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Condition Monitoring of rotating Equipment

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Maintenance Strategies

Corrective Maintenance

- Repair or exchange after failure of part
- Only for non critical components that do not cause consequential damages
- Cost-efficient and simple

Preventive Maintenance

- Maintenance time-based or performance-based
- Applicable at constant wear
- High costs for spare parts
- For medium critical components

Predictive Maintenance

- Condition-based maintenance based on measurement data
- Minimal production losses
- Minimal spare parts costs
- For critical components

ABB Ability™ for Predictive Maintenance

Maintenance based on measurement data of electric motors, generators, turbines, gear boxes and other rotating equipment

Data Collection

- Vibrations
- Temperature
- Speed
- Electrical Parameters
- Energy Consumption
- Eccentricity
- Rotor Position
- Operation Hours

Evaluation

- Cloud based ABB Ability™ platform
- Report with detailed status information
- ABB Data Manager software on PC and server
- Display and evaluation in Process Control Systems

Measures

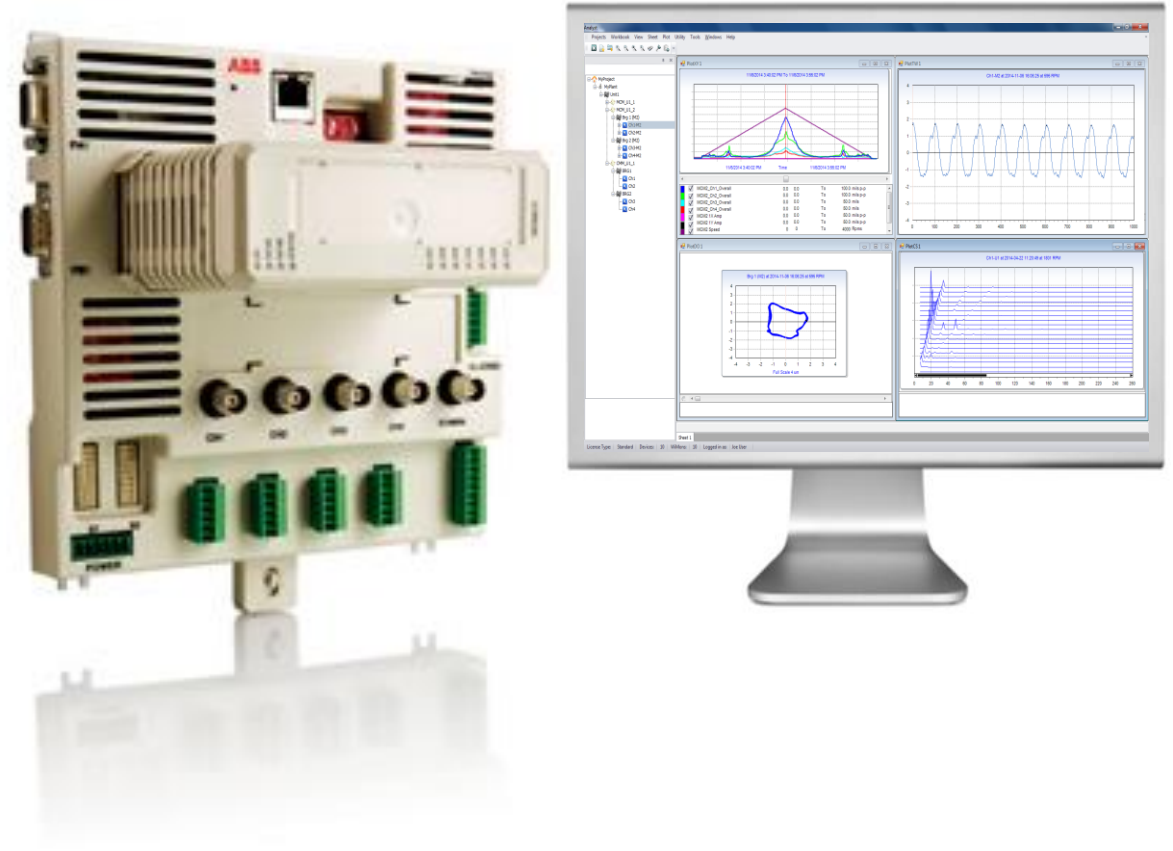
- Scheduling of maintenance activities
- Optimization of spare parts management
- Optimization of maintenance management
- Optimization of maintenance costs

