



ABB OY DISTRIBUTION SOLUTIONS

Smart substation control and protection SSC600

Product Presentation

1MRS758993 A



Product introduction

Smart substation control and protection SSC600

Smart substation control and protection SSC600

A brand new way of thinking of protection and control in distribution networks

Smart substation control and protection SSC600

- ABB Ability™ smart substation control and protection for electrical systems, SSC600 incorporates centralized protection, control and monitoring functionalities to offer a superior solution to utility and industrial customers for the entire duration of the substation life-cycle
- With software based on existing Relion technology it is designed for a wide range of power distribution protection applications – from basic feeder protection and control to complex multi-bay substation applications.
- It delivers the flexibility to adapt and modify to changing network requirements when combined with Relion protection and control devices
- Enables visibility to view and monitor processes on substation level from a centralized point.
- Industrial computer technology allows fast utilization of modern high-performance computing



SSC600 Smart substation control and protection solution

A brand new way of thinking of protection and control in distribution networks

Substation merging unit SMU615

- One single unit for all measurements and I/O for single bay, uses standard wiring and design on bay level
- Supports both conventional CT&VT and sensor technology
- Compact and reliable
- IP54 on front side, IP20 on rear side and connections

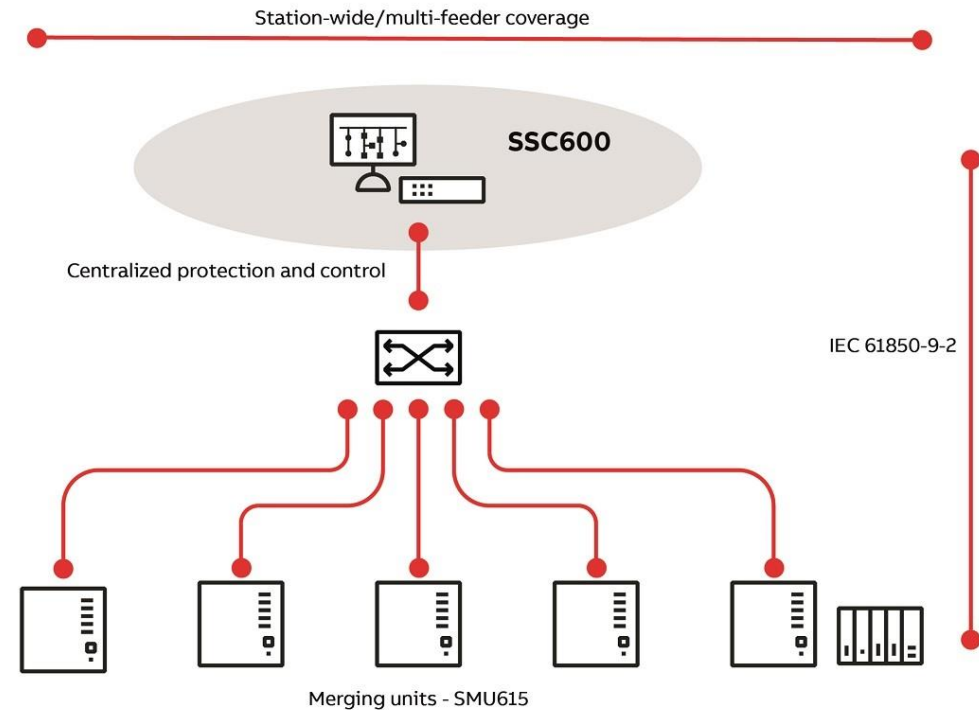


Smart substation control and protection SSC600

A brand new way of thinking of protection and control in distribution networks

Innovative, flexible and easy to use

- Centralized protection and control in one single device
- Easy and efficient process management
- IEC 61850-compliant communication and interoperability
- Extensive application coverage
- Ready-made application packages
- Customization freedom
- Fully modular software
- Easy adaption to changing network requirements
- Continuous access to support
- Fast, easy and cost-effective substation system upgrades
- Support for digitalization of substations
- IEC 61850-compliant PCM600 used as setting and configuration tool



