EcoStruxure™

SeT Series

GM AirSeT™ Performance

Catalog 2026

SF_6-free Primary Gas Insulated Switchgear
Pure air technology for a more sustainable future

se.com/gmairset

Schneider Electric

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General Contents

PM110691

Introducing **GM AirSeT**
SF_6-free primary MV switchgear,
powered by pure air and digital.

Watch the video

GM AirSeT Performance

With double busbars for redundancy
and high-performance isolation

You are here

Web

Schneider Electric

Leading pure air SF_6-free solution

Simpler to manage, with no F-gases for compliant operations.

More uptime

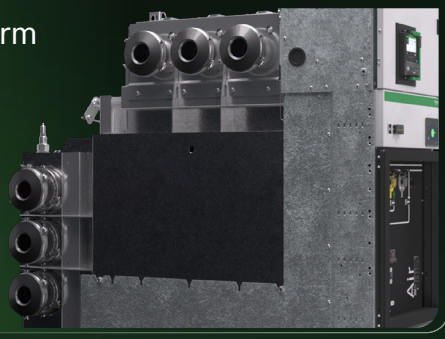
Monitor health trends to reduce unplanned downtime.

Simplified installation

Factory sealed to eliminate gas work and improve reliability.

Robust design and performance

Engineered to perform under the harshest conditions.



Ready for the new energy world

High power density for data centers and renewables.

Reduce maintenance by 40% with EcoCare

Optimise operations with condition-based maintenance.

Operate beyond the arc-flash zone

Nearby or remote operation helps reduce risks.

Schneider Electric

GM AirSeT Performance is designed for the most demanding applications & environments.

Ready for the new world of electricity applications, high power ratings, increased operations, required maximum uptime.

Distribution and Power Generation

Data Center Applications

Buildings

Oil and Gas

Transportation

Mining, Minerals, Metals

Schneider Electric

BREATHE EASY

With AirSeT, SF_6-free
Medium voltage equipment
powered by pure air & digital.

Watch the video

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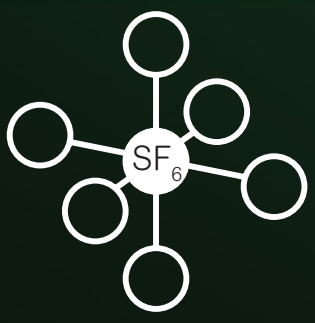
Since the 1950s, SF_6 gas has helped the industry shrink electrical switchgear footprints and improve safety. But this technology comes with a massive hidden cost. SF_6 is one of the most potent greenhouse gases known.

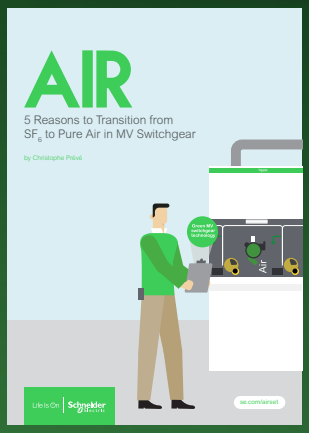


1 kg SF_6 = CO_2

24,300 kg CO_2 equivalent*

25 trees CO_2 absortion for 40 years

*IPCC Sixth Assessment Report



Download

Are you already impacted by SF_6 regulations?

EU:

Ban on new medium-voltage equipment (≤24 kV) from January 1, 2026.

Higher voltage equipment (up to 52 kV) by 2030.

USA:

Ban on new medium-voltage equipment in some states (CA, NY, MA and more).

Schneider Electric

AirSeT

We pioneered SF_6-free equipment built with

PURE AIR

Not another F-gas.
Not a proprietary gas mix.
Just air—making it simpler to manage, safer and future-proof against regulation.

We either source it from suppliers as it is standardized or use ambient air that's processed through on-site filtration, dehumidification, and pressurization—resulting in the same outcome: pure air that's sealed for life.

Since launching AirSeT, our pure air technology has become the

LEADING SF_6 ALTERNATIVE IN THE MARKET.*

*Secondary switchgear

Same operations
Similar footprint

Zero
carbon impact and recycling cost

How we made it possible?
Innovative and patent Shunt Vacuum Interruption (SVI)™ technology is used to break the current in the tank sealed for life with pure air.

Watch the video

Schneider Electric

Despite growing complexity, rising electrical demand, and a shortage of skilled talent to maintain installations...

Our Grid, Data Centers, Industries and Infrastructure Operators customers continue to

BREATHE EASY.

ready to win the electrification race.

Traditional ways of managing medium-voltage (MV) equipment can put business continuity at risks:

- Electricity is now the main/only energy source
- Downtime isn't acceptable
- Electrical Skilled workers are hard to find

Schneider Electric

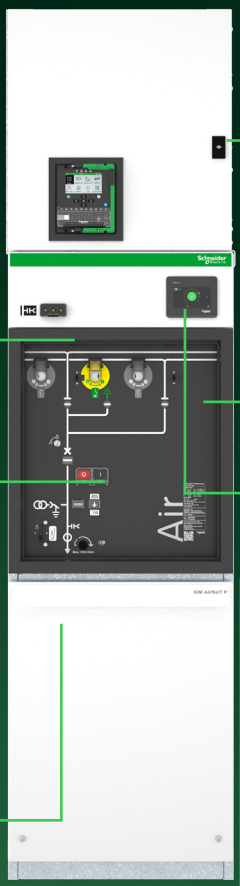
That's why GM AirSeT Performance equipment are natively digital to keep operations running, simplify maintenance, and meet today & tomorrow's expectation.

Mechanism Tag
measures the speed of the mechanism used to calculate mechanism wear and health.

EcoStruxure Operation Server
Motor Control, Protection and Aging Monitoring.

EcoStruxure Operation Server
monitors the health status & proper function of the circuit breaker by measuring several critical parameters during its lifetime.

Pressure and temperature sensors



PowerLogic Environment Tag
monitors ambient conditions continuously: moisture, pollution, condensation cycle.

HMI touch screen

Innovative intelligent pressure monitoring system.

Highly accurate pressure measurements of each tank compartment are displayed using modern intuitive infographics on a high resolution touch screen display.

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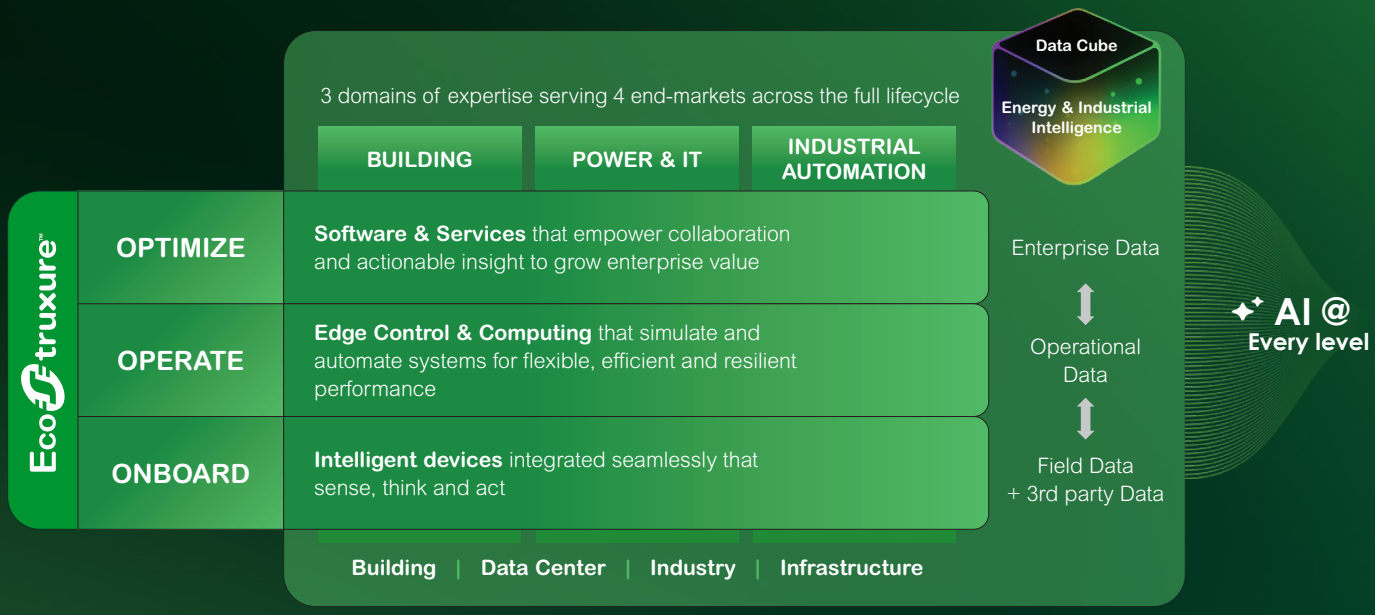
GM AirSeT, intelligent devices at the foundation of EcoStruxure



EcoStruxure is our digital foundation that connects every layer of the energy world, from the smallest device to the largest grid, from the edge to the cloud.

First, we onboard intelligent, AI-enabled devices like GM AirSeT that connect the physical and digital worlds, so our customers can access the information they need to achieve their goals.

At the Operate level, we offer solutions for edge control and computing that enable real-time control and orchestration of connected devices, driving operational efficiency, reliability, and performance through dynamic, secure execution environments.

The Optimize level focuses on transforming enterprise data into strategic insights that enhance efficiency, collaboration, and continuous improvement through our Software & Services offer.

Schneider Electric

Explore and compare the GM AirSeT range

Native and scalable to your needs

Designed to be modular, flexible, and easily upgraded, GM AirSeT is available in a scalable range of connectivity tiers to match your growing needs and extend equipment lifespan.

The Active tier adds built-in digital monitoring to SF_6-free power equipment, enabling more sustainable, data-driven operations and maintenance.

	GM AirSeT Performance	
	Plus	**Active Plus**
Insulated busbar	✓	✓
Edge & cloud connectivity	✓	✓
Thermal monitoring	✓	✓
Environmental monitoring	✓	✓
Remote monitoring (App)	✓	✓
24/7 monitoring by Schneider Electric experts	With EcoCare	
Gas pressure monitoring	Standard or advanced	Advanced
Partial discharge monitoring	N/A	With EcoCare
Remote & nearby control	N/A	✓
Breaker health monitoring	Optional	✓
Arc flash detection	Optional	Optional
Local HMI (monitoring & control)	Optional	Optional

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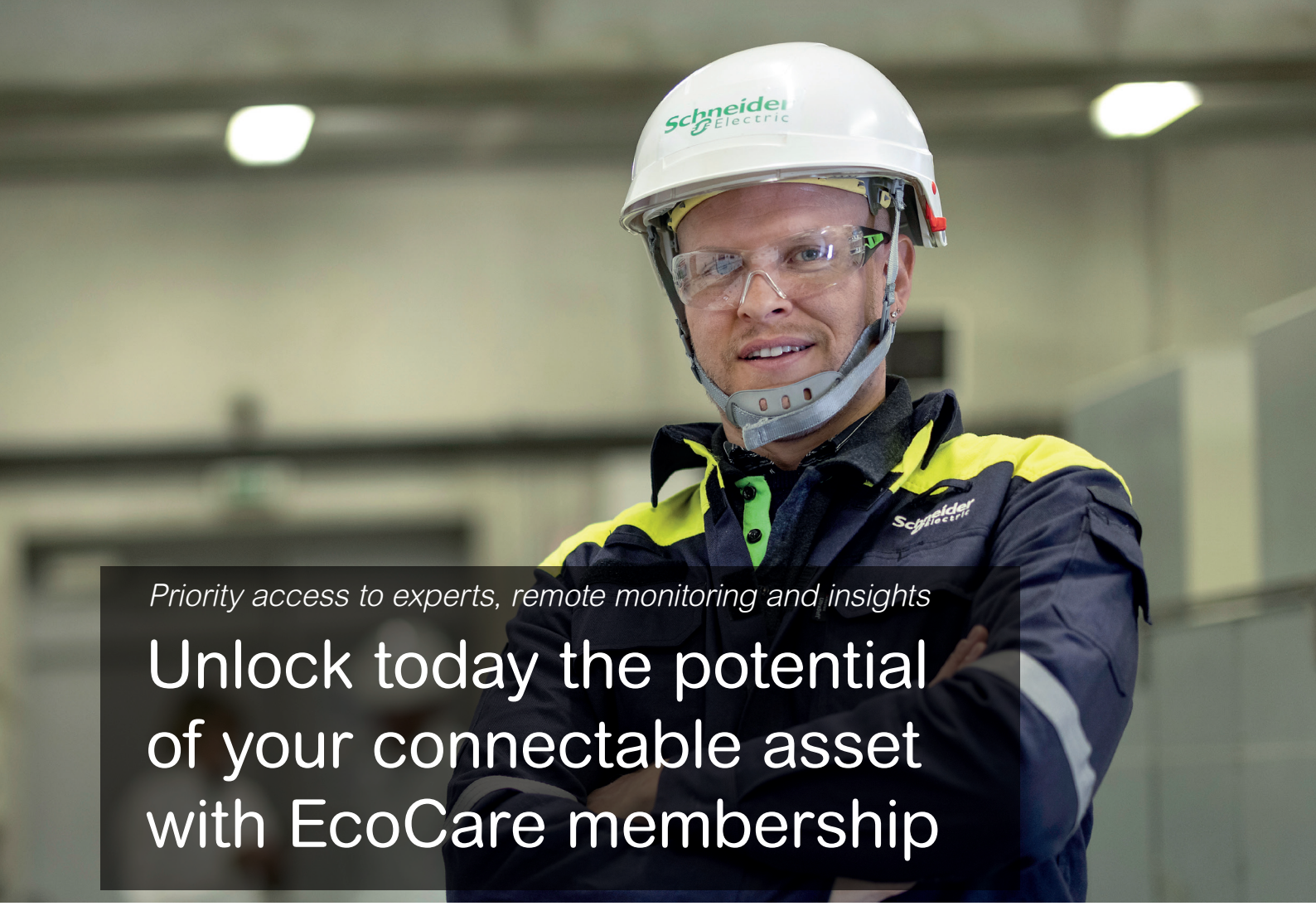


Priority access to experts, remote monitoring and insights

Unlock today the potential of your connectable asset with EcoCare membership

With EcoCare membership, a next-generation service plan, you gain exclusive support for your equipment from day 1 and throughout its entire lifecycle. For minimal investment compared with your overall CapEx, you'll enjoy 24/7 remote monitoring and alarm management, and access to technical expertise, on-site and remotely, as defined by service level agreement (SLA).

This proactive approach helps reduce the risk of unexpected downtime and related costs, while enhancing uptime, safety and efficiency of your operations. EcoCare membership helps:

- Reduce by up to 75 % electrical failure risk and unplanned downtime[1]
- Reduce by up to 40 % on-site maintenance activities and planned downtime costs[2]

A 3-tiered offer to cover all your needs

	EcoCare Essential	EcoCare Advanced	EcoCare Advanced+
Overview	**Available when you need us** As an EcoCare member you have **exclusive access to resources and expertise** to resolve issues faster and improve the resiliency and efficiency of your business and operations.	**Fully empowered** We **empower your teams** to run a resilient, safe, efficient, and sustainable operation by anticipating and remotely **helping you mitigate downtime events.**	**Optimized uptime** We anticipate risks of downtime to give you the **right support** at the right time, and we **optimize the lifecycle of your assets** to **maximize your business continuity.**
Key features	• Priority remote access to experts. • Exclusive EcoCare rates on all services. • On-site intervention SLA: standard or upgraded[3]. • 24/7 monitoring and alarming for connected assets. • Extended warranty[4].	• Priority remote access to experts. • Exclusive EcoCare rates on all services. • On-site intervention SLA: standard or upgraded[3]. • 24/7 monitoring and alarming for connected assets. • Extended warranty[4]. **+** Consultancy from our experts, with advanced analytics.	• Priority remote access to experts. • Exclusive EcoCare rates on all services. • On-site intervention SLA: standard or upgraded[3]. • 24/7 monitoring and alarming for connected assets. • Extended warranty[4]. • Consultancy from our experts, with advanced analytics. **+** Recommendations for dynamic maintenance. **+** Condition-based maintenance.

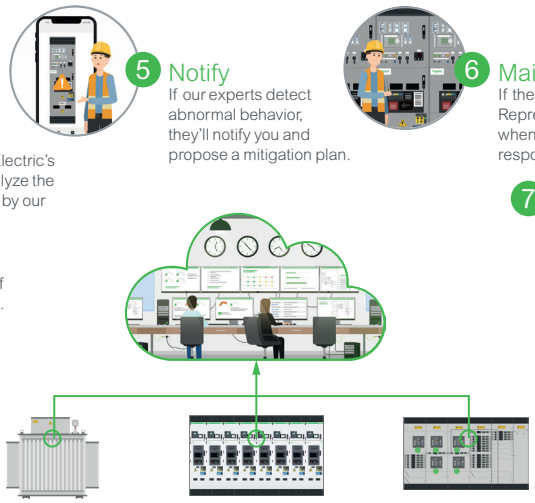
1 - Percentage non-contractual and based on our experience and expertise for the main root cause of electrical failure risk observed and for which Schneider Electric has developed solutions.
2 - Percentage non-contractual and based on the time between 2 manufacturer maintenance activities which can be extended by up to 2 years compared to a traditional calendar-based maintenance contract, from 3 to 5 years
3 - Maximum zone coverage and response times might vary
4 - Applicable for new and modernized equipment sold together with EcoCare

Overview

EcoCare membership

Combine GM AirSeT Performance Active or GM AirSeT Performance Active Plus with a next-generation services plan

We help you optimize your electrical asset management. How?



1 **On-board & Set-up**
Activate your mySchneider account and meet with your Customer Success Management team to explore your membership and set required features.

2 **Collect**
Data from sensors and communicating devices are collected and uploaded on the Schneider Electric Cloud.

3 **Monitor and visualize**
The environmental and health status of the assets are continuously monitored.

4 **Analyze**
Our experts from Schneider Electric's Connected Services Hub analyze the data and analytics computed by our EcoStruxure digital platform.

5 **Notify**
If our experts detect abnormal behavior, they'll notify you and propose a mitigation plan.

6 **Maintain**
If the issue is critical, a Services Representative will be dispatched whenever needed with faster response time.

7 **Advise**
You'll get insights and recommendations during a consultative meeting with our experts.

8 **Support**
You'll get access to Premium Support with our knowledgeable experts.

9 **Empower**
You'll have access to specialized training, online or on-site, to empower your team and develop their skills.

Understanding the Ecocare features and benefits

		EcoCare		EcoCare+
Features		**Essential**	**Advanced**	**Advanced**
Support to operations	• mySchneider portal • Premium support • Emergency support • Customer Success Management	✓	✓	✓
Workforce empowerment	Access to online training courses	✓	✓	✓
Exclusive Benefits	Members rates on other services: On-site intervention, advanced trainings, Spare parts and more*	✓	✓	✓
Monitor & Optimize	24/7 Monitoring and alarming	✓	✓	✓
	Consultancy by our experts and quarterly reports	-	✓	✓
	Partial discharge monitoring for Medium Voltage switchgear	-	○	○
	Condition-based monitoring for Oil Transformers	-	○	○
On-site maintenance	Calendar-based Preventive maintenance visits with exclusive asset diagnostic and tools	○	○	-
	Condition-based maintenance	-	-	✓
Workforce empowerment	Access to online training courses	○	○	○

(*) Check with your local Schneider Electric services representative.

✓ Warranty ○ Optional

Why become an EcoCare member?

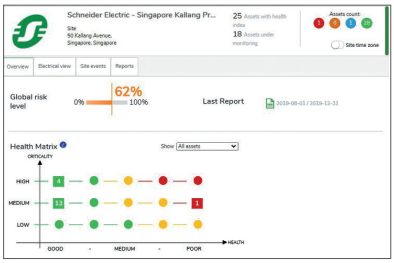
- **Simplified operations** with online asset condition monitoring and alarming.
- **Help prevent fires** with continuous thermal monitoring.
- **Increased asset uptime** with predictive analytics, remote, and on-site manufacturer expertise.
- **Faster issue resolution** with 24/7 remote technical assistance.
- **Optimized operational budget** with a condition-based maintenance strategy.
- **Improved asset's lifetime**, helping to reduce CO_2 footprint.

Overview

EcoCare membership

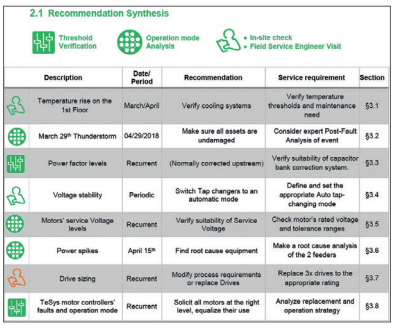
Combine GM AirSeT Performance with a next-generation services plan

EcoCare membership can help you reduce electrical failure risk and unplanned downtime by up to 75%*, on-site maintenance and planned downtime costs by up to 40%*, and also extend your assets' lifespan to optimize costs of carbon emissions



Site risk level and health matrix

Circuit breaker monitoring



Predictive insights and customized report

Asset & Switchgear Health Management
- Site risk level and health matrix
- Thermal monitoring of connection points
- Partial Discharge Monitoring
- Environmental monitoring of electrical room and cubicles
- Circuit breaker monitoring (electrical & mechanical wear, opening time status, health index, notification index)

Support
- Remote technical support
- Video assistance
- On-Site emergency prioritization
- Dedicated phone number

Smart Alarming
- Web PC interface & mobile app
- 24/7 smart alerts and alarms
- Automatic monthly summary reports

Predictive maintenance recommendations (Predict & Prime only)
- Electrical health and power quality consultancy
- Automated asset management report
- Advanced asset management consultancy report
- Dynamic asset maintenance plan recommendation

Cybersecurity
- Developed according to the IEC 62443-4-1 standard and compliant with the GDPR
- Encryption of data in transit and at rest
- Only outbound connections allowed
- Two segregated network interfaces, permits the blocking of remote control from one side to the other
- Using MS Azure security features
- Rigorous registration and authentication procedure

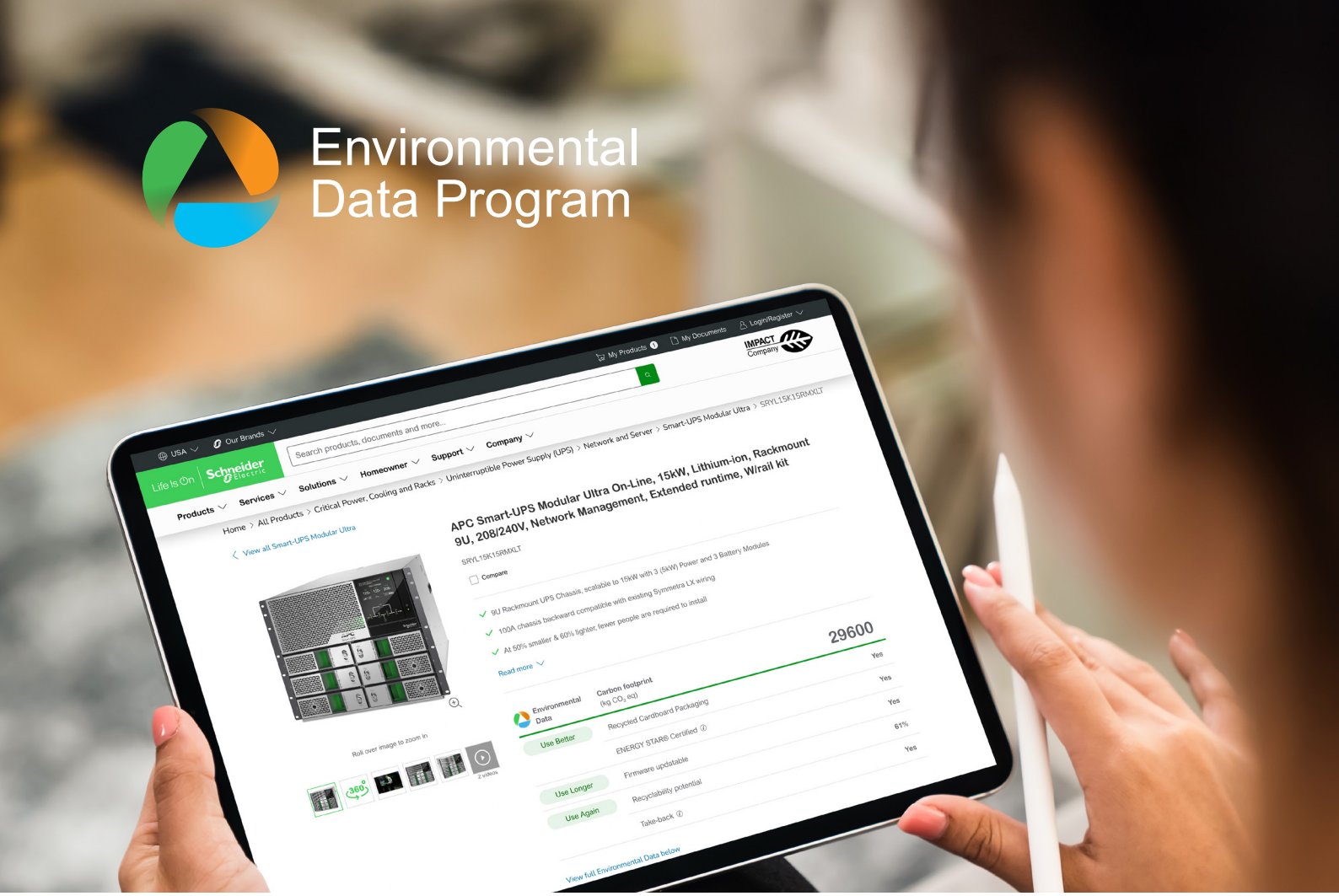
Key Products and Services

Connected products	Description
GM AirSeT Performance	SF_6-free Medium Voltage Primary Gas Insulated Switchgear
Apps, analytics & services	**Subscription type**
EcoCare membership	• Annual/multi-year services plan subscription • Combining expertise (remote and on-site) with 24/7 remote monitoring and alarming powered by advanced analytics • Helps reduce downtime, improve costs, reputation, standards compliance and safety

Contact your sales representative for more information on these solutions

(*) These percentages are non-contractual and are based on Schneider Electric's experience and expertise for the main root cause of electrical failure risks observed and for which Schneider Electric has developed solutions.

