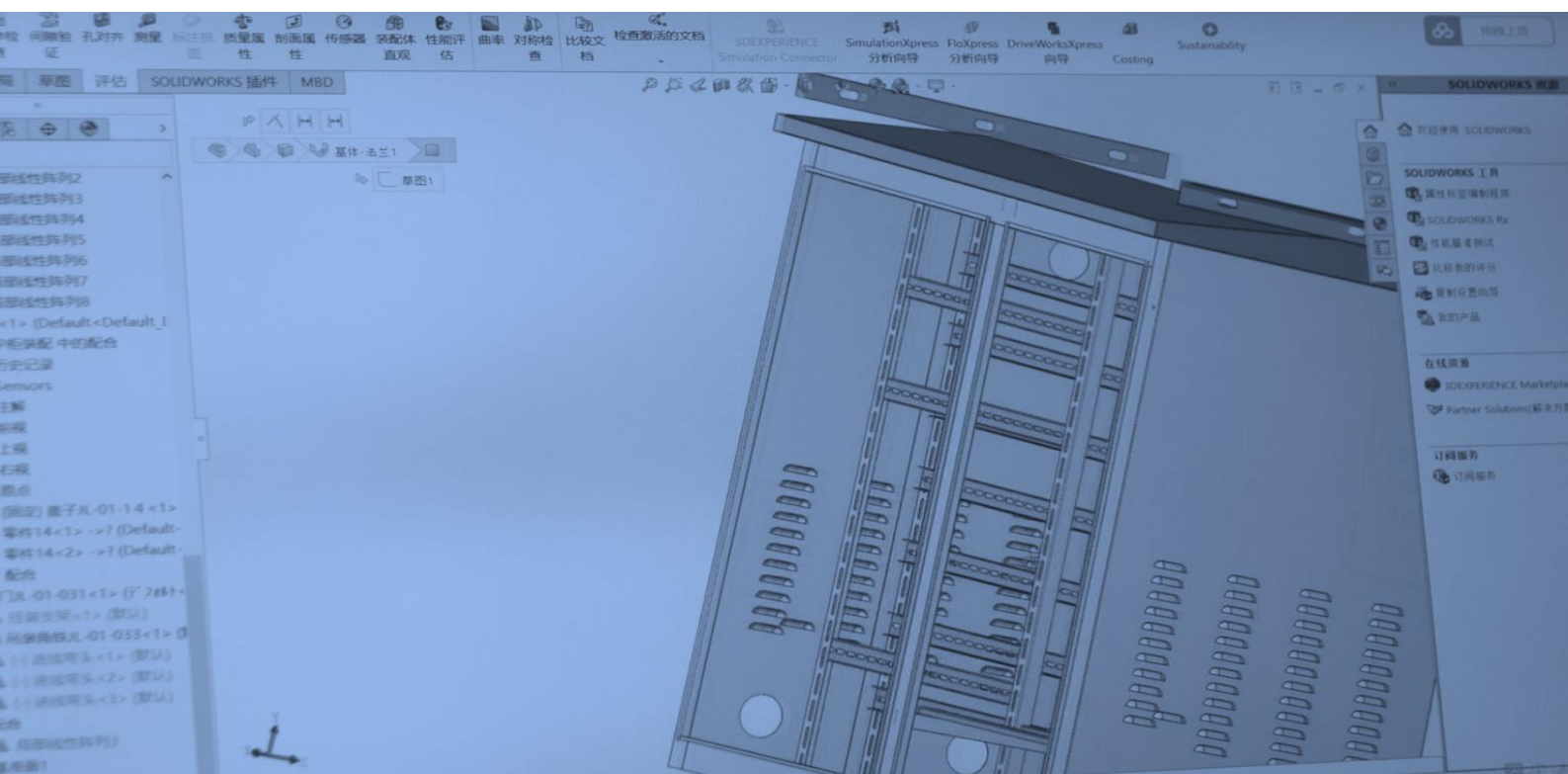


Figure 4

Main technical parameters: to be customized designed

No.	Item	Unit	MV Apparatus	Transformer	LV Apparatus
1	Rated voltage U_e	kV	7.2/12	6/0.4, 10/0.4	0.4
2	Rated capacity S_e	kVA		Type(P3 Figure2-1,Figure2-2): 200~1250 Type(P3 Figure2-3,Figure2-4): 50~80	Max 2×1600
3	Rated current I_e	A	200~630		100~3000
4	Rated breaking current	A kA	Load switch:400~630A composite apparatus depend on fuse		15~63
5	Rated short time withstand current(S)	kA	20×(2) 12.5×(4)	200~400kVA 400kVA	15×1 30×1
6	Rated peaking withstand current	kA	31.5, 50	200~400kVA 400kVA	30 63
7	Rated making current	kA	31.5, 50		
8	1min power frequency withstand current voltage	kV	Phase to phase and earth 30/42 Isolating distance 34/48	Oil immersed: 35/5min Dry: 28/5min	≤300V: 2kV 300, 660V: 2.5kV
9	Lightning impulse withstand voltage	kV	Phase to phase and earth 60/75 Isolating distance 75/85	75 75	
10	Noise level	dB		Oil : <55 immersed: <55	
11	Protection degree			IP23D	
12	overall dimensions		Different dimensions for different schemes		



Our values

Main circuit schemes can be custom-designed according to customer requirement

LV main circuit schemes

No.	01	02	03	04
Main circuit single line drawings				
<i>Explanation: With main CB, no measuring and no compensation, outgoing with metering</i>				

No.	05	06	07	08
Main circuit single line drawings				
<i>Explanation: With main CB, no measuring and no compensation, outgoing with metering</i>				

