



Step-up Transformer Stations

Brochure

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Innovative Technology

As an innovator in the renewable energy industry, Brunstock Electric represents environmentally friendly power system technologies. Led by a team of global power grid experts, Brunstock brings new technology solutions to the world's energy systems.

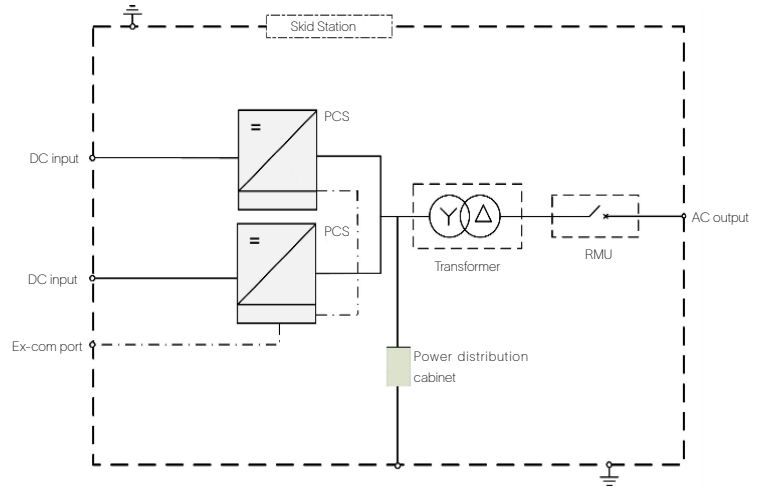
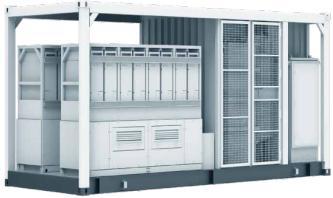
At the centre of Brunstock's range are its innovative SF6-free substation products. When combined with the speedy delivery models of our distributors, Brunstock products will help the world meet some of the challenges in the global energy transition.

The step-up transformer station converts low-voltage AC power generated by the BESS PCS or PV inverters into medium-voltage AC power and feeds it into the power grid.

Brunstock's step-up transformer stations integrate the ring main unit, transformer, PCS or low voltage CB panel, and auxiliary power supply and communication device into a steel-structure, such as a container or skid, to provide a highly integrated power transformation and conversion solution for medium-voltage grid-tied applications. This integrated station solution enables fast delivery, easy installation and robust project scheduling.

Application in BESS Projects

Our step-up transformer skid station can be used in grid-tied systems in large BESS projects. It is an integration of a medium voltage RMU, transformer, PCS (central or string type) and other auxiliary systems. Its plug-and-play design makes project delivery fast, cost efficient and reliable.



Technical Parameters

Type	3,000kVA	5,000kVA
Transformer		
Transformer type	Oil Transformer	
Rated power	3,000 kVA @ 40°C ¹	5,000 kVA @ 40°C ¹
Max. power	3,400 kVA @ 30°C	5,500 kVA @ 30°C
Vector group	Dy11	Dy11y11
LV / MV voltage	0.8 kV / 20 – 35 kV	0.8kV/0.8 kV / 20 – 35 kV ²
Maximum input current at nominal voltage	2,500 A * 1	2,500 A * 2
Frequency	50Hz	
Tapping on HV	0, ±2×2.5%	
Efficiency	≥99%	
Cooling type	ONAN (Oil Natural Air Natural)	ONAN (Oil Natural Air Natural)
Impedance	6.5% (±10%)	6.5% (±10%)
Oil type	Mineral oil (PCB free)	
Winding material	Al / Al	
Insulation class	A	
MV switchgear		
Insulation type	Gas SF6-free	
Rated voltage	24 – 36 kV ²	
Rated current	630 A	
Internal arcing fault	IAC AFLR 31.5 kA / 1s	
Qty of feeder	2-3 feeders	
MV surge arrester for VCB	Optional ³	
PCS		
DC side	800V-1500V, 1935A*2	1300V-1500V, 2154A*2, 2 inpus