Environmental Data Program

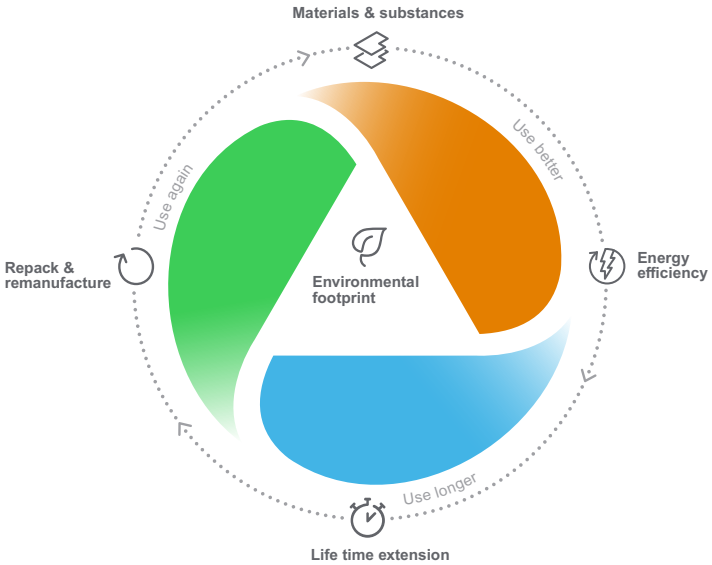


Next-level transparency for better-informed product choices

The Environmental Data Program is a framework for how we measure, categorize, and compare the environmental attributes and footprint of our products.

Using a rigorous, fact-based methodology, the program provides environmental data from across the product lifecycle.

Five data categories across the product lifecycle



Use Better: How sustainable a product is, including environmental footprint, materials and substances, packaging, and energy efficiency.

Use Longer: How a product's life time can be effectively extended in terms of repairability and updatability.

Use Again: How a product can be reused, from dismantling and remanufacturing to recyclability and manufacturer take back.

With this transparent, verified data, customers and partners are empowered to make conscious environmental choices and accurately evaluate and report on sustainability performance.

All our hardware offers have an associated environmental data available on se.com product pages.

Learn more about the Environmental Data Program

Quality Assurance

Quality Certified to ISO 9001

The Quality Management System for development, production, sales and servicing of GM AirSeT Performance has been certified in conformity with the requirements in accordance with ISO9001:2015.

Certified Quality: ISO 9001

At Schneider Electric, customer satisfaction is the Number One priority for everybody:

- We undertake to find the ideal solution for each of our customers
- We are enthusiastic about our customers; our thinking and actions are clearly customer-oriented
- We encourage and empower our staff to always meet quality requirements

Each Schneider Electric production site has an established functional organization which monitors and continuously improves quality in line with norms and standards.

This process is:

- Uniform across all sites
- Acknowledged by many customers and recognized organizations

Above all, there is a stringent Quality Management System which is audited on a regular basis by the international independent certification company Bureau Veritas Certification.

Notes

Range Description

Range Description

General Overview

Main functionalities

PM110550

Range of Products

With the cubicle features listed below, GM AirSeT Performance fulfils the various requirements for circuit breaker switchgear and controlgear within the medium-voltage distribution network.

Type	Function of Cubicle
CB	Circuit Breaker Cubicle
BS	Bus Sectionalizer
BBVTS	Busbar Voltage Transformer Module with Switch
CC	Cross Coupler
ME	Metering Panel

General Overview

Technical Parameters

GM AirSeT Performance Switchgear and Control Gear Ratings

The following data apply to normal operating and ambient conditions for indoor switchgear and control gear in accordance with IEC/EN 62271-1 at rated pressure.

Electrical Characteristics			
Rated voltage	12 kV	17.5 kV	24 kV
Rate Short Duration Power Frequency Withstand Voltage (Ud)			
Phase to phase, phase to earth, open contact gap	28 kV	38 kV	50 kV
Across the insulating distance	32 kV	45 kV	60 kV
Rated Lightning Impulse Withstand Voltage (Up)			
Phase to phase, phase to earth, open contact gap	75 kV	95 kV	125 kV
Across the insolating distance	85 kV	110 kV	145 kV
Rated frequency (Fr)	50 Hz		
Rated normal current (Ir) for busbar	Up to 2000 A		
Rated Short-time withstand current (1s/3s)	16 kA/20 kA/25 kA		
Partition class	PM		
Loss of service continuity class	LSC2		
Ambient air temperature	-25°C to +40°C*		
Internal Arc Classification	IAC A FL/A FLR - with pressure relief into and out of the room		
Cubicle Height (LV Cabinet height 650 mm)	2320 mm IAC A FL, 2500 mm IAC A FLR		
Cubicle depth incl. wall distance	1340/1740 mm for IAC A FL, 1530/1930 mm for IAC A FLR		
Circuit breaker cubicle width	600/900 mm		

* Other values on request

Single Busbar

GM AirSeT Performance

Double Busbar

GM AirSeT Performance

General Overview

PM110478

Single busbar

PM110481

Double busbar

Design

Simple and Smart design

GM AirSeT Performance is an optimum solution for different requirements and applications from transformer substations to switching stations for primary power supplies. GM AirSeT Performance is well suited for public and industrial distribution networks, infrastructural projects, mining, metallurgy, petrochemical oil and gas industries, railway traction power supply, container stations and ship building.

GM AirSeT Performance is designed as a single or double busbar system.

This compact and modular switchgear offers both flexibility and a long, highly untroubled service life. It is also ideally suited for applications in confined spaces or for replacing older switchgear - while permitting utilisation of the existing locations.

Single busbar panel GM AirSeT Performance

- Gas-filled busbar compartment with three-position disconnector/earthing switch, connection valve for gas density switch, pressure relief device
- Gas-filled circuit-breaker compartment incl. connection elements for cable connections, connection valve for gas density switch, pressure relief de-vice, voltage transformer and disconnecting device for voltage transformer (optional),
- Drive box with all drive units and auxiliary devices,
- Cable connection area, optional with toroidal-core current transformer incl. voltage transformer in outgoing feeder,
- Low-voltage cabinet.

Double busbar panel GM AirSeT Performance

- Upper gas-filled busbar compartment with two-position disconnector earthing switch, connection valve for gas density switch, pressure relief device
- Rear gas-filled busbar compartment with three-position disconnector, connection valve for gas density switch, pressure relief device
- Gas-filled circuit-breaker compartment incl. connection elements for cable connections, connection valve for gas density switch, pressure relief device, voltage transformer and disconnecting device for voltage transformer (optional),
- Drive box with all drive units and auxiliary devices,
- Cable connection area, optional with toroidal-core current transformer incl. voltage transformer in outgoing feeder,
- Low-voltage cabinet.

Low Voltage Compartment

PM110552

Ergonomic design of the control devices

PM110554

Low Voltage cabinet

Low Voltage Cabinet

The spacious low-voltage cabinet is arranged on top of the GM AirSeT Performance switchgear cubicle. As an autonomous functional unit, it is fully shrouded and encased in metal and is thus isolated from the high-voltage section and from the drive unit.
Low-voltage devices for control, monitoring and grid protection are normally installed in the rugged door of the low-voltage cabinet.

- Ergonomic design: The preferred installation height for control and monitoring devices is in the very easily accessible area
- The low-voltage cabinet can be mounted on the GM AirSeT Performance switchgear cubicle either at the manufacturer's or on site
- Assembly/disassembly of the low-voltage cabinet is possible without problems.
  - The preassembled connection lines between the low-voltage cabinet and the GM AirSeT Performance basic switchgear cubicle and the intra-cubicle switchgear-specific low-voltage ring mains between adjacent switchgear cubicles are plugged
- The external low-voltage lines are routed upwards from the bottom of the front right-hand cubicle into the low-voltage cabinet
  - These lines are routed in a separate metal duct with removable covers
  - The external lines are connected to a terminal block in the low-voltage cabinet of each GM AirSeT Performance switchgear cubicle
- A specific cable laying system helps ensure optimum utilization of the inner arrangement of the low-voltage cabinet
- The height of the low-voltage cabinet is 650 mm
- A 1000 mm high low-voltage cabinet is also available as an option for larger capacity requirements

Low-voltage Instrument Niche

Arranged below the low-voltage cabinet, the following items are installed there or are accessible through the removable front cover:

- Devices for voltage monitoring and testing through the capacitive voltage dividers
- Intelligent pressure monitoring touch screen

Busbar Compartment

PM110641

Simple to Extend or Replace

Extensive use in demanding industries can lead the switchgear to be replaced earlier. GM AirSeT Performance panel can be removed and replaced within few hours without gas-work even when installed in the middle of the line-up.
In case the control compartments are linked it is possible to remove the switchgear while keeping the daisy-chain connected.

Maintenance-free Gas Compartments

All high-voltage components are installed in gas-filled compartments and thus independent of external environmental influences.
The GM AirSeT Performance gas tanks are made of chromium-nickel-steel. They donot require any maintenance during the switchgear's anticipated service life.
The gas-filled compartments of the type-tested and metal-enclosed circuit-breaker switchgear systems are **sealed pressure systems** in accordance with IEC 62271-1.
This means that they have a high tightness level over their entire service life, so that neither maintenance work is required on these gas compartments nor replenishing of gas during the entire service life of the switchgear.

PM110770

No gas work on site. Arrives Ready to Install

With GM AirSeT Performance, no gas handling on site is required for erection, extension and dismantling at the end of the service life.
All gas-filled compartments are delivered to the site of installation with the rated filling pressure. All gas-filled compartments undergo comprehensive leakage testing in the factory.
If necessary, replacement of panels from the switchgear assembly is possible without gas handling and without interfering with the gas filled compartments of the adjacent panels.
This work is performed without moving the adjacent panels.

Busbar Compartment

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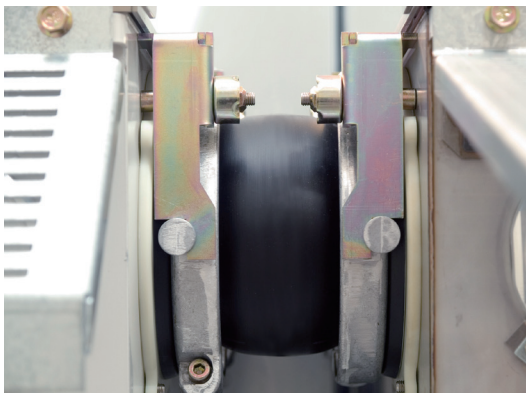

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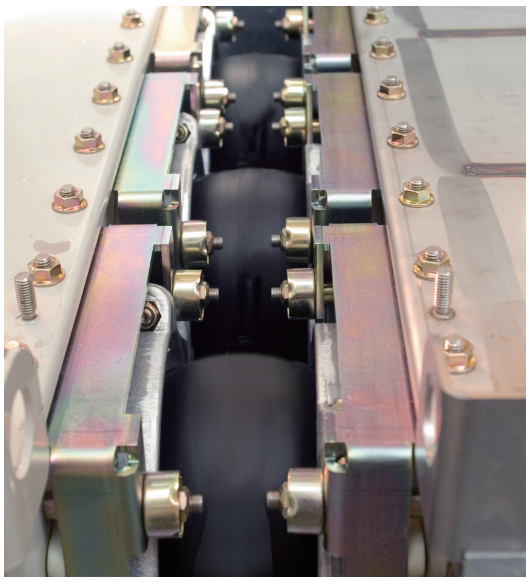


B-link, connected

Innovative Busbar Connection System

The busbars of each GM AirSeT Performance switchgear panel are largely installed in separate gas-filled compartments as required by the system.

Thus, they are independent of external environmental influences and integrated into the insulating gas monitoring.

To avoid all gas work on site, the connections of the busbars of adjacent GM AirSeT Performance panels are established through the innovative B-link system.

Like the gas-filled compartments, the robust B-link system does not require any maintenance as it has IP65 protection degree.

The potential-controlled, externally grounded and flexible connecting sleeves of the B-link system distinguish themselves by extremely simple assembly and minimum electrical field intensities in the field of the high-quality electrical joints.

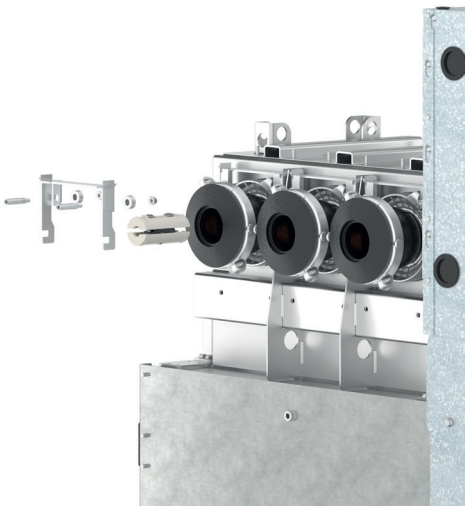
Busbar systems on the switchgear ends are closed with surge-resistant terminal sleeve kits.

The reliability of the thermal and dynamic load-bearing capacity of the current-carrying connections of the B-link system with 40 kA (3s) and a peak current of 100 kA has been checked successfully.

Further advantages of the system are:

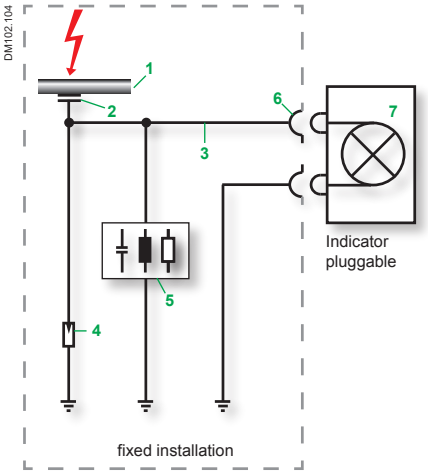
- The design with minimized electrical field intensity on the high-quality electrical joints helps to reduce fault potential due to accidental contamination
- On-site assembly of the system is effected under visual supervision (you can see what you are doing).
- Straightforward and time-saving assembly on site reduces potential, site-specific negative influences.
- After removing B-link systems from between adjacent panels, an isolating distance can be established by means of end panel components in the busbar run without gas handling.
- Dielectric routine tested in factory.

PM110651



Components of the B-Link

Gas Compartment - Capacitive Voltage Dividers



Non-integrated pluggable system

1 Live high-voltage conductor
2 Coupling capacitance: electrode in bushing
3 Internal connecting cable
4 Voltage-limiting predetermined break point
5 Measurement protection circuit
6 Standard sockets
7 Pluggable Voltage Indicator

Voltage detection system (schematic diagram)

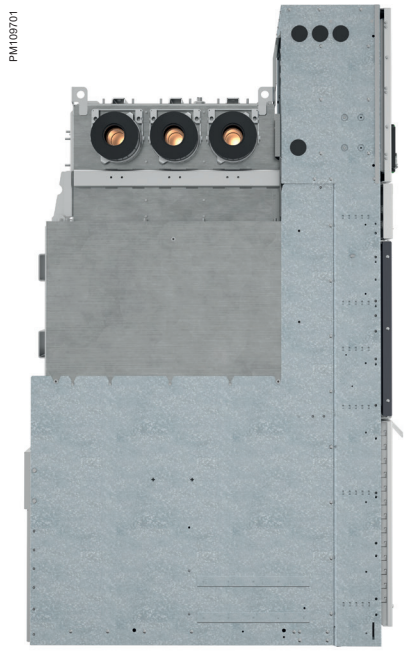
Capacitive Voltage Dividers

- Capacitive voltage dividers are installed in the outer cone-type standard bushings
  - On the outgoing feeder cable
  - All three conductors L1-L2-L3
- They are an integral part of the testing, display and monitoring systems described separately, as for example:
  - Verification of safe isolation from supply
  - Digital display of the voltage values
  - Voltage monitoring/grid quality
  - Fault detection in the electrical distribution grid; earth fault in isolated/ compensated systems

Clearly arranged gas compartment Technology

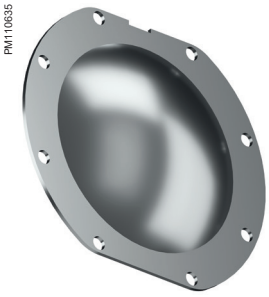
The gas-filled compartments are sealed pressure systems in accordance with IEC/EN 62271-1.

- Maintenance-free
- Gas-filled compartments made of chromium-nickel-steel
- Leakproof over the entire service life
- During the expected service life, no maintenance work and no replenishing of insulating gas required (under normal ambient conditions)
- No gas handling and no intervention in the gas-filled compartment on site during
  - Installation
  - Extension
  - Replacement of switchgear cubicles
  - Dismantling of the switchgear



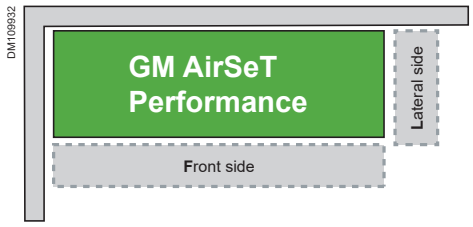
Clearly arranged gas compartment technology

Pressure relief membrane

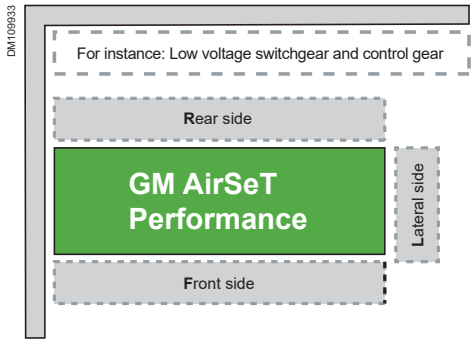


Each gas filled compartment is equipped with one accurately controlled Burst disk. These Disks are designed to relieve excess pressure in individual compartments during the unlikely event of internal arcs.

Internal Arc Classification



Internal arc classification IAC: accessible sides FL



Internal arc classification IAC: accessible sides FLR

IAC	**I**nternal **A**rc **C**lassification
A	Accessibility **A** Restricted to authorized personnel only
F	For **f**ront side
L	For **l**ateral side
R	For **r**ear side
25 kA	Arc fault current **25 kA**
1s	Arc fault duration **1 s**

Example of GM AirSeT Performance with internal arc classification IAC

Internal Faults causing Internal Arcs

- The design of the GM AirSeT Performance switchgear and controlgear helps reduce the probability of operational errors:
  - No sources of interference due to external influence during operation
  - In accordance with IEC 62271-200, avoiding internal arcs has top priority
  - The IEC 62271-200, recommendations include the use of gas-insulated switchgear as a preventive measure to help avoid faults due to dirt, moisture, dust, vermin and so on....
- The operating company is free to select a switchgear unit with internal arc classification IAC according to the applicable standards. According to IEC 62271-200, cubicles with internal arc classification should only be used if the operating company considers it essential to help prevent the risk of danger to life due to internal arcs.

Internal Arc Classification

- The internal arc classification IAC provides a verified level of operator safety in the immediate vicinity of the switchgear under normal operating conditions.
- The internal arc classification is an option in accordance with IEC 62271-200. It refers to the effect of internal excess pressure on covers, doors, inspection ports, vents and so on.... Moreover, the thermal effects of the internal arc and its roots on the enclosure and escaping hot gases or incandescent particles are taken into account.
- Metal-enclosed switchgear and controlgear are granted Internal Arc Classification if all the following criteria are met:
  - Criterion N° 1: Correctly secured doors and covers do not open
  - Criterion N° 2: No fragmentation of the enclosure occurs during the arc fault duration
  - Criterion N° 3: Arcing does not cause holes by burning through the classified sides up to a height of 2000 mm
  - Criterion N° 4: Indicators do not ignite due to the effect of hot gases
  - Criterion N° 5: The enclosure remains connected to the earthing point.
- Internal arc classification IAC has been conducted successfully for GM AirSeT Performance.
- As all operating and test procedures are performed on the front of the GM AirSeT Performance, access through the front and the side walls is standard (IAC AFL):
  - The switching compartment depth can be minimized by wall-mounting the switchgear
  - In this design, the GM AirSeT Performance switchgear and controlgear does not require a rear assembly aisle. Access, for example, to the cable compartment or the low-voltage cabinet, is only possible through the front.

Loss of Service Continuity

Partition Class

- Partition class PM
  - Segregation of the high-voltage compartments with continuous metallic partitions.

Loss of Service Continuity Category

The loss of service continuity category LSC according to IEC 62271-200 defines the possibility to keep either high-voltage compartments and/or functional units energized when opening an accessible high-voltage compartment.

- The loss of service continuity category for GM AirSeT Performance with circuit breaker is LSC2, as the air-insulated compartments are accessible.
- The gas-filled compartments of GM AirSeT Performance are non-accessible compartments, according to IEC 62271-200:
  - No user access is provided to these compartments
  - And opening may destroy the integrity of these compartments.
- The busbar system on single-busbar switchgear and controlgear is out of range of the definition for the LSC category, according to IEC 62271-200.

Installation Conditions

Standards

PM110549

Installation and Operating Conditions

The GM AirSeT Performance's parts conducting high-voltage are entirely enclosed and unaffected by external ambient conditions.

