

ABB ABILITY™ LOOP CONTROL FOR DISTRIBUTION NETWORKS

LC1000 UniSec solution

Fast ring network reconfiguration and fault management



The LC1000 UniSec solution, developed for UniSec medium-voltage switchgear, detects and isolates faults in ring networks within less than 1 second, ensuring a fully functional network and minimized outage time.



Improved network reliability

Reliable and high performing solution that combines fully assembled, wired and tested switchgear with digital communication. Continuity of service guaranteed with very short fault isolation and network reconfiguration time.



High availability and future-proof

The LC1000 UniSec solution is based on IEC 61850 standard communication technology. It utilizes fast messaging with GOOSE (Generic Object Oriented Substation Event) for optimal metering and remote control of the devices.



Flexible and easily extendable switchgear

UniSec can be customized and expanded, with easy integration of panels (LSC2A, LSC2B) in the same switchgear line-up, without using any adapter panel. Possibility to use either vacuum or SF₆ circuit breakers.



Remote support and assistance

ABB's experts provide support remotely wherever it is needed. Technical training is also available.

Applications

The solution is suitable for applications with extremely stringent reliability and high speed fault recovery requirements, such as in hospitals, airports, stadiums, large buildings and data centers. The LC1000 UniSec solution brings service continuity and reliability to the network, and uses an Ethernet connection for fast, reliable and efficient data transmission in compliance with the IEC 61850 standard.

The solution is suitable for two different UniSec configurations:

- 1) Ring networks featuring switchgear with motor-operated switch-disconnectors
- 2) Ring networks featuring switchgear with circuit breakers equipped with Relion® relays and current and voltage combi sensors

Open ring networks with switch-disconnectors

The solution for ring network reconfiguration includes UniSec switchgear with motor-operated switch-disconnector units (type SDC) and a fault indicator for fault signaling in every transformer substation. It guarantees reliable and uninterrupted open ring network operation by reconfiguring the network after a fault within a reaction time (detection and isolation) shorter than 1s.

This solution consists of:

- feeder substation unit with UniSec switchgear with circuit breakers
- transformer substation unit with:
 - 2 UniSec units type SDC with motor-operated switch-disconnector for substation feeders
 - 1 UniSec unit type SFC, motor-operated fuses switch-disconnector for transformer protection
- supervision and control unit housing the components for ring reconfiguration logic automation

Closed ring networks with circuit breakers

The solution for fault selectivity of closed ring networks includes UniSec switchgear with circuit breakers (type SBC or HBC) and Relion relays in each substation. It is suitable for closed ring networks when continuity of service is a fundamental requirement. Thanks to the logic selectivity of protection relays and the IEC 61850 GOOSE communication, the solution guarantees precise fault detection and isolation in less than 0.5 s, without interrupting energy transmission within the network.

This solution consists of:

- feeder substation unit with UniSec switchgear with circuit breakers
- transformer substation unit with:
 - 2 UniSec units type SBC/HBC with circuit breakers, for substations feeders
 - 1 UniSec unit type SFC with motor-operated switch-disconnector for transformer protection
- supervision and control unit housing the components for ring reconfiguration logic automation

Example of a closed ring network with UniSec equipped with circuit breakers and Relion relays

