

ISG-SD solid-dielectric submersible, wallmount and vaultmount switchgear for underground distribution



Greater safety. Environmental responsibility. Lower total cost of ownership.



Eaton's ISG-SD submersible, wallmount and vaultmount solid-dielectric switchgear offer a compact, reliable and efficient solution to protect, control and isolate electrical underground distribution equipment. ISG-SD switchgear contains no oil or SF6 gas, which means less monitoring, maintenance and reduced impact on the environment. By replicating the shape, footprint, bushing patterns and phasing of oil and SF6-filled switchgear, retrofits of outdated switchgear are fast, efficient and cost significantly less. Units feature a visible open isolation point (VOIP), which, by a single operating handle in one operation, de-energizes, isolates the circuit and provides a clear view to open contacts. ISG-SD switchgear features a deadfront design for enhanced safety. Units come fully factory assembled and provide thousands of virtually maintenance-free loadbreak operations.

ISG-SD switch tanks are constructed from durable, welded, 304 stainless steel, and are sealed from harsh underground environments which may include saltwater, flooding, humidity, insects, wildlife or other invasive elements that can cause non-sealed equipment to fail. Flexible designs allow for manual operation with a rope or hook-stick or full automation either locally or through SCADA communication. ISG-SD submersible, wallmount and vaultmount switchgear are the ideal solution for harsh environments, coastal applications and hard-to-reach manholes and vaults located in high-traffic areas.

Certifications and ratings

Eaton's ISG-SD solid-dielectric switchgear products are dual certified to both IEEE C37.60 – 2012 and IEEE C37.74 – 2003/14 standards for both fault interrupters and switches. ISG-SD switch-gear can be applied to circuits ranging from 4 kV to 27 kV, with fault interrupting capabilities of 12.5 kA and 16 kA up to 27 kV and 20 kA symmetrical available at 15.5 kV.

Single-phase VFI protection is now available for 12.5 kA applications from 4 kV to 27 kV.

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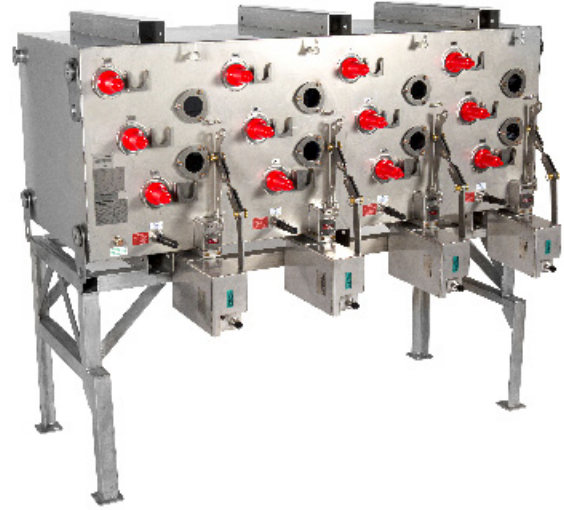
Powering Business Worldwide



Submersible equipment

Eaton offers ISG-SD submersible switchgear in multiple shapes allowing for easy passage into existing underground vaults and manholes. Units are available with up to six ways. A variety of stands, including side-mount and slanted versions and are available to provide ergonomic access to operating the equipment.

ISG-SD switchgear's overcurrent protection, communication and automation solutions are also submersible-rated and are designed to fit into existing manholes and vaults.



Wallmount and vaultmount equipment

Eaton's ISG-SD vaultmount solutions work to replace existing rectangular shaped, vault-mounted equipment by replicating the size and shape without incurring the cost of reconstructing the vault to fit larger module-type switchgear replacements. These two-way through six-way switch tank variations include options for multiple switch and vacuum fault interrupter configurations, as well as 600 A or 200 A terminations. Designs are available with both fixed height stands and adjustable legs of structural stainless steel for ease of installation and operation, as well as durability. Octagonal submersible designs can also be turned on their sides to save space and function as a vault-style unit.