AC side	3000kVA / 690V	5000kVA / 900V
Protection		
AC input protection	Circuit-breaker	
Transformer protection	Oil-temperature, oil-level, oil-pressure	
Relay protection	50/51, 50N/51N	
LV overvoltage protection	AC Type II (optional: AC Type I + II)	
Anti-rodent Protection	C5-Medium	
General data		
Dimensions(W*H*D)	6,058mm x 2,896mm x 2,438mm	
Approximate weight	≤ 5 T	≤ 22 T
Operating temperature range	-25°C ~ 60°C ⁴	
Auxiliary power supply	100 KVA / 400V	
2kVA UPS	Optional ³	
Degree of protection	IP54	
Allowable relative humidity range (non-condensing)	0 – 95 %	
Operating altitude	1,000 ⁵ m (standard) / > 1,000 m (optional)	
Communication	RS485, Ethernet, Optical fiber	
Compliance	IEC 60076, IEC 62271-200, IEC 62271-202, IEC 61439-1, EN 50588-1	

1. More detailed AC power, please refer to the de-rating curve.

2. Rated output voltage from 20 kV to 36 kV, more available upon request

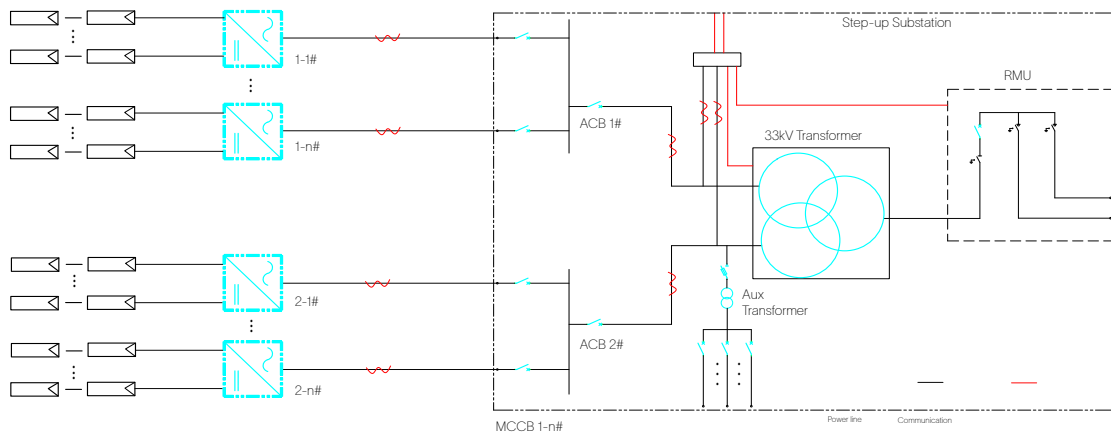
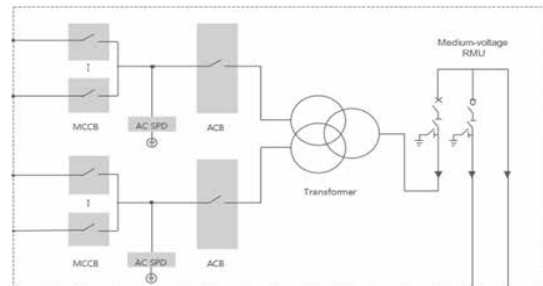
3. Extra expense needed for optional features which standard product doesn't contain, more options upon request.

4. When ambient temperature $\geq 55^{\circ}\text{C}$, an extension roof must be equipped for the substation on site by the Brunstock distributor or end-user.

5. For higher operating altitude, please consult with Brunstock.

Application in PV Plant Project

The step-up transformer station applies to the grid-tied systems in large PV plants. It is an integration of medium voltage RMU, transformer, low voltage power distribution panel and other auxiliary system, its plug-and-play design makes project delivery fast, cost efficient and reliable.



