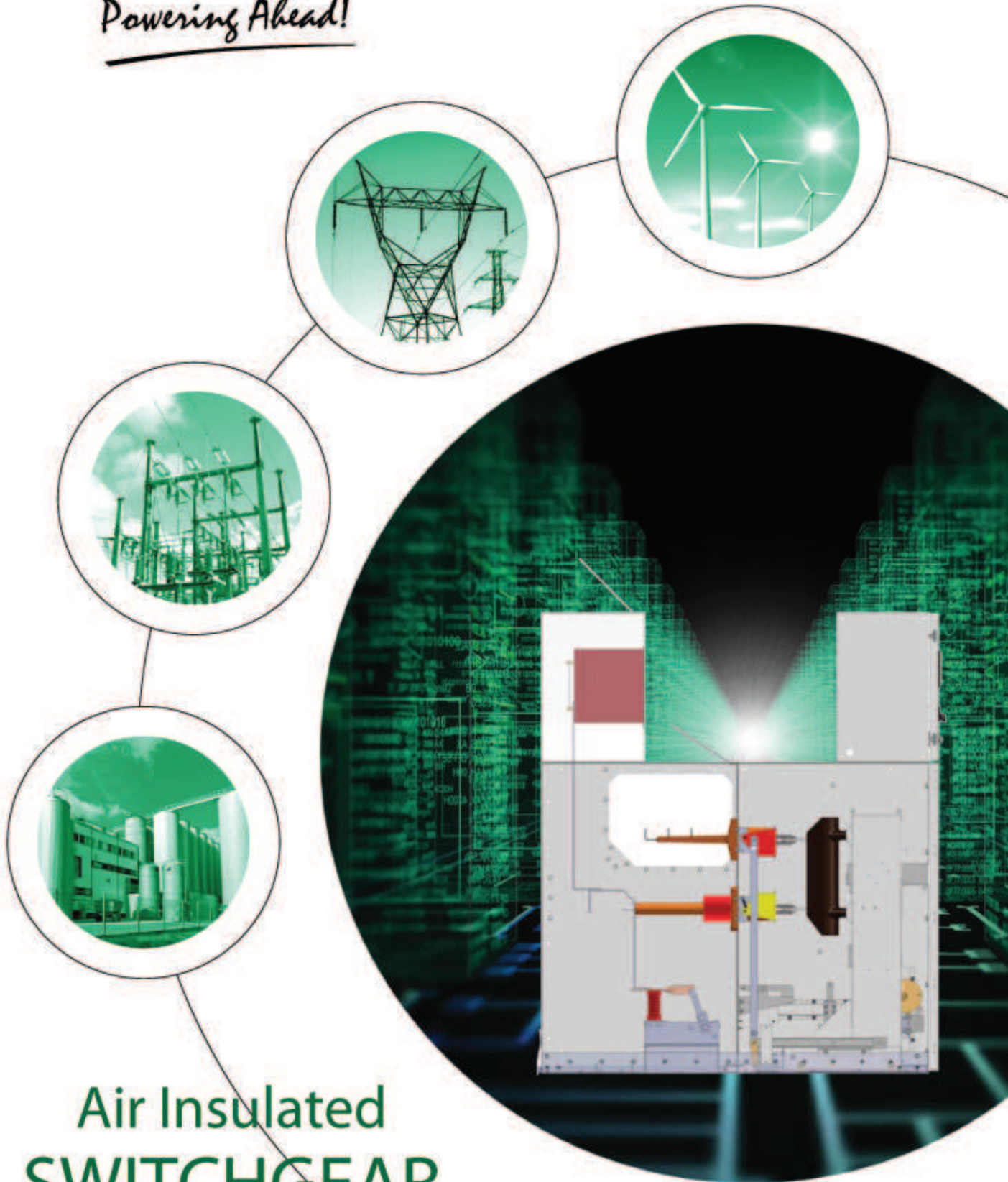




SUN SYSTEM ENGINEERING (M) SDN BHD

Powering Ahead!



