



# GL309g, GL310g, GL311g, GL312g

## SF<sub>6</sub>-free Live Tank Circuit Breakers from 72.5 kV to 145 kV

### A Greener Circuit Breaker with GE's Green Gas for Grid, g<sup>3</sup>

Always more electrical grid operators are taking actions against climate change and are setting ambitious goals to cut their greenhouse gas emissions. As one of the major grid original equipment manufacturers, GE is in best position to support them in moving a step closer to reaching their carbon reduction targets by building the transmission infrastructure necessary to connect and transport renewable energy, while avoiding the addition of tons of CO<sub>2</sub> equivalent to their grid. To help achieve this target, GE is developing a range of SF<sub>6</sub>-free products using its Green Gas for Grid, g<sup>3</sup>.

GE's g<sup>3</sup> technology is a game-changing alternative to sulphur hexafluoride (SF<sub>6</sub>) as insulating and switching medium in high voltage equipment. g<sup>3</sup> products feature the same high performance and reliability as SF<sub>6</sub> equipment but with a greatly reduced impact on the environment over their lifetime. The CO<sub>2</sub> equivalent impact of g<sup>3</sup> gas in the equipment is reduced by 99% compared to SF<sub>6</sub>. According to life-cycle assessments (LCAs), because g<sup>3</sup> products have the same compact dimensions as SF<sub>6</sub> products, there is no increase in emissions during the product manufacturing process due to additional material.

GL309g, GL310g, GL311g and GL312g circuit-breakers belong to Grid Solutions' g<sup>3</sup> Live Tank portfolio for applications within networks at 72.5, 100, 123 and 145 kV rated voltages. They are designed for outdoor installation. They have the same footprint as SF<sub>6</sub> solutions which means that they can be installed in place of SF<sub>6</sub> circuit-breakers. Their composite insulators allow higher dielectric withstand under pollution and provide higher safety for employees at substation. GL309g, GL310g, GL311g and GL312g feature the latest double-motion interrupting technology and 3-pole or single pole spring operated mechanisms while benefiting from GE's latest development in SF<sub>6</sub>-free solutions. Moreover the same monitoring solutions are used as for SF<sub>6</sub> circuit breakers.

### The Right Choice for Temperatures down to -30 °C

Even under extreme conditions and climates or in highly active seismic areas, customers can rely on live tank circuit breakers made by GE. Like SF<sub>6</sub> circuit breakers, GL309g, GL310g, GL311g and GL312g using g<sup>3</sup> are designed for temperatures down to -30°C and up to 40°C.

### Quality and Testing

GE's live tank circuit breakers meet the latest versions of national and international standards, such as IEC 62271-100. The entire development and production procedures are fully compliant with the latest ISO 9001, ISO 14001 and OHSAS 18001 quality standards.

## Sustainability

- GWP reduced by 99%
- According to a LCA, no transfer of pollution compared to SF<sub>6</sub> circuit breaker

## High Safety Level

- Pressure relief device prevents from injuries and damages in case of over-pressure within the circuit breaker
- Similar pressure range as SF<sub>6</sub>
- Support frame design ensures personnel cannot be injured by cinematic moving parts
- Dedicated tools available to assemble and disassemble circuit breaker parts in safe condition
- Like SF<sub>6</sub>, g<sup>3</sup> is non-toxic and not flammable. It falls in the same safety class as SF<sub>6</sub>
- No X Ray emission

## Easy Installation and Light Maintenance

- Spring-operated mechanism preset at factory - no adjustments necessary during installation and commissioning
- g<sup>3</sup> circuit breaker pre-filled at factory before shipping
- Similar fill-in and same top-up procedures as SF<sub>6</sub> circuit-breaker
- g<sup>3</sup>-specific fill-in valve design to ensure proper use of g<sup>3</sup> gas
- Specific tools for leakage detection and gas quality checks at site
- Easy access to the molecular sieves and simple inspections
- Two-stage transducer densimeters are within easy reach, on the front side of the circuit breaker, for periodic/regular check