- All high-voltage switchgear and control gear is installed in sealed gas-filled compartments
- Switchgear components subject to high voltage outside the gas-filled compartments are
  - Provided with a single-pole enclosure
  - Potential-controlled and earthed

Important functional parts which are not subject to high voltage such as drives, devices fulfilling control, protection, metering and monitoring functions can only be arranged outside the gas-filled compartment or the single-pole enclosure.

For more safe and long-term operation, the normal operating conditions for indoor installation in accordance with IEC 62271-1 should be complied with (deviation conditions available on request).

- Ambient temperatures:
  - The ambient temperature does not exceed 40 °C
  - Its mean value over 24 hours does not exceed 35 °C
  - Minimum ambient temperature -5 °C (-25 °C on request)
- Installation altitudes:
  - Max. 1000 m above sea level
  - Higher installation altitudes are in principle possible for GM AirSeT Performance gas-insulated switchgear. Please inquire, stating the actual requirements
- Relative humidity
  The following conditions apply regarding relative humidity:
  - The mean value of the relative humidity measured over 24 h does not exceed 95%
  - The mean value of the water vapour pressure measured over 24 h does not exceed 2.2 kPa
  - The mean value of the relative humidity measured over one month does not exceed 90%
  - The mean value of the water vapour pressure measured over one month does not exceed 1.8 kPa

Norms and Standards

GM AirSeT Performance switchgear cubicles correspond to the current norms and specifications in force at the time of type testing according to the following Table.

The international IEC standards have been accepted by CENELEC as European EN standards. The European standards EN have been transposed by the CENELEC members into national standards without changes to their contents.

Degree of Protection

PM110537

Degree of Protection Against Hazardous Parts and Ingress of Foreign Objects

The metal-enclosed switchgear and control gear type GM AirSeT Performance meets the requirements for degrees of protection, according to IEC 62271-1, IEC 60529 and IEC 62262:

- Degree of protection provided by the enclosure for high-voltage live parts: IP65
- Degree of protection provided by the enclosure against access to hazardous parts
  - Front side of low-voltage compartment:
    - IP4X
    - Optional IP5X and IP52
  - Front side of cable compartment: IP4X
  - Front of the mechanical operation interface: IP2X, optional IP4X, IP5X, IP52.

IEC 62271-1 and IEC 62271-200

Protection of personnel against contact with dangerous parts and protection of equipment against penetration of solid foreign matter (IP code).

Degree of Protection	Protection Against Ingress of Solid Foreign Bodies	Protection Against Access to Hazardous Parts
IP2X	Objects of 12.5 mm diameter or more	Access with a finger (test-finger 12 mm diameter, 80 mm long)
IP4X	Objects of 1 mm diameter or more	Access with a wire (wire-test 1.0 mm diameter, 100 mm long)
IP5X	Dust: The ingress of dust is not totally prevented but does not penetrate in a quantity or at a location such that it can interfere with the satisfactory operation of apparatus or to impair safety	Access with a wire (wire-test 1.0 mm diameter, 100 mm long)
IP52	Protection against water in addition to IP5X: Vertically falling drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical	

Applicable Standards

Designation	Standard	Title
Switchgear and controlgear	**IEC 62271-1 (2017)**	High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear
	IEC 62271-200 (2021)	High-voltage switchgear and controlgear - Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV
Circuit breaker	**IEC 62271-100 (2021)**	High-voltage switchgear and controlgear - Part 100: Alternating-current circuit breakers
Disconnectors and earthing switche	**IEC 62271-102 (2018)**	High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches
Voltage detecting system	**IEC 61243-5 (1997)**	Live working - Voltage detectors - Part 5: Voltage detecting systems (VDS)
Voltage detecting and indicating system	**IEC 62271-213 (2021)**	High-voltage switchgear and controlgear - Part 213: Voltage detecting and indicating system (VDIS)
Plug-in type bushings for cable connections and busbar system	**EN 50181 (2010)**	Plug-in type bushings above 1 kV up to 52 kV and from 250 A to 2.50 kA for equipment other than liquid filled transformers
IP code	**IEC 60529 (2013)**	Degree of protection provided by enclosures (IP code)
IK code	**IEC 62262 (2022)**	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)
Current transformer	**IEC 61869-2 (2012)**	Instrument Transformers: Additional requirements for current transformers
Voltage transformer	**IEC 61869-3 (2011)**	Instrument Transformers: Additional requirements for inductive voltage transformers
Installation	**IEC 61936-1 (2021)**	Power installations exceeding 1 kV AC and 1,5 kV DC - Part 1: AC
Insulation Gas	**IEC 63360 (2025)**	Specification of gases alternative to SF6

Function/module Description

Function/module Description

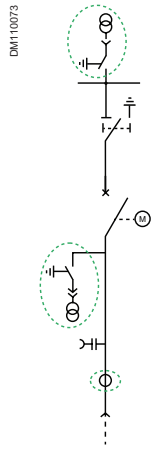
IEC Single Busbar

Functional Overview with main Dimension and Weights

FUNCTIONS

Single Busbar

CB
Circuit Breaker Cubicle



Un (kV)	Ik (kA)	Cable Connection	Ir (A)	Cubicle Dimensions				Cubicle Width
				Height (1) (mm)		Depth (mm)		(mm)
				IAC AFL	IAC AFLR	IAC AFL	IAC AFLR	
Up to 24	Up to 25	Outer Cone	630	2320	2500	1340	1530	600
			800					
			1250					

(1) Height with a 650 mm Low voltage compartment. LV Box of 1000 mm also available (please contact us for more details).

Optional

Type	Function of Switchgear Cubicle
Single Busbar	
CB	Circuit Breaker Cubicle
BS	Bus Sectionalizer Cubicle

Currents	Description
06	630 A
08	800 A
10	1000 A
12	1250 A

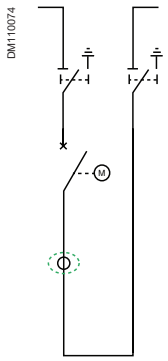
IEC Single Busbar

Functional Overview with main Dimension and Weights

FUNCTIONS

Single Busbar

BS
Bus Sectionalizer Cubicle



Un (kV)	Ik (kA)	Ir (A)	Cubicle Dimensions				Cubicle Width
			Height (1) (mm)		Depth (mm)		(mm)
			IAC AFL	IAC AFLR	IAC AFL	IAC AFLR	
Up to 24	Up to 25	630	2320	2500	1340	1530	900
		800					
		1250					

(1) Height with a 650 mm Low voltage compartment. LV Box of 1000 mm also available (please contact us for more details).

Optional

WEIGHTS

The total weight of a switchgear is the sum of the individual weights of the different cubicle types.
For an initial estimate of building statics, we recommend using the following maximum weight, depending on the cubicle width.
Individual weight information for single cubicle types is provided with further project-releated documentation.

Cubicle Width (mm)	Cubicle Weight (Kg)
600	900
900	1300

Function/module Description

IEC Single Busbar

Circuit Breaker Cubicle
Types CB6, CB8, CB12

Image shows 600 mm cubicle, outer cone cable connection with 4 runs of cables

- Equipped with cable side voltage transformer

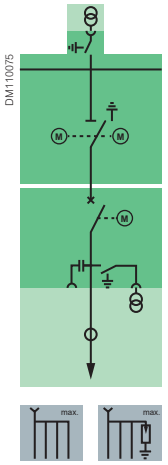
Illustration: up to 1250 A

Main Options

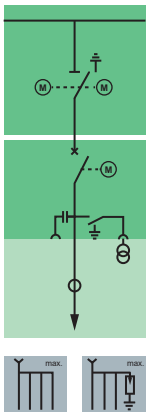
- 3-position disconnector, motorized
- Busbar side voltage transformer with disconnecting device
- Surge arresters on cable plug
- Cable side current transformers

Circuit Breaker Cubicle 600 mm (width)					
Cubicle type			CB6	CB8	CB12
Rated current		A	630	800	1250
Dimensions	Height	mm	2320/2670(1) (AFL) / 2500 (AFLR)		
	Width	mm	600		
	Depth	mm	1340 (AFL)/ 1530 (AFLR)		

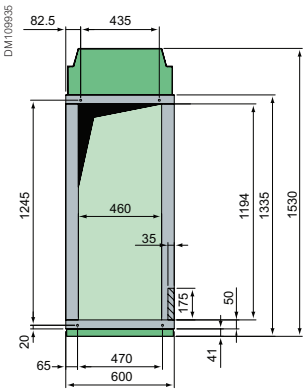
(1) Height with low-voltage cabinet of 1000 mm height



CB Cubicle with disconnecting device
(Refer to next page for more details)

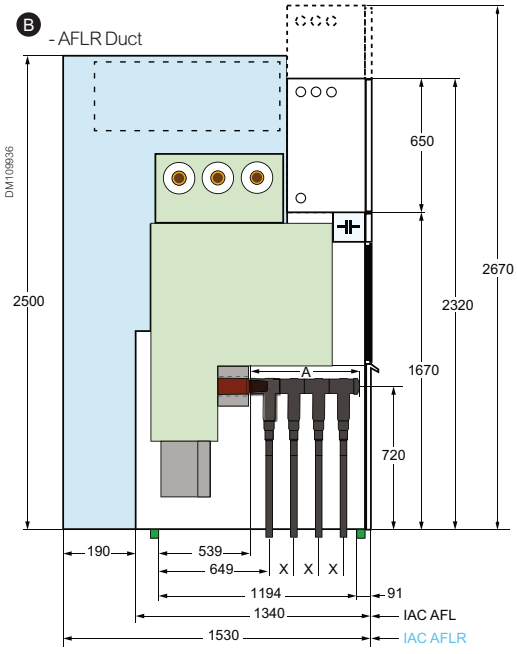


CB Cubicle with disconnecting device



Side view - dimensions

For A, please refer to the chapter on cable connection selection list.



- With pressure relief duct A FLR:
- Cut-out for A FLR out of the room:

Function/module Description

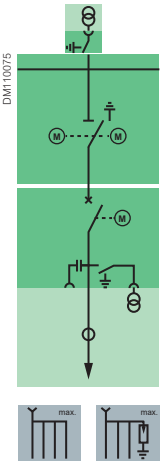
IEC Single Busbar

Circuit Breaker Cubicle
Types CB6, CB8, CB12

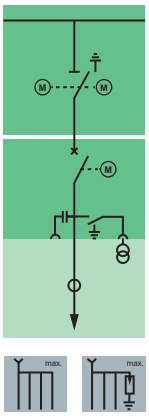
Image shows 600 mm cubicle, outer cone cable connection with 4 runs of cables

- Equipped with cable side voltage transformer
- Equipped with busbar voltage transformer

Illustration: up to 1250 A

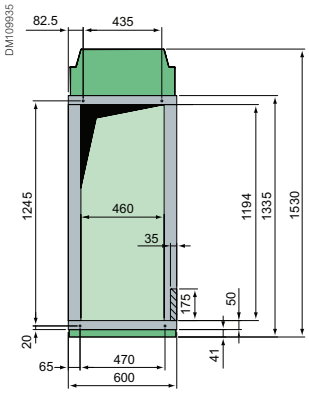


CB Cubicle with disconnecting device



CB Cubicle with disconnecting device

(Refer to previous page for more details)



Main Options

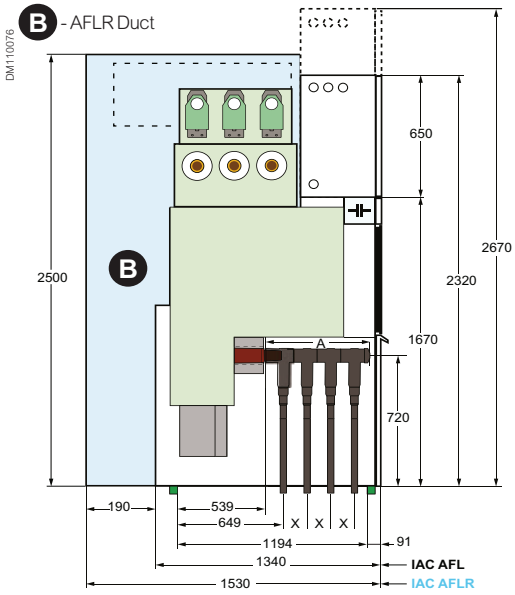
- 3-position disconnector, motorized
- Cable side voltage transformer with disconnecting device
- Surge arresters on cable plug
- Capacitive voltage detection system on the busbar system
- Cable side current transformers

Circuit Breaker Cubicle 600 mm (width)					
Cubicle type			CB6	CB8	CB12
Rated current		A	630	800	1250
Dimensions	Height	mm	2320/2670(1) (AFL)/2500 (AFLR)		
	Width	mm	600		
	Depth	mm	1340 (AFL)/ 1530 (AFLR)		

(1) Height with low-voltage cabinet of 1000 mm height

Side view - dimensions

For A, please refer to the chapter on cable connection selection list.



- With pressure relief duct A FLR:
- Cut-out for A FLR out of the room:

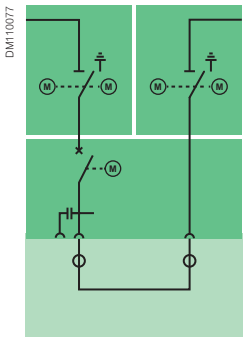
Function/module Description

IEC Single Busbar

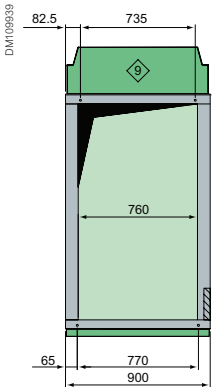
Bus Sectionalizer

900 mm busbar sectionalizer, with integrated busbar earthing

Illustration



Busbar sectionalizer



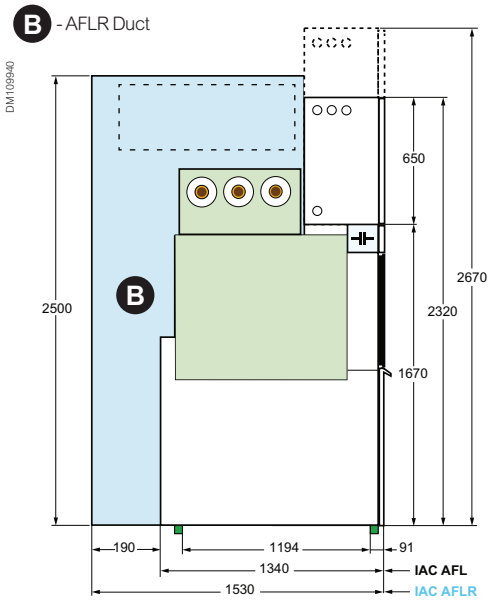
Main Options

- Earthing switch and disconnector, motorized
- Current transformers on the busbar system
- Capacitive voltage detection systems on the busbar system

Bus Sectionalizer Cubicle 1000 mm (width)					
Cubicle type			BS6	BS8	BS12
Rated current		A	630	800	1250
Dimensions	Height	mm	2320/2670(1) (AFL) / 2500 (AFLR)		
	Width	mm	900		
	Depth	mm	1340 (AFL)/ 1530 (AFLR)		

(1) Height with low-voltage cabinet of 650 mm height

Side view - dimensions



- With pressure relief duct A FLR:
- Cut-out for A FLR out of the room:

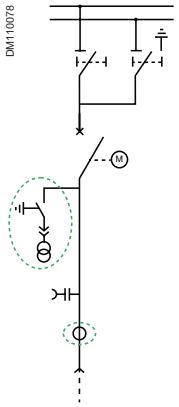
IEC Double Busbar

Functional Overview with Dimensions and Weights

FUNCTIONS

Double Busbar

CB
Circuit Breaker
Cubicle



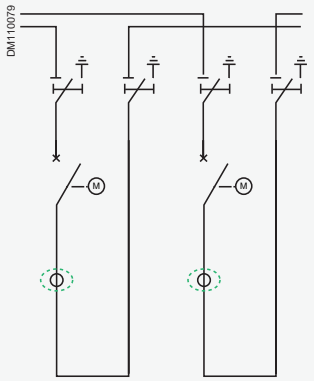
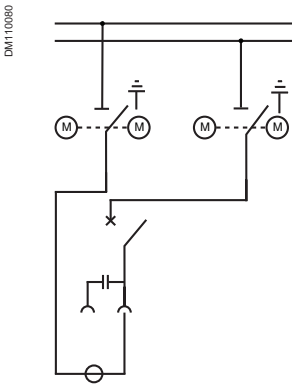
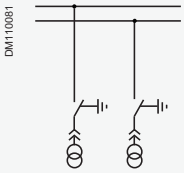
Un (kV)	Ik (kA)	Cable connection	Ir (A)	Cubicle Dimensions				Cubicle width
				Height (1) (mm)		Depth (mm)		(mm)
				IAC AFL	IAC AFLR	IAC AFL	IAC AFLR	
Up to 24	Up to 25	Outer Cone	630	2320	2500	1740	1930	600
			800					
			1250					
			2000					900

(1) Height with a 650 mm Low voltage compartment. LV Box of 1000 mm also available (please contact us for more details).

Optional

IEC Double Busbar

Functional Overview with Dimensions and Weights

Bus Sectionalizer	Cross Coupler	Metering Panel Busbar VT's		
				
(mm)	(mm)	(mm)		
2x 900	900	600		
2x 900	900	600		
2x 900	900	600		
- -	900	600		

WEIGHTS

The total weights of a switchgear is the sum of the individual weights of the different cubicle types.
For initial estimate of building statics, we recommend using the following maximum weight, depending on the cubicle width.
Individual weight information for single cubicle types is provided with further project-related documentation.

Cubicle Width (mm)	Cubicle Weight (Kg)
600	1300
900	1700

Function/module Description

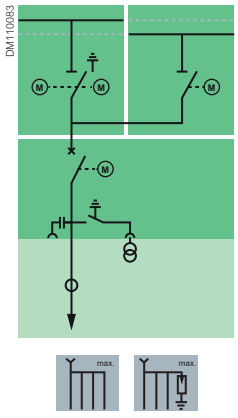
IEC Double Busbar

Circuit Breaker Cubicle
Types CB6, CB8, CB12

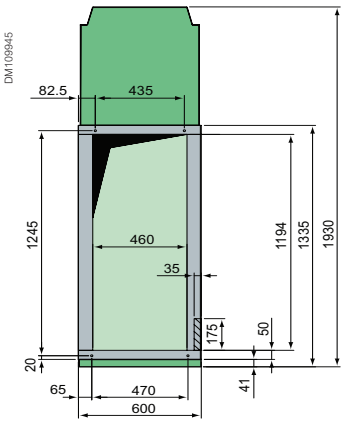
Image shows 600 mm cubicle, outer cone cable connection with 4 runs of cables

- Equipped with cable side voltage transformer

Illustration: up to 1250 A



CB Cubicle with disconnecting device



Main Options

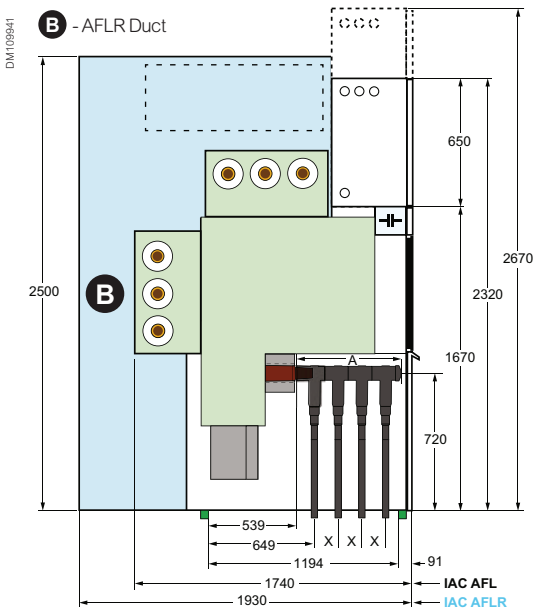
- 3-position disconnector, motorized
- Busbar side voltage transformer with disconnecting device
- Surge arresters on cable plug
- Cable side current transformers

Circuit Breaker Cubicle 600 mm (width)					
CubicleTtype			CB6	CB8	CB12
Rated current		A	630	800	1250
Dimensions	Height	mm	2320(1) (AFL) / 2500 (AFLR)		
	Width	mm	600		
	Depth	mm	1740 (AFL)/ 1930 (AFLR)		

(1) Height with low-voltage cabinet of 650 mm height

Side view - dimensions

For A, please refer to the chapter on cable connection selection list.



- With pressure relief duct A FLR:
- Cut-out for A FLR out of the room:

Function/module Description

IEC Double Busbar

Circuit Breaker Cubicle
Types CB20

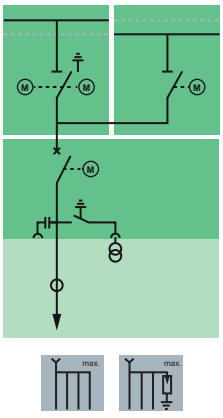
Image shows 900 mm cubicle, outer cone cable connection with 3 runs of cables

- Equipped with cable side voltage transformer

Illustration: up to 2000 A

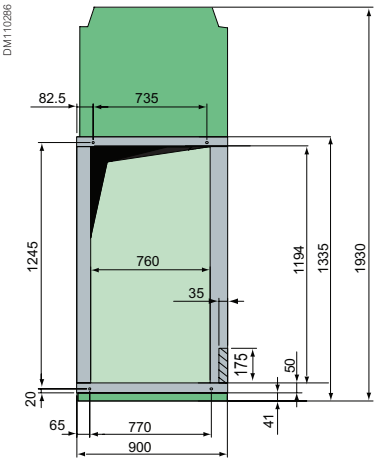
PM111552

DM110083



CB Cubicle with disconnecting device

DM110286



Main Options

- 3-position disconnector, motorized
- Busbar side voltage transformer with disconnecting device
- Surge arresters on cable plug
- Cable side current transformers

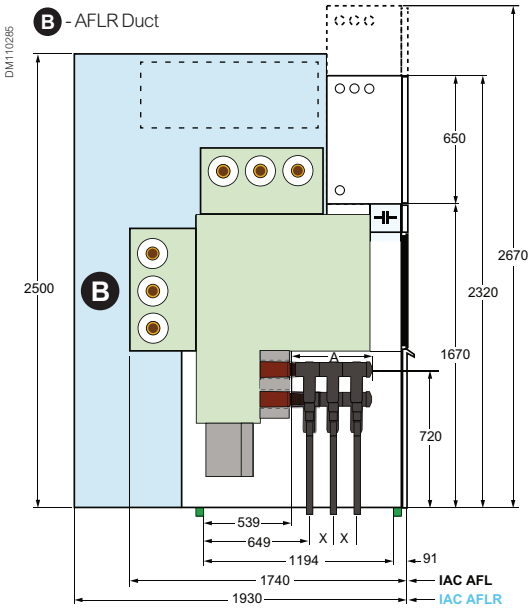
Circuit Breaker Cubicle 600 mm (width)			
Cubicle type			**CB20**
Rated current		A	2000
Dimensions	Height	mm	2320(1) (AFL)/2500 (AFLR)
	Width	mm	900
	Depth	mm	1740 (AFL)/1930 (AFLR)

(1) Height with low-voltage cabinet of 650 mm height

Side view - dimensions

For A, please refer to the chapter on cable connection selection list.

