

HS Switchgear fzco



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# On an Ascent to Seek Unparalleled Excellence



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# Our Company



HS Switchgear fzco has been set up in the Dubai Jebel Ali Free Zone, UAE to produce a range of indoor medium voltage switchgear manufactured under license from our technological partner, Hawker Siddeley Switchgear Ltd, UK.

Our reputation is based on using our skills and experience to produce solutions which have put us at the forefront of switchgear design with a commitment to quality - delivering results that our customers can rely on each and every time.

In today's global markets, customers are increasingly looking for suppliers to provide improved customer service, flexibility, shorter delivery cycles and knowledge of their local environment. HS Switchgear fzco remains committed to innovation, striving to provide what our customers could have – not just what they want.



# General Manager Message



It gives me great pleasure to introduce our manufacturing venture of 12 kV switchgear panels - HS Switchgear fzco to all our customers and clients.

HS Switchgear fzco brings into the region ground breaking, cutting edge technology through their magnetic actuator powered switchgear panel. This feature alone has brought down the size of the panel appreciably and our compact design has enabled us to make inroads into areas where others have failed. We are able to provide upgrades and solutions where space is the major constraint.

The moving parts in the magnetic actuator are 20 times lesser than the conventional mechanisms which really means it is zero maintenance, fit and forget technology.

Being based in Jebel Ali, Dubai in the vicinity of our primary clients, licensed to produce under Hawker Siddeley Switchgear, UK, we can offer quick lead times between 4 to 6 weeks. Our vast inventory of commissioning and maintenance spares and a team of well trained dedicated service engineers and technicians also allow us quick response time whenever customers need our services.

Our environmentally friendly, KEMA certified panels are produced in a brand new, sprawling 13500 sq.m. state of the art ISO 9001:2008 approved manufacturing facility. Our supplier base is internationally acclaimed and has rigid quality standards of its own.

I sincerely hope that we will be able to cater to all your future electrical project needs and work together to provide you the best possible solutions.

Looking forward to hearing from you.

Sincerely Yours & Warmest regards

General Manager



## Our Mission

Contribute significantly to the growth of the Electrical Power & Distribution industry in the region, by providing reliable energy solutions through the manufacture & supply of innovatively designed, cutting edge technology, maintenance free medium voltage switchgear delivered consistently on time and of exceptional quality.



## Our Vision

Enhance and empower our manufacturing expertise to achieve production volumes and quality standards that can match up to the challenges of the phenomenal growth prospects of the energy needs in the region.



## Our Values

Pursuing the organizational goals , keeping our strong human values system at the core of all our business strategies, we strive for excellence and at our Manufacturing Plant “Getting it right from the start” isn’t just a slogan.....It’s the way we run the show !!

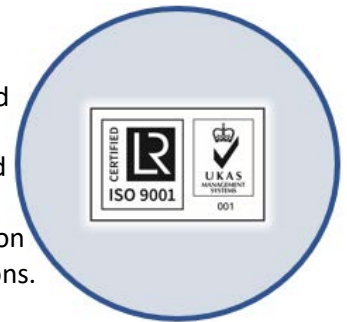
# Certifications



Panels are type tested in KEMA as per latest IEC Standard  
IEC - 62271-200  
IEC - 62271-100



Employees of HS Switchgear fzco are at all levels committed to deliver high quality products and services, in accordance with legal, statutory and mutually agreed specifications and requirements of customers related to manufacturing and assembly of medium voltage switchgear panels with focus on continual improvement and to exceed customer expectations.



# MV Switchgear Eclipse



## 12kV Fixed Pattern Indoor Metalclad Vacuum Switchgear

The Eclipse switchgear is designed to provide a lifetime of unmatched service, bringing together one of the most advanced operating mechanisms available on the market today - the award winning magnetic actuator technology, with vacuum interruption and the simplicity of air insulation in a compact, fixed pattern design.