No.	09	10	11	12
Main circuit single line drawings				

No.	09	10	11	12
Main circuit single line drawings				
<i>Explanation: With main CB, no measuring and no compensation, outgoing with metering</i>				

Our values

Main circuit schemes can be custom-designed according to customer requirement

HV main circuit schemes

No.	01	02	03	04
Main circuit single line drawings				
No.	05	06	07	08
Main circuit single line drawings				

Our values

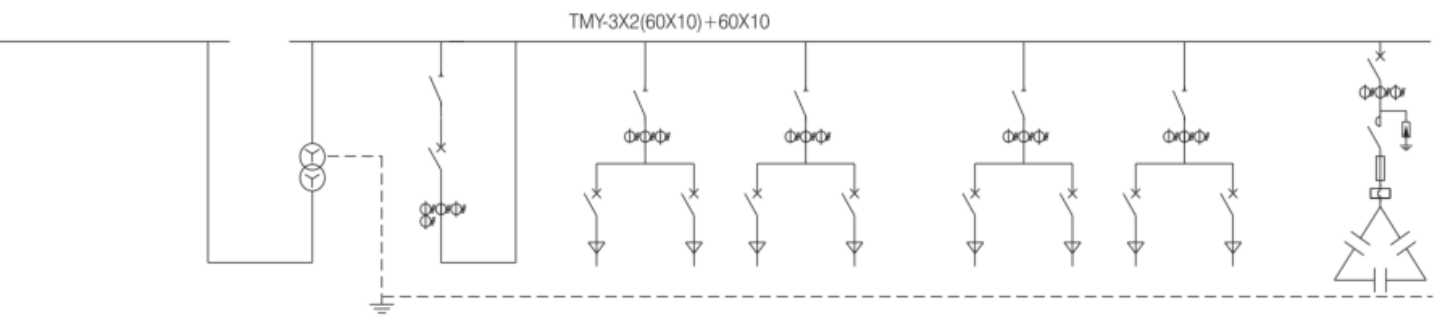
Various connection scheme plans available to customer requirement

> 1. Cable incoming, high supplying and high metering scheme

No.	H1	H2	H3	H4
Type	HXGN15-12	HXGN15-12	HXGN15-12	XGN36-12
Cubicle dimension (Width*Depth*Height)	800×2270×1000	800×2270×1000	800×2270×1000	800×2270×1000
Main circuit single line drawings				
Application	Incoming	outgoing	metering and connection	outgoing
Vacuum load switch FZRN21-12 630/20		1		
Current transformer LZZBJ9-10 □ /5			(50/5 0.2/10P10×2)	75/5 0.5/10P10×2
Current transformer LZJC-10 □ /5			(JDZ-10 10/0.1 0.2 class ×2)	
Arrester HY5WS-17/50	3	3		3
HV fuse RN2-10 0.5A	2		3	
Voltage transformer	DC1.2-10 10/0.22 1200VA			
Voltage indicator DXN6-10/T	1	1		1
Fuse SFLAJ-12 80A		3		
Disconnecter DGN-12/630				1
Transformer				1
Vacuum switch ZN63A-12/630-25				1
Disconnecter DGN-12/630				
Disconnecter HD13BX-□				
Circuit breaker DW17-2000/3P				
Current transformer LMK-0.66 □ /5A				
Outgoing switch DZ20Y-□ /3300				
Circuit name				
Notes				