Technical Parameters

Type	3,000kVA	6,000kVA	9,000kVA
Transformer			
Transformer type	Oil Transformer		
Rated power	3,000 kVA @ 40°C ¹	6,000 kVA @ 40°C ¹	9,000 kVA @ 40°C ¹
Max. power	3,400 kVA @ 30°C	6,800 kVA @ 30°C	9,000 kVA @ 30°C
Vector group	Dy11	Dy11y11	Dy11y11
LV / MV voltage	0.8 kV / 20 – 35 kV	0.8kV/0.8 kV / 20 – 35 kV ²	
Maximum input current at nominal voltage	2,500 A * 1	2,500 A * 2	4,000 A * 2
Frequency	50Hz		
Tapping on HV	0, ±2×2.5%		
Efficiency	≥99%		
Cooling type	ONAN (Oil Natural Air Natural)	ONAN (Oil Natural Air Natural)	ONAN (Oil Natural Air Natural)
Impedance	6.5% (±10%)	6.5% (±10%)	9.5% (±10%)
Oil type	Mineral oil (PCB free)		
Winding material	Al / Al		
Insulation class	A		
MV switchgear			
Insulation type	SF6		
Rated voltage	24 – 36 kV ²		
Rated current	630 A		
Internal arcing fault	IAC AFLR 20kA/1s; 25kA/1s		
Qty of feeder	2-3 feeders		
MV surge arrester for VCB	Optional ³		
LV panel			
ACB specification	2,500 A / 800 Vac / 3P, pcs	2,500 A / 800 Vac / 3P, 2 pcs	4,000 A / 800 Vac / 3P, 2 pcs
MCCB specification	250 A / 800 Vac / 3P, 1*17 pcs	250 A / 800 Vac / 3P, 2*17 pcs	320 A / 800 Vac / 3P, 2*15 pcs
Protection			
AC input protection	Circuit-breaker		
Transformer protection	Oil-temperature, oil-level, oil-pressure		
Relay protection	50/51, 50N/51N		
LV overvoltage protection	AC Type II (optional: AC Type I + II)		
Anti-rodent protection	C5-Medium		
General data			
Dimensions (W*H*D)	6,058mm x 2,896mm x 2,438mm		
Approximate weight	≤ 5 T	≤ 22 T	≤ 28 T
Operating temperature range	-25°C ~ 60°C ⁴		
Auxiliary power supply	5 kVA / 400 V (optional: max. 40 kVA)		
2kVA UPS	Optional ³		
Degree of protection	IP54		
Allowable relative humidity range (non-condensing)	0 – 95 %		
Operating altitude	1,000 ⁵ m (standard) / > 1,000 m (optional)		
Communication	RS485, Ethernet, Optical fiber		
Compliance	IEC 60076, IEC 62271-200, IEC 62271-202, IEC 61439-1, EN 50588-1		