### Key Feature

- Superior, proven 'Fit & Forget' technology with minimal maintenance.
- The Eclipse is proud of superior operator safety with a fully interlocked disconnect selector mechanism, animated front panel mimic and a front access cable test facility, eliminating the need for any intrusive access to high-voltage compartments.
- Endurance tested to >10,000 operations.
- Environmentally friendly vacuum interrupters.
- Internal arc containment.
- Voltage Presence Indication System (VPIS) is fitted as standard to all panels.
- Magnetic Actuator powered from sub station battery.
- Trip circuit supervision, self-diagnostics & position indication contacts included as standard.
- Customer's choice of protection.
- The fixed pattern design has the simplicity of air insulation and, with the low parts count (the total parts count has been reduced by a factor of x20 and the number of moving parts by a factor of x50), is more compact (500mm wide) than equivalent rated equipment.





# Specification



## Ratings

RATED NORMAL CURRENT	A	630	1250
RATED VOLTAGE	kV	12	12
RATED FREQUENCY	Hz	50	50
RATED POWER FREQUENCY WITHSTAND	pk kV	75	75
RATED BIL	kV 1min	28	28
RATED SHORT-TIME WITHSTAND CURRENT	kArms 3sec	25	25
RATED PEAK MAKING CURRENT	pk kA	62.5	62.5
INTERNAL ARC COMPLIANCE	kA 1sec	25	25
RATED SHORT CIRCUIT BREAKING CURRENT	kA	25	25
DEGREE OF PROTECTION		IP4X	IP4X
SINGLE CAPACITOR BANK BREAKING CURRENT	A	400A	400A
CIRCUIT BREAKER CLASSIFICATION		E2, S2, C2	E2, S2, C2
AUXILIARY OPERATING SUPPLY	Volt	125/110/48/30V DC	125/110/48/30V DC
BUSBARS NORMAL CURRENT	A	1250A	1250A
TYPICAL WEIGHT	kg	500 - 650kg	500 - 650kg
AMBIENT AIR TEMPERATURE	°C	-5 °C to +55 °C	-5 °C to +55 °C
RELATIVE HUMIDITY	%	<95%	<95%
ALTITUDE	m	<1000m	<1000m

STANDARD : IEC 62271-2006

\* Higher ratings available on request



# Standard & Unique Feature



## 1. Unique Front Access Cable Testing Option

All HS Switchgear fzco panels come with unique front access cable testing option.

The Key features of this option are :

- Avoids any contact with live cables or busbars.
- Eliminates the need for opening of rear covers to access live cables.
- Provides secure & mechanically interlocked front access contacts points to connect cable test equipment.
- Colour coded and suitably labelled copper contacts eliminates risk of improper connections during testing live cables.

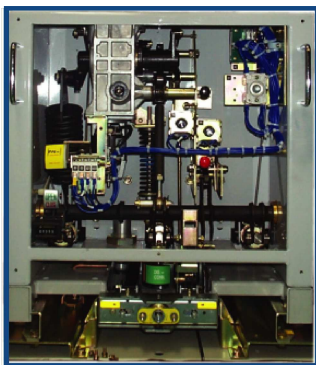


## 2. Patented Single Coil Magnetic Actuator

HS Switchgear panels are designed using award winning magnetic actuator technology.

The key features of this actuator are:

- Patented single coil design.
- Minimal moving part.
- Bi-stable with pulsed coil to operate.
- Opening energy stored during closing.
- Tripping performance independent of supply voltage.
- High strength rare earth magnet.