DM110285



- With pressure relief duct A FLR:
- Cut-out for A FLR out of the room:

Function/module Description

IEC Double Busbar

Bus Sectionalizer Cubicle BS

2 x 900 mm busbar sectionalizer, with integrated busbar earthing

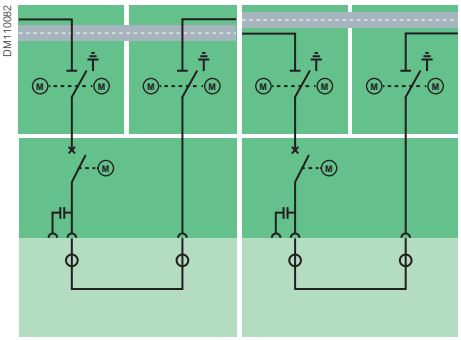
Illustration

Main Options

- Earthing switch and disconnector, motorized
- Current transformers on the busbar system
- Capacitive voltage detection systems on the busbar system

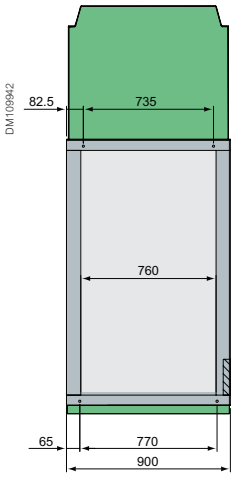
Bus sectionalizer cubicle 1000 mm (width)					
Cubicle type			**BS6**	**BS8**	**BS12**
Rated current		A	630	800	1250
Dimensions	Height	mm	2320(1) (AFL) / 2500 (AFLR)		
	Width	mm	2x 900		
	Depth	mm	1740 (AFL)/ 1930 (AFLR)		

(1) Height with low-voltage cabinet of 650 mm height

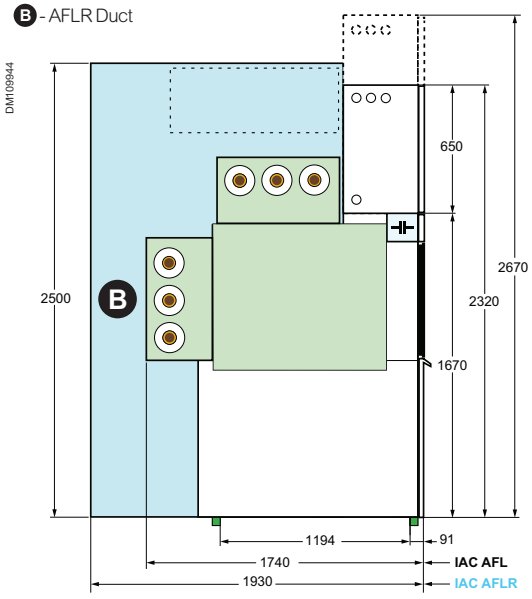


Bus sectionalizer top

Busbar sectionalizer rear



Side view - dimensions



- With pressure relief duct A FLR:
- Cut-out for A FLR out of the room:

Function/module Description

IEC Double Busbar

Cross Coupler Cubicle CC

900 mm Cross Coupler, with integrated busbar earthing

Illustration

PM110497

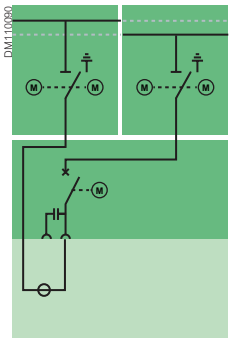
Main Options

- Earthing switch and disconnector, motorized
- Current transformers on the busbar system
- Capacitive voltage detection systems on the busbar system

Cross Coupler Cubicle 1000 mm (width)						
Cubicle type			**CC6**	**CC8**	**CC12**	**CC20**
Rated current		A	630	800	1250	2000
Dimensions	Height	mm	2320[1] (AFL) / 2500 (AFLR)			
	Width	mm	900			
	Depth	mm	1740 (AFL)/ 1930 (AFLR)			

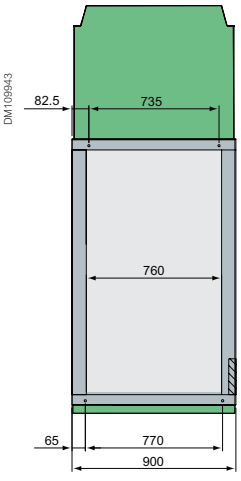
[1] Low-voltage cabinet of 650 mm height

DM110090

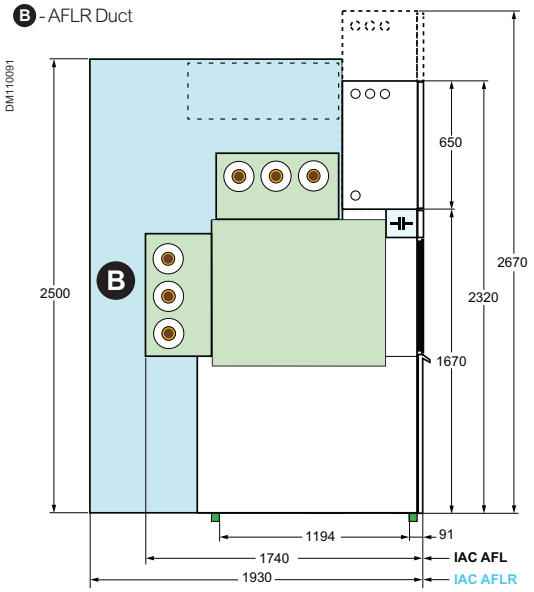


Cross coupler

DM109943



Side view - dimensions



- With pressure relief duct A FLR:
- Cut-out for A FLR out of the room:

Function/module Description

IEC Double Busbar

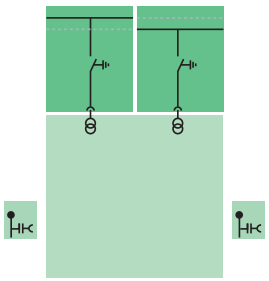
Metering Cubicle ME

600 mm Metering panel, with integrated VT earthing

Illustration

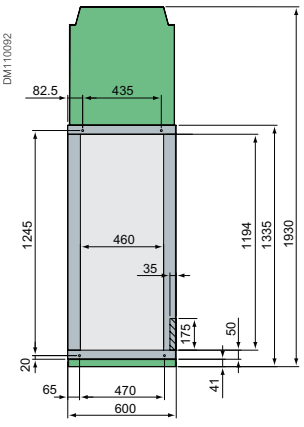
PM110488

DM110084



Metering cubicle

DM110092



Main Options

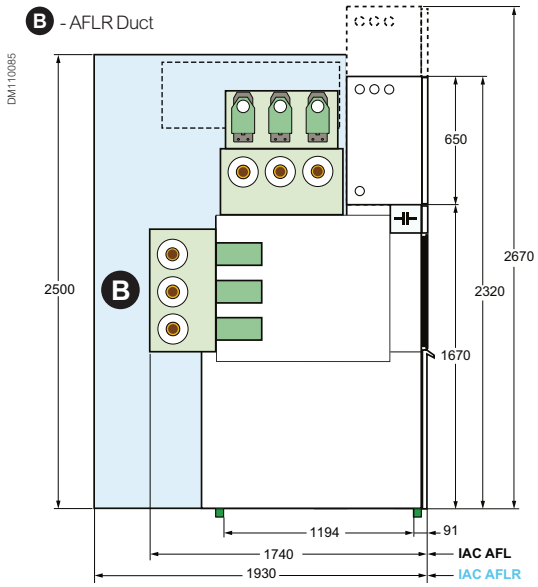
- Earthing and disconnector
  Capacitive voltage detection systems
  on the busbar system

Metering Cubicle			
Cubicle type			**ME**
Rated Busbar Current (Ir/BB)		A	630 to 2000
Dimensions	Height	mm	2320(1) (AFL) / 2500 (AFLR)
	Width	mm	600
	Depth	mm	1740 (AFL)/ 1930 (AFLR)

(1) Height with low-voltage cabinet of 650 mm height

Side view - dimensions

DM110085



- With pressure relief duct A FLR:
- Cut-out for A FLR out of the room:

Components and Accessories

Components and Accessories

Switching Devices Integrated in GM AirSeT Performance

All live switchgear components of the switching devices and appropriate conductors between the operating equipment and components are fixed installations in the gas-filled compartment of the GM AirSeT Performance cubicles.
If the relevant operating instructions are adhered to, they are maintenance-free.

Appropriate drive units are arranged outside the gas-filled compartment and are easily accessible from the front of the switchgear.

The following switching devices are located in the GM AirSeT Performance's gas-filled compartment:

- Vacuum circuit breaker
- 3-position disconnector

Vacuum circuit breaker technology

Within GM AirSeT Performance, all operating and fault currents are switched through the innovative vacuum circuit breaker technology. Here, currents are switched independently of the gas medium.

In GM AirSeT Performance circuit breaker cubicles, pure air is used as an insulating gas and not for interrupting electric arcs.

Using vacuum circuit breaker technology, the requirements in the various medium-voltage distribution networks can be satisfied.

- Switching of cables, overhead lines, transformers, capacitors, generators and motors
- High number of mechanical and electrical switching operations without maintenance
  - Compliance with mechanical endurance class M2
  - Compliance with electrical endurance class E2
- Straightforward design of the vacuum interrupter chambers
  - Few single parts
  - Straightforward mechanical workflows
  - Relatively small switching strokes of 11 to 13 mm between the contacts
  - Switching contacts in a high vacuum are unaffected by negative environmental influences and do not produce decomposition products
  - Long service life

Description		
Circuit breaker (CB)	Rated time constant	45 ms
	Percentage value of DC component	40%
	Rated operating sequence electrical class CB	O-0.3 s-CO-15 s-CO
	Capacitive switching capacity, cable charging breaking current, I_c	400 A
Number of mechanical operations without inspection	Mechanical endurance class	CB 10000; M2 D 2000; M1 E 2000; M1
Number of electrical operations without inspection, class	Electrical endurance class	CB E2 E E2 through VI

D - Disconnector,
E - Earthing switch, Earthing of MV cables done through the CB.
Detailed technical information available upon request.

Switches

Vacuum Circuit-breaker

PM110058

The Heart of the Circuit Breaker

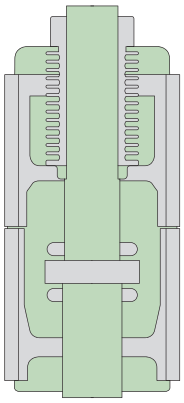
Vacuum interrupters are the heart of a medium voltage circuit breaker: its electrical performances highly depend upon the vacuum interrupters characteristics and quality. They should convey and break the rated normal current as well as the rated short-circuit one for a number of times specified by the manufacturer.

Brand New Design

Schneider Electric has been designing and producing its own vacuum interrupters for 45 years and carries a unique know-how in this field.

- For the GM AirSeT Performance cubicle, Schneider Electric has designed a brand new range of vacuum interrupter (VI), following the very robust process of development: **Model based system engineering**. Specific and innovative solutions have been implemented: the VI shape, the contacts shape, the specific barriers to help protect ceramic, the petal shape of the radial magnetic field.

DM107955



Designed to Deliver High Performance and Energy Continuity

The result is a range of vacuum interrupters with high electrical performance, long life expectancy, high endurance, in a compact size.

Addressing needs of up to 1250 A rated normal current and 25 kA rated short-circuit breaking current. The electrical endurance class is E2.

The capacitive switching is also enhanced with C2 class for back to back capacitors installation.

The compact volume of the new VI allows to increase the insulation distance within the breaker, enhancing safety and smooth operation.

DM107956

Strict Quality Controls

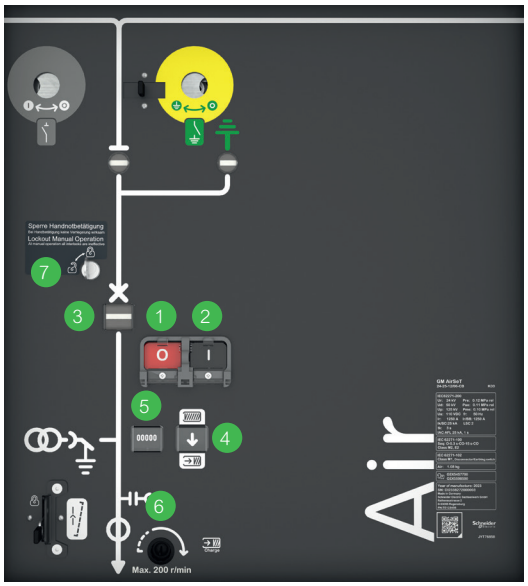
The production process includes a very high vacuum inside the bottle, high temperature brazing, the use of **getter** material to absorb residual gas and a sealed enclosure.

The **anti-twist** feature allows to mount the vacuum interrupter inside the pole of the breaker in a way that helps ensure the performance of the VI.
The new range of VI is fully compliant with circuit breaker standard IEC 62271-100.

Switches

Vacuum Circuit-breaker

PM110656b



1 Circuit breaker OFF/TRIP pushbutton

2 Circuit breaker ON/CLOSE pushbutton

3 Position indicator of the circuit breaker

4 Position indicator spring charging status

5 Mechanical operation counter

6 Insertion opening for manual charging of circuit breaker's spring mechanism

7 Option: Central key for lockout manual operation

Mechanical operation interface – Vacuum circuit breaker

Vacuum Circuit Breaker Drive

The three vacuum interrupter chambers are arranged vertically in a row within the gas-filled compartment. They are actuated from the circuit breaker drive through a common actuating shaft.

The position of the individual elements in the mechanical operation interface has been optimized according to their function, i.e. according to their allocation to the corresponding device functions. The elements which form part of a switchgear device are visually linked by a specific pattern and integrated in a mimic diagram.

- Arranged outside the gas-filled compartment
- Easily accessible from the front of the switchgear
- Mechanical stored energy spring-mechanism for 10,000 mechanical switching operations
  - For auto-reclose operating sequences
  - Synchronization and quick change over
- Trip-free
- Charging the stored energy spring-mechanism using an integrated motor
  - Manual emergency charging of the stored energy spring-mechanism is possible e.g. on commissioning or in the event of failure of the auxiliary voltage on the front-mounted mechanical operation interface

Closing procedure (ON):

The stored energy spring-mechanism is latched in the charged position.
The position indicator spring charging status shows that the spring is charged.
Closing is either performed through the mechanical ON button in the mechanical operation interface or through electromechanical shunt closing releases.

After switching ON, the stored energy spring-mechanism is recharged automatically

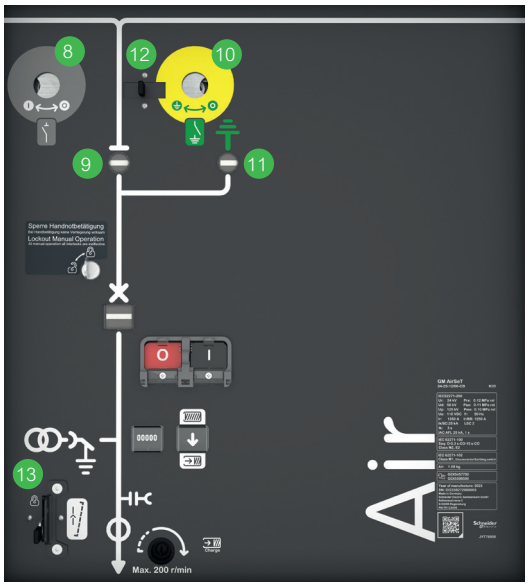
Opening procedure (OFF):

The vacuum circuit breaker is switched OFF either through the mechanical OFF button in the mechanical operation interface or through magnetic shunt opening releases.

Switches

3-position Disconnector

PM110656b



8 Insertion opening for actuation of the disconnector

9 Position indicator of the disconnector

10 Insertion opening for actuation of the earthing switch

11 Position indicator of the earthing switch

12 Interrogation slider for disconnector and earthing switch

13 Safety slider with padlocking facility (lock out - tag out) optionally combined with cable compartment interlocking

In conjunction with outgoing cubicle earthing through
the vacuum circuit breaker:

10 Insertion opening for actuation of the earthing switch

11 Position indicator of the earthing switch

Mechanical operation interface – 3-position disconnector

3-position Disconnector

The 3-position disconnector is used for:

- Connection/disconnection with the busbar system
- Earthing and short-circuiting the cubicle – together with the vacuum circuit breaker
- The isolating distance conditions for safe working on the cubicle are also established by means of the 3-position disconnector

Drives for 3-position disconnectors

Although the 3-position disconnector is designed as a switchgear device on the high-voltage side, mechanical operation and remote actuation are performed through separate drive mechanisms with their own switch position indicators for the **Disconnector ON-OFF** and **Earthing switch ON-OFF** functions.

- These functions can also be equipped with separate motor drives, auxiliary switches, blocking magnets, and so on....
- Local and remote operation are the same as conventional cubicles which use a disconnected earthing switch
- The two separate drives increase the user-friendliness and operating safety of the GM AirSeT switchgear
- GM AirSeT can be integrated into a SCADA system just like conventional switchgear with installed disconnector + circuit breaker + disconnected earthing switch:

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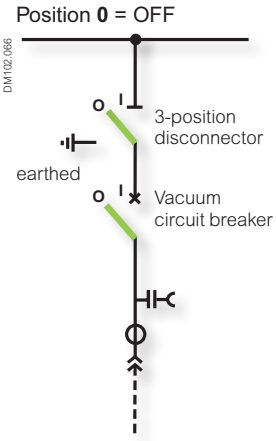

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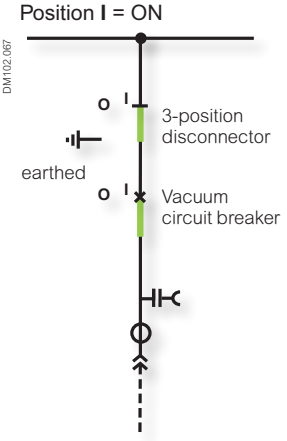

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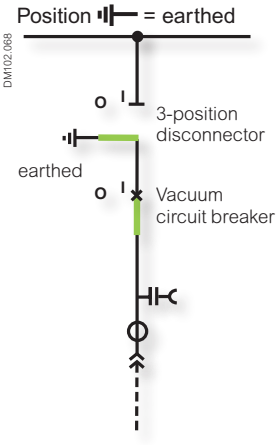


Integral cubicle earthing

The cubicle is earthed and short-circuited by means of the 3-position disconnector in combination with the vacuum circuit breaker.

Switches

Mechanical Operation Interface and Interlocks

PM110556

State of the arc mechanical operation interface.
Padlocking provision to help prevent mechanical actuation

User Friendly is our Brand Mark

GM AirSeT Performance provides a high performance and user friendly mechanical operation interface. The switch positions are displayed mechanically in operation interface.
The mechanical switch position indicators as well as actuation of the drives are integrated in a very clear mimic diagram in the mechanical operation interface and directly visible at any time. The switches are arranged in a logical and user friendly manner, facilitating local operation.
Optionally, all switches can be suited with padlocking provision to help prevent mechanical actuation.
An additional cylinder lock-type interlock is installed as an option.
This interlock releases **either manual or electrical actuation of the drives**.

Mechanical interlocks

- With the circuit-breaker closed, the interrogation slider is blocked for the disconnector and the earthing switch.
- The interrogation slider always releases one insertion opening only (disconnector or earthing switch), or both of the openings are blocked.
- The operation handle for the disconnectors and earthing switches can only be removed in its appropriate end position.
- The earthing switch can only be actuated in direction ON with the circuit-breaker's spring mechanism charged (intertripping circuit of circuit-breaker during earthing).
- When the operation handle on the disconnector or earthing switch is still in place, or when the interrogation slider is open, The following operations are blocked:
  - Manual ON operations of circuit breaker is blocked
  - Electrical ON operation of circuit breaker is blocked
  - Electrical operation of 3-position disconnector is blocked
- In cubicles featuring two interrogation sliders, the following features are blocked:
  - Both interrogation sliders cannot be opened simultaneously
  - The interrogation sliders are blocked depending on the position of the disconnector or earthing switch
- Electro-mechanical blocking magnets can be used for inter-cubicle interlocks, as well as for additional intra-cubicle interlocks.

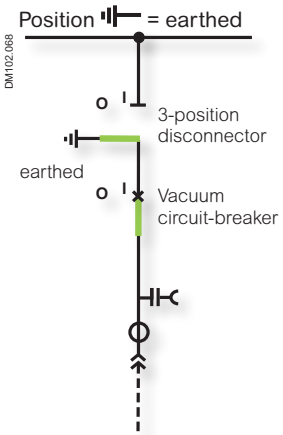
Earthing of the cables in 1 operation

Our GM AirSeT Performance include the unique feature of doing the earthing of the cables in one operation. Indeed when closing the earthing switch, the vacuum interrupter will be actuated automatically, through a mechanical shaft.
The vacuum interrupter cannot be re-opened, as long as earthing switch is closed.

Integral outgoing feeder earthing

The outgoing feeder is earthed and short-circuited by means of the 3-position disconnector in combination with the vacuum circuit-breaker.

DM102.068



Switches

Interlocking Systems

Mechanical Locks

PM110477

Mechanical Locks

Mechanical key-locks helping prevent unintended mechanical actuation on the mechanical operation interface are designed as locks. They help prevent insertion of the operation handle for manual actuation of the disconnector and/or the earthing switch. A lock-type mechanical lockout does not ensure a logic interlocking sequence.

Mechanical key-locks are used primarily:

- With motorized disconnectors/earthing switches
- In the event of mechanical actuation on the mechanical operation interface, to help ensure that switching operations are only performed by authorized staff

Interlocking System

The GM AirSeT Performance interlocking system takes account of the various operating modes demanded of the switchgear. The system has a modular design and essentially distinguishes models for:

- Automated GM AirSeT Performance
  - Remote-controlled
  - Interlocks by means of digital bay computers or IandC switchgear and controlgear
- Performing switching operations on the mechanical operation interface of the GM AirSeT Performance cubicles
  - With interlocks to help prevent operating errors

Automated GM AirSeT Performance switchgear

If digital bay computers and automated GM AirSeT Performance switchgear are used, the standard model interlocks are designed using the IandC switchgear and controlgear and its digital components.

In the highly unlikely event of total failure of the auxiliary supply, the control, monitoring and grid protection systems are inoperative. In this case, mechanical operation of cubicle's mechanical operation interface is a manual emergency operation.

The actuating concept of automated GM AirSeT Performance switchgear envisages that the main aim of manual emergency operation in the event of total failure of the auxiliary supply is to earth individual cubicles and/or cubicles in this exceptional case.

No other switching used in standard operation is performed. This type of switching should only be performed by specifically trained specialists.

The insertion opening of 3-position disconnector for manual emergency actuation are not accessible during normal operation due to the mechanical locks. When releasing the insertion opening for the operation handle, operators should be aware that in this case, electrical operations are disabled.

Switching operations on the cubicle's mechanical operation interface during operation

GM AirSeT Performance switchgear without automation or integrated IandC switchgear is normally switched through mechanical operation interface of the cubicles. Internal interlocks within the cubicle help ensure a logical workflow and help prevent operation errors.

