

UNITEST High Voltage Breaker Simulator

Unitest as a world leader in creation of maritime training software and engine room simulators made a step forward to meet the new training requirements as set out in STCW 2010 Table A-III/2 for electrical, electronic and control engineering at the management level in high voltage (HV) power systems training and education. Unitest has developed a real hardware high voltage generator breaker cabinet which can be interfaced to the Unitest Full mission simulator.



Circuit-breaker HD4



Unitest DE3D simulator. Engine Control Room with main switchboard of Platform Supply Vessel

Training Objectives

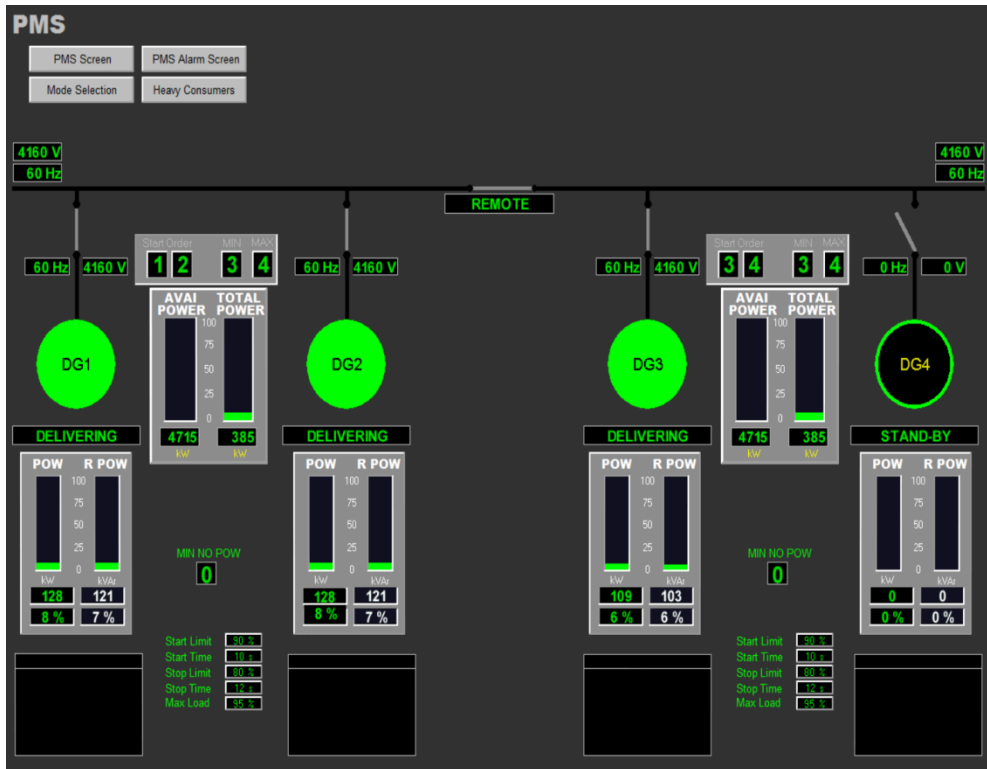
- Practical hand-on exercises on an actual High Voltage Panel
- Isolation of breakers with the associated interlocks in ship's electrical systems
- Identification of circuit condition / energised work conditions
- HV/LV Distribution Systems and Protection
- Knowledge of the procedure to use high voltage test equipment and Personal Protective Equipment (PPE)
- Dangers of contact with electricity and electric shock prevention
- Precaution when performing maintenance or inspection
- Knowledge of the procedure of issuing permits to work
- Understanding system layout and distribution arrangements
- Generator Synchronization