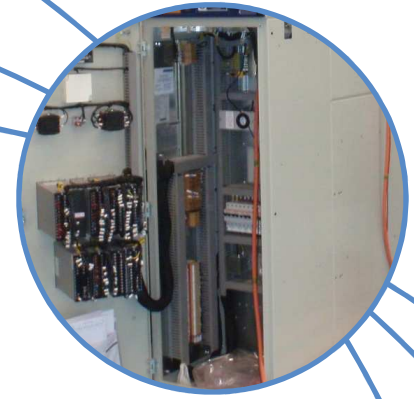
Spring Charged



HS Switchgear Magnetic Actuator

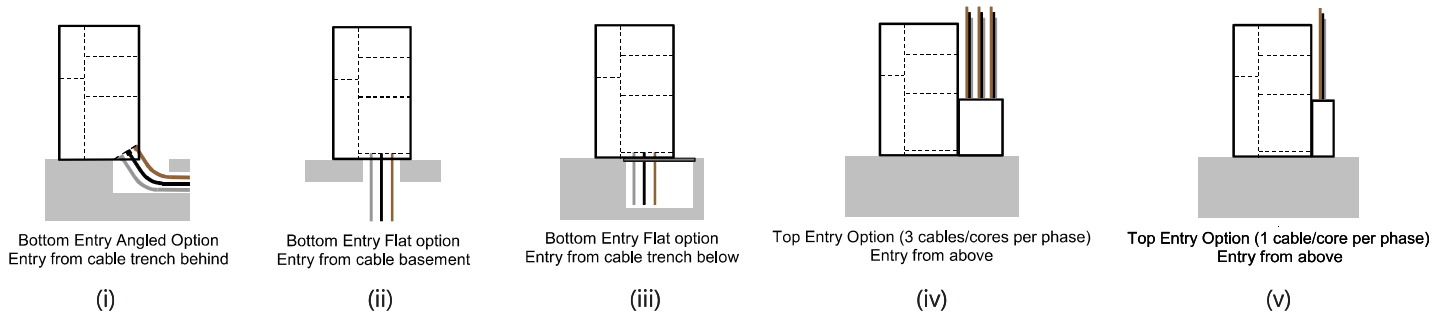
Comparison of Typical Spring Charged Mechanism and Magnetic Actuator

# Standard & Unique Feature



## 3. Cable Entry Options

Eclipse Feeder/Incomer Panels are available with a choice of three basic bottom entry main cable termination compartment arrangements as shown in figure (i), (ii) and (iii). Option of inverted adapters to allow top entry of main cables are also available as shown in figure (iv) and (v).



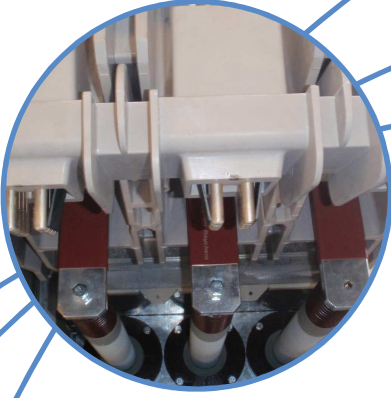
The above cable entry options are to be specified at the time of ordering.

## 4. Emergency Close Unit

The Emergency Close Unit is a device to enable closing of magnetic actuator circuit breakers manually when the normal closing supply is not available.

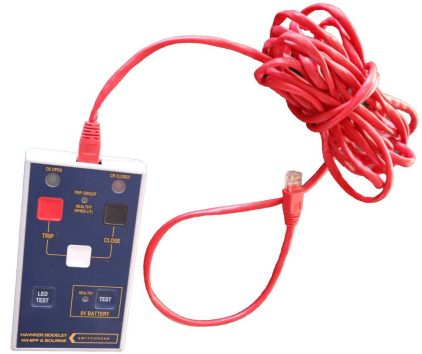


# Standard & Unique Feature



## 5. Remote Trip/Close Unit

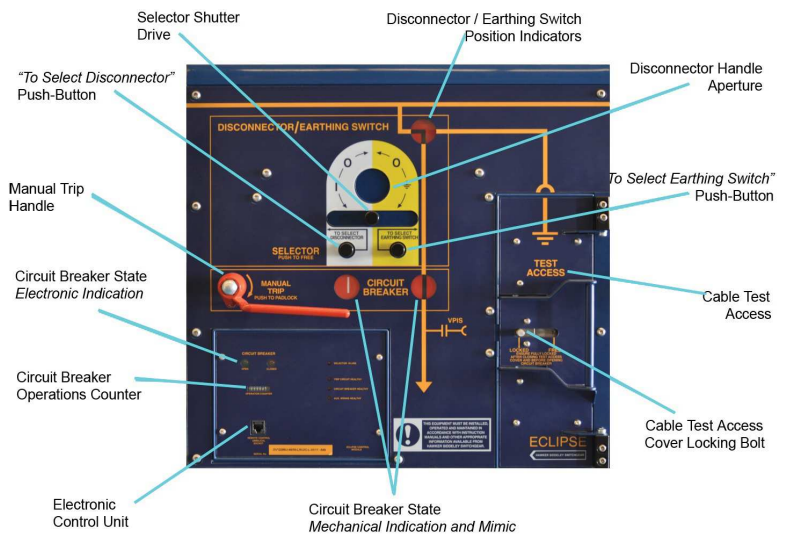
The optional remote trip and close unit allow local operation of the circuit breaker from a remote position, e.g. from outside the substation or in an adjacent room, via an umbilical cable.



