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Smart transition for line protection

Refurbishment and extension of existing SIPROTEC 4 line protection infrastructures

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Description

Line protection configurations connect 2 to 6 geographically separated stations. The line protection relays are secondarily integrated into the energy automation and the station control technology of the respective station. With the previous technologies, expansions or migrations required long shut-down times and high costs for integration into the substation automation system of each individual station.

With Smart Transition you can innovate your existing SIPROTEC 4 feeder protection infrastructure step by step to the latest state of the art - line protection devices of the SIPROTEC 5 series. You can also integrate these into the existing line topology or gradually replace your existing devices.

The current SIPROTEC 5 line protection devices enable mixed operation of both device generations and thus a step-by-step transition from SIPROTEC 4 to SIPROTEC 5

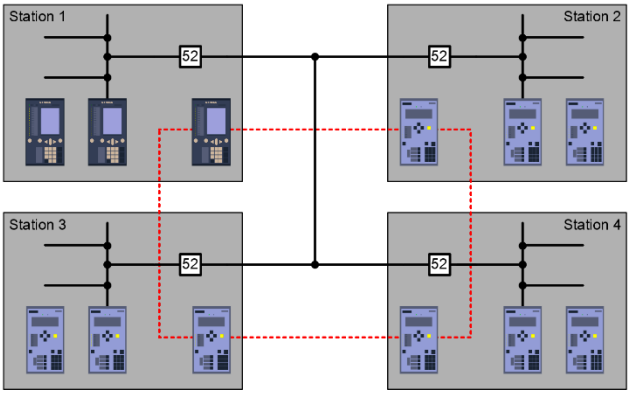
Compatibility of SIPROTEC 5-line protection relays and SIPROTEC 4 line protection relays as key

With the introduction of the FW version V7.90 in the SIPROTEC 5 line protection relays, mixed configurations of line protection relays from the SIPROTEC 5 series and the previous SIPROTEC 4 series can now be operated for the first time.

Two application cases can be distinguished:

- Refurbishment of single devices of an existing topology
- Extension of an existing SIPROTEC 4 topology by one or more SIPROTEC 5 device

Application case 1: Refurbishment of single devices of an existing topology



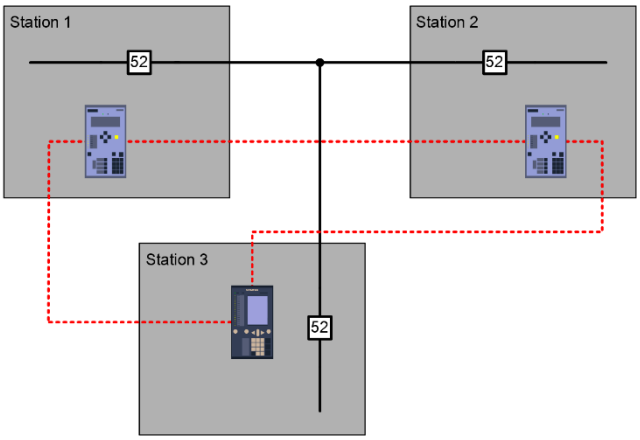
The differential protection of the remaining differential protection topology remains in operation by the functional logout of the device to be replaced from the topology. Now the logged off device or the complete switchgear can be upgraded to SIPROTEC 5. After connecting the parameterized SIPROTEC 5 line protection device, the complete topology is now protected in mixed operation.

This allows a step-by-step renewal of the switchgear while maintaining the differential protection and downtimes and protection interruptions are reduced to a minimum.

Easy extension and migration

Application case 2:
Extension of an existing SIPROTEC 4 topology by one or more SIPROTEC 5 device

If an existing topology is to be extended by one or more ends (up to a maximum of 6 ends), this can be done with SPROTEC 5 relays from V7.90 onwards. This allows future-oriented switchgear design and project planning



Hardware and firmware versions at SIPROTEC 4 side

Relay typ	HW	FW
7SA522	/FF	4.70 [1)]
7SA6	/EE	4.70 [1)]
7SD52/53	/EE	4.70
7SD610	/DD	4.70

In theory, older versions are also possible, these but were not tested by Siemens.

Application areas:

- 2 – 6 line end differential protection
- Transformer within protection zone
- Distance protection with tele protection
- Transformer differential protection with integrated line protection

Benefits

- Mixed operation of SIPROTEC 4 and SIPROTEC 5
- Step-by-step replacement and expansion of individual substations
- Line differential protection of other systems remains in operation
- Short switch-off time during conversion
- Use of existing communication links

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