For actuation on the mechanical operation interface, interlocks within the cubicle can be designed as follows so as to help prevent operation errors:

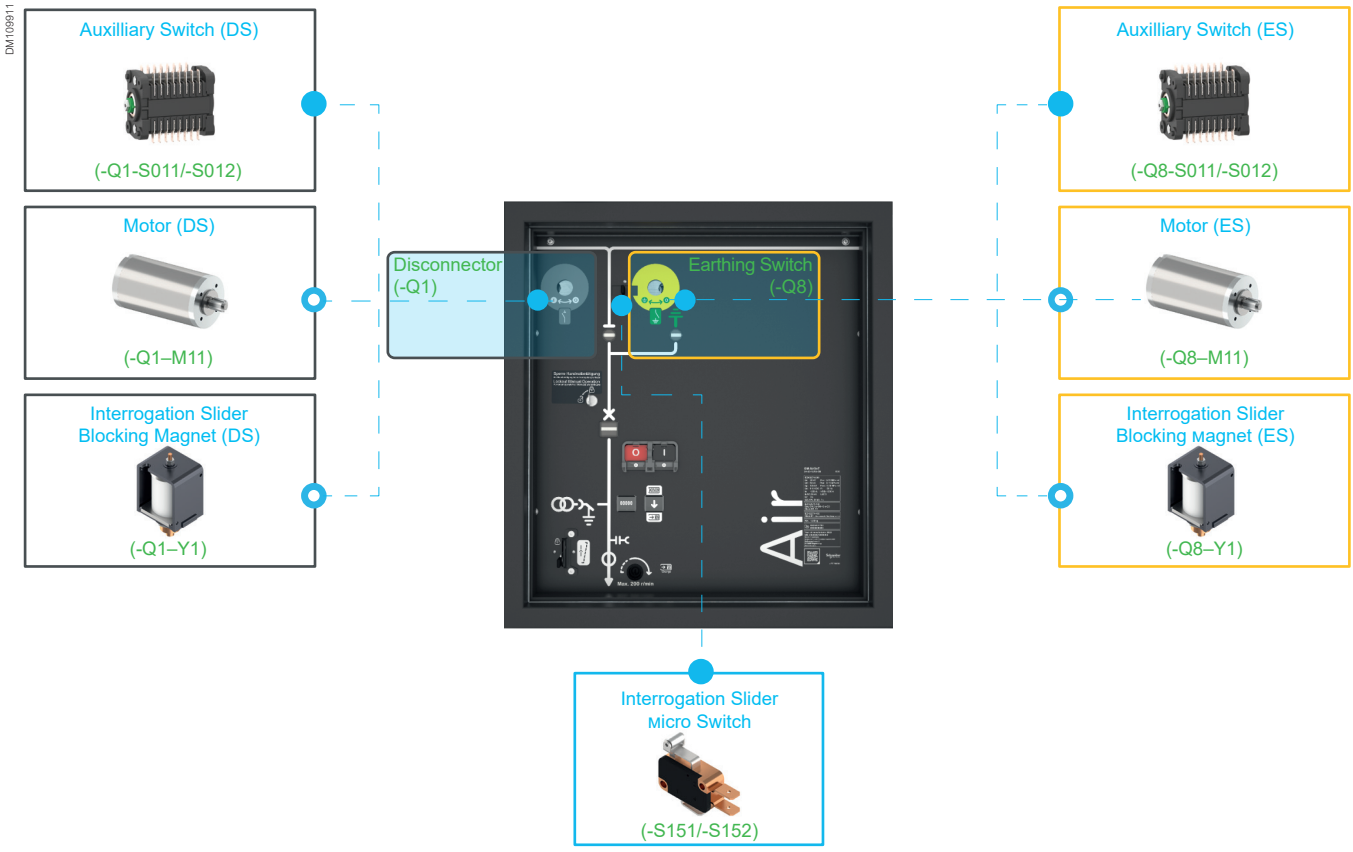
- Mechanical
- Electrical/electromagnetic using blocking magnets with fail safe philosophy
- The interlocks have a modular design and can be selected specifically for the project in question (see detailed information in Drive Mechanism)

Switches

Drive Mechanism

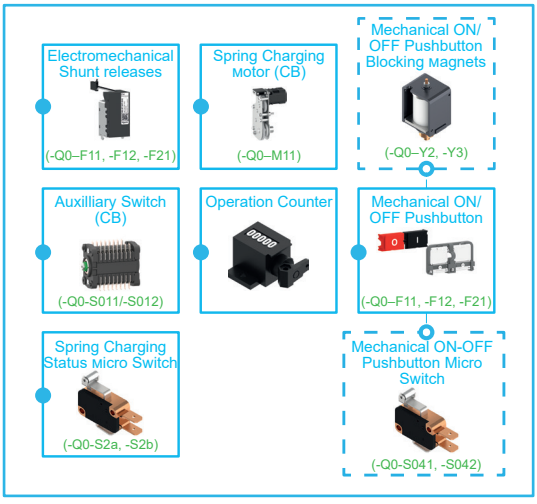
Overview

3 Position Disconnector



Other Drive Options

Circuit Breaker



Switches

Drive Mechanism

Circuit breaker

PM110737b

Eletromechanical shunt release (-Q0-F11, -F12, -F21)

Electromechanical Shunt Releases

Electromechanical shunt opening releases -Q0-F11, -F12

The electromechanical shunt opening release is used to open the circuit breaker. The release is actuated by the auxiliary power supply.

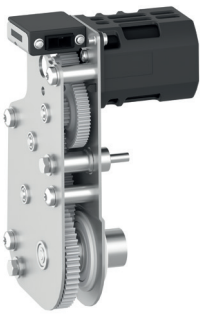
Characteristics		
Power supply	Vac	110/120/220/230
	Vdc	24/30/48/60/110/125/220
Operating range	Vac	0.85 to 1.1 Ua
	Vdc	0.7 to 1.1 Ua
Consumption	Vac	max. 200 VA
	Vdc	max. 300 W

Electromechanical shunt closing releases -Q0-F21

The electromechanical shunt closing release is used to close the circuit breaker. The release is actuated by the auxiliary power supply.

Characteristics		
Power supply	Vac	110/120/220/230
	Vdc	24/30/48/60/110/125/220
Operating range	Vac	0.85 to 1.1 Ua
	Vdc	0.85 to 1.1 Ua
Consumption	Vac	max. 200 VA
	Vdc	max. 300 W

PM110007



Charging motor -Q0-M11

Charging Motor -Q0-M11

The electric motor charges the spring of the operating mechanism automatically as soon as it is discharged. This allows the circuit breaker to switch the second close open cycle within the rated operating sequence.

Characteristics		
Power supply	Vac	110/120/220/230
	Vdc	24/30/48/60/110/125/220
Operating range	Vac	0.85 to 1.1 Ua
	Vdc	0.85 to 1.1 Ua
Consumption	Vac	approx. 180 VA
	Vdc	approx. 180 W

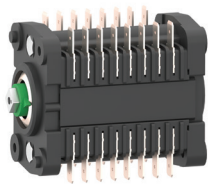
Operating T6ime of Motor	
Motor charging time	≤ 12 s

Switches

Drive Mechanism

Circuit Breaker

PM110661



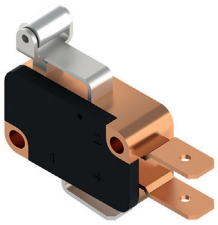
Auxiliary switch in switching position -Q0-S011/-S012

Auxiliary Switch -Q0-S011/-S012

The 16 contacts elements in switching position indicate the ON/OFF status of the circuit breaker. They are actuated directly by the main shaft of the circuit breaker through a mechanical link. The position of the main shaft corresponds to the position of the auxiliary switches and indicates whether the breaker is in ON or OFF.

Characteristics										
		DC							AC	
		24	30	48	60	110	125	220	110/120	220/230
Switching current	(A)	8	6	4	3	2	1.7	1	10	10
Time factor T = L/R	(ms)	≤20								
Rated short-time current		100 A for a duration of 30 ms								
Rated continuous current	(A)	10								

PM110726



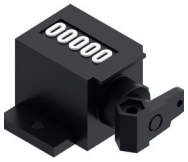
Spring charging status micro switch -Q0-S2a, -S2b

Spring Charging Status Micro Switch -Q0-S2a, -S2b

The micro switch is used to control the charging motor and to indicate the charging status.

When contact S2 is closed, the motor is charging the spring of the operating mechanism automatically. When charging is complete, it breaks the electrical charging circuit.

PM110756

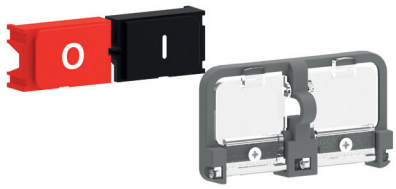


Operation counter (CDM)

Operation Counter (CDM)

An operation counter counts the number of operations (close-open) that the switchgear circuit breaker has carried out. the operation counter is always integrated by default and includes the operations performed at the factory and during commissioning.

PM110755

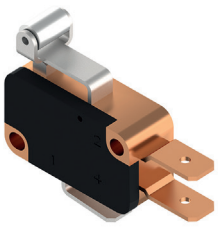


Mechanical ON/OFF pushbuttons

Mechanical ON/OFF Pushbuttons

Manual local pushbuttons allow operator to switch On or Off circuit breaker when switchgear is in Local mode and allowed by the interlocking scheme. optionally: padlocking cover allows individual padlocking option for enhanced operator safety.

PM110726



Micro switch on the mechanical ON/OFF pushbuttons -Q0-S041/-S042

Micro Switch on the Mechanical ON/OFF Pushbuttons -Q0-S041/-S042

Characteristics		
Micro switch for charging	5 A/250 Vdc	16 A/250 Vac
Micro switch for control	16 A/250 Vac	

Switches

Drive Mechanism

Circuit Breaker

PM110725

Mechanical ON/OFF pushbuttons blocking magnets -Q0-Y2, -Q0-Y3

Mechanical ON/OFF Pushbuttons Blocking Magnets -Q0-Y2, -Q0-Y3

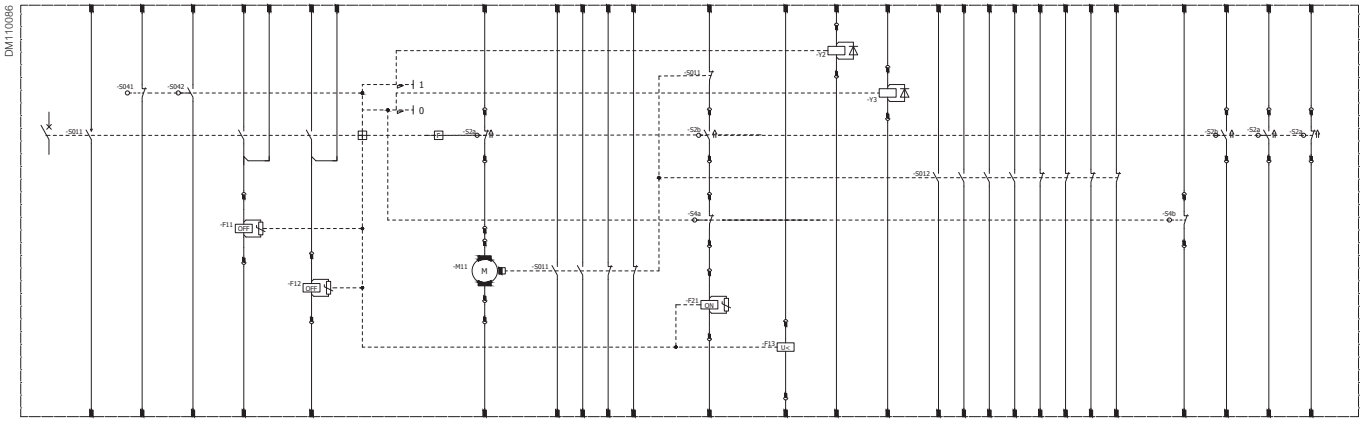
ON pushbutton blocking magnet (-Q0-Y2), optional.

OFF pushbutton blocking magnet (-Q0-Y3) optional.

In de-energized state, the blocking magnet blocks actuation of the mechanical ON or OFF pushbutton.

Characteristics		
Power supply	Vac	110/120/220/230
	Vdc	24/30/48/60/110/125/220
Operating range	Vac	0.85 to 1.1 Ua
	Vdc	0.85 to 1.1 Ua
Consumption	Vac	10.2 VA
	Vdc	10.2 W

Circuit diagram, circuit breaker (-Q0)

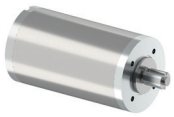


Switches

Drive Mechanism

Disconnector and Earthing Switch

PM110762



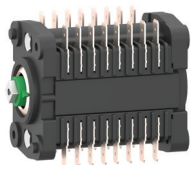
Motor -Q1-M11, -Q8-M11

Motor -Q1-M11, -Q8-M11

The motor drive switches the disconnector (-Q1) and earthing switch (-Q8) ON and OFF

Characteristics		
Power supply	Vac	110/120/220/230
	Vdc	24/30/48/60/110/125/220
Operating range	Vac	0.85 to 1.1 Ua
	Vdc	0.85 to 1.1 Ua
Consumption	Vac	approx. 200 VA
	Vdc	approx. 200 W

PM110661



Auxiliary switch
-Q1-S011/-S012,
-Q8-S011/-S012

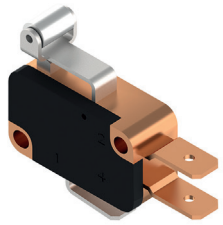
Auxiliary Switches and Micro Switches

Auxiliary switch -Q1-S011/-S012, -Q8-S011/-S011

The 16 contacts elements depending on the position of the main contacts of the disconnector or earthing switch

Characteristics										
		DC							AC	
		24	30	48	60	110	125	220	110/120	220/230
Switching current	(A)	8	6	4	3	2	1.7	1	10	10
Time factor T = L/R	(ms)	≤20								
Rated short-time current		100 A for a duration of 30 ms								
Rated continuous current	(A)	10								

PM110726



Micro switch -S151, -S152

Micro switch -S151, -S152

The micro switch is actuated when the interrogation slider of 3–position disconnector is moved to the left and right position

Characteristics		
Micro switch for charging	5 A/250 Vdc	16 A/250 Vac
Micro switch for control	16 A/250 Vac	

PM110725

Interrogation slider blocking magnets
-Q1-Y1, -Q8-Y1

Interrogation Slider Blocking Magnets -Q1-Y1, -Q8-Y1 (optional)

Blocking magnets of interrogation slider of 3–position disconnector (-Q1-Y1, -Q8-Y1) are optional.

In de-energized state, the blocking magnet blocks actuation of interrogation slider of 3–position disconnector.

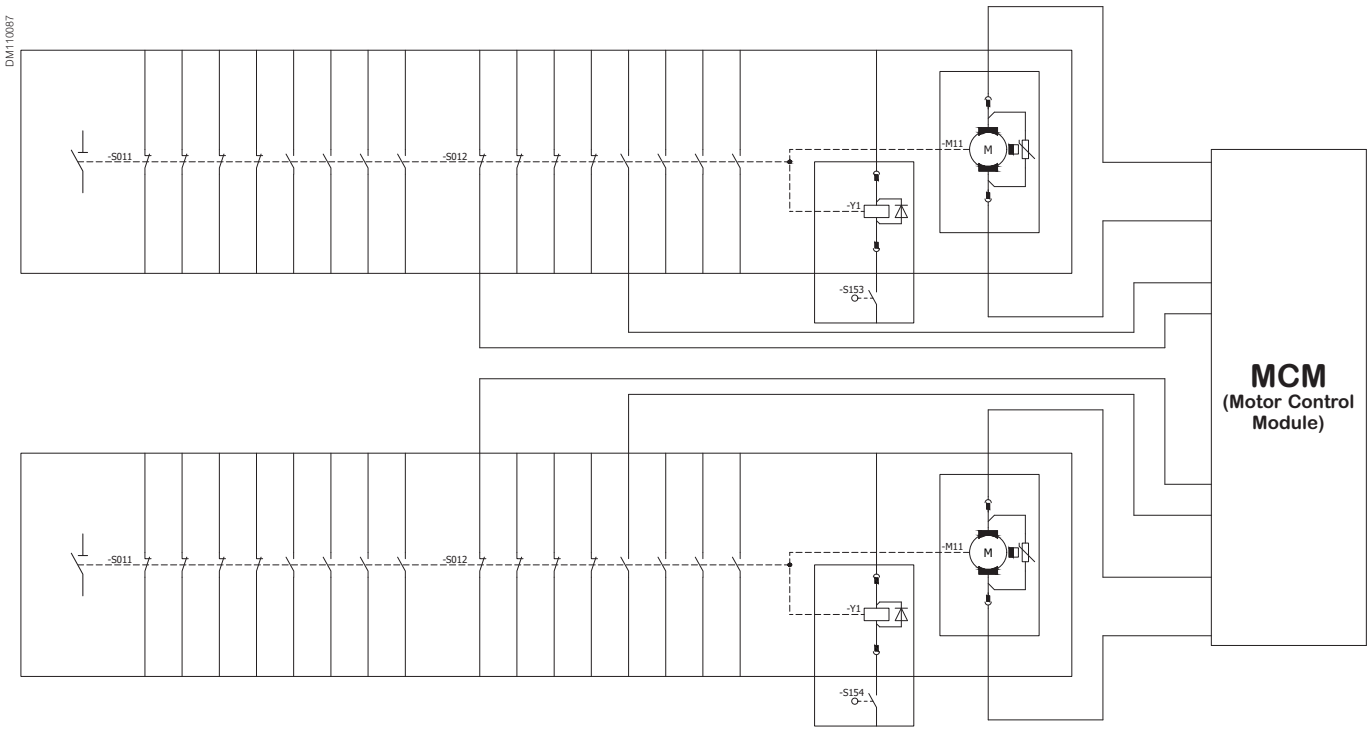
Characteristics		
Power supply	Vac	110/120/220/230
	Vdc	24/30/48/60/110/125/220
Operating range	Vac	0.85 to 1.1 Ua
	Vdc	0.85 to 1.1 Ua
Consumption	Vac	10.2 VA
	Vdc	10.2 W

Switches

Drive Mechanism

Disconnector and Earthing Switch

Circuit Diagram, Disconnector (-Q1)/Earthing Switch (-Q8)



Switches

Drive Mechanism

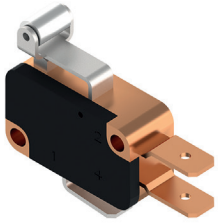
Other Drive Options

PM110637

Mechanical Key Lock (Optional)

The mechanical key lock releases either the manual or the electric actuation of the drives for 3-position disconnector and circuit breaker.

PM110726



Micro Switch of Mechanical Key Lock and Earthing Lock Out

The -S044 micro switch is actuated when 3-position disconnector and/or the pushbuttons of circuit breaker are blocked mechanically through the mechanical key lock.

The -S046 micro switch is actuated when the circuit breaker and earthing switch are closed, and safety slider is in locked position.

Characteristics		
Micro switch for charging	5 A/250 Vdc	16 A/250 Vac
Micro switch for control	16 A/250 Vac	

Protection Relays

Overview

Our catalog of Protection Relays provides leading and high performance protection and control for any network application. The latest PowerLogic Protection Relays also offer better security and dependability for your electrical grid, from overcurrent and arc protection to distance and differential protection of the transmission line. Our range offers solid protection with advanced communications such as the IEC 61850 to give you peace of mind in protecting your grid.

Change best as optimum

Use this simple selector to find the best fit for your needs.

Help Me Choose

Complete offer to reach all your requirements

PowerLogic Protection

Our latest Protection Relay range, with the heritage of many brands, our PowerLogic devices offer over 100 years of experience combined with the latest technology, communication and IoT connected concepts. Covering all applications from overcurrent to distance protection, they provide trusted know-how in a scalable range with a modern, digital experience.

PowerLogic P1		Catalog
	Compact and cost-effective protection solution for MV/LV applications. With overcurrent, voltage, frequency, and earth-fault protection (directional as an option), housed in a uniquely small case with a quick fixing method.	
PowerLogic P3		
	Easy-to-use protective relays for Medium Voltage applications with fast delivery, ideal for Panel builders, Contractors, Partners and end users. From overcurrent to more advanced protection, with Arc flash detection, LPCTs, LPVTs and Ethernet communication including basic implementation of IEC 61850.	
PowerLogic P5		
	Protection and control relays with a focus on safety and cyber security. Easy to use for panel builders, system integrators and end users. From overcurrent to differential protection with arc flash protection, LPCTs, LPVTs, redundant Ethernet communication and IEC 61850.	
PowerLogic P7		
	High-end protection and control range for MV and HV applications. It delivers a modular and cybersecure platform, fully prepared for virtualization. Its 7" color touchscreen and new engineering tool make it simple to configure, test, integrate, operate and maintain, while maximizing your sustainability goals.	

Easergy MiCOM Protection

Easergy MiCOM P30 Series	
	Easergy MiCOM 30 Series protective devices offer comprehensive protection of MV, HV and EHV networks. With flexible, modular hardware, Ethernet communication and cyber security, they are a trusted device to help protect your critical power system assets.
Easergy MiCOM P40 Series	
	A trusted name in protection relays worldwide; our Easergy MiCOM P40 series contains all of the applications you need for MV, HV and EHV protection. High-performance protection functions, Ethernet communication and Cyber security makes this range ready for modern challenges.

Protection Relays

Overview

PowerLogic Arc Protection

PowerLogic A1 and A3

PowerLogic A1 and A3 are designed to mitigate the Arc fault inside electrical cubicles. That will reduce the Arc flash damages and impacts.
PowerLogic™ A1: stand-alone device for cubicle protection.
PowerLogic™ A3: can be used as stand-alone device or associated to other A3 devices and build a system solution.
PowerLogic™ A3 to help protect group of cubicles and allow to survey up to 50 sensors.

V321

V321 Adapted to large installation and up to 150 sensors and multiple elective control with I/Os modules.
Adapted to large substations or installations, it provide high performance with current condition.
V321 have communication to supervision solutions.

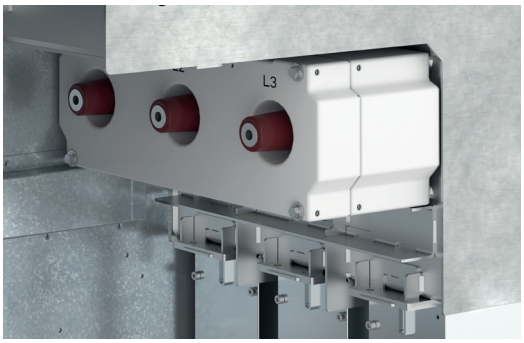
Current Transformers

Current Transformer

In GM AirSeT Performance, inductive low-voltage toroidal-core current transformers are used.
The switchgear-specific conductors form the primary conductor of the current transformers.

- The current transformers are not subject to dielectric stress on the high-voltage side.
- They are always installed outside the gas-filled compartment.
- The secondary lines integrated in the transformer block are routed through the low-voltage cabinet without intermediate terminals.

PM110738



Current transformer block on bushings with optional supplementary core, cubicle width 600 mm

Current Transformer on Cable Side

- Based on the extended and earthed cone-type plug-in type bushings for cable connection.
- Straightforward retrofitting or replacement of the current transformers is possible without interfering with the gas-filled compartment.
- Cubicle width 600 mm with 1 outer cone-type plug-in type bushing per conductor:
  - The toroidal cores for the conductors L1-L2-L3 are combined mechanically to form a common block structure.
- Supplementary transformer in cubicle width 600 mm with 1 outer cone-type plug-in type bushing per conductor:
  - Supplementary core for highly sophisticated electrical transformer design.
  - One common transformer block through the conductors L1–L2-L3 overlaps the area of the outer cone-type cable bushing.

Technical Data* for GM AirSeT Performance Current Transformers		
Maximum voltage		0.72 kV
Rated short-time power frequency withstand voltage (winding test)		3 kV
Rated frequency		50/60 Hz
Primary rated continuous current		50 A to 1250 A
Secondary rated continuous current		1 A or 5 A
Thermal rated continuous current intensity		1.0 x primary rated continuous current intensity 1.2 x primary rated continuous current intensity (optional)
Number of cores (for cable side)		max. 3
Data of current transformer cores (depending on primary currents)		
Measuring cores *	Power	2.5 to 10 VA
	Class	0.2 to 1
	Overcurrent factor	FS10
Protection cores *	Power	2.5 to 30 VA
	Class	5P or 10 P
	Overcurrent factor	10 to 30
Thermal rated short-time current intensity		max. 25 kA, 3 s
Standards		IEC/EN 61869-2

* Other values on request

Voltage Transformers

PM110738

Voltage transformer in cable compartment with disconnecting device

Voltage Transformers

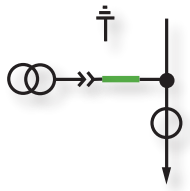
The inductive voltage transformers are:

- Single-pole isolated voltage transformers
- Fully shrouded and earthed in accordance with the system
- In addition to the main winding, an additional auxiliary winding is possible for earth fault detection (optional):
  - Design with one tap in the main winding for switchability to two different rated voltages of the high-voltage system (optional)
  - Separate windings in calibratable or calibrated design for billing metering (optional).