## 6. Three Position Disconnecter

Fully interlocked, off load manually operated 3-position disconnecter including circuit earth and front panel cable test access. The disconnecter can be secured and padlocked in all three positions: 'on', 'off' and 'earth on/ test', with its status indicated by animated front panel mimics.

An interlocked selector mechanism prevents disconnecter movement with the circuit breaker in the CLOSED position; preventing the circuit breaker closing whilst the selector is in use and preventing the disconnecter moving directly from ON to EARTH and vice-versa. The selector shutter cannot be opened unless the circuit breaker is OPEN. The selector shutter cannot be closed unless the disconnecter is fully engaged in a valid position.

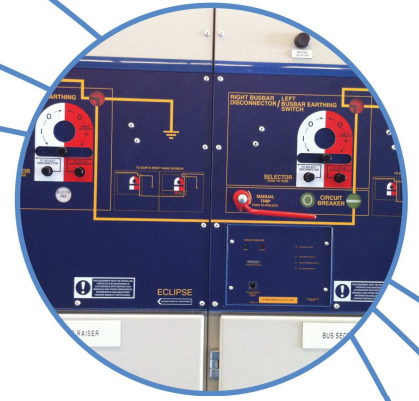


## 7. Cable Test Point Adapter

The Cable Test Point Adapter locates onto the existing test points and extends them to allow use of bolted or clamped test connections that cannot be accommodated on the standard test points.



# Standard & Unique Feature



## 8. Electronic Control Unit & Monitoring

An electronic control unit on each panel controls the Eclipse circuit breaker. In addition to manually padlockable interlocks, the control unit adds a number of electrical interlocks, timing & diagnostic functions that ensure the circuit breaker can only be operated when it is safe to do so.

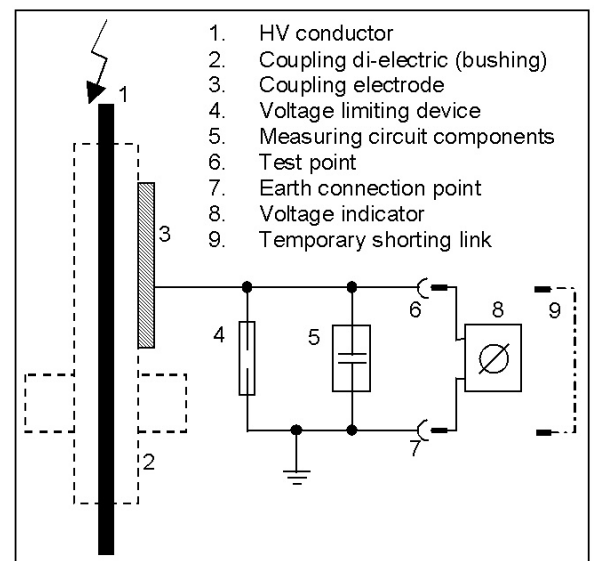
The front panel of the electronics module has the following indicators;

- Circuit Breaker Status Indicators (OPEN & CLOSED)
- Operations Counter
- Selector In Use
- Trip Circuit Healthy
- Circuit Breaker Healthy
- Aux wiring Healthy

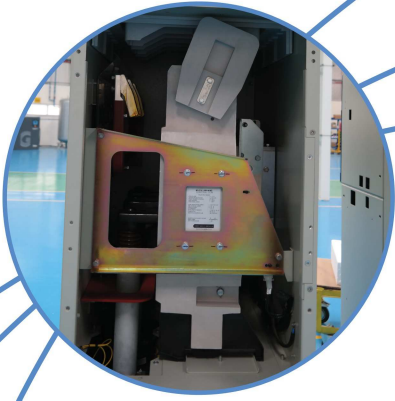


## 9. Voltage Presence Indication System (VPIS)

Eclipse panels are fitted with VPIS based on the requirements of IEC61958, providing operator information regarding the voltage condition of the main circuit and allowing the phase relationship between two circuits to be verified. A capacitive voltage divider circuit, driven from bushings on the cable side of the circuit breaker, feeds a low voltage signal to touch-proof test points mounted on the relay compartment door. An earth connection point is provided adjacent to each test point for connecting test devices between phase and earth. Voltage limiting devices are fitted to prevent dangerous voltages appearing at the test points.