Modularity

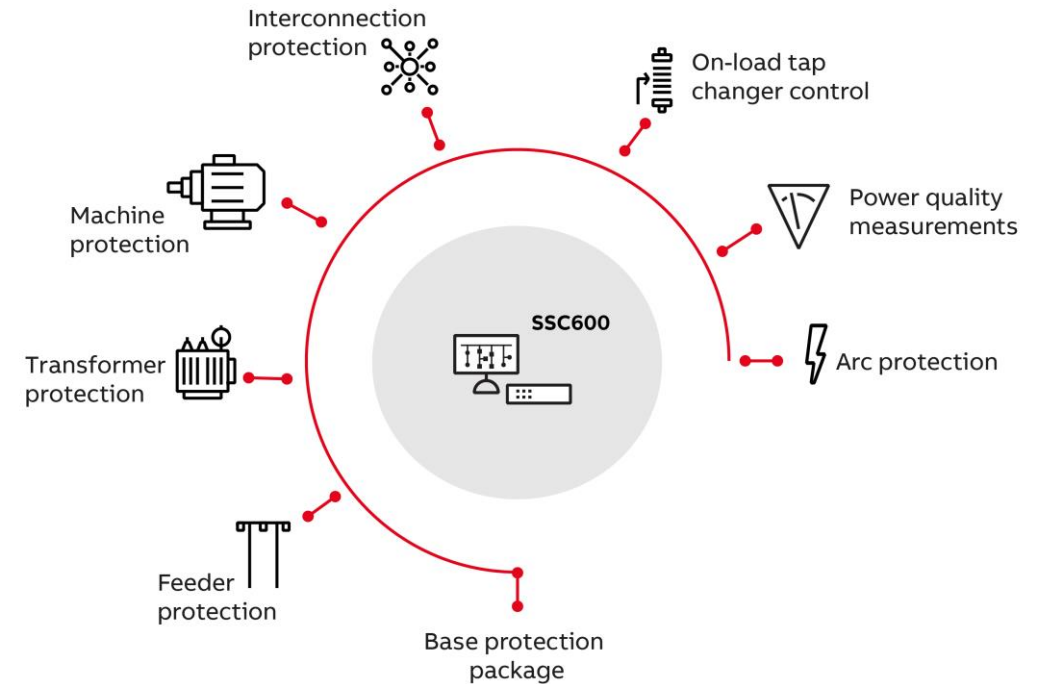
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A brand new way of thinking of protection and control in distribution networks

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.
- The ready-made application packages make ordering your SSC600 smooth and easy.
- When requirements change, so will the SSC600 solution.
- Adapting to changing protection requirements is flexible and easy – the software can be modified anytime.
- In addition, SSC600 also offers continuous and easy access to new software developments – throughout the substation's entire life cycle.
- Upgrading the entire substation system to benefit from the latest technological developments was never easier



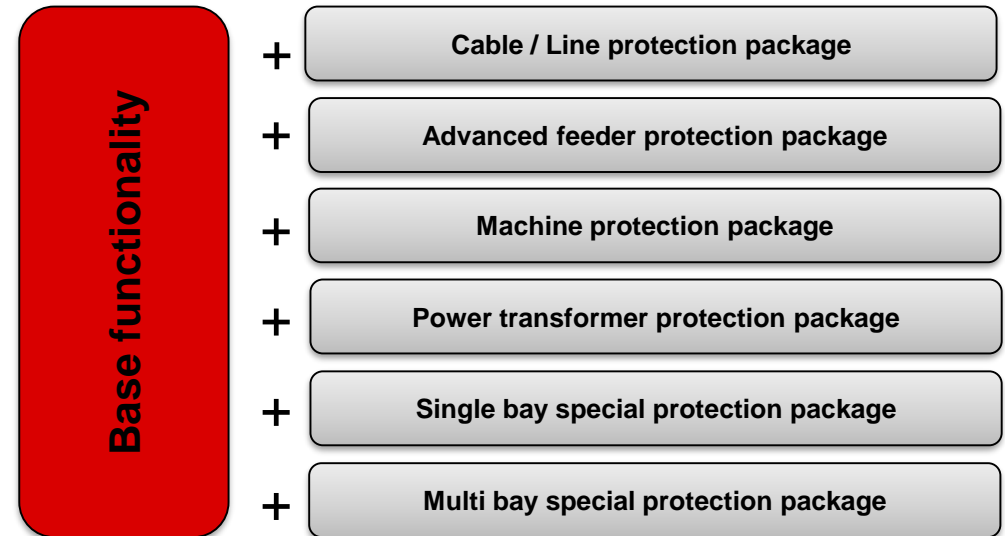
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Overview of application packages