Equipment Supplied

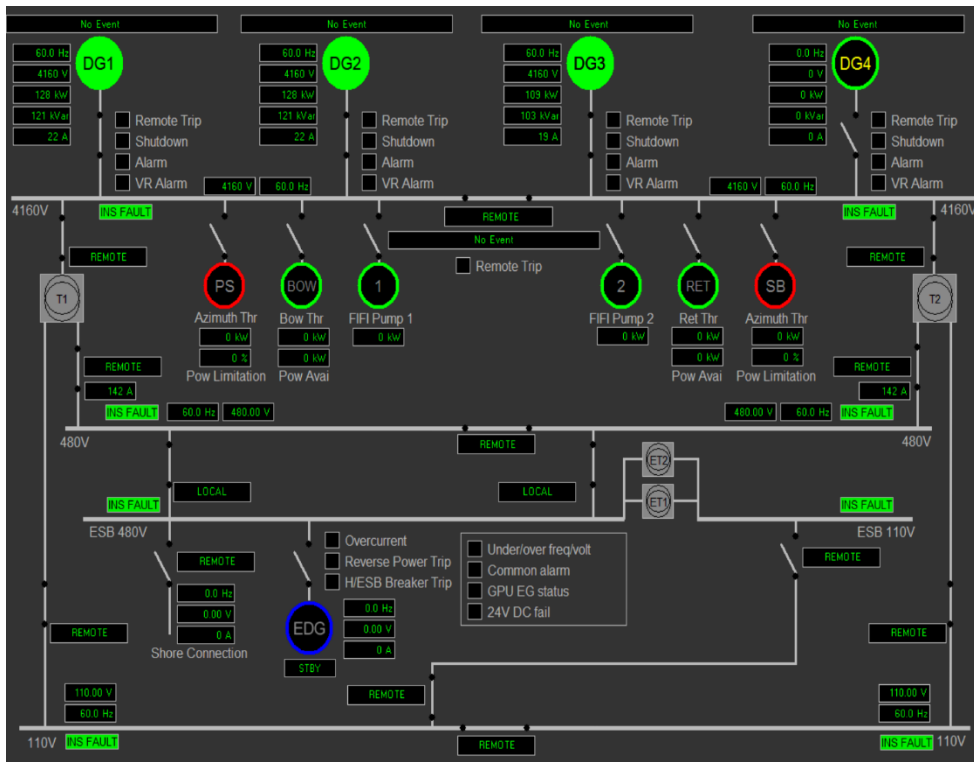
The High Voltage breaker is compatible with the Unitest DE3D simulator with high / medium voltage systems. High voltage distribution systems of 3.3 kV, 6.6 kV and 11 kV can be used in various types of ships, such as Container vessels, Tankers, Gas Carriers, Cruise liners and specialized off shore ships.

Compatible with the existing UNITEST simulator

The breakers are supplied by ABB and fitted with earthing switch which is controlled from the front of the module by means of a manual operation appropriately interlocked with the circuit-breaker's position. That makes Unitest HV simulator a great tool to increase the knowledge level on various standards pertaining to safety working practices on High Voltage systems. All operations done on HV breaker will have an influence on the main switchboard in the simulator.



Unitest DE3D simulator. Power Management System main screen.



Unitest DE3D simulator. Main Switchboard screen.

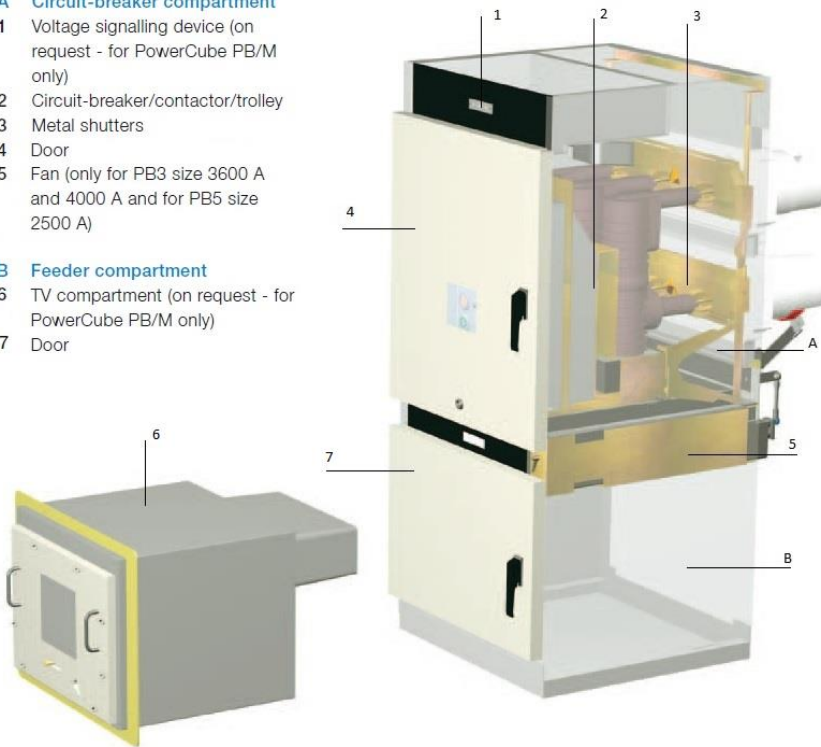
General characteristic of High Voltage Cabinet