# Construction Features



## Dimensions (mm)

Dimensions for a standard Eclipse feeder/incomer panel.

(a) 1150 (b) 2100 (c) 500

Dimensions for a standard Bus-section panel.

(a) 1150 (b) 2100 (c) 1000

Dimensions for a Busbar earthing switch.

(c) 325

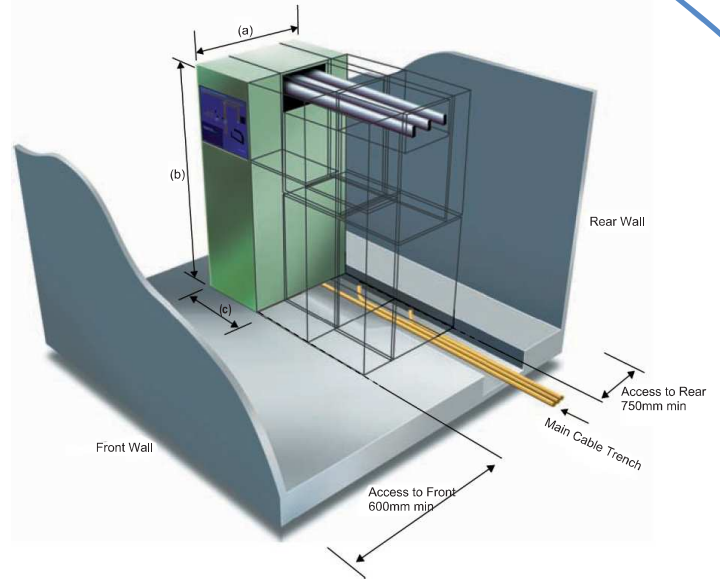
Dimensions for a single panel with Busbar VT.

(b) 2450

Dimensions for top entry cable.