- Functionality is divided into:
 - Comprehensive base functionality included as standard (always included)
 - 6 application packages (optional) – can be freely selected as required by the intended application – none, some or all

Note! The software options can be customized, modified and also added later on, even at site after installation



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Application coverage overview

SSC600 comes with a variety of convenient, ready-made application packages which can be combined to meet application-specific requirements.

The available packages support the following applications:

Base protection functionality

- Overcurrent
- Earthfault
- Fault recorder
- Switchgear control
- Voltage
- Frequency

Power transformer protection

- Protection for two winding power transformers

Machine protection

- Protection of asynchronous machines

Power quality measurements

- Current and voltage distortions
- Voltage variation
- Voltage unbalance

Feeder/line protection

- Extensive earth-fault protection
- Fault locator
- Distance protection

Interconnection protection

- Protection of interconnection points of distributed generation units

On-load tap changer control

- Position indication
- Voltage regulation
- Line drop compensation

Arc protection option

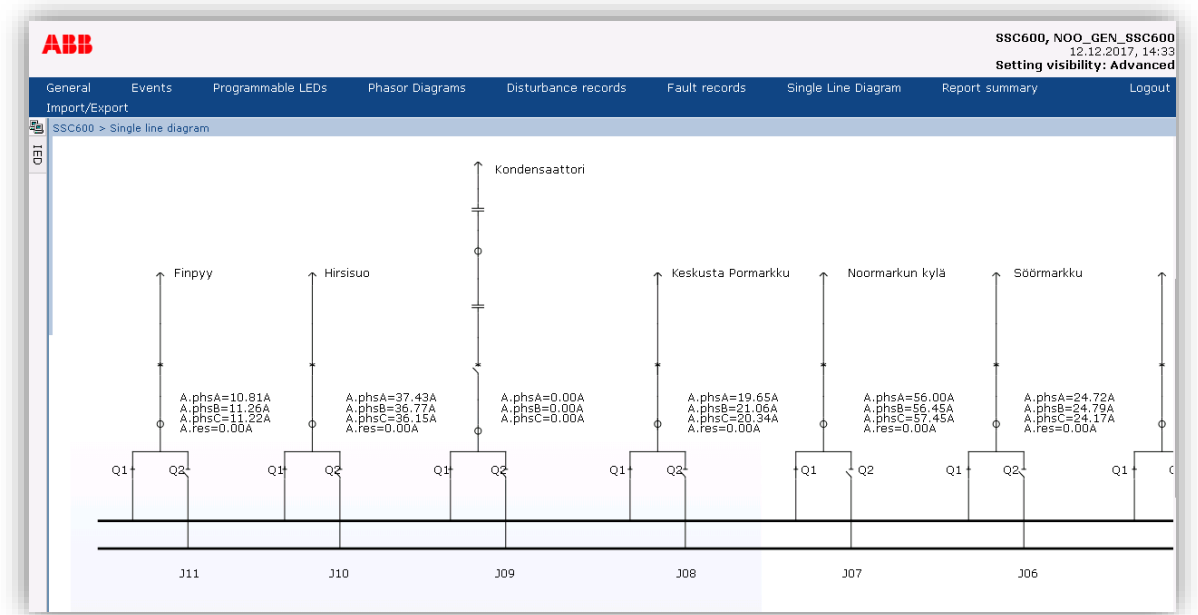
- Protection against arc flash
- Light sensing in merging units