1. For more details on AC power, please refer to the de-rating curve.

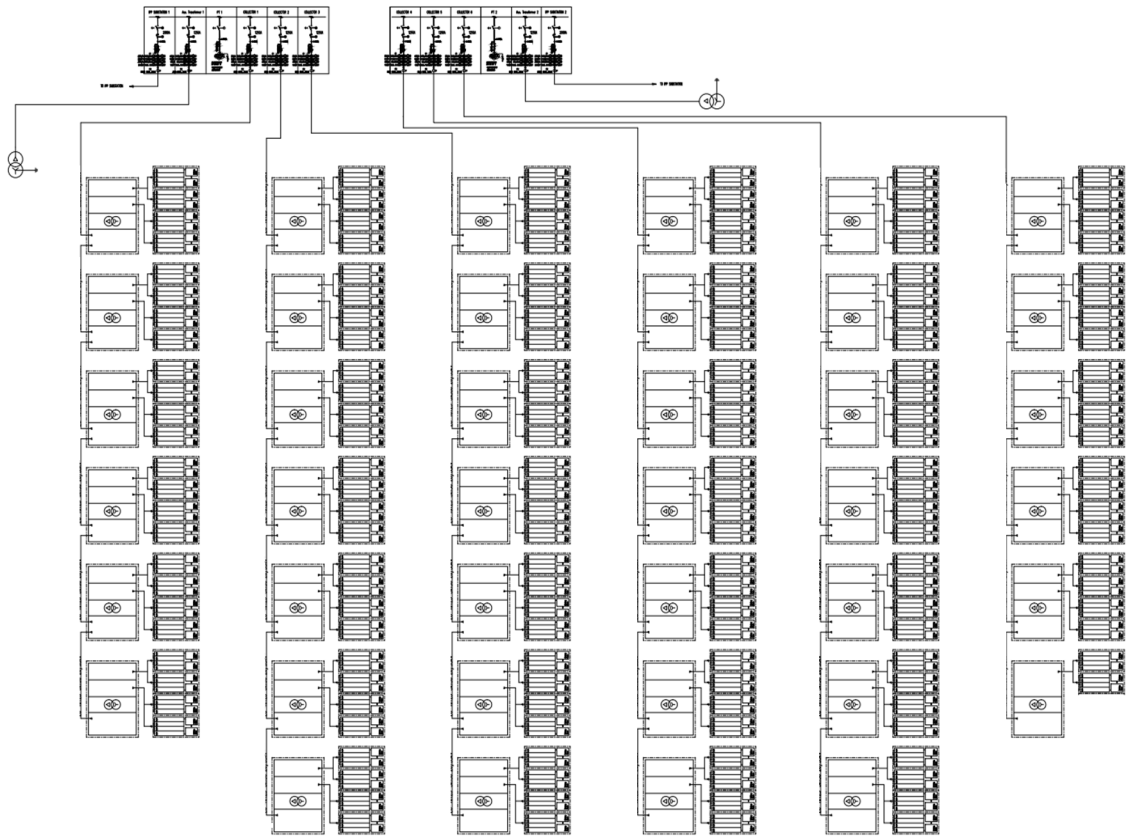
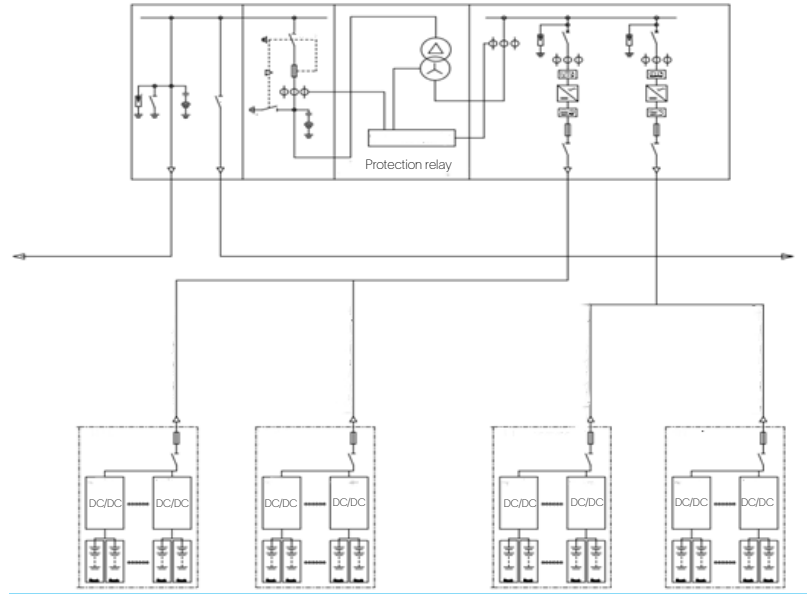
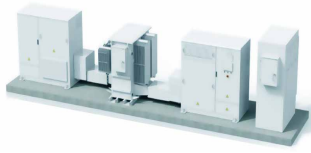
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3. Extra budget needed for optional features which standard product doesn't contain, more options upon request.