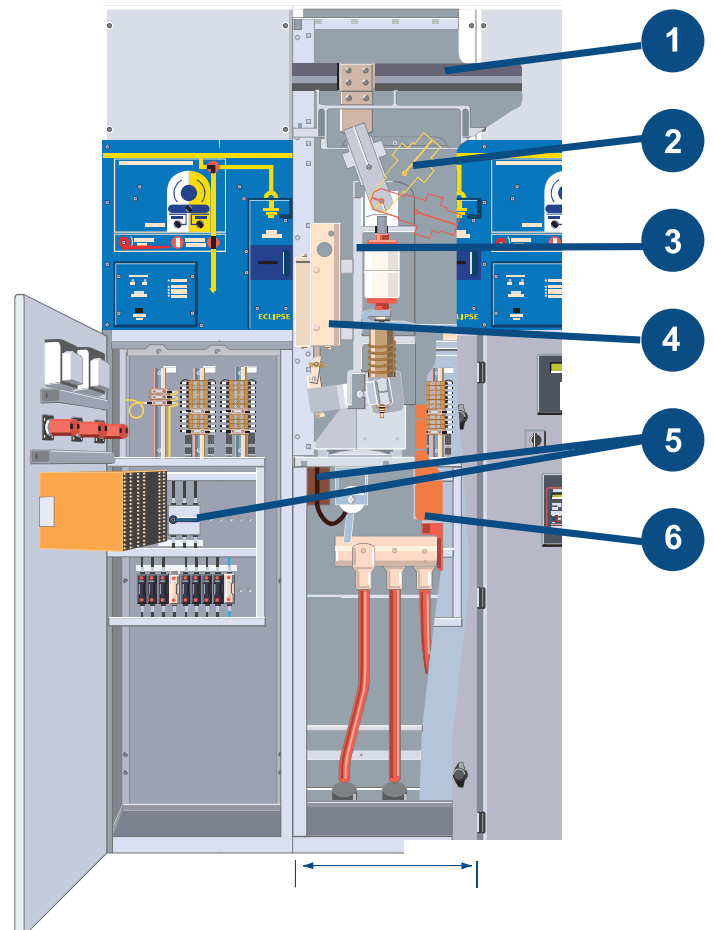
One cable per phase - (a) 1482

Three cables per phase - (a) 1812



## Engineering Details

- 1 Sleeved busbars constructed from hard drawn, high conductivity copper, and vermin proof covered joints, with normal current ratings up to 2000A. The busbar arrangement permits future expansion, at either end of the switchboard.
- 2 Fully interlocked, off load manually operated 3-position disconnecter including circuit earth and front panel cable test access. The disconnecter can be secured and padlocked in all three positions: 'on', 'off' and 'earth on/test', with its status indicated by animated front panel mimics.
- 3 A single moulding supports the three phase vacuum interrupter assembly, magnetic actuator mechanism and one-piece drive beam.
- 4 The patented single coil magnetic actuator mechanism is based on a solenoid plunger, held in the tripped or closed position by permanent magnets.
- 5 Three phase cast resin voltage transformer, with manually operated off-load disconnecter on the primary circuit.
- 6 Generous CT accommodation enables complex protection schemes to be catered for in a single panel, whilst still allowing for a metering provision. The CT designs are rated in keeping with the short time withstand level of the equipment and comply with IEC 60044-1 (IEC 61869-2).

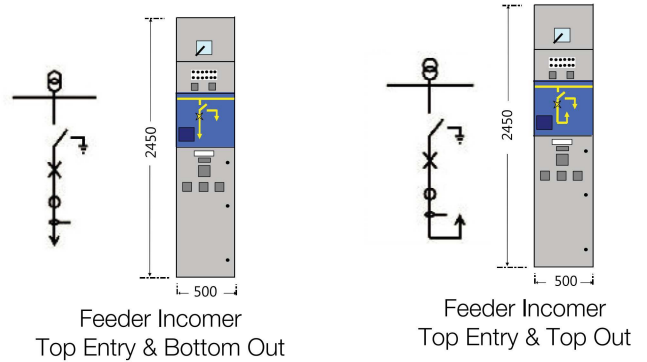


# Construction Features



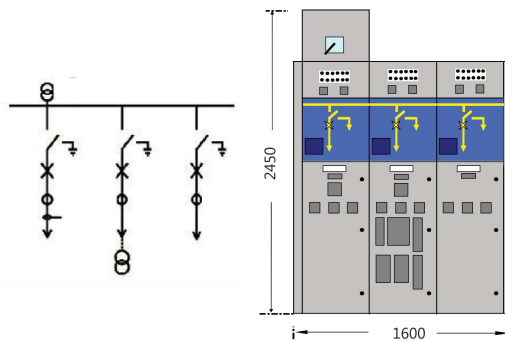
## Typical Substation Configurations

1. Single Panel with two options top incomer cable bottom outgoing cable or top incomer cable top outgoing cable.



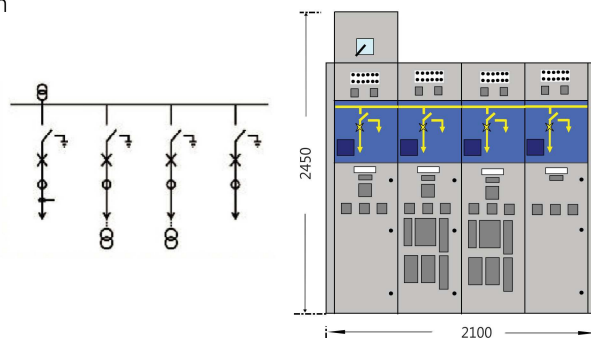
2. Three Panel Boards as Ring Main Substation

- Incomer.
- Transformer feeder.
- Outgoing feeder.



3. Four Panel Boards as Quadrant Substation

- Incomer.
- Two Transformers Feeders.
- Outgoing feeder.



### Legend

- |                         |           |
|-------------------------|-----------|
| 3 POSITION DISCONNECTOR | CABLE VT  |
| CIRCUIT BREAKER         | EFI       |
| CURRENT TRANSFORMER     | BUSBAR VT |

