

CentrixTM Advanced Feeder Automation



The Centrix solution from Mindsait ACS enables you to build self-healing feeders that significantly reduce the scope and duration of sustained outages for your customers, through a unique model-driven application that requires no GIS and no operator intervention. Feeder faults are automatically detected and isolated, while customers upstream and downstream of the fault are restored in under a minute. Centrix is the first solution that combines the simple, rapid deployment typical of a distributed solution with the power and reliability of a dynamic, model-driven approach. Centrix is a true advanced distribution automation platform—flexible, scalable, easy to configure, and cost-effective to implement.

Using proven technology from Mindsait ACS' years of experience in delivering state-of-the-art Distribution Management Systems, Centrix leverages your existing infrastructure to:

- Reduce outage durations from hours to seconds through automatic isolation and service restoration, including a “return to normal” function with no violations or further service interruptions
- Dramatically improve permanent outage statistics—SAIDI, CAIDI and SAIFI—transforming most of the service interruptions to momentary outages

Scalable and easily deployed feeder automation that delivers:

- Self-healing feeders for reduced outage times and increased customer satisfaction
- Faster fault location and improved operational efficiency
- Simple integration with any existing SCADA, DMS or OMS

Centrix Advanced Feeder Automation

Centrix uses a new, advanced approach to Distribution Automation at the feeder level. This innovative approach makes Centrix a powerful Smart Grid automation foundation to support many companion applications. Minsait ACS has taken the functionality and capability of our model-driven advanced DMS applications and developed a stand-alone system that is easier to configure and deploy. The cost of a Centrix installation is consistently lower than that of a peer-to-peer distributed solution, without the need for additional and often expensive vendor-specific hardware.

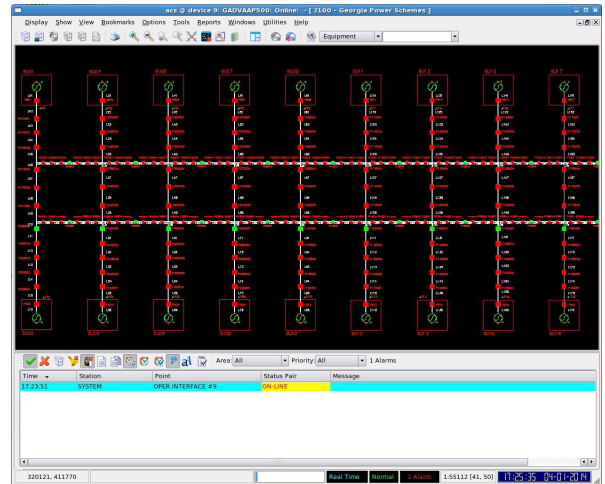
Because Centrix is model-driven, it supports advanced applications without the complexity normally associated with creating a full distribution network model. Centrix models are easy to build, using global feeder templates, with available customer-specific configurations.

Best of all, Centrix is a field-proven solution for self-healing feeder automation, based on our advanced Fault Location Isolation and Service Restoration (FLISR) application. Minsait ACS first delivered FLISR in 1998, and it has been successful worldwide in reducing feeder outage restoration time from over one hour to less than 20 seconds. Utilities have now deployed Minsait ACS FLISR on thousands of feeders worldwide.

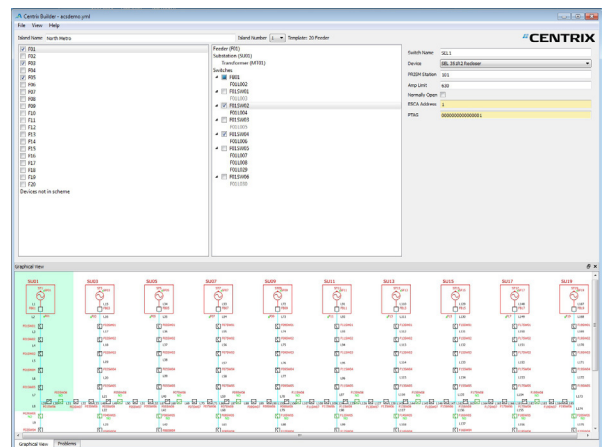
Scalable, feature-rich automation

Centrix is configured to autonomously isolate faults and restore service to un-faulted sections without operator intervention. It quickly isolates faults and restores power both upstream and downstream, analyzing switching options and choosing the one that maximizes the restored load without violations. The system adapts immediately to changes in the network topology, even if the network is in an abnormal state. This means that optimum restoration solutions are always within reach. Moreover, Centrix easily accommodates the switches and protection schemes you already have in place. Other features include:

- Disables automation following a loss of communications, but only to the affected device or feeder
- Six definable device-level flags for disabling automation on active islands
- Restoration on loss-of voltage
- Two-way SCADA/DMS interface via DNP3 - no expensive or custom interfaces necessary
- Sequence-of-events logging
- Secure remote access



Centrix utilizes pre-configured templates for rapid configuration and deployment



Centrix Builder simplifies parameter definitions for model-driven automation

- Response to multiple faults (schemes are independent of each other and can operate simultaneously)
- Return-to-Normal function
- Available control center HMI