Attachment of the voltage transformers

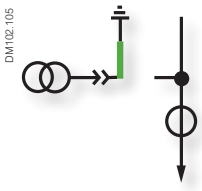
- Enhanced operator safety, thanks to integration of the voltage transformers in a metal-enclosed GM AirSeT Performance cable compartment, also for busbar voltage transformers.
- Disconnecting device on high-voltage side:
  - High-voltage cable test without removal of the voltage transformers
  - Speedy recommissioning of a GM AirSeT Performance cubicle in the unlikely event of a fault on the voltage transformer
  - Enhanced safe working conditions and short downtimes should the voltage transformers need to be replaced
  - Disconnecting devices in gas-filled compartment with switching positions **ON** and **OFF – transformer earthed**.
- The voltage transformers are already assembled, connected ready for operation and tested in the factory.
- Installed outside the gas-filled compartment.
- Adaptation on the high-voltage side and mechanically through inner cone-type bushings.
- Removable without intervention in the gas-filled compartment.
- No additional cubicle width required for voltage transformers.
- Actuation on the front of the switchgear and controlgear.
- Control mechanism and indication of the switch position on the front of the switchgear:
  - Installed directly behind the removable cable compartment cover
  - Accessible after removal of the cable compartment cover
  - Together for all three conductors
  - Possibility of attaching a padlock.

DM102.106



Cable side voltage transformer **ON**

DM102.105



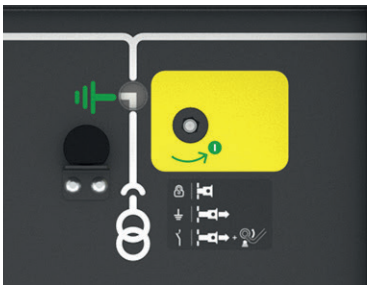
Cable side voltage transformer **OFF**

Voltage Transformers

PM103.090

Intuitive front operation interface of connecting and earthing cable side voltage transformer

PM110485



Intuitive front operation interface of connecting and earthing busbar side voltage transformer

Voltage Transformer

Single-pole, plug-in, metal-encapsulated or metallized voltage transformers are directly flange-mounted to the switchgear tank via a standard inner cone-type plug-in system. The geometrically identical voltage transformers can be utilized functionally:

- In the outgoing feeder block of a branch circuit, installed in the metal encapsulated cable connection compartment,
- As busbar voltage transformers, flange-mounted on top of a single-busbar panel (without additional module width), or as busbar voltage transformer for both busbar systems of a double busbar switchgear with a panel width of 600 mm.

All voltage transformers can be disconnected from high voltage through upstream, switchgear-specific disconnecting devices. This disconnecting device with the positions **Voltage transformer ON** and **Voltage transformer earthed/grounded** should be actuated on the switchgear front in the cable connection compartment and on the de-energized primary current circuit. Voltage transformers on the busbar are actuated at the operation tableau.

Voltage tests on the switchgear or on the connected cables can be performed easily and safely without removal of the voltage transformers or of switchgear components. In the earthed position, voltage transformers, for example, can be replaced safely, without any loses of insulation gas, as required, while the main circuit remains in operation.

Voltage transformers with integrated high-voltage fuse on request.

Technical Data* for GM AirSeT Performance VoltageTransformers			
High-voltage windings			
Rated voltage		12	24
Rated short-time power frequency withstand voltage	KV	20	50
Rated lightning impulse withstand voltage	kV	60	125
Service voltages		3.3/√3 to 11/√3	17.5√3/ to 23/√3
Rated voltage factor		1.9 x U_r (8h); 1.2 x U_r (permanent)	
Secondary winding			
Service voltage of measuring winding	V	100/√3; 110/√3; 120/√3	
Auxiliary winding	V	100/3; 110/3; 120/3	
Thermal limit current of measuring winding	A	6	
Rated continuous current 8 hrs	A	4	
Power at accuracy class *		class 0.2: up to 20 VA class 0.5: up to 60 VA class 1: up to 120 VA	
Standards		IEC/EN 61869-3	

* Other values on request

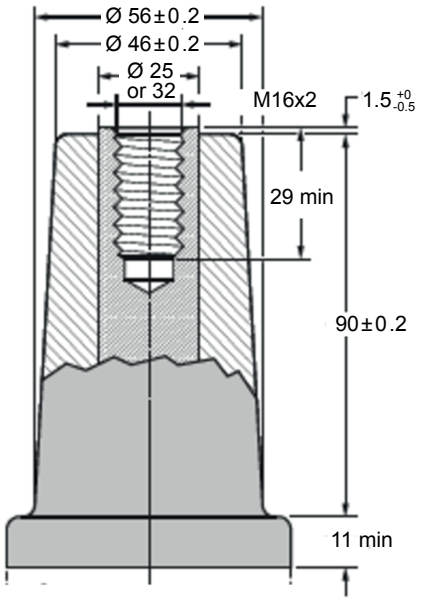
Cable connection

Outer Cone System

PM110738

Cable connection and fastening; example: cubicle width 600 mm, without cable

DM102.119



Connector dimensions in accordance with EN 50181

Cable Connection System: Outer Cone-Type

All cable terminals on the GM AirSeT Performance circuit breaker cubicles are equipped with outer cone-type bushings.

The geometric dimensions correspond to standard EN 50181:2010 for plug-in type bushings above 1 kV to 52 kV and from 250 A to 2.50 kA for equipment other than liquid-filled transformers in the following configurations:

- Outer cone-type bushing
- Terminal type C
- Rated continuous current $I_r \leq 1250$ A
- Screw-type contact with M16 internal thread
- Nominal diameter of conductor pin d5 = 25 or 32 mm
- Contact material of conductor pin: Copper (Cu)
- Contact surface to cable plug: copper, metallic.

The bushing in the GM AirSeT Performance cable compartment, is arranged as below:

- Cubicle width 600 mm, with max. 1250 A: 1 type C bushing per phase.

Selection of cable screw-type connectors

The cable screw-type connectors should match the above-mentioned outer cone-type bushings.

For connection to the GM AirSeT Performance cubicles, we recommend the brands and types of cable screw-type connectors, system-compatible surge arresters and accessories specified in the following selection lists.

Compliance with the data and information in the separate mounting instructions for GM AirSeT Performance switchgear and controlgear and the manufacturer's information regarding selection/assembly of the cable screw-type connectors and surge arresters, including accessories, is mandatory.

For currents > 630 A, verify the required current-carrying capacity and coordinate with the supplier to help ensure the correct screw-type cable connector combinations.

Cable Connection

Cable Fastening

PM110699

Cable connection and fastening, example: cubicle width 600 mm

PM110699

2 cable fixing iron supports for cables with cross section ≥ 500 mm²

PM103147

Cable clamp, example: id-technik

Cable Fastening

Each high-voltage cable must be fastened to the cable supports in the GM AirSeT Performance connection compartment. The cable supports are included in the scope of supply of the GM AirSeT Performance cubicles. The number of cables to be installed per conductor in each cubicle must be specified in the switchgear order.

For cable-cross sections ≥ 500 mm², the cables should be also be fastened with the 2nd cable fixing iron support.

The special clamps made of glass-fibre reinforced polyamide for high-voltage power cables are very well suited to help protect the cable fixations in case of short circuits.

The features of these cable clamps include the necessary short-circuit protected fastening, plus:

- Straightforward and speedy assembly without special tools
- Compact design, especially for multiple cable connection in GM AirSeT Performance cubicles
- Extremely high temperature stability
- They are corrosion-free
- Completely recyclable.

On special request, cable clamps suitable for high-voltage cables can be supplied.

Accessories for cable connections

Manufacturers of cable screw-type connectors and surge arresters can supply additional accessories, e.g. adaptors for:

- Connection of equipment for high-voltage cable tests
- Connection of a manually-actuated earthing device (maintenance earthing switch)
- Primary current testing of the master relays
- Voltage-resistant termination of non-assigned outer cone-type bushings.

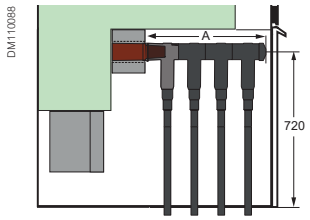
Cable Connection

Selection List

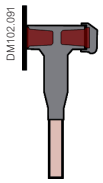
Cubicle Width 600 mm, 1x Outer Cone-type

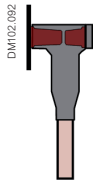
Combination of Cable Screw-type Connectors and Surge Arresters

- Outer cone-type bushings in accordance with EN50181, type C
- Screw-type contact for use with internal thread M16x2
- Cubicle width 600 mm



≤ 1250 A
1 outer cone per conductor





No.	Number of Cables per Conductor	Rated Voltage kV	Supplier	Conductor cross-section(2) mm²	Insulation	T-connectors per conductor	Compact T-connectors per conductor
1	1	≤12	Euromold/Nexans	25~300	EPDM	-	430TB/G or 480TB/G
2	1	≤12	Euromold/Nexans	400~630	EPDM	-	484TB/G
3	1	≤24	Euromold/Nexans	25~300	EPDM	-	K430TB/G or K480TB/G
4	1	≤24	Euromold/Nexans	400~630	EPDM	-	K484TB/G
5	2	≤12	Euromold/Nexans	25~300	EPDM	-	1 x 430TB/G or 1 x 480TB/G
6	2	≤12	Euromold/Nexans	400~630	EPDM	-	1 x 484TB/G
7	2	≤24	Euromold/Nexans	25~300	EPDM	-	1 x K430TB/G or 1 x K480TB/G
8	2	≤24	Euromold/Nexans	400~630	EPDM	-	1 x K484TB/G
9	3	≤12	Euromold/Nexans	25~300	EPDM	-	1 x 430TB/G or 1 x 480TB/G
10	3	≤12	Euromold/Nexans	400~630	EPDM	-	1 x 484TB/G
11	3	≤24	Euromold/Nexans	25~300	EPDM	-	1 x K430TB/G or 1 x K480TB/G
12	3	≤24	Euromold/Nexans	400~630	EPDM	-	1 x K484TB/G
13	1	≤12	NKT	25~300	Silicone	-	CB 12-630
14	1	≤24	NKT	25~300	Silicone	-	CB 24-630
15	1	≤12	NKT	185~500	Silicone	-	CB 24-1250/2
16	1	≤24	NKT	95~500	Silicone	-	CB 24-1250/2
17	1	≤24	NKT	400~630	Silicone	-	CB 36-630 (1250)
18	2	≤12	NKT	25~300	Silicone	-	1 x CB 12-630
19	2	≤12	NKT	185~500	Silicone	-	1 x CB 24-1250/2
20	2	≤24	NKT	25~300	Silicone	-	1 x CB 24-630
21	2	≤24	NKT	95~500	Silicone	-	1 x CB 24-1250/2
22	2	≤24	NKT	400-630/800 Al RE	Silicone	-	1 x CB 36-630 (1250)
23	3	≤12	NKT	25~300	Silicone	-	1 x CB 12-630
24	3	≤12	NKT	185~500	Silicone	-	1 x CB 24-1250/2
25	3	≤24	NKT	25~300	Silicone	-	1 x CB 24-630
26	3	≤24	NKT	95~500	Silicone	-	1 x CB 24-1250/2
27	3	≤24	NKT	400-630	Silicone	-	1 x CB 36-630 (1250)
28	4	≤12	NKT	25~300	Silicone	-	1 x CB 12-630
29	4	≤12	NKT	185~500	Silicone	-	1 x CB 24-1250/2
30	4	≤24	NKT	25~300	Silicone	-	1 x CB 24-630

(1) Detailed clarification of the electrical data for the surge arresters is required on a project-specific basis, depending on the grid earthing and the grid configuration.
(2) For conductor cross-sections ≥ 500 mm2, a 2nd cable fixing iron support is needed, which can be provided by Schneider Electric.

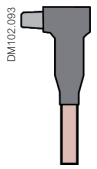
Cable connection

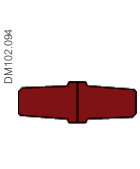
Selection List

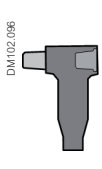
Cubicle Width 600 mm, 1x Outer Cone-type

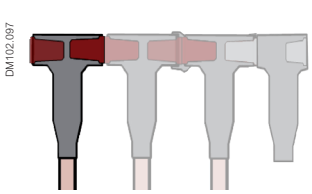
Combination of Cable Screw-type Connectors and Surge Arresters

- Outer cone-type bushings in accordance with EN50181, type C
- Screw-type contact for use with internal thread M16x2
- Cubicle width 600 mm









No.	Coupling per conductor	Coupler per conductor	Surge arresters[1] per conductor		Length A max. 520 mm		
			Version 1	Version 2	Without surge arrester	Version 1	Version 2
1	-	-	-	300SA or 800SA	185	-	290
2	-	-	-	800SA	185	-	290
3	-	-	-	300SA or 800SA	185	-	290
4	-	-	-	800SA	185	-	290
5	1 x 300PB/G or 1 x 800PB/G	-	-	300SA or 800SA	290	-	395
6	1 x 804PB/G	-	-	800SA	290	-	400
7	1 x K300PB/G or 1 x K800PB/G	-	-	300SA or 800SA	290	-	395
8	1 x K804PB/G	-	-	800SA	290	-	400
9	2 x 300PB/G or 2 x 800PB/G	-	-	-	395	-	-
10	2 x 804PB/G	-	-	-	400	-	-
11	2 x K300PB/G or 2 x K800PB/G	-	-	-	395	-	-
12	2 x K804PB/G	-	-	-	400	-	-
13	-	-	CSA 12	-	190	300	-
14	-	-	CSA 24	-	190	300	-
15	-	-	CSA 12	-	190	300	-
16	-	-	CSA 24	-	190	300	-
17	-	-	CSA 24	-	190	300	-
18	1 x CC 12-630	-	CSA 12	-	290	400	-
19	1 x CC 24-1250/2	-	CSA 12	-	300	410	-
20	1 x CC 24-630	-	CSA 24	-	290	400	-
21	1 x CC 24-1250/2	-	CSA 24	-	300	410	-
22	1 x CC 36-630(1250)	-	CSA 24	-	300	410	-
23	2 x CC 12-630	-	-	-	390	-	-
24	2 x CC 24-1250/2	-	CSA 12	-	410	520	-
25	2 x CC 24-630	-	-	-	390	-	-
26	2 x CC 24-1250/2	-	CSA 24	-	410	520	-
27	2 x CC 36-630(1250)	-	-	-	410	-	-
28	3 x CC 12-630	-	-	-	490	-	-
29	3 x CC 24-1250/2	-	-	-	520	-	-
30	3 x CC 24-630	-	-	-	490	-	-

(1) Detailed clarification of the electrical data for the surge arresters is required on a project-specific basis, depending on the grid earthing and the grid configuration.
(2) For conductor cross-sections ≥ 500 mm2, a 2nd cable fixing iron support is needed, which can be provided by Schneider Electric.

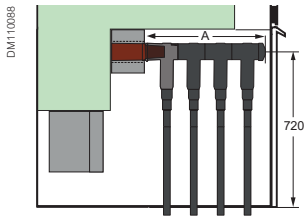
Cable Connection

Selection List

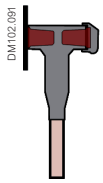
Cubicle Width 600 mm, 1x Outer Cone-type

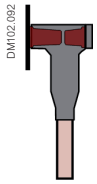
Combination of Cable Screw-type Connectors and Surge Arresters

- Outer cone-type bushings in accordance with EN50181, type C
- Screw-type contact for use with internal thread M16x2
- Cubicle width 600 mm



≤ 1250 A
1 outer cone per conductor





No.	Number of cables per conductor	Rated voltage kV	Supplier	Conductor cross-section(2) mm²	Insulation	T-connectors per conductor	Compact T-connectors per conductor
31	4	≤24	NKT	95~500	Silicone	-	1 x CB 24-1250/2
32	4	≤24	NKT	400-630	Silicone	-	1 x CB 36-630 (1250)
33	1	≤12	Cellpack	50~400	EPDM	-	CTS 630A 24kV
34	1	≤12	Cellpack	500~630	EPDM	-	CTS 1250A 24kV
35	1	≤24	Cellpack	25~400	EPDM	-	CTS 630A 24kV
36	1	≤24	Cellpack	400~630	EPDM	-	CTS 1250A 24kV
37	2	≤12	Cellpack	50~400	EPDM	-	1 x CTS 630A 24kV
38	2	≤24	Cellpack	25~400	EPDM	-	1 x CTS 630A 24kV
39	3	≤12	Cellpack	50~400	EPDM	-	1 x CTS 630A 24kV
40	3	≤24	Cellpack	25~400	EPDM	-	1 x CTS 630A 24kV
41	1	≤12	Südkabel	50~300	Silicone	-	1 x SET12
42	1	≤12	Südkabel	185~500	Silicone	1 x SEHDT 13	-
43	1	≤24	Südkabel	25~240	Silicone	-	1 x SET24
44	1	≤24	Südkabel	300	Silicone	-	1 x SEHDT 23.1
45	1	≤24	Südkabel	120~300	Silicone	-	1 x SAT24
46	1	≤24	Südkabel	185~630	Silicone	1 x SEHDT 23	-
47	2	≤12	Südkabel	50~300	Silicone	-	2 x SET12
48	2	≤12	Südkabel	50~300	Silicone	-	1 x SET12
49	2	≤24	Südkabel	25~240	Silicone	-	2 x SET24
50	2	≤24	Südkabel	50~240	Silicone	-	1 x SET24
51	2	≤24	Südkabel	120~240	Silicone	-	2 x SAT24
52	3	≤12	Südkabel	50~300	Silicone	-	2 x SET12
53	3	≤12	Südkabel	50~300	Silicone	-	1 x SET12
54	3	≤24	Südkabel	25~240	Silicone	-	2 x SET24
55	3	≤24	Südkabel	25~240	Silicone	-	1 x SET24
56	1	≤12	TE Connectivity	25~300	Silicone	-	RSTI 58XX
57	1	≤12	TE Connectivity	400~1000	Silicone	-	RSTI 395X
58	1	≤24	TE Connectivity	25~300	Silicone	-	RSTI 58XX
59	1	≤24	TE Connectivity	400~1000	Silicone	-	RSTI 595X
60	2	≤12	TE Connectivity	25~300	Silicone	-	1 x RSTI 58XX
61	2	≤12	TE Connectivity	400~1000	Silicone	-	1 x RSTI 395X
62	2	≤24	TE Connectivity	25~300	Silicone	-	1 x RSTI 58XX
63	2	≤24	TE Connectivity	400~1000	Silicone	-	1 x RSTI 595X
64	3	≤12	TE Connectivity	25~300	Silicone	-	1 x RSTI 58XX
65	3	≤12	TE Connectivity	400~630	Silicone	-	1 x RSTI 395X
66	3	≤24	TE Connectivity	25~300	Silicone	-	1 x RSTI 58XX
67	3	≤24	TE Connectivity	400~630	Silicone	-	1 x RSTI 595X

(1) Detailed clarification of the electrical data for the surge arresters is required on a project-specific basis, depending on the grid earthing and the grid configuration.
(2) For conductor cross-sections ≥ 500 mm², a 2nd cable fixing iron support is needed, which can be provided by Schneider Electric.

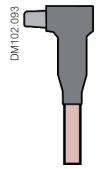
Cable Connection

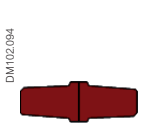
Selection list

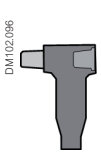
Cubicle Width 600 mm, 1x outer cone-type

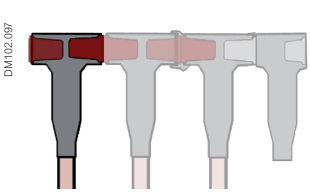
Combination of Cable Screw-type Connectors and Surge Arresters

- Outer cone-type bushings in accordance with EN50181, type C
- Screw-type contact for use with internal thread M16x2
- Cubicle width 600 mm









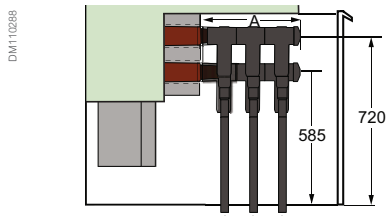
No.	Coupling plugs per conductor	Couplers per conductor	Surge arresters[1] per conductor		Length A max. 700 mm		
			Version 1	Version 2	without surge arrester	Version 1	Version 2
31	3 x CC 24-1250/2	-	-	-	520	-	-
32	3 x CC 36-630(1250)	-	-		520	-	-
33	-	-	CTKSA 12kV	-	205	290	-
34	-	-	CTKSA 12kV	-	205	290	-
35	-	-	CTKSA 24kV	-	205	290	-
36	-	-	CTKSA 24kV	-	205	290	-
37	1 x CTKS630A 24kV	-	CTKSA 12kV	-	290	375	-
38	1 x CTKS630A 24kV	-	CTKSA 24kV	-	290	375	-
39	2 x CTKS630A 24kV	-	CTKSA 12kV	-	375	450	-
40	2 x CTKS630A 24kV	-	CTKSA 24kV	-	375	450	-
41	-	-	1 x MUT 23.1	-	188	290	-
42	-	-	-	-	265	-	-
43	-	-	1 x MUT 23.1	-	188	290	-
44	-	-	1 x MUT 23.1	-	188	290	-
45	-	-	1 x MUT 23.1	-	189	290	-
46	-	-	-	-	260	-	-
47	-	1 x KU 23.2/23	1 x MUT 23.1	-	362	464	-
48	1 x SEHDK13.1	-	1 x MUT 23.1	-	290	391	-
49	-	1 x KU 23.2/23	1 x MUT 23.1	-	362	464	-
50	1 x SEHDK23.1	-	1 x MUT 23.1	-	290	391	-
51	-	1 x KU 33.1	1 x MUT 23.1	-	362	464	-
52	1 x SEHDK13.1	1 x KU 23.2/23	-	-	463	-	-
53	2 x SEHDK13.1	-	-	-	390	-	-
54	1 x SEHDK23.1	1 x KU 23.2/23	-	-	463	-	-
55	2 x SEHDK23.1	-	-	-	390	-	-
56	-	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	180	285	295
57	-	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	196	295	302
58	-	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	180	285	295
59	-	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	196	295	302
60	1 x RSTI-CC-58XX	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	285	390	397
61	1 x RSTI-CC-395X	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	315	420	427
62	1 x RSTI-CC-58XX	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	285	390	397
63	1 x RSTI-CC-595X	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	315	420	427
64	2 x RSTI-CC-58XX	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	390	-	-
65	2 x RSTI-CC-395X	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	440	-	-
66	2 x RSTI-CC-58XX	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	390	-	-
67	2 x RSTI-CC-595X	-	RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	440	-	-

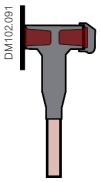
(1) Detailed clarification of the electrical data for the surge arresters is required on a project-specific basis, depending on the grid earthing and the grid configuration.
(2) For conductor cross-sections ≥ 500 mm², a 2nd cable fixing iron support is needed, which can be provided by Schneider Electric.