MCM 800

Condition Monitoring for critical components as e.g. turbines or generators

Technical Features

- Continuous data collection of complex measurement data, e.g. of turbines (Turbine Supervisory Instrumentation)
- Sensors inputs configurable to all types of vibration sensors
- Ethernet OPC, Profibus and Modbus communication
- Convenient evaluation and display with ABB Analyst software
- Designed for Process Control Systems and Stand Alone operation

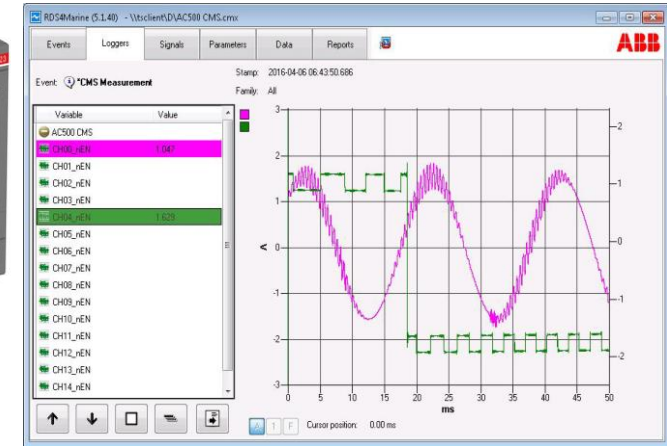


AC 500

Condition Monitoring Solution of AC500 PLC-Systems

Technical Features

- Continuous data collection with high resolution
- Sensors inputs configurable to IEPE oder ± 10 V input
- Flexible and modular design
- Convenient configuration, evaluation and display with ABB Automation Builder Software or with web interface
- Transfers data via Ethernet OPC, Profibus, and Modbus to other control systems