Main electrical components

	D1	D2	D3	D4
	GGD	GGD	GGD	GGD
	1000×2000×800	1000×2000×800	1000×2000×800	1000×2000×800



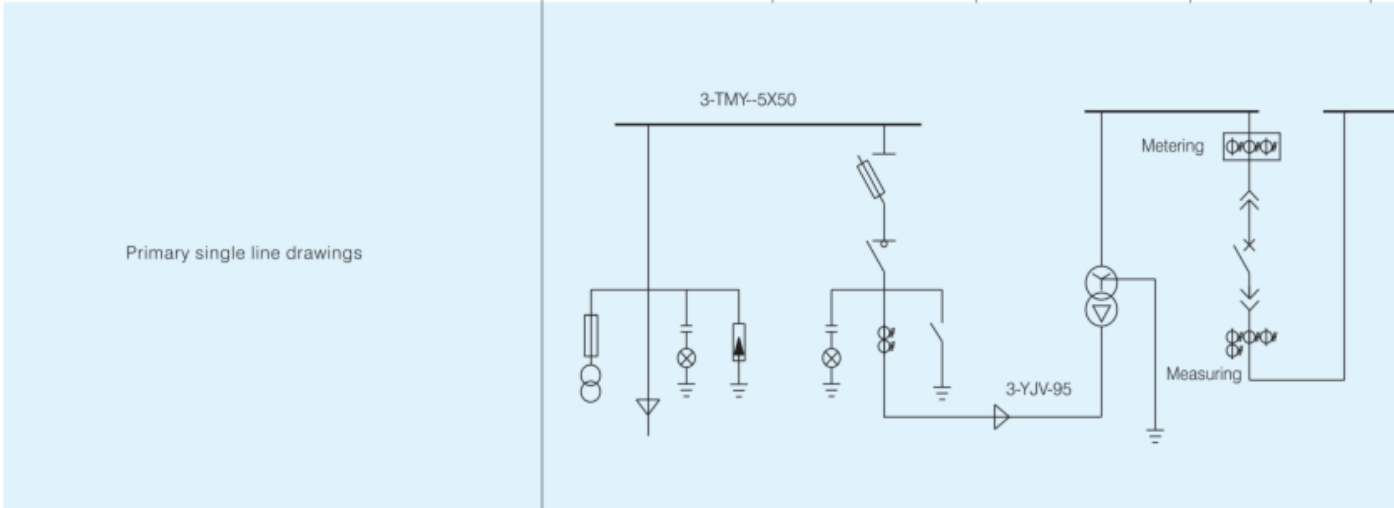
SCB9-1000kVA 10/0.4					
Yyn0-10000±2×2.5%					
	HD13BX-2500/30	HD13BX-1500/30	HD13BX-400/31	HD13BX-1500/30	HD13BX-1000/31
	1				
	2000 × 4	1500 × 3	2000 × 3	1200 × 3	400 × 3
		DZ20Y-630/3300 In=630A × 2	DZ20Y-100/3300 In=100A × 2	DZ20Y-400/3300 In=400A × 3	DZ20Y-225/3300 In=200A × 2
					300kvar

> 2. Cable incoming, high supplying and high metering scheme

No.	H1	H2	D1	
Cubicle dimension (Width*Depth*Height)	600×1900×900	800×1900×900	1200×2000×800	
Primary single line drawings				
Application	Incoming	Outgoing and Connection		
Vacuum load switch		FZRN21-12D/125-31.5		
Fuse SFLAJ-12		100A×3		
Current transformer LZZBJ9-10 100/5		1		
Arrester HY5WS-17/50	3	1		
HV fuse RN2-10 0.5A	2			
Voltage transformer JDZ11-10B 10/0.22 500VA	1			
Voltage indicator DXN6-10/T	1	1		
Transformer			SCB9-1250kVA 10/0.4 D,y _n 11 10000±2X5%	
Circuit breaker NA1-2000M/3 In=2000A motoring, with undervoltage and shunt trip				1
Energy meter DT864-4K				
Disconnecter				
Current transformer				3
Current transformer BH-0.66 2000/5A				4
Current transformer BH-0.66 □ /5A 0.2级				
CB with plastic casing NM1-630H/3320 In=630A				
CB with plastic casing NM1-400H/3320 In=400A				
CB with plastic casing NM1-400H/3320 In=315A				
Application				
Notes				