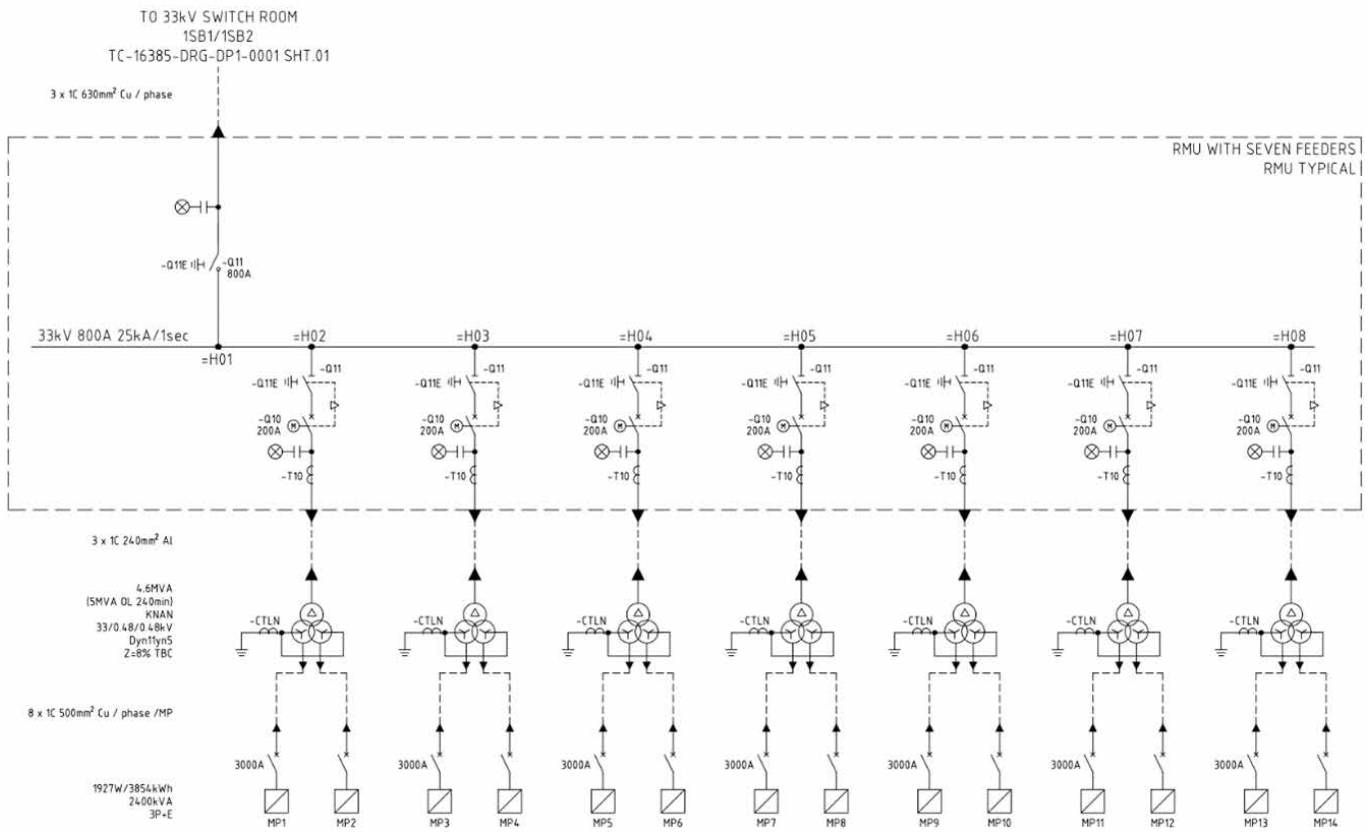
4. When ambient temperature ≥55°C, an extension roof must be equipped for the substation on site by the Brunstock distributor or end-user.

5. For higher operating altitude, please consult with Brunstock.

Application Step-up Transformer Station in BESS Plant



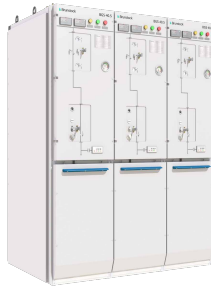
Application Step-up Transformer Station in PV Plant



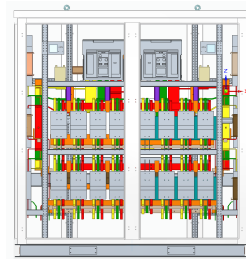
High Quality of Equipment Provided by Brunstock



Transformers



MV RMUs



LV Panel



Station Enclosure

Experienced Integration with Equipment by Brunstock



BESS



PCS