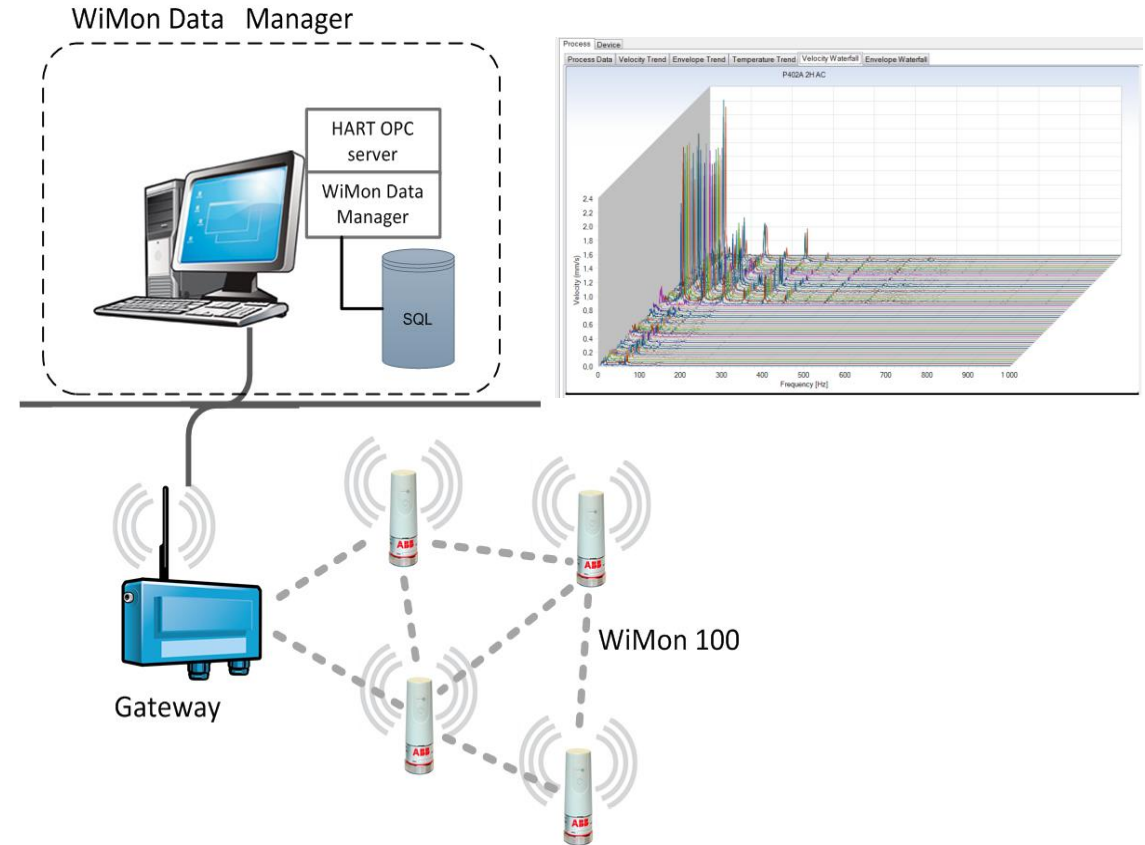


WiMon 100

Condition Monitoring of Bearings of Rotating Equipment

Technical Features

- Periodic data collection of vibrations and temperatures
- RMS-Values and envelopes of speed and acceleration
- WirelessHART radio transmission
- Ethernet OPC and Modbus TCP
- Convenient configuration, evaluation and display with ABB WiMon Data Manager



Smart Sensor

Condition Monitoring of Low Voltage Motors

Technical Features

- Periodic data collection of vibrations, temperature and electrical parameters
- Data transmission via Bluetooth to the ABB App and the ABB cloud and later on also via a gateway to the ABB Cloud
- Detailed report “Dashboard” with information about the conditions of bearings, cooling, coil and electrical parameters