Air Insulated
SWITCHGEAR



SSEVAC 12 indoor air insulated switchgear was uniquely designed and developed by its R&D team. The switchgear complies with IEC 62271, IEC 60298, IEC 60056, IEC 60694

METALCLAD FIXED ENCLOSURE

The metalclad enclosure is of robust construction and segregated into three main compartments:

- **Busbars**
- **Current Transformer / Cable / Earth Switch**
- **Vacuum Circuit Breaker**

The low voltage compartment which is fitted at the front top of the cubicle accommodates protective devices, instrumentation, indicating light, Auxilliary switches and secondary wirings.

The standard degree of protection for the enclosure is IP4X and for the partitions is IP3X.

BUSBAR COMPARTMENT

This Main Busbar and CT bushings are mounted in this compartment.

The bushings are of single phase unit made of HDHC Copper and insulated with epoxy resin. The inter-panel busbar is securely bolted to each phase of the Main Busbar bushings forming a completed row of switchgear.

Both ends of the switchgear Busbar Compartment is closed off with end plates.

Pressure relief flap is also provided on top of each busbar compartment. The busbar compartment is accessible by removing the back cover of the switchgear.

Automatic safety shutters are provided that will cover the busbars and feeder bushing spouts.

CT/CABLE/EARTHSWITCH COMPARTMENT

Main spouts and connections from the vacuum circuit breaker to the cable terminations are cast in epoxy resin, which forms the primary of the ring type current transformers. Earthed screen is incorporated thus enabling the use of low voltage current transformers. For lower ratios, wound primary type current transformers can be accomodated.

Cabling facilities are included within this compartment which are suitable for bottom or top cable entry. A fully rated integral earthing switch is also located at the rear of this compartment.

The earth switch is fully interlocked with the vacuum circuit breaker and is manually operated from the front of the switchgear.

VACUUM CIRCUIT BREAKER (VCB) COMPARTMENT

This compartment housed the vacuum circuit breaker which can be inserted or draw-out horizontally. Automatic safety shutters are provided which are pad-lockable in the closed position. Both shutters can be latched open in test and service position. The manual latch is automatically cancelled when the vacuum circuit breaker in inserted into the compartment.

VACUUM CIRCUIT BREAKER (VCB)

The VCB which is the moving portion of the switchgear is mounted on truck for horizontal withdrawal and isolation. The open / close operation of the vacuum interrupters is by means of a motorized spring charge mechanism.