Smart substation control and protection SSC600

A brand new way of thinking of protection and control in distribution networks

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

- Easy and efficient power distribution process management by centralizing all protection and control functionality in one device in the substation
- Easy access to valuable information and a less complex visualization because of the ability to view and monitor processes on substation level
- Substation HMI – access to control and monitoring functionality via only one web-based human-machine interface (WebHMI) page offers optimal situational awareness and makes SSC600 easy to use.



Suggested application examples

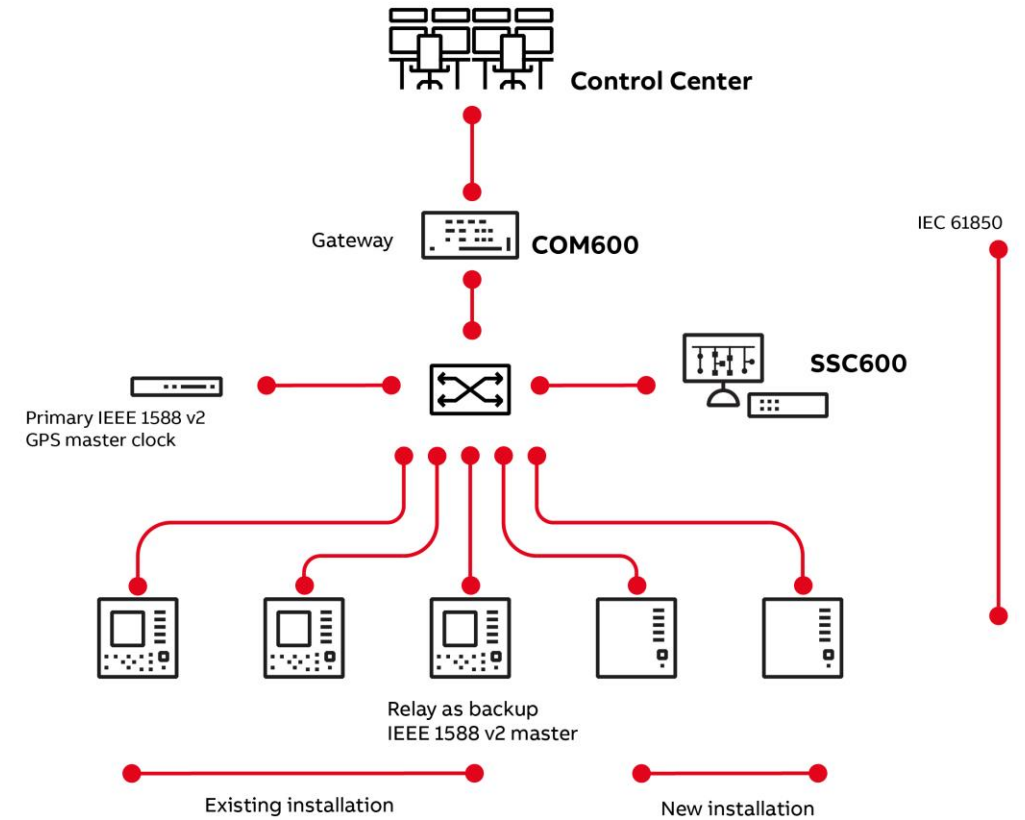
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Suggested application examples

Integrated / Retrofit solution

- Solution consisting of a mixture of protection relay(s) with merging unit functionality and merging units utilized in every bay/feeder
- Preferred retrofit use case (mix of existing and new) – where additional or upgrading of functionality is required
- A single IEC 61850 network for process and station bus
- System visualization via SSC600 with WebHMI
- Time synchronization via IEEE1588v2 GPS master
- Any capable protection relay can serve as backup time master
- Substation gateway doubles up as HMI

