Spectrum Power™
with new ADMS
Next-generation energy distribution at your fingertips

Answers for infrastructures and cities.
The revolutionary answer to today’s challenges

Ever-growing grid challenges

A matter of management
While the grid system has become increasingly complex due to the integration of distributed energy resources and storage, these challenges have created opportunities to rethink the world of power distribution management. When integrated into the distribution grid, smart meters, demand response, and distributed generation – in combination with increased grid automation – are inundating utility systems with data that needs to be intelligently managed and leveraged for effective distribution.

Reliability is key
At the same time, utilities are facing growing regulatory and customer pressure to maximize grid utilization and provide reliability at all times. This encompasses not only efficiently managing day-to-day construction, maintenance and repair efforts, but also proactively and safely guiding operators when needed most – for example, during storms and outage-related restoration activities – all with the goal of optimally balancing loads and, ultimately, avoiding outages.

The unsuppressed competence of Siemens
- A market leader in energy automation
- 160 years of experience in power engineering
- Support in over 90 countries
- Over 1,600 network control systems currently installed worldwide
- Vertical integration through standardization (IEC, CIM)
- Powerful products, applications, and solutions with clear-cut migration and innovation strategies

Revolutionary Spectrum Power™ ADMS

The future of distribution management
To enable utilities to face these current and future challenges successfully, Siemens has entered the next era of power control systems: Announcing the Spectrum Power™ Advanced Distribution Management System (ADMS). It integrates distribution SCADA, outage management, and advanced fault and network analysis – all operated in a Common User Environment – to gain maximum benefit from smart meter information and provide a solid foundation for the management of the Smart Grid.

The revolutionary 3-in-1 solution
Spectrum Power™ ADMS is an essential element in maintaining and improving delivery reliability while reducing complexity and automating related work processes. To achieve this, it integrates three core components – Monitor and Operate, Analyze and Optimize, and Track and Restore – in one system to bring your distribution management to the next level. It is the answer to the operational challenges of large distribution networks.

Monitor & Operate
- Reduce network loading at peak times and increase asset utilization, network efficiency and reliability.

Analyze & Optimize
- Proactively and safely guide operators when needed most, for example during storms and outage-related restoration activities.

Track & Restore
- Monitor, control, and optimize the secure operation of the electrical distribution network.
The Spectrum Power™ ADMS difference
With Spectrum Power™ ADMS by Siemens, all you need is one system to bring your distribution management to the next level of efficiency. It integrates one single operational technology platform and one Common User Environment for SCADA, distribution network applications, and outage management (OM). It offers full network transparency – from high voltage to low voltage – for improved reliability, efficiency, and optimization.

• Reliability – By avoiding unplanned outages and reacting quickly and efficiently to disturbances or potential problems, utilities can improve their reliability to satisfy regulatory mandates and thus avoid regulatory penalties.

• Efficiency on two levels – Efficiency for the crew and personnel as well as the reduction of losses means less lost revenue and a lower number of unnecessary truck rolls.

• Optimization – When the system is configured for optimal operation, utilities can minimize the search time and mileage for fault location, isolation, and restoration.

Business-boosting technological innovation
Efficiency is the name of the game in today’s business environment – and Spectrum Power™ ADMS is the ideal solution for staying ahead. Because it leverages a single integrated software solution, Spectrum Power™ ADMS enables optimized workflows and simplified operations. Outage restoration times are reduced thanks to seamless interaction of various applications, and easy integration of GIS data using CIM standards (IEC 61970 and 61968) means data maintenance is cost-efficient. All in all, you will benefit from increased asset utilization and optimized network load with minimized losses.

Spectrum Power™ ADMS key features
• Distribution SCADA enables full support of single- and three-phase distribution networks, extended tracing for outages, and more
• Distribution Network Applications (DNA) to estimate fault location and automate service restoration, among others
• Outage management, storm management, and outage prediction, as well as crew and trouble call management
• Geospatial network diagrams, including street information and satellite views
• Open to new Smart Grid business cases and to easy interoperability with any enterprise IT
• Seamless workflow support with efficient interaction and comprehensive outage views on geospatial and schematic network diagrams

Spectrum Power™ ADMS key benefits
• Monitors, controls, and optimizes distribution network operation to increase operators’ situational awareness, and reduces reaction time
• Integrates increasing renewable generation while providing high operational efficiency
• Optimizes asset utilization, with minimal network load and losses
• Efficiently manages day-to-day maintenance and repair efforts to support reliability of supply
• Shortens outage restoration times, especially under severe conditions, to ensure reduced service interruption time

Everything just one click away
Spectrum Power™ ADMS is characterized by its unique Common User Environment, enabling operation of all ADMS functions from a common Web-based user interface. Under a common geospatial visualization tool, it integrates the distribution SCADA operation, the complete work and outage management process, and the use of the entire suite of advanced applications. By combining this unique Common User Environment with a component-based architecture, Spectrum Power™ ADMS provides a flexible configurable environment for advanced grid management that is compatible with different market requirements.
Increased operational efficiency with SCADA
Thanks to SCADA functionality, Spectrum Power™ ADMS comprises everything you need for monitoring, alarming, measuring, calculating, or controlling power systems. Extended SCADA functions within the Spectrum Power™ ADMS system are improved by advanced topologic coloring and extended tracing, including for outages and trouble calls (single-phase and three-phase distribution networks); online-editable Temporary Network Elements; easy Switching Procedure Management; and flexible Load Shedding. In this way, you have a complete overview of and control over your network.