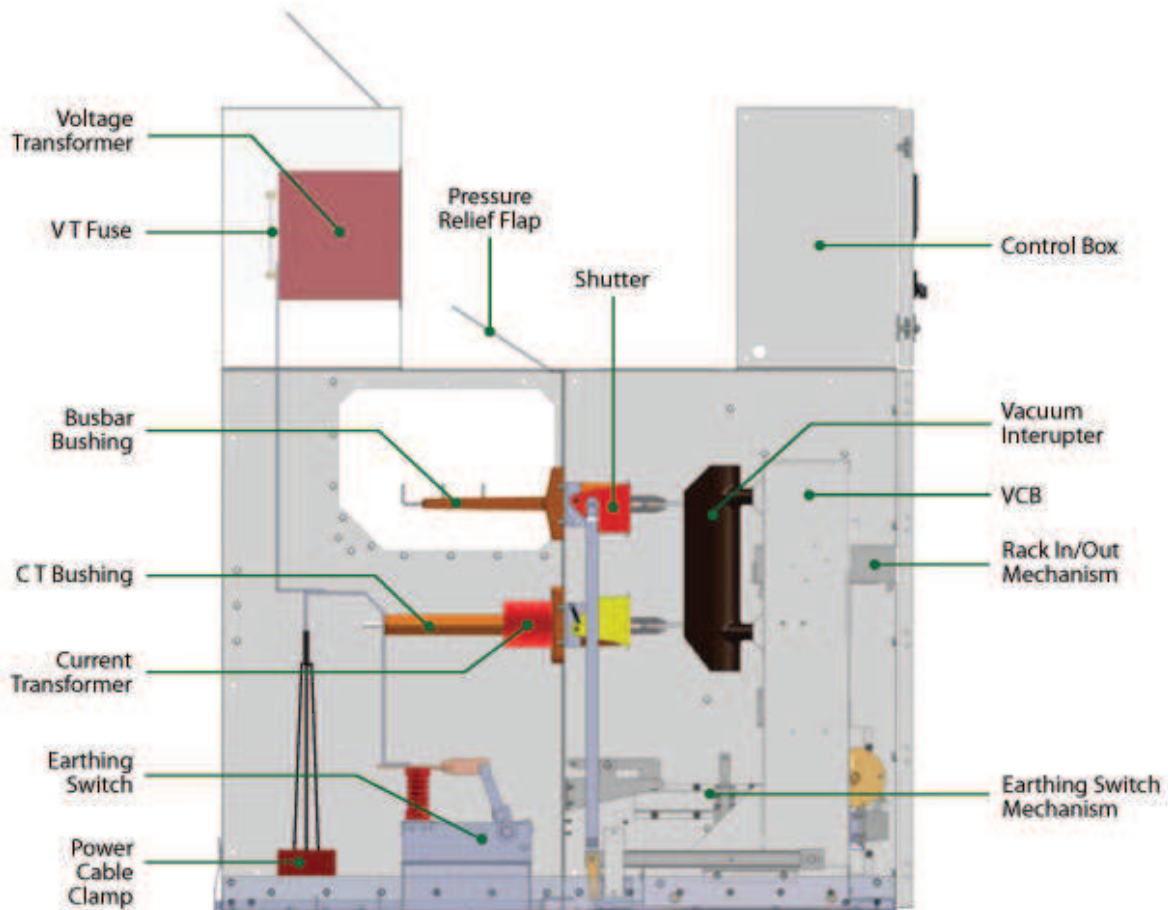
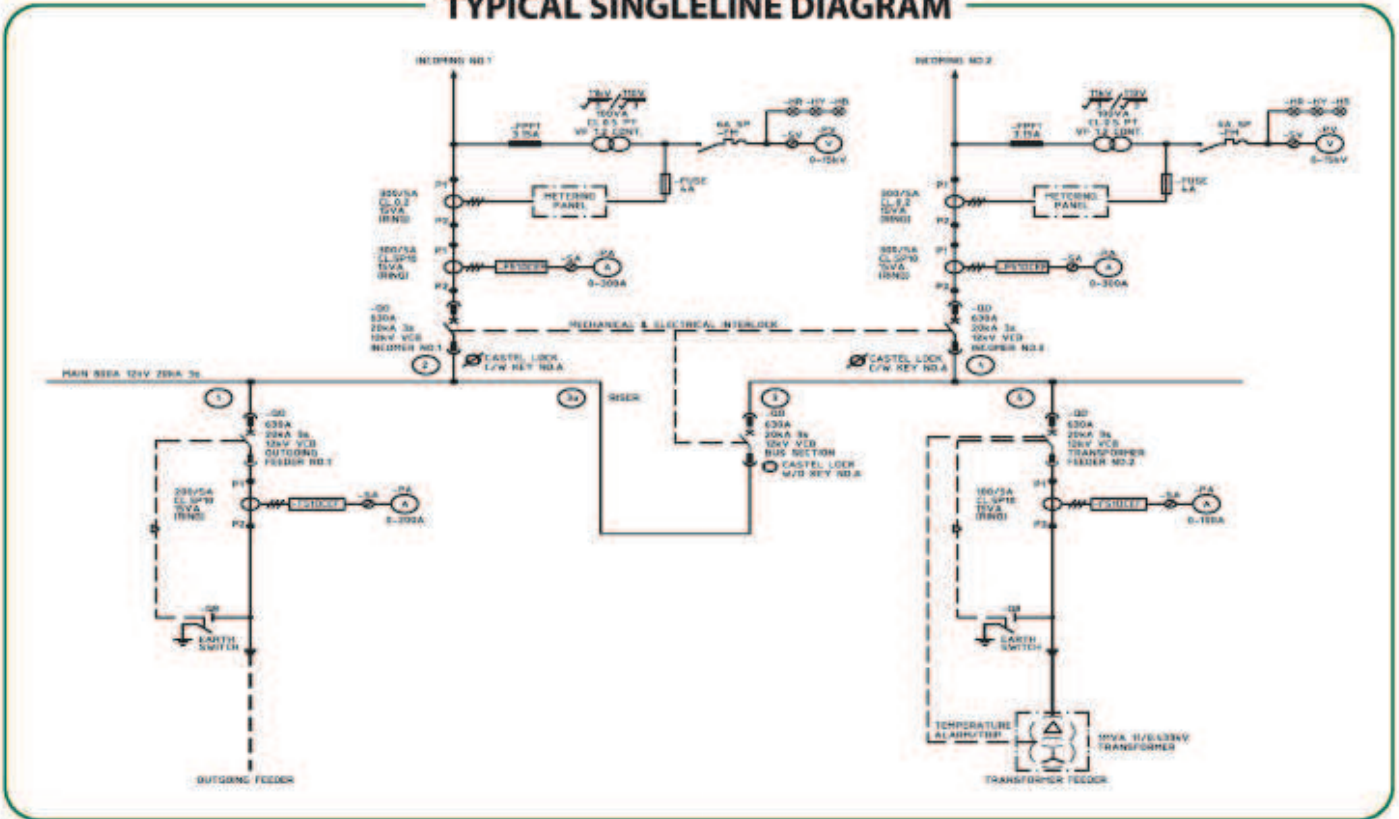
The main isolating contacts are finger type, spring tensioned to provide excellent contact with the main spout of the switchgear bushings. VCB interlocking features include:

