
ABB NETWORK MANAGER

SCADA for e-mobility

Operational confidence.



Supervisory control and data acquisition (SCADA) with Network Manager

Industry challenges

With the rapid pace of urbanisation around the world, many cities are stepping up to proactively address the risks and impacts of climate change. The electrification of public transportation has been identified as one of the key actions that can help meet global targets for climate action.

Solution

ABB Network Manager provides users with a single, unified view of the whole electrical network, the electrical vehicle (EV) charging infrastructure, and the EVs in operation. The new modern user interface delivers enhanced situational awareness and advanced applications, giving operators absolute control of their infrastructure and full confidence in their operations.

Network Manager is a real-time, cyber-secure platform for a wide range of control and monitoring applications. The solution is designed for mission-critical applications that demand high performance, reliability and availability, from power generation, transmission and distribution networks, to electrical systems for e-buses, railways and airports. It supports systems of all sizes, from city bus/charging infrastructure to country-sized networks with millions of devices and high volumes of data throughput.

Benefits

- Highly scalable platform and modular design ensure that the system can grow with your future needs
- Designed for high availability, with support for multiple redundant schemes, secondary/emergency control centres, and backup facilities with automatic failovers and no loss of data
- Modern human machine interface (HMI) enhances operator situational awareness for improved decision support and shortened response times
- Easy to implement, deploy and maintain – runs in both native and virtualised environments to minimise total cost of ownership
- Open architecture allows for interoperability and integration with other IT and OT systems



Solutions for e-mobility

The future of transportation

Specifically designed for e-mobility, Network Manager helps city and e-bus operators increase reliability, availability and improve journeys whilst reducing cost and carbon emissions.

Maximise the operational efficiency of your city infrastructure and e-bus/EV systems with:

- Remote monitoring, control and operation of your IoT infrastructure, charging infrastructure and bus operation
- Extensive toolbox for adapting safety procedures and work processes to ensure full compliance with transportation safety regulations
- Complete control interface to monitor the network remotely, carry out reset, set points, isolations and implement service restoration
- Specialised functional modules built for city/e-bus operations:
 - Advanced switch order creation and support for high occurrences of switching
 - E-mobility-specific data analytics like kWh use, alarms, behaviour analytics and more
 - Communication protocols for charging infrastructure such as OCPP, IEC104, MODBUS
 - Charging optimisation

Network Manager meets the needs of the different operational roles, from bus dispatching and traffic control, to infrastructure management and maintenance.

User authority for each role can be aligned with your operations and processes.

Fully-customisable dashboards and user interfaces can be configured for each role, allowing for improved situation awareness, control and optimisation, including:

- Display of charger locations and real-time status
- Trend analysis of different charging cycles
- Detailed diagram of charger components
- Specialised functions such as flash to grid of installed batteries
- Traffic control view for live location and status of all vehicles
- Management dashboard providing statistics such as kWh/km per line or for the total system



Traffic control bus locations (left); dashboard (right)

Key features



Real-time data acquisition and supervisory control

- Supports all major data types such as indications, metered value, schedules and sequences
- Supports standard protocols for IoT and operational data such as IEC, OCPP, IEC104 and MODBUS
- Fully redundant, with support for automatic failover and multiple redundant schemes
- Supports distributed data acquisition, local or remote encryption, and periodic, on-demand or event-triggered data transfer
- Limit manager enables centralised configuration and maintenance of limit thresholds for optimising operation closer to physical limits



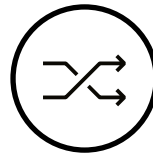
Intelligent alarm & event handling

- Fully configurable and intelligent alarm/event processing to reduce the number of nuisance alarm messages
- Catch highly complex conditions with custom alarms and stale data detection
- Multiple alarm acknowledgment, limits and priority levels
- Advanced filtering capabilities, customisable colour and alarming schemes



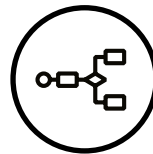
Intuitive HMI

- Intuitive graphical user interface with dynamic network colouring, zoom, layers and de-cluttering tools
- Locate feature allows operators to quickly focus in on problem areas
- Graphical editor makes it easy to define and update network topology
- Smart tool tips and online context-sensitive help reduces the learning curve



Advanced switching management

- Easily create, maintain and validate complex switching plans, reducing switching errors



User-defined sequences

- Easily define and maintain automated sequences to minimise operator error
- Supports automatic and manual execution of sequences



Programming and calculations

- Advanced real-time calculations using MATLAB®-based ARTC (advanced real-time calculation) package
- Pascal-like SPL (system programming language) allows direct access to real-time and historical data, and database functions for user-defined calculations
- No knowledge of database structures required – built-in wizard provides a step-by-step guide for defining and implementing calculations



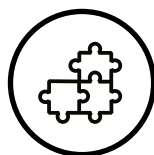
Flexible operator authority

- Prohibits unauthorised system access at different levels – system operation, data entry and data retrieval
- Areas of responsibility can be defined by geographical/physical locations or network zones/components
- Authority assignment tool makes it easy to assign different privileges and multiple AORs for each operator



Cyber security

- Network Manager conforms to security standards CIP 002-011, ISO 27001/2, and the NIST Cyber Security Framework
- Internal and external penetration testing performed by the Idaho National Lab
- Advanced security and compliance services available through ABB Cyber Security Care offerings



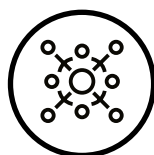
Data exchange and external adapters

- Supports enterprise integration with external systems
- External adapters for real-time data access, including EAI, CMMS, GIS, CRM and others
- Supports SQL, ODBC, OPC, DAIS and ICCP data exchange



Historian

- Integrated historian provides seamless data storage and retrieval
- Advanced data compression allows storage of an asset's data over its complete lifecycle, often millions of data points with sub-second resolution
- One-lines and alarms/events playback, and comprehensive audit trail capability
- General data warehouse capabilities such as advanced calculations and read-only replica avoids the need for an additional corporate historian
- Automated data engineering and database maintenance minimises DBA activities



Advanced data engineering

- Centralised database engineering tool
- Supports common information model import/export for easy migration from legacy systems

Customer spotlight

Geneva Public Transport

(Transports Publics Genevois, TPG)



TOSA (trolleybus optimisation système alimentation) electric bus system

ABB Network Manager monitors and controls part of the power network for the bus, the e-bus and the charging stations, maximising asset availability and usage for Geneva Public Transport. The real-time system proactively manages critical assets, enabling more timely and effective decisions, providing operational efficiencies and cost optimisation. This means minimal service interruption for commuters.

The system is also integrated with ABB Ellipse® EAM, with built-in industry best practices and workflows to further optimise maintenance processes. This enables a faster response to fault incidents and better predicts maintenance needs. Equipped with remote access and cloud capabilities, the solution is designed to be scalable to adapt to future growth.

**Have absolute confidence
in your system with ABB.**



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