Pre-defined topologies for quick and easy deployment

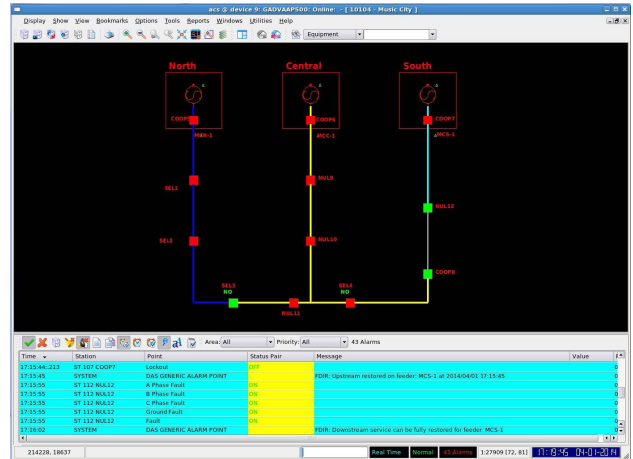
Centrix can model and automate very complex network topologies. It greatly simplifies this process by using pre-defined automation “island” topologies, allowing you to de-activate non-existing switches and configure existing switches as needed. The network model is then populated with a form-driven application, which defines all the variables, load limits/current limits, voltage levels, device types, etc.

Centrix does not require a three-phase distribution load flow; it determines the load transfer capability and requirements based on measured data and the circuit model. The Topology Processor enables the system to handle multiple fault conditions or abnormal network configurations with ease.

An interoperable solution: utilize existing infrastructure

Centrix integrates easily with existing sectionalizing switches or automatic reclosers for localized FLISR on distribution feeders. Minsait ACS creates interface profiles for each controller or device to seamlessly interface to legacy equipment—meaning in many cases no additional feeder automation equipment is needed. Centrix can be configured to operate with an array of controllers and IEDs, including popular models from SEL, S&C, Nulec, Cooper, ABB and more.

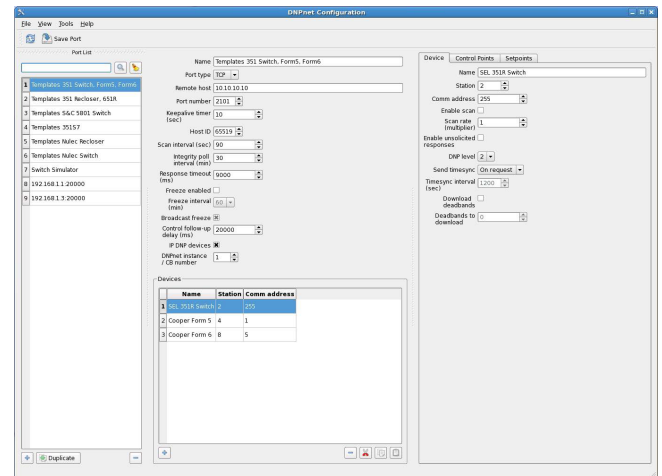
Centrix also operates without interfering with the existing protection schemes. When a fault is detected, Centrix waits until the recloser or relay issues a “lock out flag” and the switch opens before commencing with isolation and restoration actions.



Automatically built displays show feeder topology and device status in real-time

Broad application potential with unlimited expansion

The Centrix network model is expandable without limitation. Most self-healing feeder products, particularly distributed solutions, are limited in their complexity and expansion capabilities. The largest operating network model in service with the FLISR application that drives Centrix includes over 1,000 feeders.



Integrated DNP communications configuration includes pre-built profiles for your IEDs

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Adapts to network changes

Unique to this approach of an easily configurable solution is the ability to adapt to different network topologies, including abnormal network conditions. Unlike rules-based decentralized solutions, Centrix adapts to the actual network state that is calculated in real-time by a topology processor application. Centrix does not require a predefined system topology to operate. As a result, changes to the network topology due to switching or protective device operation do not inhibit Centrix from determining an optimum solution. All switching solutions are derived from the current topology. Since all switching devices are modeled, the “operation” of these switches at the control center interface can be reflected in the new feeder topology calculation. It is also not necessary to alter the program logic for expansion since it will adapt to any configuration.

Safety features

Centrix supports many failsafe modes for safety reasons. The system supports the option of disarming itself if certain parameters are detected to be in an abnormal condition. Typical failsafe functions supported by Centrix include remote SCADA control from the control center or substation operator, hot line tag, and local/remote operation of the switches. Centrix will also automatically disable the FLISR function upon a loss of communications, but only for the affected device or feeder—meaning restoration functions are still available for areas of the automation island where communications are normal. The system also provides up to six selectable flags per device that will disable automation on active islands.

Included with Centrix

The base Centrix solution includes:

- Single host server
- Centrix base system license
- FLISR for 5 feeders
- DNP interface to existing SCADA/DMS
- Three IED device profiles per application
- On-site installation and training support
- Additional feeder licenses and device profiles may be added incrementally as required

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2755 Northwoods Parkway | Peachtree Corners, GA 30071
email: info@acspower.com | 800.831.7223 | minsaitacs.com

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