Network Manager ADMS
An integrated solution for distribution management
Network Manager ADMS is a key component of the distribution control room that enables the efficient management of the sub-transmission, medium and low voltage distribution networks.

The challenge
Electric distribution companies are under increasing pressure to improve reliability and reduce costs while meeting the challenges of grid automation, communication, distributed energy resources (DER), changing consumption patterns, microgrids and markets that are driving grid modernization and fundamentally changing the nature of distribution operations.

Network Manager Advanced Distribution Management System (ADMS)
The ABB ADMS is a real-time system for managing operations in a distribution control center. It provides monitoring and control, network analysis, network optimization and outage management capabilities in an integrated software platform enabling effective management of assets on a platform developed to meet the evolving needs of distribution operators.

ADMS key features
- Distribution SCADA for reliable monitoring and control
- Outage management system:
  - Outage management
  - Switch management
  - Fault location isolation system restoration (FLISR)
- A range of advanced analysis tools to enhance situational awareness and support effective decision making:
  - State estimation
  - Load flow analysis
  - Volt/VAR optimization
  - Short circuit analysis
  - Loss reduction by feeder reconfiguration
- Enterprise service bus for integration

ADMS key benefits
- A common working environment providing a seamless workflow for control room staff
- A single network model that is easy to maintain
- Integrated analytics solution providing insight to all levels of the organization
## ADMS major functions

<table>
<thead>
<tr>
<th>Solution</th>
<th>Function</th>
<th>Overview</th>
<th>Benefits</th>
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<tbody>
<tr>
<td>SCADA</td>
<td>Distribution SCADA</td>
<td>– Real-time monitoring and control for distribution networks</td>
<td>– Field-proven, high-availability, cyber secure supervisory control and data acquisition platform</td>
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<td>Outage management</td>
<td>– Trouble call management and outage prediction</td>
<td>– Improved crew efficiencies during outages</td>
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<td>– Crew and referral management</td>
<td>– Reduced customer average interruption duration index (CAIDI) and system average interruption duration index (SAIDI)</td>
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<td>– Outage and reliability reporting</td>
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<td>Outage Management</td>
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<td>System (OMS)</td>
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<td>Switch management</td>
<td></td>
<td>– Create and maintain planned and unplanned switching plans electronically</td>
<td>– Electronic creation and maintenance of switching plan removing reliance on paper</td>
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<td>– User role management</td>
<td>– Validation of switching plans in simulation mode to improve reliability</td>
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<td>– Automated validation of switching plans</td>
<td>– Audit trail</td>
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<td>Network Applications</td>
<td>State estimation</td>
<td>– Determination of real-time power flow and voltage operating conditions</td>
<td>– Improve situational awareness of the non-observable network</td>
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<td>– Enable the operator to mitigate capacity and voltage violations that are not observable via SCADA telemetry to improve reliability</td>
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<td>Load flow analysis</td>
<td>– Study future network conditions using forecasted load, generation schedules, and planned switching</td>
<td>– Improved efficiency by utilizing the full operational range of assets</td>
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<td>– Study high penetration DER including smart inverter regulation and ghost load affects</td>
<td>– Maximize DER penetration</td>
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<td>– Improved contingency planning</td>
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<td>Volt/VAR optimization (VVO)</td>
<td>– Creates the optimized capacitor and regulator controls to minimize losses and/or reduce demand, either in automated (close loop) or manual mode</td>
<td>– Reduced demand can off-set capital investments</td>
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<td>– Reduced demand can reduce carbon footprint</td>
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<td>Short circuit analysis</td>
<td>– Computes phased based available short circuit current at every node on a distribution circuit</td>
<td>– Determines if switching operations give rise to network configurations that produce excessive short circuit current</td>
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<td>– Assists in determining protection coordination</td>
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<td>Loss reduction by feeder</td>
<td>– Determines the optimal open point between feeders to reduce losses</td>
<td>– Improves power delivery efficiency</td>
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<td>reconfiguration (LRFR)</td>
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<td>– Improves capacity utilization of distribution assets</td>
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<td>Analytics</td>
<td>Outage Analytics</td>
<td>– Outage Analytics dashboards and reports for internal and external publication (eg, KPI, web, graphs, reports, etc.) intelligence available to the company</td>
<td>– Improved decision making throughout the company based upon access to up-to-date data</td>
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ADMS offers you access to a wide knowledge base and deep industry experience

The ABB advantage: enterprise-wide solutions
The ABB portfolio provides interoperability and increased functionality across the full range of enterprise applications used in distribution operations. Through service oriented architecture (SOA) ADMS interacts with the following ABB solutions:
- Workforce management (WFM)
- Enterprise asset management (EAM)
- Demand Response Management System (DRMS)
- Distributed Energy Response System (DERMS)

Workforce management (WFM)
ABB’s WFM solution is designed to help field operations and dispatch personnel work smarter to proactively serve customers and maintain assets in the field, while significantly reducing operating costs and improving customer service. It is an end-to-end solution that automates the entire customer service and asset maintenance cycle, from short-term decision making in the control center to long-term maintenance planning in the back office.

Enterprise asset management (EAM)
ABB’s EAM solution enables organizations to standardize and streamline work processes to maximize worker productivity and improve asset performance through increased availability and improved reliability. EAM allows organizations to drive operational excellence by reducing operating costs, increasing productivity, while maintaining a safe work environment.

Demand Response Management System (DRMS)
DRMS enables the program design, planning, optimization, dispatch, measurement & verification, and settlement of demand side resources. Demand response program participants are aggregated into virtual power plants (VPPs) for capacity forecasting, dispatch optimization, and energy or ancillary service market participation.

Distributed Energy Response System (DERMS)
ABB’s DERMS solution enables the portfolio management, forecasting, monitoring, control and analysis of DER and aggregated DER. Combined with ABB’s DER scheduler, it can optimize DER schedules while maintaining safe grid operations within the operating range of the network.
About ABB’s Enterprise Software product group
We provide industry-leading software and deep domain expertise to help the world’s most asset-intensive industries such as mining, energy, and utilities solve their biggest challenges, from plant level, to regional network scale, to global fleet-wide operations.

Our enterprise software portfolio offers an unparalleled range of solutions for asset performance management, operations and workforce management, network control, and energy portfolio management to help customers reach new levels of efficiency, reliability, safety and sustainability. We are constantly researching and incorporating the latest technology innovations in areas such as mobility, analytics and cloud computing.

We offer unmatched capabilities to integrate information technologies (IT) and operational technologies (OT) to provide complete solutions to our customers’ business problems.

Enterprise Software
North America:
+1 678 830 1020
+1 800 868 0497 from US and Canada

Latin America:
contacto.lam@cl.abb.com

Europe, Middle East, Africa:
+44 1483 794080

Asia Pacific:
+61 7 3303 3333

www.abb.com/enterprise-software
info.pges@abb.com

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