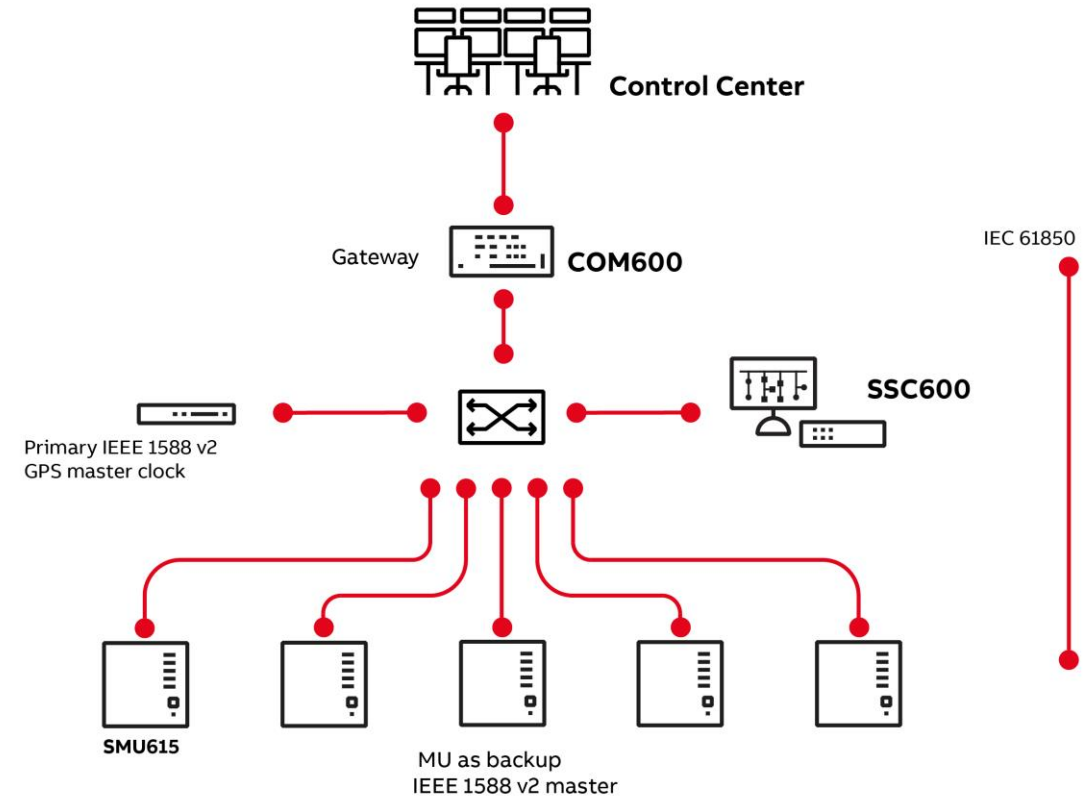


Smart substation control and protection SSC600

Suggested application examples

Centralized protection and control with a single SSC600

- Solution consisting of a system built with merging units utilized in every bay/feeder
- Preferred new installation use case (all new equipment installed) – where centralized functionality is required
- A single IEC 61850 network for process and station bus
- System visualization via SSC600 with WebHMI
- Time synchronization via IEEE1588v2 GPS master
- Any smart merging unit can serve as backup time master
- Substation gateway doubles up as HMI