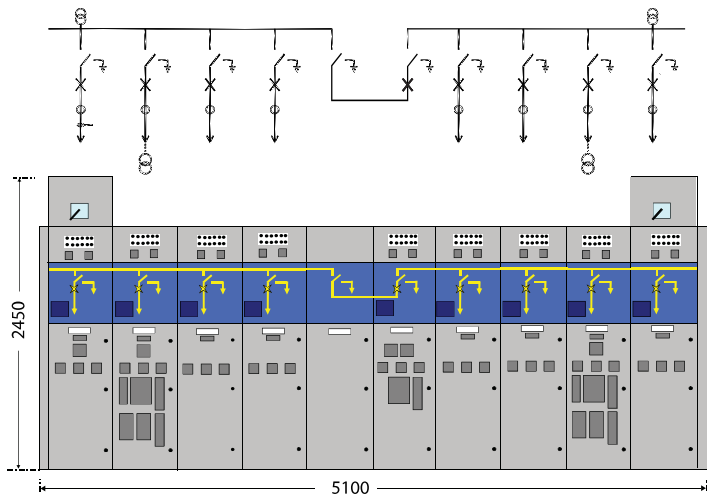
# Construction Features



## Switching Station Configuration

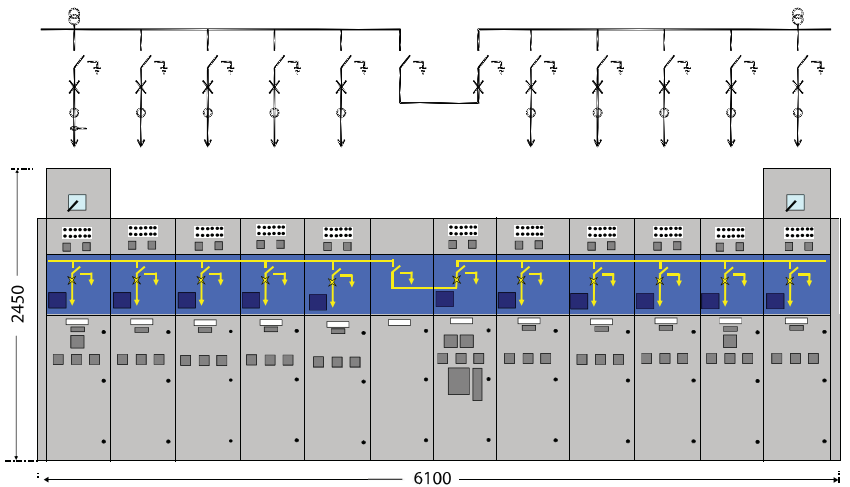
### 1. Nine (9) Panel Boards Switching Station

- Two Incomer Feeder
- Two x Transformer Feeder
- Four x Cable Feeder
- Bus Section



### 2. Eleven (11) Panel Boards Switching Station

- Two Incomer Feeder
- Eight x Cable Feeder
- Bus Section



#### Legend

- |                         |           |
|-------------------------|-----------|
| 3 POSITION DISCONNECTOR | CABLE VT  |
| CIRCUIT BREAKER         | EFI       |
| CURRENT TRANSFORMER     | BUSBAR VT |



# Related Products



Control Protection Panel



Distribution Management System Interface Panel

# Related Products



## Control Protection Panel

HS Switchgear fcco also able to provide wide range of control protection panels as per customer requirement including unlimited to :

- Control and relay panels
- Local control cubicles for switchgear (LCC)
- SCADA/LDC/DMS marshalling panels (cross-connection panels)
- Pilot wire/isolation transformer marshalling panels
- Generator control and protection panels / desks
- FMS (fault monitoring systems) panels
- Annunciator panels
- RTCC
- Under-frequency load shedding panels
- Process control and instrumentation panels for the oil and gas sector
- Substation control and monitoring systems / RTU / SCADA products