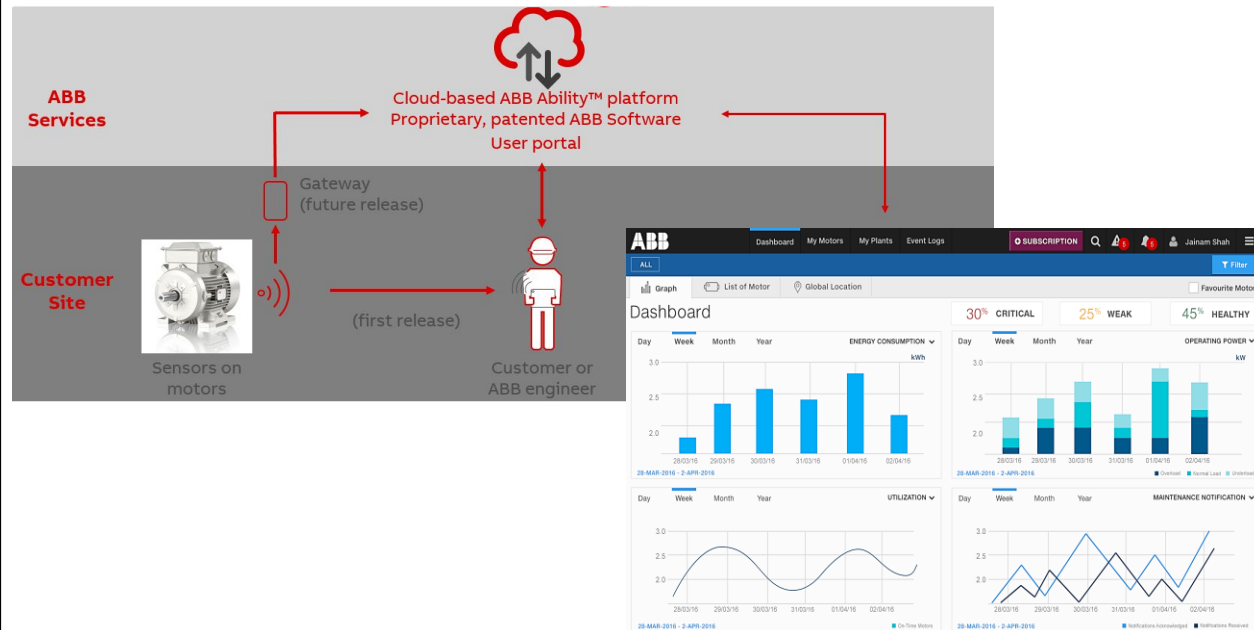
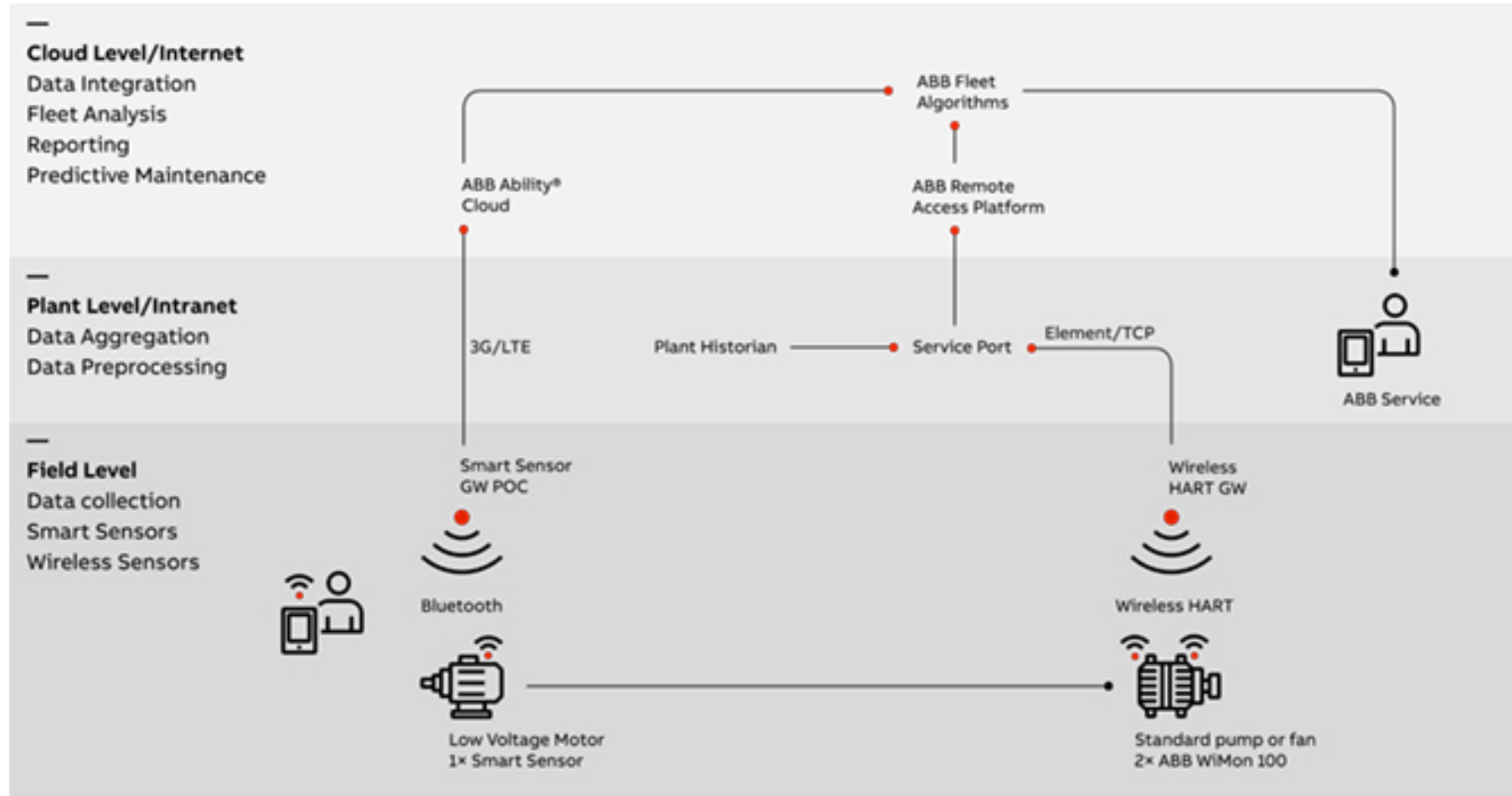
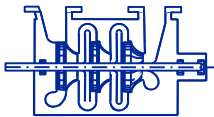


