

DISTRIBUTION SOLUTIONS

SafeRing/SafePlus Air

SF6-free gas-insulated switchgear for secondary distribution



Product scope

- Rated voltage up to 24kV
- Rated current up to 630A
- Rated short-time withstand current up to 21kA / 3s
- Internal Arc Classified IAC AFLR 20kA / 1s
- High duty circuit breakers with M2 (10000 operations) mechanical endurance
- Indoor and outdoor applications

SafeRing Air ring main unit (RMU) and SafePlus Air switchgear, with dry air as the insulation medium, have a global warming potential (GWP) <1 and are fully compliant with IEC standards and the EU F-gas regulation (EU) 2024/573.

With the introduction of dry air insulation, ABB designed an optimized puffer-type load break switch (LBS) for applications that interrupts load currents (630 A) in dry air in a reliable manner. The new platform has excellent interruption performance of load currents with no additional disconnecter needed.

The sulfur hexafluoride (SF₆)-free platform is designed with the same interface, footprint, and operations as the original SafeRing/SafePlus portfolio. The standard SafeRing Air RMU, suitable for most 6kV to 24kV switching applications, is available in various configurations, typically including up to 4 modules. SafePlus Air is a compact, metal-enclosed switchgear system for distribution applications up to 24kV. It features a flexible, modular or semi-modular design for easy system expansion, higher ratings, and compatibility with a broader range of protective relays.

SafeRing/SafePlus Air are internal arc classified, IAC AFLR up to 20kA / 1 sec., assuring safe operations when standing in front of the switchgear.

SafeRing/SafePlus Air

Customer benefits

01 

Compliant with IEC standards and F-gas regulation

- SF6-free, with dry air as the insulation medium, GWP of < 1, and compliant with the EU F-gas regulation (EU) 2024/573.
- Able to operate in harsh environmental conditions, including altitudes exceeding 1500 m above sea level.

02 

Compact, reliable and flexible

- Very low maintenance required as all high voltage parts are permanently sealed in a gas tank and protected from soiling, humidity, entry of foreign bodies and other environmental influences. The platform is compliant with the latest IEC standards for sealed pressure systems.
- All panel variants can remain in service up to the point of repair, even in the unlikely event of a leak.
- Compact design with small footprint and high mechanical endurance up to 10000 operations.
- Outfitted with traditional transformers or sensor technology for current and voltage measurement.
- Advanced automation and control with the IEC 61850 communication protocol.
- Clean production processes and high recyclability at end-of-life.

03 

Safety

- Internal arc certified design offers high level of operator safety with front, rear and lateral arc protection, certified with accessibility AFLR 20kA / 1s according to IEC 62271-200.
- Active internal arc protection with an arc suppressor device enhancing safety for operators by rapidly detecting and eliminating internal arcs is available as an additional safety option.
- Same operations as classic SF6 versions with no additional training required.
- Modified gas enclosure design to withstand higher filling pressure.
- Top busbar and side connection up to 630A.
- Wide range of monitoring and diagnostic features for safe and reliable operations.
- Downstream earthing switch ensures that the section of the circuit being worked on is completely de-energized, reducing the risk of electrical accidents, allowing safe operations and maintenance.



RMU/Switchgear Technical Data		C-Module		F-Module		V-Module	
		Switch disconnecter	Earthing Switch	Switch-Fuse Combination	Earthing Switch	Vacuum circuit-breaker	Earthing Switch
Rated Voltage	kV	12/17,5/24	12/17,5/24	12/17,5/24	12/17,5/24	12/17,5/24	12/17,5/24
Power frequency withstand voltage	kV	28/38/50	28/38/50	28/38/50	28/38/50	28/38/50	28/38/50
Impulse withstand voltage	kV	75/95/125	75/95/125	75/95/125	75/95/125	75/95/125	75/95/125
Rated normal current	A	630		200		200/630	
Short circuit breaking current	kA					25/20/20	
Making capacity	kA	62,5/52,5/52,5	62,5/50/50	Limited by high-voltage fuse-links	6.3	62,5/50/50	62,5/50/50
Short time withstand current (3s)	kA	21(*)/21/21	21(*)/21/21	21(*)/21/21	2.5 (1s)	25/20/20	25/20/20
Number of mechanical operations		1000 close / open manual	1000 close / open manual	1000 close / open manual	1000 close / open manual	10000 close / open manual	2000 close / open manual
Electrical and mechanical classes		E3, C2, M1	E2, M0	E3, M1	E2, M0	E2, C2, S1, M2 for operating sequence O-0.3s-CO-15s-CO	E1, M1

* 25kA will be released in subsequent release.

SafePlus Air

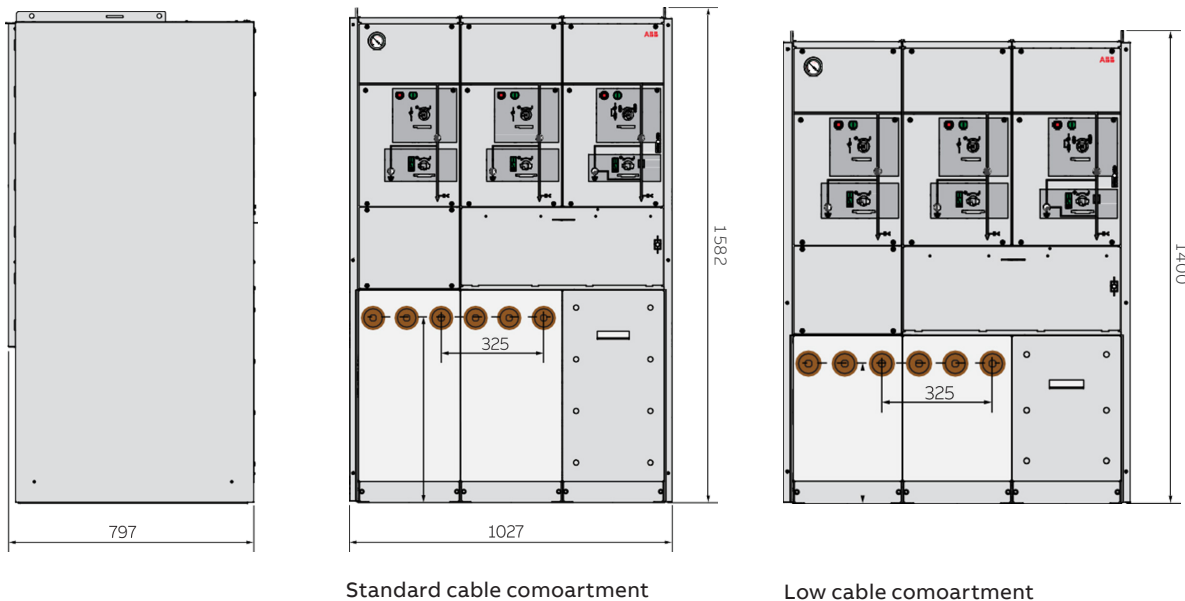


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