- VCB cannot be engaged or withdrawn unless it is open.
- VCB can only be closed or opened if it is fully engaged or isolated (not in-between).
- VCB cannot be engaged if the control plug is removed.
- VCB cannot be engaged when the earthing switch is closed and vice-versa.

Automatic safety shutters are provided that will cover the busbars and feeder bushing spouts.



TYPICAL SINGLELINE DIAGRAM



DIMENSION

Width mm: 600

Depth mm: 2200, 2250 (with PT)

Height mm: 2300

SSE-VAC12 11kV 630A 20kA Air Insulated Switchgear, Single Busbar

Voltage (kV)	12
Normal Current (Amp)	630
No. of Poles	3
Frequency (Hz)	50
Rated Insulation Level (kVrms/kVp)	28/75
Degree of Protection	IP4x
Operating Sequence	0-0.3sec-CO-3 min-CO
Short Time Withstand Current- Main Circuit (kA/sec)	20kA 3 sec
Short Time Withstand Current- Earthing Circuit (kA/sec)	20 kA 3 sec
Internal Arc Current (kA/sec)	20kA/0.1 sec
Peak Withstand Current- Main Circuit (kA)	50
Peak Withstand Current- Earthing Circuit (kA)	50
Duration of Short Circuit (sec)	3
Short Circuit Making Current (kAp)	50
Short Circuit Breaking Current (kA)	20kA 3 sec
First Pole To Clear Factor	1.5
Cable Charging Breaking Current (A0, IEC 62271-100)	25A
Supply Voltage of Closing and Operating Device (Vdc)	30V dc., ≤10A
Temperature Rise Test-Circuit Breaker	IEC 62271-100
Temperature Rise Test- Earthing Switches	IEC 62271-102
Temperature Rise Test- Busbars, Cable Terminations	IEC 62271-100
Climatic Condition and Humidity Test (IEC 60932)	Level 2
Contamination Test (IEC60932)	No Flash over with 0.03mg/sqcm of salt at $\sqrt{3}$ x Rated Phase Voltage
Partial Discharge Per Phase/panel (IEC 60137)	≤200 pC
Internal Arc Fault Test (IEC 62271-200), Appendix AA Type A Arrangement	20kA 0.1 sec
Circuit Breaker Test Duty (IEC 62271-100)	Test Duty 1 to 5
Current Chopping	≤5A
Class	S1, E1, M1



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