A Circuit-breaker compartment

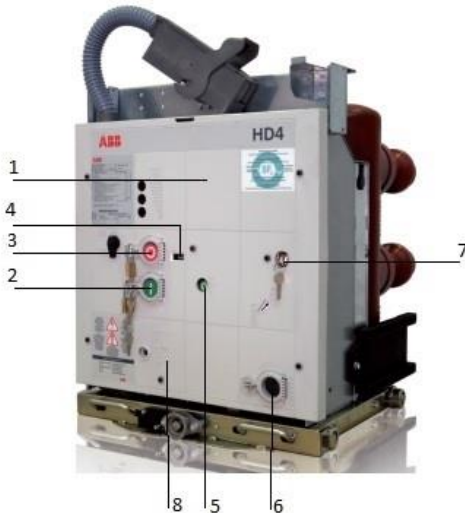
- 1 Voltage signalling device (on request - for PowerCube PB/M only)
- 2 Circuit-breaker/contactor/trolley
- 3 Metal shutters
- 4 Door
- 5 Fan (only for PB3 size 3600 A and 4000 A and for PB5 size 2500 A)

B Feeder compartment

- 6 TV compartment (on request - for PowerCube PB/M only)
- 7 Door



Withdrawable circuit-breaker HD4 Construction



- 1 Signalling device for state of SF6 pressure (on request)
- 2 Opening push button
- 3 Closing push button
- 4 Operator counter
- 5 Signalling device for circuit-breaker open/closed
- 6 Shaft for manual closing spring charging
- 7 Signalling device for closing springs charged/discharged
- 8 Resetting button for protection circuit-breaker of geared motor

Training objectives

The learner can manage high voltage operations on board the ship with high level of safety working practices.

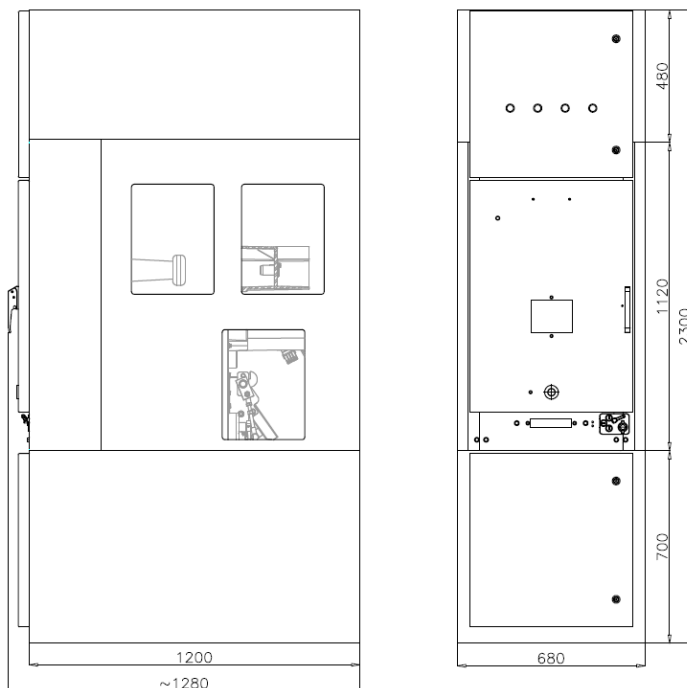
The learner understands high voltage system layouts, components arrangements and the maintenance of distribution capability.

The learner can identify faults within a high voltage system and reconfigure the system to maintain electrical supply.

The learner can meet the requirements of STCW 2010 (Manila Amendments) for High Voltage systems.

Circuit Breaker Technical specification.

- Rated Voltage: 24 kV
- Rated Frequency: 60 Hz
- Rated Busbar Current: 630 A
- Rated Short Circuit Current: 31.5 kA
- Peak Current: 63 kA
- Local Control Voltage: 24 VDC
- Breaker weight: 250 kg
- Cabinet dimension: 680x1280x2300 mm



High Voltage Breaker Simulator General View