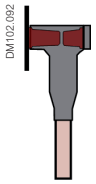
Outer Cone-type Cable Connection Combination

Tee Plug and Surge Arrester

>1250 to <2500 A - 2 outer cones





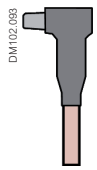


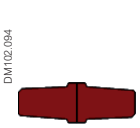
No.	Number of cables per panel and phase(2)	Rated voltage (kV)	Supplier	Phase cross section (mm²)	Insulation	Tee Plug	Tee Plug Compact
1	2	≤12	Euromold/Nexans	25-300	EPDM	-	2x 430TB
2	2	≤12	Euromold/Nexans	400-630	EPDM	-	2x 484TB
3	2	≤24	Euromold/Nexans	25-300	EPDM	-	2x K430TB
4	2	≤24	Euromold/Nexans	400-630	EPDM	-	2x K484TB
5	4	≤12	Euromold/Nexans	25-300	EPDM	-	2x 430TB
6	4	≤12	Euromold/Nexans	25-300	EPDM	-	4x 430TB
7	4	≤12	Euromold/Nexans	400-630	EPDM	-	2x 484TB
8	4	≤24	Euromold/Nexans	25-300	EPDM	-	2x K430TB
9	4	≤24	Euromold/Nexans	25-300	EPDM	-	4x K 430TB
10	4	≤24	Euromold/Nexans	400-630	EPDM	-	2x K484TB
11	6	≤12	Euromold/Nexans	25-300	EPDM	-	2x 430TB
12	6	≤24	Euromold/Nexans	25-300	EPDM	-	2x K430TB
13	6	≤12	Euromold/Nexans	400-630	EPDM	-	2x 484TB
14	6	≤24	Euromold/Nexans	400-630	EPDM	-	2x K484TB
15	2	≤12	nkt cables	25-300	Silicone	-	2x CB 12-630
16	2	≤12	nkt cables	185-500	Silicone	-	2x CB 24- 1250/2
17	2	≤24	nkt cables	25-300	Silicone	-	2x CB 24-630
18	2	≤24	nkt cables	95-500	Silicone	-	2x CB 24- 1250/2
19	2	≤24	nkt cables	400-630/800AL RE	Silicone	-	2x CB 36-630 (1250)
20	4	≤12	nkt cables	25-300	Silicone	-	4x CB 12-630
21	4	≤12	nkt cables	25-300	Silicone	-	2x CB 12-630
22	4	≤12	nkt cables	185-500	Silicone	-	2x CB 24- 1250/2
23	4	≤24	nkt cables	25-300	Silicone	-	4x CB 24-630
24	4	≤24	nkt cables	25-300	Silicone	-	2x CB 24-630
25	4	≤24	nkt cables	95-500	Silicone	-	2x CB 24- 1250/2
26	4	≤24	nkt cables	400-630/800AL RE	Silicone	-	2x CB 36-630 (1250)
27	4	≤24	nkt cables	400-630/800AL RE	Silicone	-	4x CB 36-630 (1250)
28	6	≤12	nkt cables	25-300	Silicone	-	6x CB 12-630
29	6	<=12	nkt cables	25-300	Silicone	-	2x CB 12-630
30	6	<=12	nkt cables	185-500	Silicone	-	2x CB 24- 1250/2

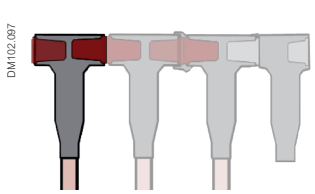
(1) A detailed clarification of the surge arresters is required order-specifically with the manufacturer in question depending on the neutral-point connection and system configuration concerned.
(2) Three-conductor cables available on request (connectors and accessories to be clarified with the connector supplier. concerned).
(3) Maximum section of cable shall not be >90 mm when 2 Type-C.

Outer Cone-type Cable Connection Combination

Tee Plug and Surge Arrester





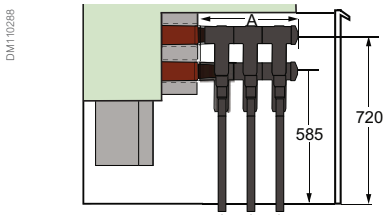


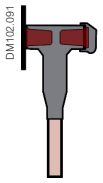
No.	Connector plugs	Coupler	Surge arresters[1]		Length A max. 625 mm		
			Version 1	Version 2	without surge arrester	Version 1	Version 2
1				300SA	185		290
2				800SA	185		290
3				300SA	185		290
4				800SA	185		290
5				300SA	185		290
6				800SA	185		290
7	2x 300PB			300SA	290		395
8		2x 430CP		300SA	375		480
9	2x 804PB			800SA	290		400
10	2x K300PB			300SA	290		395
11		2x K430CP		300SA	375		480
12	2x K804PB			800SA	290		400
13	2x M300PB			300SA	290		395
14	2x M804PB			800SA	290		400
15	4x 300PB			300PB	395		500
16	4x K300PB			300PB	395		500
17	4x M300PB			300SA	395		500
18	4x 804TB			800SA	400		510
19	4x K804TB			800SA	400		510
20	4x M804TB			800SA	400		510
21	-	-	CSA 12	-	190	290	-
22	-	-	CSA 12	-	190	300	
23	-	-	CSA 24	-	190	290	
24	-	-	CSA 24	-	190	300	
25	-	2x CP 1250C	CSA 12	-	370	470	-
26	2x CC 24-630	-	CSA 12	-	290	390	-
27	2x CC 24-1250/2	-	CSA 12	-	190	300	400
28	-	2x CP 1250-C	CSA 24	-	370	470	-
29	2x CC 24-630		CSA 24	-			-
30	2x CC 24-1250/2		CSA 24	-	190	300	400
31	2x CC36-630 (1250)		CSA 24	-	300	400	-
32		2x CP 630-M16	CSA 12	-	390	490	-
33	-	4x CP 1250-C	CSA 12	-	550		-
34	4x CC 12-630	-	CSA 24	-	390	490	-
35	4x CC 24-1250/2	-	CSA 12	-	190	300	
36	-	4x CP 1250-C	CSA 24	-	550		-
37	4x CC 24-630	-	CSA 24	-	550		-
38	4x CC 24-1250/2	-	CSA 24	-	190	300	
39	4x CC36-630 (1250)	4x CP 630-M16	CSA 24	-	410	510	-
40			RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	180	285	292

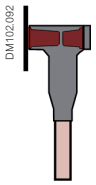
Outer Cone-type Cable Connection Combination

Tee Plug and Surge Arrester

>1250 to <2500 A - 2 outer cones





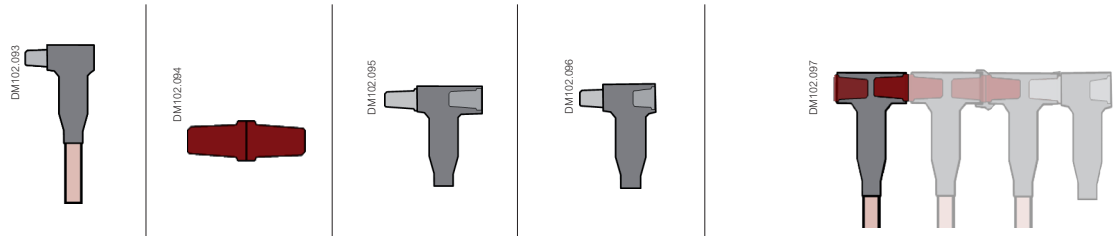


No.	Number of cables per panel and phase(2)	Rated voltage (kV)	Supplier	Phase cross section (mm^2)	Insulation	Tee Plug	Tee Plug Compact
31	6	<=24	nkt cables	25-300	Silicone	-	6x CB 24-630
32	6	<=24	nkt cables	25-300	Silicone	-	6x CB 24-630
33	6	<=24	nkt cables	95-500	Silicone	-	2x CB 24- 1250/2
34	6	<=24	nkt cables	400-630/800AL RE	Silicone	-	2x CB 36-630 (1250)
35	6	<=24	nkt cables	400-630/800AL RE	Silicone	-	6x CB 36-630 (1250)
36	2	<= 12	TE Raychem	25-300	Silicone		2x RSTI 58XX
37	2	<= 12	TE Raychem	400-800	Silicone		2x RSTI 395X
38	2	<= 24	TE Raychem	25-300	Silicone		2x RSTI 58XX
39	2	<= 24	TE Raychem	400-800	Silicone		2x RSTI 595X
40	4	<= 12	TE Raychem	400-800	Silicone		2x RSTI 395X
41	4	<= 24	TE Raychem	25-300	Silicone		2x RSTI 58XX
42	4	<= 24	TE Raychem	400-800	Silicone		2x RSTI 595X
43	6	<= 12	TE Raychem	25-300	Silicone		2x RSTI 58XX
44	6	<= 12	TE Raychem	400-800	Silicone		2x RSTI 395X
45	6	<= 24	TE Raychem	25-300	Silicone		2x RSTI 58XX
46	6	<= 24	TE Raychem	400-800	Silicone		2x RSTI 595X
47	4	<= 12	TE Raychem	25-300	Silicone		2x RSTI 58XX
48	2	<=12	Südkabel	50-300	Silicone		2x SET 12
49	2	<=12	Südkabel	185-500	Silicone	2x SEHDT 13	
50	2	<=24	Südkabel	25-240	Silicone		2x SET 24
51	2	<=24	Südkabel	300	Silicone		2x SEHDT 23.1
52	2	<=24	Südkabel	120-300	Silicone		2x SAT 24
53	2	<=24	Südkabel	185-630	Silicone	2x SEHDT 23	
54	4	<=12	Südkabel	50-300	Silicone		2x SET 12
55	4	<=12	Südkabel	50-300	Silicone		2x SET 12
56	4	≤12	Südkabel	185-500	Silicone	4x SEHDT 13	
57	4	≤24	Südkabel	25-240	Silicone		4x SET 24
58	4	≤24	Südkabel	50-240	Silicone		2x SET 24
59	4	≤24	Südkabel	120-300	Silicone		4x SAT 24
60	4	≤24	Südkabel	185-630	Silicone	4x SEHDT 23	
61	6	≤12	Südkabel	50-300	Silicone		6x SET 12
62	6	≤12	Südkabel	50-300	Silicone		4x SET 12
63	6	≤12	Südkabel	50-300	Silicone		2x SET 12
64	6	≤24	Südkabel	25-240	Silicone		6x SET 24
65	6	≤24	Südkabel	25-240	Silicone		4x SET 24
66	6	≤24	Südkabel	25-240	Silicone		2x SET 24

(1) A detailed clarification of the surge arresters is required order-specifically with the manufacturer in question depending on the neutral-point connection and system configuration concerned.
(2) Three-conductor cables available on request (connectors and accessories to be clarified with the connector supplier. concerned).
(3) Maximum section of cable shall not be >90 mm when 2 Type-C.

Outer Cone-type Cable Connection Combination

Tee Plug and Surge Arrester



No.	Connector plugs	Coupler	Surge arresters[1]		Length A max. 625 mm		
			Version 1	Version 2	without surge arrester	Version 1	Version 2
41			RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	190	295	302
42			RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	180	285	292
43			RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	190	295	302
44			RSTI-CC-68SAXX10		190	302	
45			RSTI-CC-68SAXX10		190	302	
46	2x RSTI-CC-58XX		RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	285	390	397
47	2x RSTI-CC-395X		RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	315	420	427
48	2x RSTI-CC-58XX		RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	285	390	397
49	2x RSTI-CC-595X		RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	315	420	427
50	2x RSTI-CC-68XX		RSTI-CC-68SAXX10		295	407	
51	2x RSTI-CC-695X		RSTI-CC-68SAXX10		315	427	
52	4x RSTI-CC-58XX		RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	390	495	502
53	4x RSTI-CC-395X		RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	440	545	552
54	4x RSTI-CC-58XX		RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	390	495	502
55	4x RSTI-CC-595X		RSTI-CC-58SAXX05	RSTI-CC-68SAXX10	440	545	552
56	4x RSTI-CC-68XX		RSTI-CC-68SAXX10		440	552	
57	4x RSTI-CC-695X		RSTI-CC-68SAXX		440	552	
58			2x MUT 23.1	-	189	290	-
59			-	2x MUT 33 + 2x KU 33	260		502
60			2x MUT 23.1	-	189	290	-
61			2x MUT 23.1	-	189	290	--
62			2x MUT 23.1	-	189	290	-
63			-	2x MUT 33 + 2x KU 33	260	-	502
64			-	2x MUT 33 + 2x KU 33.1	192	-	434
65			-	2x MUT 33 + 2x KU 33	260	-	502
66				2x MUT 33 + 2x KU 33.1	201	-	457
67		2x KU 23.2/23	2x MUT 23.1	-	362	464	-
68	2x SEHDK 13.1	-	2x MUT 23.1	-	290	391	-
69		2x KU 33	-	-	522	-	-
70		2x KU 23.2/23	´2x MUT 23.1	-	362	464	-
71	2x SEHDK 23.1	-	2x MUT 23.1	-	290	391	-
72		2x KU 33.1	2x MUT 23.1		362	464	-
73		2x KU 33	-	-	522	-	-
74		2x KU 33.1	-	2x MUT 33 + 2x KU 33.1	386	-	623
75		2x KU 33	-	-	522	-	-
76		2x KU 33.1		2x MUT 33 + 2x KU 33.1	404	-	646
77		4x KU 23.2/23	2x MUT 23.1	-	536	-	-
78	2x SEHDK 13.1	2x KU 23.2/23	2x MUT 23.1	-	463	564	-
79	4x SEHDK 13.1	-	2x MUT 23.1	-	390	491	-
80		4x KU 23.2/23	2x MUT 23.1	-	536	-	-
81	2x SEHDK 23.1	2x KU 23.2/23	2x MUT 23.1	-	463	564	-
82	4x SEHDK 23.1	-	2x MUT 23.1	-	390	491	-
83		4x KU 33.1	-	-	580	-	-
84	2x SEHDK 36	2x KU 33.1		-	485	-	-
85	4x SEHDK 36			2x MUT 33 + 2x KU 33.1	421	-	-

Notes

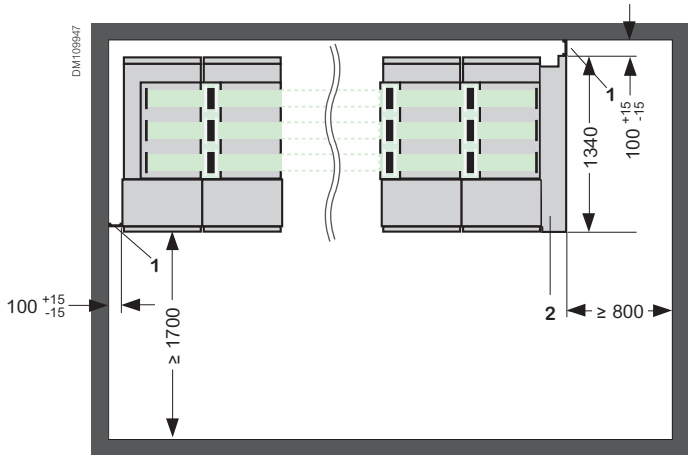
Installation and Connection

Installation and Connection

Room Planning

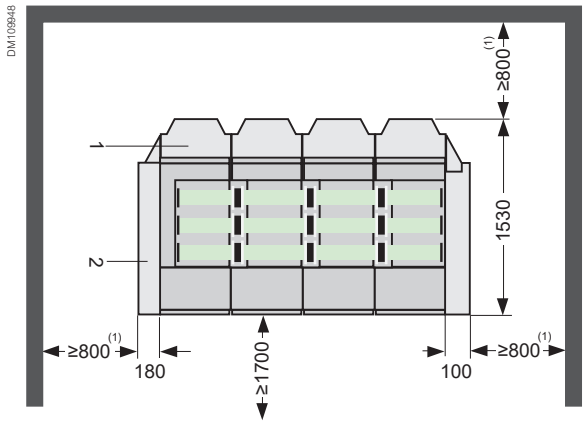
Single Busbar

Accessible on the front and on the side (AFL)



1 Cover to wall
2 Side wall

Accessible on the front, sides and at the rear (AFLR)



1 Pressure relief duct
2 Side wall

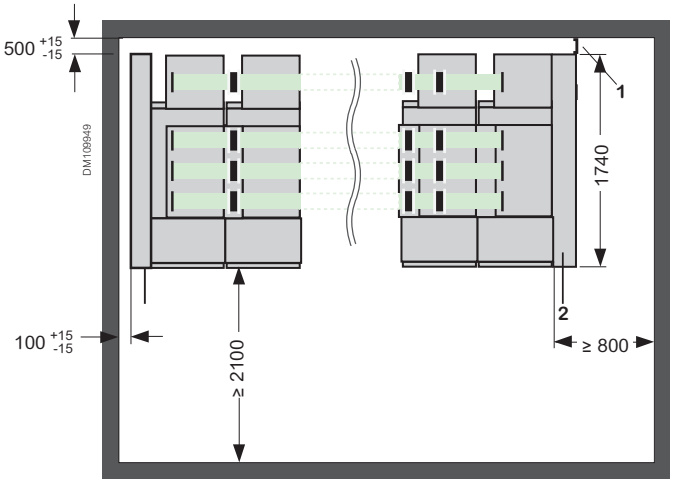
(1) Smaller distances on request

- Ceiling height ≥ 3000 mm
- Door width ≥ 1100 mm
- Door height ≥ 2500 mm

Room Planning

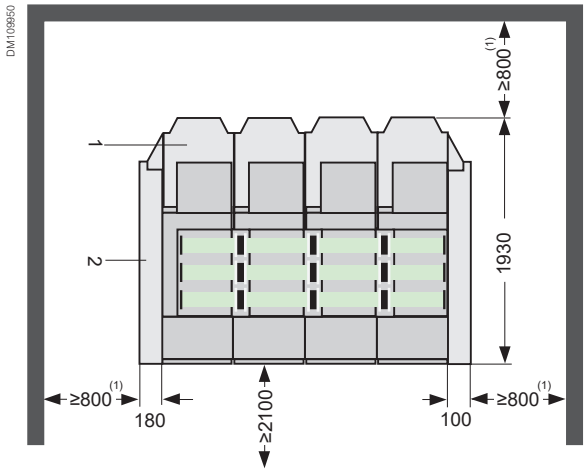
Double Busbar

Accessible on the front and on the side (AFL)



1 Cover to wall
2 Side wall

Accessible on the front, sides and at the rear (AFLR)



1 Pressure relief duct
2 Side wall

(1) Smaller distances on request

- Ceiling height ≥ 3000 mm
- Door width ≥ 1100 mm
- Door height ≥ 2500 mm

Room Planning

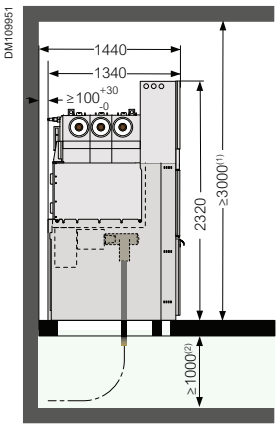
Basic Dimensions - Single Busbar Switchgear

The basic design includes low-voltage cabinets of various heights and side plate attachments on the accessible switchgear components.

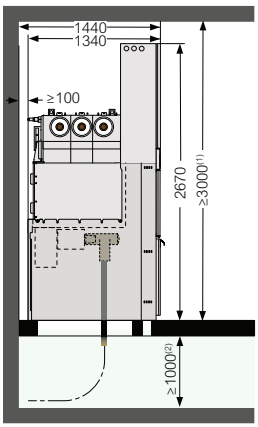
Note: the minimum cable bending radius should be taken into account for the height of the cable basement.

AFL

Height of low-voltage cabinet: 650 mm



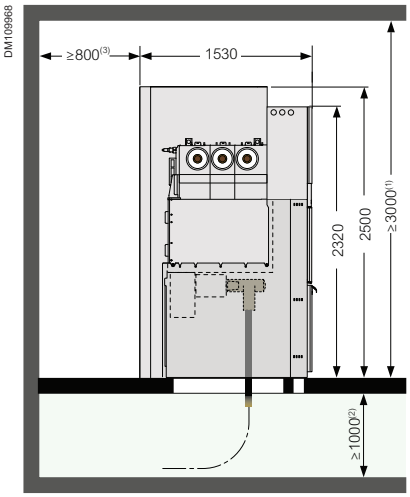
Height of low-voltage cabinet: 1000 mm



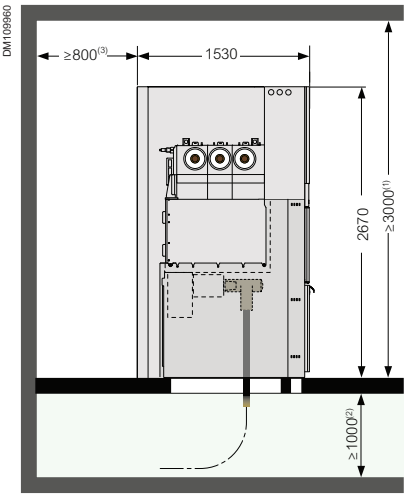
(1) Lower height to be confirmed on request
(2) Depending on cable cross section and cable connection types

AFLR with exhaust inside the room

Height of low-voltage cabinet: 650 mm



Height of low-voltage cabinet: 1000 mm



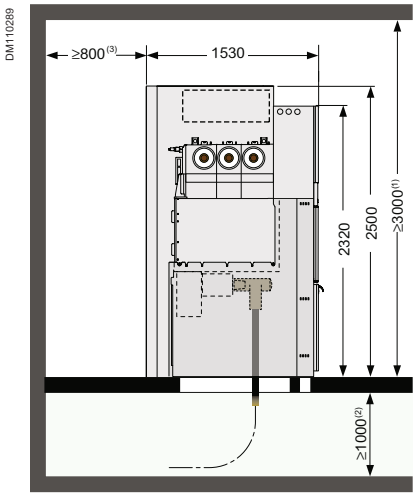
(1) Room height to comply with the IAC qualification in acc. with IEC/EN 62271-200
(2) Depending on cable cross section and cable connection types
(3) Smaller distances on request

Room Planning

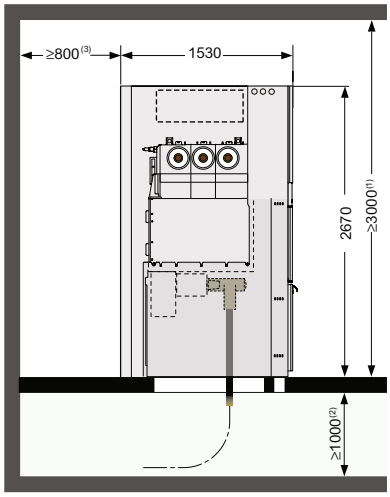
Basic Dimensions - Single Busbar Switchgear

AFLR with Exhaust Outside the Room

Height of low-voltage cabinet: 650 mm



Height of low-voltage cabinet: 1000 mm



(1) Room height to comply with the IAC qualification in acc. with IEC/EN 62271-200
(2) Depending on cable cross section and cable connection types
(3) Smaller distances on request

Room Planning

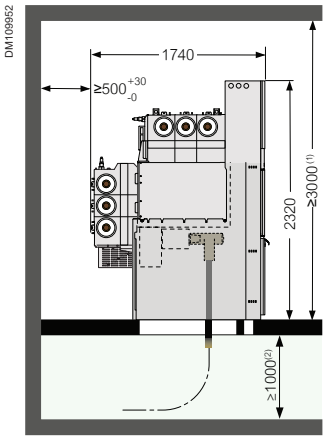
Basic Dimensions - Double Busbar Switchgear

The basic design includes low-voltage cabinets of various heights and side plate attachments on the accessible switchgear components.