Flexible architecture for external interfaces
Featuring Service-Oriented Architecture (SOA), Spectrum Power™ ADMS brings IT and OT together for coordinated decision-making and operations, while enhancing operational efficiency and reliability. It is also able to make use of other IT systems, so you have access to a range of services within the network control system. Standardized processes as well as interface and messaging specifications based on IEC 61968 and IEC 61970 standards ensure trouble-free data exchange between the systems. Spectrum Power™ ADMS thus becomes an integral part of the heterogeneous IT system landscape and your operational processes – optimizing both power supply and communications.

Easy business and regulatory reporting
Spectrum Power™ ADMS supports full Java Database Connectivity™ (JDBC) and Open Database Connectivity™ (ODBC) for easy integration of any reporting tool, for instance Crystal Reports or Jasper Reports, to report historical data. Archiving features such as compression, on-the-fly and persistent data aggregation and calculation are provided, as well as data analysis tools, audit trail, and charts and trends. The archived data can be leveraged for outage management indices, periodically or on request for one or more selected criteria.
Analyze and Optimize
Reduce network loading at peak times and increase asset utilization, network efficiency and reliability.

Track and Restore
Proactively and safely guide operators when needed most, for instance during storms and outage-related restoration activities.

Comprehensive application suite
Spectrum Power™ ADMS provides the tools you need to analyze the complete network and optimally use its assets. It encompasses an application suite – Distribution Network Applications (DNA) – that includes automated Fault Analysis, Network Analysis, and Load Forecast. These applications are used in real-time to support the operator in assessing the state of the entire network, in improving the normal operation of the network through control optimization, and in resolving abnormal network conditions such as network faults or security violations. As an added benefit, these applications can also be used in study mode to support the operator in planning network reconfiguration for minimizing possible service interruption time and to evaluate alternatives in corrective or preventive strategies.

Fully-featured outage management
With the aim to reduce fault location and service interruption time, Spectrum Power™ ADMS outage management is responsible for a range of functionalities: for merging outage information from all available sources; identifying the nature of the outages, including fault locations and affected customers; dispatching the crews to restore service and make appropriate repairs; and developing all necessary switching procedures. It includes trouble call management, crew management, and customer notification. Comprehensive outage/etwork analysis and switching order work with a range of other functionalities to process trouble calls, verify the fault, and automatically calculate the Estimated Time to Restore (ETR). A sophisticated storm mode is also integrated, which can process large numbers of trouble calls from customers and smart meters, and that helps to guide the operator during optimized restoration activities.

Convenient GIS data import
Benefit from cost-efficient data maintenance with Spectrum Power™ ADMS, which enables easy integration of Graphic Information System (GIS) data using the CIM standards IEC 61970 and IEC 61968. GIS Smart Integration enables your GIS to be the distribution network’s source master. Using an advanced incremental process, operational network data modeled in the GIS is imported periodically or on request for added flexibility, and is conveniently synchronized with model changes in the GIS. GIS Data Import Management (GDIM) allows for the initial bulk import of all the data from your GIS or for incremental updates. To ensure fast navigation and simplified workflows, the geospatial user display is fully integrated in the Common User Environment. Operator changes (like jumpers) will remain valid upon incremental updates.
Easy enterprise integration
Enterprise integration with external systems – such as Geographical Information System (GIS), Customer Information System (CIS), Interactive Voice Response (IVR), Advanced Metering (AMI), Workforce Management (WFM), and Asset Management Systems (AMS) – is an integral part of Spectrum Power™ ADMS and possible via the CIM-based, Service-Oriented Architecture (SOA) framework. This feature provides integration with GIS (network data) and CIS (service point data), with GIS/IVR (trouble calls from call centers and automated systems), AMI/MDM ( statuses and data from Smart Meters), AMS (planned work orders), and MWFM (either as Mobile Device Management or Mobile Workforce Management). Middleware transparency and flexible configuration interfaces to the Spectrum Power™ ADMS components ensure that integration into your existing enterprise IT is easy.

Seamless integration
Flexibility and security for today’s business world

Protect your investment
High security

More flexibility, more choice for you
Because it supports the Linux operating system with open-source, 64-bit architecture, Spectrum Power™ ADMS offers independence from potentially costly hardware vendors – and flexibility for you. A broad choice of hardware means you can choose the devices most suitable to your company’s purchasing strategy. Spectrum Power™ ADMS also adheres to the architectural paradigms of an SOA for easy and seamless integration into your existing IT application environment. As a result, the investments you make in software and hardware retain their utility and value for many years to come.

Full security support
Seamless integration into your enterprise IT landscape has many advantages, but it also makes the system more vulnerable to cyber-attacks. Because of the essential nature of electrical power to our economy and lives, power utilities are an important national cyber security asset. Through all the details of this process, Siemens is committed to helping you achieve compliance every step of the way. Spectrum Power™ ADMS provides the tools and mechanisms you need to meet the highest security requirements – including those of the NERC CIP (North American Electric Reliability Corporation, Critical Infrastructure Protection) and the BDEW Whitepaper (German Association of Energy and Water Industries).
The required technical options should therefore be specified in the contract. For all products using security features of OpenSSL, the following will apply:

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (www.openssl.org). This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).