

Dynamic Reactive Compensation – LV STATCOM

Providing stability, security, and reliability to the grid.

Installing a STATCOM at one or more suitable points on the network is a powerful and cost effective method to increase the grid transfer capability and enhance voltage stability.

What is a STATCOM?

A STATCOM or Static Synchronous Compensator is a voltage regulating device. It is based on a power electronics voltage-source converter and can act as either a source or sink of reactive AC power. It is a member of the Flexible AC transmission system (FACTS) family which detects and instantly compensates for voltage fluctuations or flickers as well as controls the power factor.

Electrical loads both generate and absorb reactive power. Since the transmitted load often varies considerably from one hour to another, the reactive power balance in a grid varies as well. The result can be unacceptable voltage amplitude variations, a voltage depression, or even a voltage collapse.

As a fully controllable power electronic device, the STATCOM is capable of providing both capacitive and inductive VARs. ABB's LV STATCOMs are typically rated at up to +/-30 MVAR although larger sizes are possible.

The electrical utilities and heavy industries face a number of challenges related to reactive power. Heavy industrial applications can cause disturbances like voltage unbalance, distortion or flicker on the electrical grid whereas in electrical utilities, they may be confronted with voltage sags, poor power factor or even voltage instability. Reactive power control can resolve these issues by improving the power factor or compensating for the voltage instability.



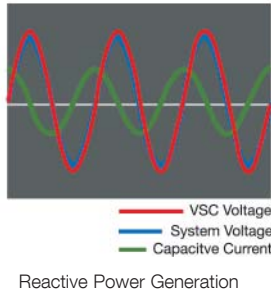
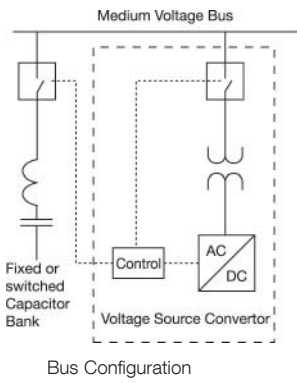
The most advanced solution to compensate reactive power is to incorporate a Voltage Source Converter (VSC) as a variable source of reactive power. These systems offer advantages compared to standard reactive power compensation solutions in demanding applications, such as wind farms and arc furnaces. In the more demanding applications, the normal reactive power control generated by generators or capacitor banks alone are too slow for the sudden load changes.

STATCOM application examples:

- Utilities with weak grids
- Fluctuating reactive loads
- Wind Farms
- Car Crushers & Shredders
- Harbor cranes
- Mining hoists
- Industrial mills & welding operation

Technology and Packaging:

- IGBT – Power Electronics
- Voltage Source Converter
- Indoor/Outdoor
- ISO Containers
- Walk-in Control Buildings
- NEMA enclosures
- Air-cooled or liquid-cooled



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Project Capabilities:

ABB's qualified engineers can help design and build a STATCOM solution that will meet your company's stringent needs. We have complete project handling resources to ensure successful project execution including system studies, mechanical engineering, protection, and full "Turn Key" installations.