ABB Ability for ABB Fleet Algorithms



Fleet monitoring via dashboard

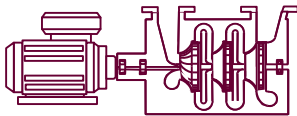
Process



Pump/Compressor

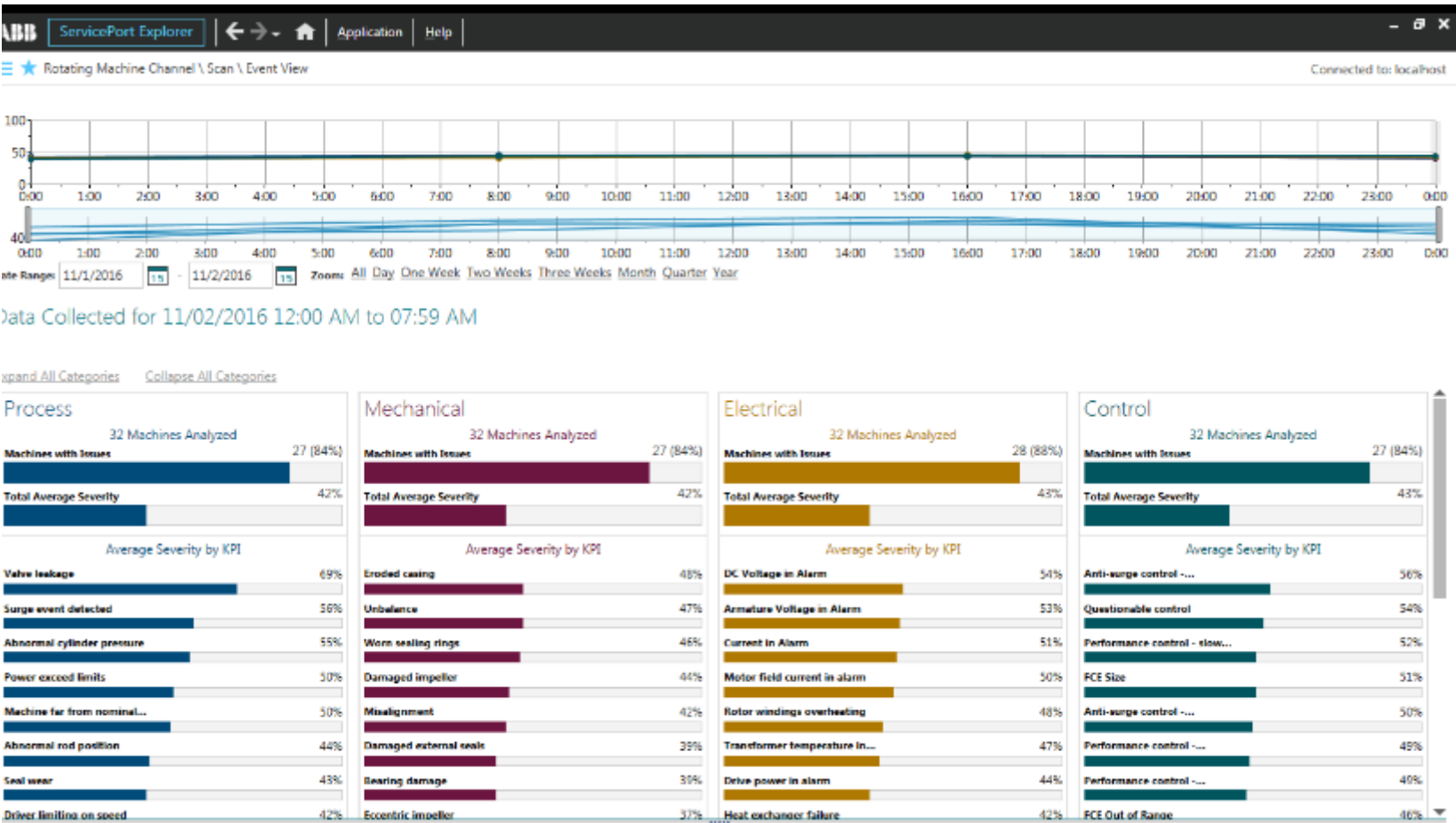
Performance of the process related equipment

Mechanical

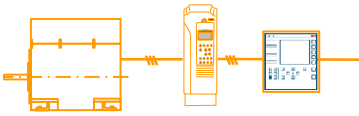


Motor Pump/Compressor

Mechanical condition of the moving equipment



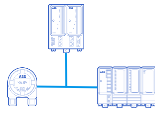
Electrical



Motor Drive Electrical protection

Condition of the electrical equipment

Control



Machine control and protection

Performance of the machine control loops and related equipment



Overview of the ABB Solutions for Condition Monitoring

Solution	Rotating Equipment	Sensor Connection	Measurement Values	Data Collection	System Environment
MCM 800	Critical, e.g. turbines	Cable	Comprehensive mech. data	Continuously and triggered	PCS, Stand alone operation
AC 500	Critical, e.g. turbines, OEM	Cable	Comprehensive data	Continuously and triggered	PCS and PLC-Systems
WiMon	Medium critical, e.g. motors, gear boxes	WirelessHART radio transmission	Vibrations and temperature	Periodic	PCS, workstation or server
Smart Sensor	Low voltage motors	Bluetooth radio transmission	Mechanical and electrical data	Periodic	Tablet, Smart-phone via app

ABB has also the suitable solution for the condition monitoring of your rotating equipment!



ABB