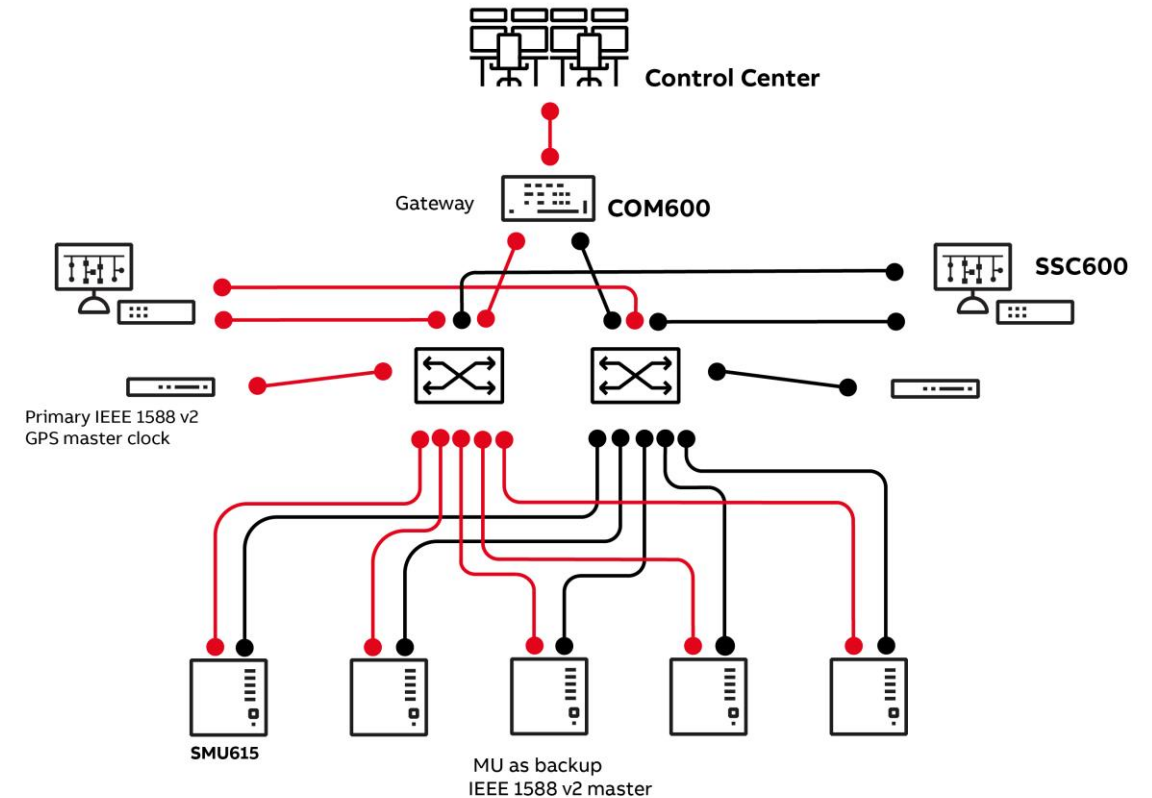


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Suggested application examples

Centralized protection and control with a redundant SSC600

- Solution built with merging units utilized in every bay/feeder and redundancy with regards to
 - Redundant SSC600 units (with or without LHMI) with hot-hot protection standby and, hot control standby
 - Communication based on IEC 61850 PRP (process and station bus)
 - Time synchronization with IEEE1588v2 GPS master, merging unit as backup time master and, secondary GPS master also possible
- Preferred new installation use case (all new equipment installed) – where redundant centralized functionality is required
- A single IEC 61850 network for process and station bus
- System visualization via SSC600 with WebHMI
- Substation gateway doubles up as HMI
- Substation HMI doubling up as gateway for local and remote control



Summary

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Centralized protection for distribution substations

Complete application coverage with one device for optimal cost-effectiveness

- **ABB is constantly creating new ways to improve protection and control of medium voltage distribution systems**
- SSC600 introduces a revolutionary way of thinking of protection and control in distribution networks
- SSC600 offers some unique benefits compared to traditional P&C:
 - **Wider application range**
 - **Easy lifecycle handling**
 - **Visibility to the whole process**
- Centralized Protection and Control (CPC) based on international standards (IEC 61850) ensures system compatibility



A brand new way of thinking – taking protection and control to a new level

ABB