Energy Controller ECO supports the introduction of an energy management system in accordance with DIN EN ISO 50001. This system records and identifies the necessary key energy and performance data required in order to realize energy goals, as well as to prepare, analyze and document them.

**Energy management as per DIN EN ISO 50001**
In addition to personnel costs, energy costs are a critical factor of production.

Besides the high cost of primary energies such as electricity, gas and oil, reducing CO2 emissions is another important consideration.

By introducing an energy management system, companies can systematically reduce their energy consumption, continuously improve their energy efficiency, as well as cut energy procurement costs. It is also sensible to pursue DIN EN ISO 50001 certification at the same time. The standard offers a systematic approach to continuous improvement of energy consumption in a company.

By doing so, you lay the best foundation for saving energy, lowering costs, and benefiting from governmental incentives over the long term. Your company projects an energy-responsible image as a major contributor to the environment. You can also cite your responsible and sustainable use of all resources to show your customers that the important topic of energy is integrated professionally into your business processes.

**Energy Controller ECO**
Energy Controller ECO is a modern software system solution developed for industrial use in power- and media-intensive industries. The transparent presentation of energy flows to analyze current and past energy use and consumption are therefore of particular interest.

All energy-relevant plants and processes are visualized to enable easy energy analysis and create transparency. The architecture of the energy management software permits scalable expansion to an enterprise-wide energy management system, including planning and optimization of energy procurement.

Energy Controller ECO works as a stand-alone system, but is also the preferred energy management system for ABB’s process control systems 800xA and Freelance. It can be connected directly and is very easy to integrate because it uses the same data. All relevant information in the process is automatically recorded and made available in prepared form, making efficient energy management possible.
Towards this end, the system offers:

- Continuous recording of measured values and energy consumption in real time as a critical prerequisite for transparency and sustainable reduction of energy costs.
- Continuous and consistent energy and media reporting and preparation of consumption, operations, and production data related to degrees of utilization, performance data and plant characteristics.
- Analysis and monitoring of the energy situation, including alerts for target value deviations, to ensure, document, and further develop savings successes.
- Exploration of potential energy savings when defining complex tasks through the aid of measurement and analysis of:
  - Load profiles, temperatures, volume flow rates
  - Plant and operating conditions

**Functions**

Comprehensive tools, visualization and analysis functions support the process of the certifiable energy management system:

- Records measurements and calculates consumption, operations, aggregate, production, and status data
- Prepares information on degrees of utilization, performance data, and plant characteristics
- Dashboard for visualizing energy flows and key performance indicators (KPIs) in real time
- Transparency by allocating energy costs to the cost centers and orders where they originated
- Energy reporting system and media reporting
- Alarm management system
- Event-based energy and plant shift book

**Integration and connection to existing infrastructure**

Recorded values in existing data stores can be transferred. Databases and information servers can be connected via

- Customer-specific SQL database links
- Standard ASCII / FTP Interface
- A standard application programming interface (API) enables individual creation and implementation of customer-specific protocols and connections.

For direct capture of energy, process, and operations values, connections are established to installed meters, process control systems, programmable logic controllers (PLCs) or I/O systems. Standard automation engineering protocols like OPC, Modbus, and M-bus are used for communications.

OPC connections can be routed through firewalls across sites using OPC tunnels. Couplers and gateways can connect a wide variety of systems, including remotely, via wireless, Internet, ISDN or GSM/GPRS communications.

The modular and flexibly expandable AC 500 System from ABB is the perfect choice for new installations or local connection of control, measurement and data acquisition systems, including for real-time networks across sites. In this case, the programmable AC 500 controller is used as a data collector consisting of various devices that can be combined and flexibly expanded according to customer requirements. This also enables simultaneous operation of multiple busses and connection technologies at one station.
Scope of delivery
Energy Controller ECO consists of a standard data collection interface and a real-time database for time-based and statistical data storage that is used by different harmonized application modules.

The operator interface (Vtrin) of the Energy Controller ECO features the ClickOnce technology that offers Windows users rich client applications as easy to use as web applications. This comes with four major benefits:

- Required program updates via the web
- No impact on standard installation of the PC
- No administrative authorization/installation needed
- Continued access to all functions and ease of use of a rich client

Reports and data output
The Microsoft Excel®-based reporting system enables the user to create reports and protocols with ease as well as control automatic output. Examples of elements that can be used for report design include:

- Lists and tables
- Trend and bar graphs
- Pie charts
- X/Y Plots
- Gantt-charts
- KPI reporting

Alarm management
One essential component of the Energy Controller ECO is alarm management, which gives users transparency over both current and historical process status information. It helps in early detection of changes and risks.

Special alarm management features include:
- Alarm levels with 3 priorities
- Access to online and historical data

Examples include:
- Peak consumption times
- Critical operating states
- Forecast deviations
- Drift of energy cycle balance

Formulas and calculations
For individual business logic, simple dialogs (similar to Microsoft Excel®) are available that allow the user to define links and create new calculated values as signals. Examples include:

- Virtual counters for logical units
- Signal interconnections for energy analyses
- Degrees of utilization/performance data
- Plant characteristics/KPIs
- Mathematical consumption models
- Forecast dependencies
Dash-Boards
The open design of the operator interface allows the system to be customized to internal workflows. A unique, company-internal interface makes work efficient, simplifies use, and prevents operation errors.

For example, the following can be designed:
- Workplace
- Grafik displays
- Trends

Designing the interface is extremely easy:
- Finished display elements
- Drag & Drop functionality

Benefits
- Seamless integration into existing infrastructure
- Relevant energy data and key performance indicators (KPIs) at a glance (energy costs per quantity produced)
- Support for DIN EN ISO 50001 certification
- Simple analysis and report creation in a familiar software environment (Dashboard & Microsoft Excel®)
- Detection and proof of savings potential
- Comprehensive visualization library for monitoring, goal-setting and analysis purposes
- Solution including on-site commissioning and modular expansion through to a comprehensive forecast and optimization system for business management and energy commerce
- Flexible expansion by the user

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