Automation, protection and communication

Eaton offers both submersible-rated and above-ground, pedestal-mounted automation control solutions using a variety of SEL-programmable microprocessor overcurrent relays for distribution automation, auto transfer and SCADA applications. SEL relays are full-featured which allows for control of motor operation, as well as communication of voltage and current through a variety of means, including radio, cellular modem, Ethernet or fiber optics. SEL relays can integrate into serial or Ethernet-based communications with DNP3, IEC 61850, mirror-bits, Modbus and other protocols. Optional toggle switches allow temporary changes to automation or protection settings without re-programming the relays. Optional SEL RTAC and satellite GPS clocks provide automation control features and accurate time-stamped data collection. Motor operator control packages are suitable for more complex transfer and restoration, as well as network applications.



Typical automation options



Submersible communication enclosure for local access of the SEL relays and SCADA communication



P116 CT-powered microprocessor relay

Key features

- Solid-dielectric-in-air design
- Suitable for 4 kV – 27 kV applications
- Unique VOIP which is visible from a safe working distance
- Single-handle operation to de-energize, isolate and create a visible open
- Ease of operation and use
- Oil and SF6 gas free
- Sealed 304 stainless steel switch tanks with deadfront construction
- 304 stainless steel padmount enclosures that are powder-coated for appearance and durability
- Submersible-rated 304 stainless steel connectors
- Fully factory assembled and tested
- Switch tanks are submersible-rated, up to 10 feet of water

- Rated for 600 A of continuous load current and feature either 200 A or 600 A terminations
- Available in up to six ways and in any combination of switching and fault interrupting
- Manual or motor operated configurations; motor operation available on every way
- Welded-in terminations
- Field-upgradeable to automation
- Open/close vacuum contact position indicators are highly reflective for superior visibility
- Bolt-on parking stands are available as an option to provide flexibility and ease of installation
- “Pull-to-close” rope operators available
- Optional 304 structural stainless steel stands for all applications

Switchgear ratings

Switching and fault interruption ratings with light duty single- and three-phase trip mechanism, 15 and 27 kV units.

System voltage	Symmetrical current	Asymmetrical current	Peak current	BIL
MOMENTARY				
15.5 kV	12.5 kA	20 kA	32.5 kA	125 kV*
27 kV	12.5 kA	20 kA	32.5 kA	125 kV
CLOSE AND LATCH				
15.5 kV	12.5 kA	20 kA	32.5 kA	125 kV*
27 kV	12.5 kA	20 kA	32.5 kA	125 kV
FAULT CLOSING				
15.5 kV	12.5 kA	20 kA	32.5 kA	125 kV*
27 kV	12.5 kA	20 kA	32.5 kA	125 kV
FAULT INTERRUPTING				
15.5 kV	12.5 kA	20 kA	32.5 kA	125 kV*
27 kV	12.5 kA	20 kA	32.5 kA	125 kV

Loadbreak operations – 7500 at 600 A

Fault close operations – 7500 at full fault rating

*125 kV BIL reduced to 95 kV BIL when 15 kV internal voltage sensors are installed on the common bus

Switching and fault interruption ratings with heavy duty trip mechanism, 15 and 27 kV units. *Consult the factory for 15 kV/16 kA single-phase trip applications.*

System voltage	Symmetrical current	Asymmetrical current	Peak current	BIL
MOMENTARY				
15.5 kV	20 kA	32 kA	52 kA	125 kV*
27 kV	16 kA	25.6 kA	41.6 kA	125 kV
CLOSE AND LATCH				
15.5 kV	20 kA	32 kA	52 kA	125 kV*
27 kV	16 kA	25.6 kA	41.6 kA	125 kV
FAULT CLOSING				
15.5 kV	20 kA	32 kA	52 kA	125 kV*
27 kV	16 kA	25.6 kA	41.6 kA	125 kV
FAULT INTERRUPTING				
15.5 kV	20 kA	32 kA	52 kA	125 kV*
27 kV	16 kA	25.6 kA	41.6 kA	125 kV

Loadbreak operations – 2000 at 600 A

Fault close operations – 2000 at full fault rating

*125 kV BIL reduced to 95 kV BIL when 15 kV internal voltage sensors are installed on the common bus

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