Main electrical components

No.	H1	H2	D1
Cubicle dimension (Width*Depth*Height)	600×1900×900	800×1900×900	1200×2000×800

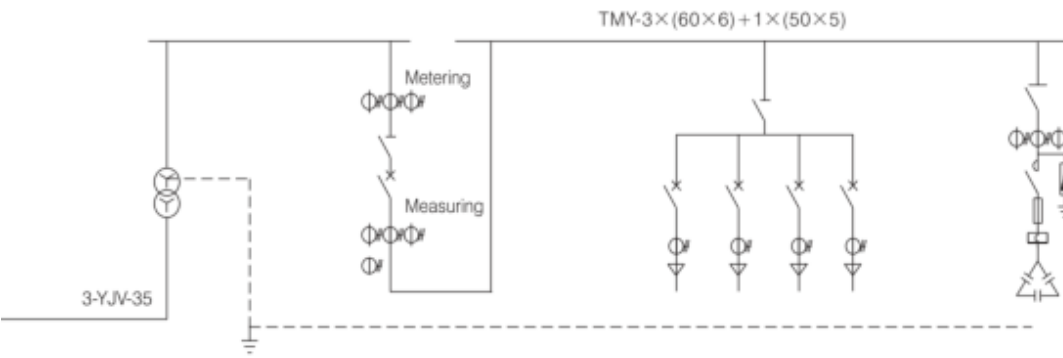


Main electrical components	Application		Outgoing and Connection	Notes
	Incoming			
Vacuum load switch			FZRN21-12D/125-31.5	
Fuse SFLAJ-12			100A×3	
Current transformer LZZBJ9-10 100/5			1	
Arrester HY5WS-17/50	3		1	
HV fuse RN2-10 0.5A	2			
Voltage transformer JDZ11-10B 10/0.22 500VA	1			
Voltage indicator DXN6-10/T	1		1	SCB9-1250kVA 10/0.4 D.yn11 10000±2X5%
Transformer				
Circuit breaker NA1-2000M/3 In=2000A motoring, with undervoltage and shunt trip				1
Energy meter DT864-4K				
Disconnecter				
Current transformer				3
Current transformer BH-0.66 2000/5A				4
Current transformer BH-0.66 □ /5A 0.2级				
CB with plastic casing NM1-630H/3320 In=630A				
CB with plastic casing NM1-400H/3320 In=400A				
CB with plastic casing NM1-400H/3320 In=315A				
Application				
Notes				

> 3. Cable incoming, Ring network power supply, high supplying and low metering scheme

No.	H1	H2	H3	
Type	HXGN15-12	HXGN15-12	HXGN15-12	
Cubicle dimension (Width*Depth*Height)	600×800×1900	800×800×1900	800×800×1900	
Primary single line drawings				
Main electrical components	Application	Incoming	Outgoing	Outgoing
	Load switch	FZN21-12/630-20	FZN21-12/630-20	FZRN21-12D/125-31.5
	Fuse SDLAJ-12			31.5×3
	Voltage indicator DXN6-10/T	1	1	1
	Arrester HY5WS-17/50	3		
	Transformer			
	Circuit breaker DW15-1000/3 In=800A			
	Disconnecter HD13BX-1000/3 1			
	Circuit breaker NM1-400H/3300 In=400A			
	Circuit breaker NM1-400H/3300 In=315A			
	Circuit breaker NM1-225H/3300 In=200A			
	Current transformer LMZ1-0.66 500/5A 0.2 class			
	Current transformer LMZ1-0.66 500/5A			
	Current transformer LMZ1-0.66 400/5A			
	Current transformer LMZ1-0.66 300/5A			
Current transformer LMZ1-0.66 200/5A				
Notes				

	D1	D2	D3
	GGD	GGD	GGD
	800×2000×800	800×2000×800	800×2000×800



	1		
	1		
S11-M · R-315kVA 10/0.4 Yy0-10000 □ 5%		1	
		1	
		2	
	3		
	4		
		1	
		1	100kvar
		2	

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Customer Connect Center

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