# Related Products

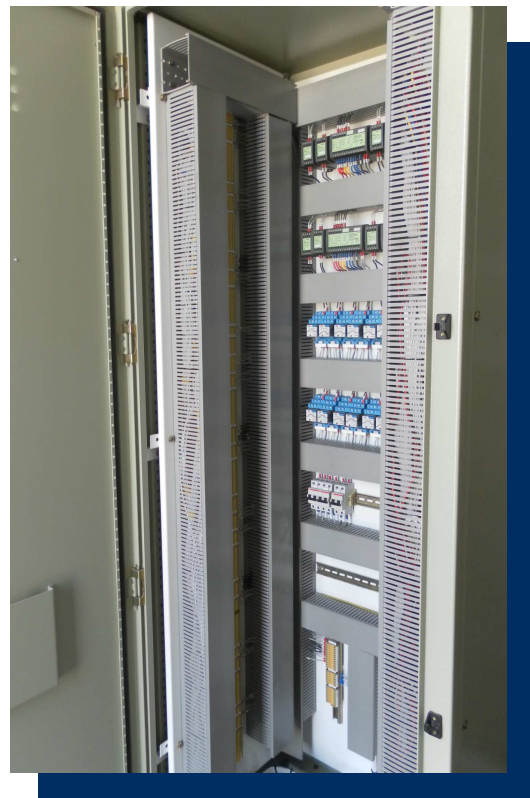


## Distribution Management System (DMS) Interface Panel

As the electric energy became an essential part of the daily life, its optimal usage and reliability became important. Real-time network view and dynamic decisions have become instrumental in optimizing resources and managing demand, thus HS Switchgear FZCO will help to design and manufacture A Distribution Management System (DMS) is a collection of applications designed to monitor & control the entire distribution network efficiently and reliably.

The DMS solution supports the following functions:

- Network visualization & support tools
- Applications for Analytical & Remedial Action
- Utility Planning Tools
- System Protection Schemes



# After Sales Support



Through our After Sales Services you can obtain advanced solutions to problems, service and professional consultation. Expert engineers & technicians with extensive experience of all types of our products are available to assist our customer. These include:

- Operation Training
- Maintenance Training
- Engineering Training
- Protection Relays Study calculation
- Provide required Spare parts

Also in order to achieve continuous good performance in your Projects we offer installation supervision and commissioning. Our highly skilled and experienced service engineers, located close to you can carry out commissioning, inspection, trouble-shooting and on-site service. Together with our product experts we can check your installation in order to identify possible problems and propose corrective actions.

# Applications



The Eclipse has a wide range of applications:

- Primary distribution
- Secondary Substation applications
- Utilities
- Transport applications
- Building Services
- Light Industrial
- Commerical
- Education
- Hospitals
- Ministry Of Defence



# Executed Projects



Rotana Chalets Extension - Al-Ain



AL Wathba Frozen Bakery - Abu Dhabi



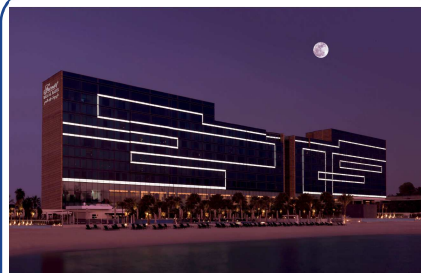
UAE University Campus - Al-Ain



Emirati Housing - Abu Dhabi



AL Nabbag Villa Complex - Al-Ain



Fairmont Hotel - Abu Dhabi



Dalma Mall - Abu Dhabi



Abu Dhabi Plaza - Abu Dhabi

# Executed Projects



## The new Presidential Palace Abu Dhabi



As one of the biggest buildings infrastructure and most prestigious projects taken place in the United Arab Emirates (UAE), the new Presidential Palace in Abu Dhabi is a landmark project which will help to emphasize Abu Dhabi's role as a leader within the UAE and the GCC countries.

Housing the H.H. The President, H.H. The Vice President, H.H. The Crown Prince and Ministers, the palace is being built over 2 plots on an area of 150 hectares.

HS Switchgear fzco, were able to supply one of the world's most advanced and reliable switchgear solutions to new presidential palace.

Supplying power to such a high-status project are 20 switchboards, comprising of 117 Eclipse panels, of which 22 panels are supplying the biggest switching station ever seen in the region.

## World Trade Center Abu Dhabi

A turnkey project for ALDAR Properties, the World Trade Center redevelopment occupies 5.0 hectares of prime city space, and comprises luxury apartments, international grade A office space, restaurants, world class hotels, branded retail outlets and a traditional Arabian souq. World Trade Center is a true city centre destination for the Capital of the UAE.

For one of the skyscrapers in this project, the switchgear rooms are located on the 30th, 40th and 80th floor for which the requirement was for 6 substations, 24 panels, comprising 12 feeder panels and 12 transformer panels. On account of its major unique selling point, i.e., the compact size, HS Switchgear fzco was chosen as the switchgear supplier for this site where the space availability was the major constraint. HS Switchgear fzco, not only fitted the requirement perfectly for this scenario, but has also delivered this project on a very short lead time.





## HS Switchgear fzco

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