Smart substation control and protection
SSC600
Centralized protection for distribution substations

SSC600 represents a new approach to protection and control in distribution networks – centralizing all protection and control functionality in one single device on substation level. SSC600 is our promise for the future, IEC 61850-compliant and ready to change with the evolving grid, to support optimal asset management for the entire lifetime of the digital substation.

Extensive application coverage with one device for optimal cost-effectiveness

ABB Ability™ smart substation control and protection for electrical systems SSC600 introduces a revolutionary way of thinking of protection and control in distribution networks, although at the same time building on ABB’s solid and proven technological foundation manifested in the renowned Relion® protection and control family of relays. The ability to protect and control a wide variety of utility and industrial applications with a single device on substation level allows convenient station-wide visibility, minimal engineering, easy and cost-efficient process management, not to mention optimal, lifelong asset management for the entire digital substation.

Bay-level merging units provide the measurements and physical interface between the primary equipment in the switchgear and SSC600. Together, SSC600 and the merging units create ABB’s new and unique centralized protection and control solution – IEC 61850-compliant for maximum benefit of substation-level Ethernet communication and extensive interoperability of substation automation devices.

SSC600 is equally suitable for retrofitting substations and for new installations. Adding SSC600 to an existing installation is an excellent way to provide the entire substation with the latest technological developments within protection and control. After integrating SSC600, the existing protection relays will serve as backup protection. New installations will only need bay-level merging units in addition to SSC600. Adding another SSC600 device will create a centralized protection and control solution with full redundancy.

Application package concept for maximum convenience and flexibility

SSC600 comes with a variety of convenient, ready-made application packages to choose from. The application packages include various protection and control functions, which can be flexibly combined to meet application-specific requirements. The available packages support the following applications:

- Feeder protection
  - Line distance protection
  - Extensive earth-fault protection
  - Fault locator
- Interconnection protection
- Power transformer protection
  - Two-winding differential protection
  - On-load tap-changer control
- Machine protection
- Busbar protection
  - Protection against arc flash
  - Low impedance-based busbar differential protection
Fully modular software for maximum flexibility during the entire lifetime of the substation

The modularity of the software allows you to create your own, unique solution for your specific protection requirements. One and the same hardware together with the ready-made application packages make ordering your SSC600 smooth and easy.

When requirements change, for instance, due to overhead lines being replaced with cables, so will SSC600. The software can be flexibly modified anytime to adapt to changing protection requirements. SSC600 also offers continuous access to new software developments – throughout the substation’s entire life cycle.

What sets the new centralized approach apart from the traditional one is the advantage of only having to modify one device instead of all bay-level protection and control devices. Upgrading the entire substation system to benefit from the latest technological developments was never easier – ABB’s centralized protection and control solution gives life cycle management a whole new meaning.

Station-wide visibility with ABB’s centralized protection and control solution

Centralizing all protection and control functionality in one device in the substation makes power distribution process management convenient and efficient. The ability to view and monitor processes on substation level allows easy access to valuable information, with a less complex network as a result.

The ability to monitor and control the great variety of substation devices via a centralized human-machine interface (HMI) offers increased situational awareness and allows access to valuable power distribution process information.

SSC600 – innovative, flexible and easy to use

- Centralized protection and control in one single device for reduced network complexity
- Easy and efficient process management with station-wide process visibility
- IEC 61850-compliant communication and interoperability between substation automation devices
- Extensive application coverage with one device for flexibility and optimal cost-effectiveness
- Ready-made application packages for convenient and smooth ordering
- Fully modular software for maximum flexibility and easy adaption to changing network protection requirements
- Continuous access to the latest software developments
- Cost-effective communication with integrated IEC 60870-5-104 protocol
- Fast, easy and cost-effective substation system upgrade with centralized protection and control solution
- Designed to support the increasing digitalization of substations
- Same IEC 61850-compliant setting and configuration tool – PCM600 – as for the Relion® family of relays