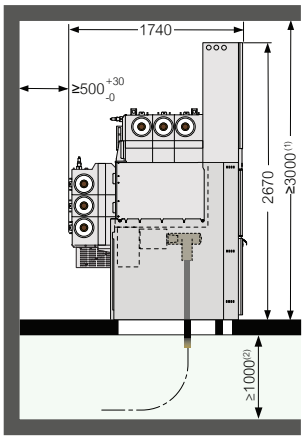
Note: the minimum cable bending radius should be taken into account for the height of the cable basement.

AFL

Height of low-voltage cabinet: 650 mm



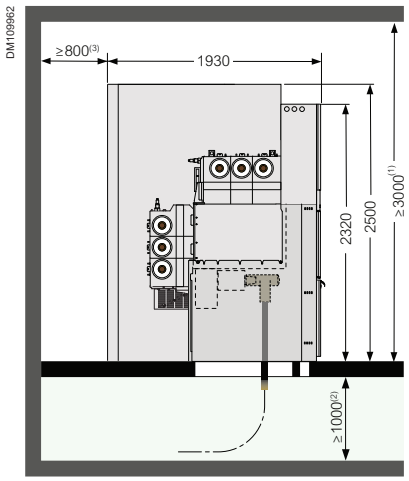
Height of low-voltage cabinet: 1000 mm



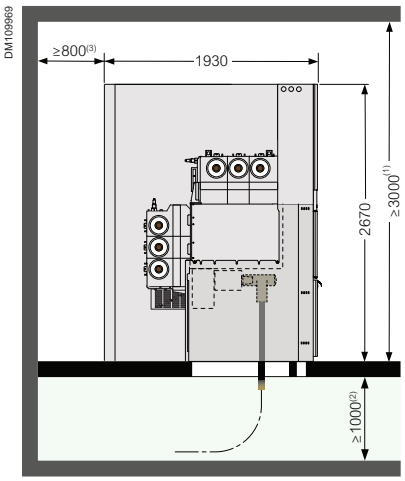
(1) Lower height to be confirmed on request
(2) Depending on cable cross section and cable connection types

AFLR with exhaust inside the room

Height of low-voltage cabinet: 650 mm



Height of low-voltage cabinet: 1000 mm



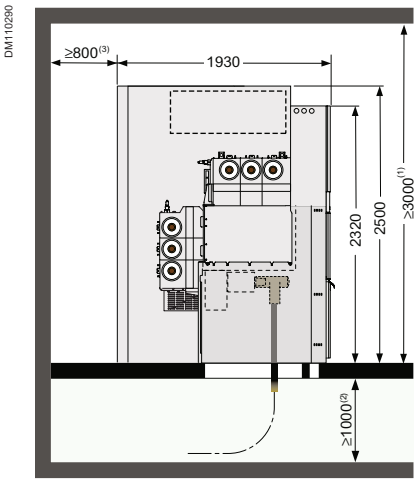
(1) Room height to comply with the IAC qualification in acc. with IEC/EN 62271-200
(2) Depending on cable cross section and cable connection types
(3) Smaller distances on request

Room Planning

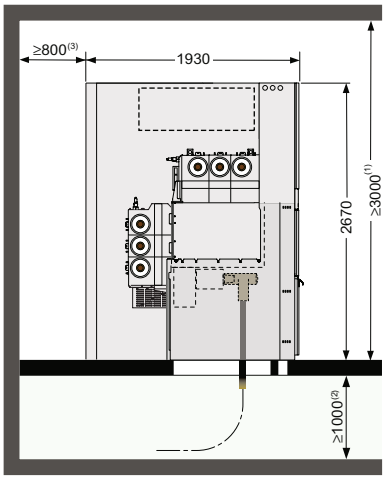
Basic Dimensions - Double Busbar Switchgear

AFLR with exhaust outside the room

Height of low-voltage cabinet: 650 mm



Height of low-voltage cabinet: 1000 mm

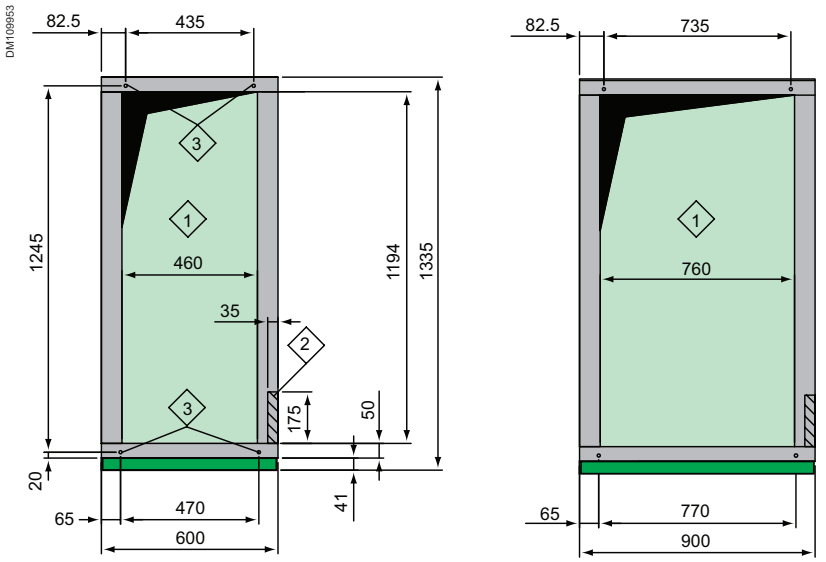


(1) Room height to comply with the IAC qualification in acc. with IEC/EN 62271-200
(2) Depending on cable cross section and cable connection types
(3) Smaller distances on request

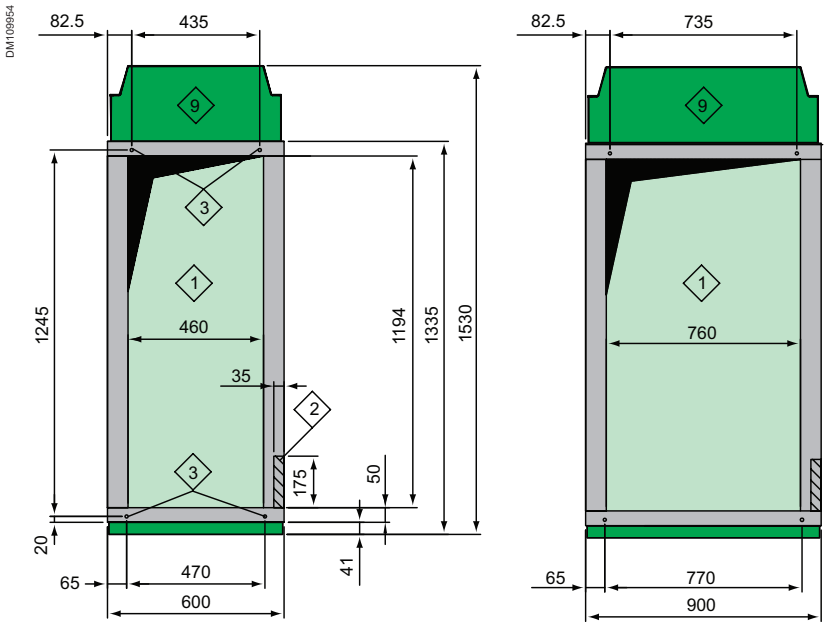
Room Planning

Floor Openings

Center Panels Without Pressure Relief Duct SBB



Center Panels With Pressure Relief Duct SBB

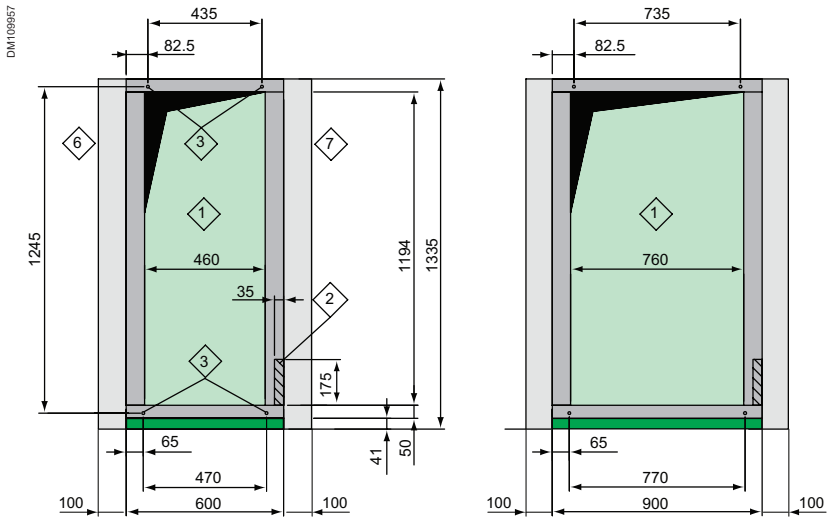


1 Floor opening for high-voltage cables
2 Floor opening for low-voltage control cables
3 Panel securing points
9 Pressure relief duct

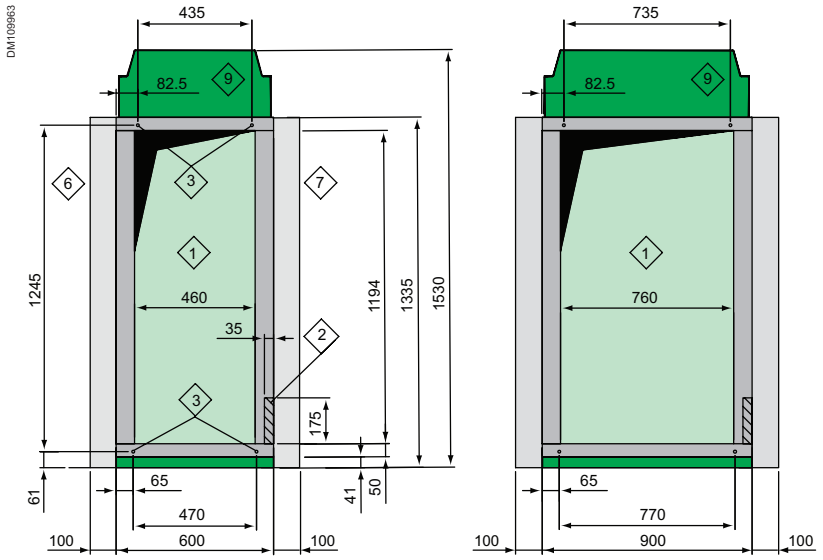
Room Planning

Floor Openings

End Panels Without Pressure Relief Duct SBB



End Panels With Pressure Relief Duct SBB

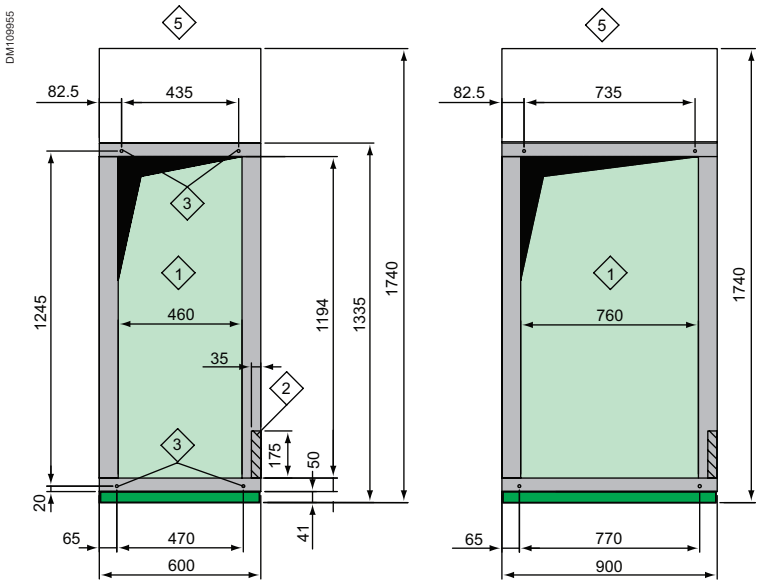


1 Floor opening for high-voltage cables
2 Floor opening for low-voltage control cables
3 Panel securing points
6 Left-hand side plate
7 Right-hand side plate
9 Pressure relief duct
10 For fastening on the floor in case of installation with a wall clearance of 100 mm
11 For fastening on the base frame in case of installation with a wall clearance > 100 mm

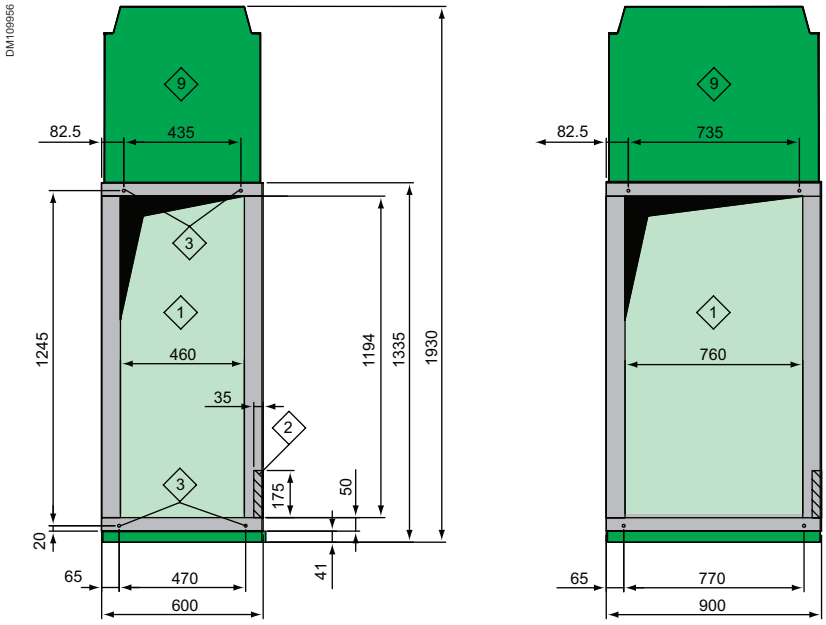
Room Planning

Floor Openings

Center Panels Without Pressure Relief Duct DBB



Center Panels With Pressure Relief Duct DBB

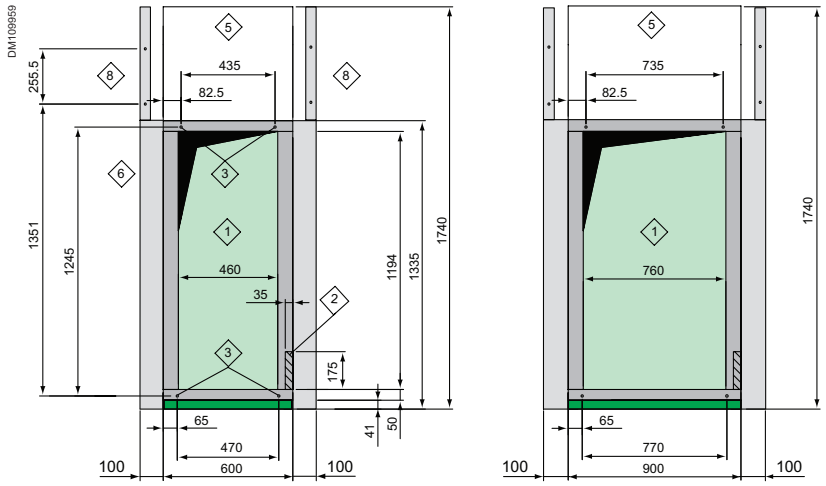


1 Floor opening for high-voltage cables
2 Floor opening for low-voltage control cables
3 Panel securing points
5 Rear busbar tank in case of double busbar panels
9 Pressure relief duct

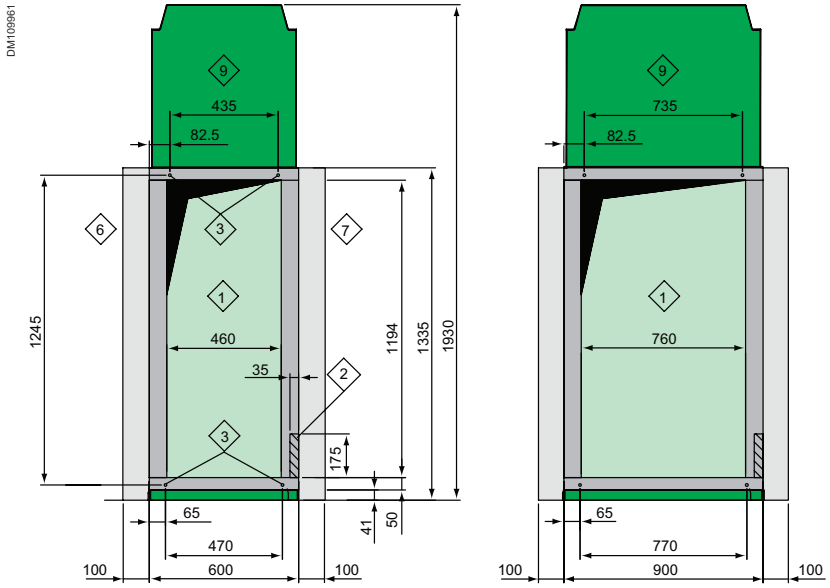
Room Planning

Floor Openings

End Panels Without Pressure Relief Duct DBB



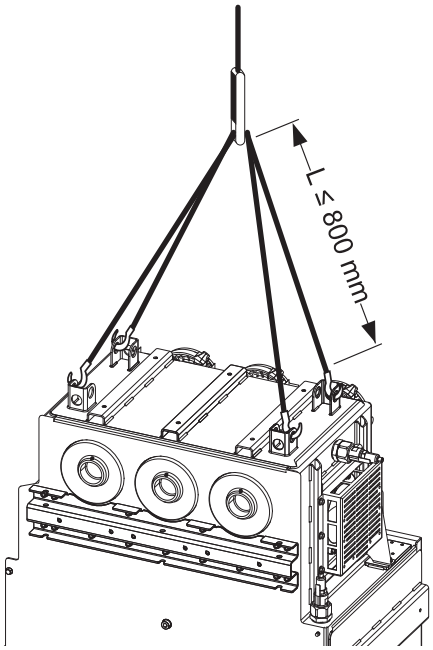
End Panels With Pressure Relief Duct DBB



1 Floor opening for high-voltage cables
2 Floor opening for low-voltage control cables
3 Panel securing points
5 Rear busbar tank in case of double busbar panels
6 Left-hand side plate
7 Right-hand side plate
9 Pressure relief duct
10 For fastening on the floor in case of installation with a wall clearance of 100 mm
11 For fastening on the base frame in case of installation with a wall clearance > 100 mm

Shipping Instructions

DM109965



Transporting the Switchgear Unit

During transport, maintain the stability of the transport units to help avoid slipping or tilting (If required, nail down the pallet to the loading surface). Re-use the original packaging to store parts which are unpacked for inspection.

Packaging of the switchgear

- If packed for truck transport, the switchgear unit is delivered on a pallet with PE protective film.
- For sea-worthy transport, the units are packed in sealed aluminium film with desiccant and in a closed case with tightly closed wooden base (also for container transport).
- In case of air transport, the switchgear unit is packaged in a wooden crate with closed wooden base and with PE film as dust protection or in a wooden case, also with closed wooden base.

Transport to the site of installation

Store under conditions admissible for switchgear operation. Avoid condensation.

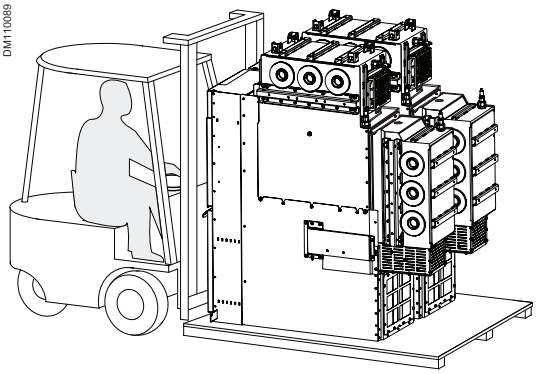
During transport to the site of installation (for details, refer to the Assembly Instructions), it should be taken into account that the main weight is located in the top area of the switch-gear – **top-heavy**.

Transport using a forklift truck: Only transport the switchgear on a pallet.

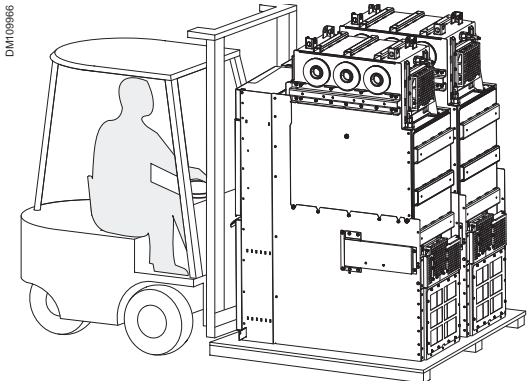
Attention – **top-heavy**!

Transport without pallet: The crane mounting harness should be hooked into the jack rings of the switchgear.

DM110089



DM109966



Accessory Boards

Fixed and Mobile Accessory Boards

A stationary accessory board is available for central storage of the most important accessories. A mobile version is also available.

Both versions can accommodate an operating crank handle kit when provided for maximum equipment.

Basic equipment fitted for circuit-breaker switchgear cubicles:

The mobile accessory board can be suspended centrally on a wall of the switchgear room through two securing bolts, and can be removed if required.

A handle helps ensure safe transport.

A mobile accessory board can accommodate the following elements:

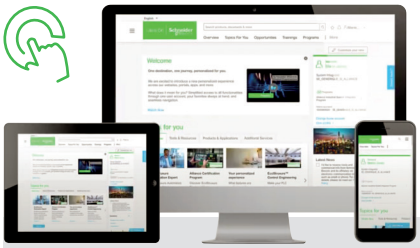
- Crank of 3-position switch
- Emergency crank handle for the stored energy spring-mechanism of the circuit breaker
- Double-bit key
- Switchgear documentation (DIN A4)

PM1110644

Mobile accessory board, suspended in the profile strip of the cable compartment cover

Register to mySchneider and simplify your life at all steps of your business

Connect mySchneider



Register to mySchneider portal and discover your personalized experience giving you access to tools and resources helping you being more efficient, productive, develop your skills and collaborate.

You'll get:

- Productivity tools
- Personalized resources
- Collaborative sales support
- Trainings

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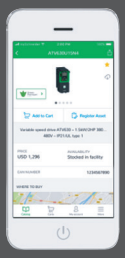

Get Support anytime

- Access 24/7 self-service, mobile catalog and access to expert help
- Offline and online catalog
- Get trainings, Advanced support

Collaborate, find solution and make business

- Get to Schneider Electric Exchange find solution develop business
- Schneider Electric Exchange is an online community where individuals can do business
- Whether you're seeking find Solutions or have products, services, and advice to share
- We'll help you connect with peers, technology partners, and experts to gain a competitive edge

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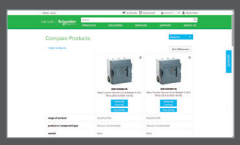

Select and Design

Advanced WEB functionalities that help to:

- Select and compare components
- Build easily your technical documentation with ready to use tools (CAD, export files…)

Manage your installed base

Digital Logbook, where you can find all of the documents you'll need during your circuit breakers' manufacturing, installation, operation, and maintenance from anywhere, in a single, well secured paperless environment.

- User manuals
- Design drawings
- Single-line drawings
- Factory and site acceptance tests
- Spare parts lists
- Maintenance records, schedules, and more

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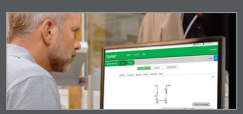

Configure and Quote

Simplified and validated configuration

- Always updated technical content
- Ready to use data and documentation for your projects
- Last minute changes
- Manage and track your orders

Notes

Schneider Electric

1884 Boulevard de la Défense
92000 Nanterre
France
www.se.com

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