



## EP2000 Process control system – Specification

Our highly scalable process control system EP2000 has been designed for application in energy and water supply systems, wastewater management, environmental technology, broadcast engineering and other industrial tasks.

The open process control system EP2000 is based on a client server architecture. The system is scalable and therefore ideally suited for installations of every size. Process interface and archive database run centrally on one server hardware that can be accessed by any number of clients. For each functional unit, you may use your own hardware platform or a virtual platform provided in a data centre.

The extension EP2000.web offers access to information within the process control system as well as secure process monitoring and control via mobile devices (smartphone or tablet). In addition to standard SCADA<sup>1</sup> functions, EP2000 offers a wide range of sector-related function modules, sector-specific features and open interfaces.

The process control system provides full control centre functionality already during on-line recording of the data model by means of self generating process overviews. The system enables full-scale process control from the very start thanks to tabular process overviews providing all information on data points, graphs depicting trends and archiving, a report generator and – last but not least – an alarm screen displaying current fault, warning and alarm messages.

### Overview

- Tried and tested in many sectors providing sector specific, modular applications such as network topologies, fault location, grid analysis, simulation and forecasts
- IT security in compliance with the white paper published by Federal Association of Energy and Water Industries (German: BDEW)
- Updatable thanks to a simple release policy
- Highly scalable and expandable online engineering
- User-friendly and smooth data exchange with other system landscapes
- Wide variety of communication interfaces
- Ready-for-use after data model generation

<sup>1</sup> Supervisory Control And Data Acquisition

## Specific function modules

In addition to SCADA functions for operating and monitoring your technical process, the process control system includes many other function modules as an integral part of the basic software.

### Centralized access point

The Control Centre can be customized to individual needs and serves as your central entry point from which you gain access to process monitoring. It is **available at any time** and thus enables **quick access** to functions and information provided by the process control system.

### Cockpit

Tools to operate and monitor your system can be placed strategically and user-friendly on one or several screens. The individual composition of tools in accordance with specific requirements of users and workplaces can be compared with the cockpit of an aeroplane. This cockpit offers **optimum process overview**.

### Process picture editor

You can design process pictures as required. The process picture editor includes templates, which enable quick and easy generation of process depictions. Furthermore, you may also **realize your own, specific functions, create your own templates and adapt process pictures to your needs by means of scripts**.

### Alerting

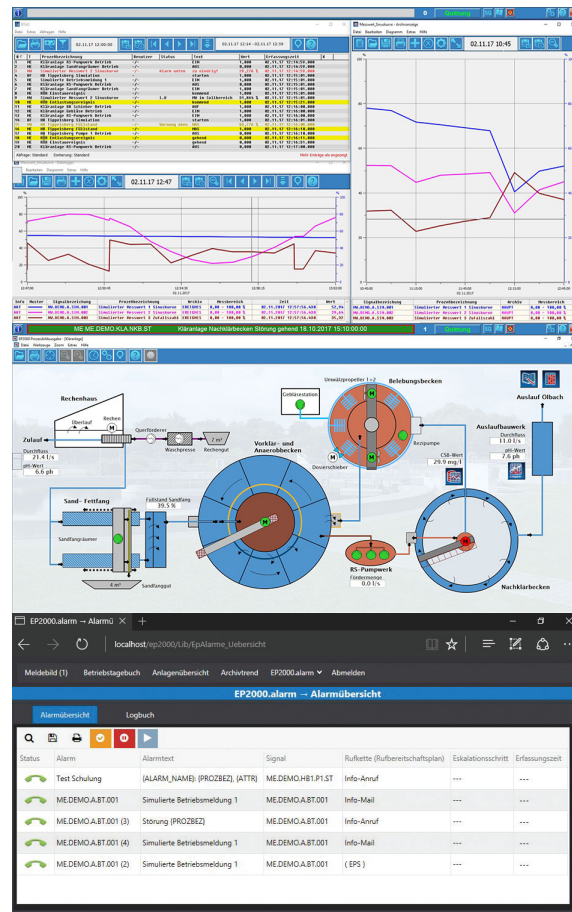
Incoming information can be conveniently forwarded to staff on duty or other persons. For this purpose, a **wide range of fault alarms** is available (suppression of torrent signals, definition of priorities, delay, individual texts,...). You can generate call chains and/or on-call schedules to manage alerts. We support the following communication paths: text messages, emails, voice calls and eCityruf (pager service). Of course, incoming fault alarms (text message or voice call) can be acknowledged by the receiving unit.

### Documentation

If you want to know which users have been created in the system or which IP addresses have been assigned, the **automatic documentation tool** provides the answer. We document configuration settings in the system and provide an overview in PDF format. In accordance with current IT security guidelines, particularly sensitive information can be hidden during data export.

### Microsoft Excel report including manual entries

We provide a Microsoft Excel add-in, by means of which you can **create or use your own reports** (eg company spreadsheets). The add-in has access to all archived values in the process control system and thus enables automatic import of values from the archiving system into the columns/lines of the spreadsheet. Apart from the familiar Excel functions, this add-in also includes numerous ways to access process information. **Manually recorded information**, eg laboratory measurements, can thus be imported directly from the Excel spreadsheet **into the archiving system of the process control system**. These values are then available like „real values“ in all instances related to the visualization of archived values.



## Historical Information in process pictures

Typically, historical information is displayed in the form of tables or trends. The Review function enables visualization of historical data in a process picture in their technological context. Within the process picture, you can switch between current values and historical values (selection via date/time).

## Mobile access

You can access process information of EP2000 via web browser. Adapted to the intuitive handling of smartphones (swiping), you are able to access, for example, current faults, historical operating states and measured values. You may also actively intervene in the control (authorization provided).

## Interfaces

Standardized interfaces and protocols enable simple integration into existing system environments as well as recording of process information. **Interfaces are project-specific and can be configured according to individual requirements.** This permits us to offer you the highest possible degree of flexibility at manageable costs. Our interfaces can be adapted or expanded at any time.

## Water/Wastewater features

### Leakage detection

Monitoring of parameters in water distribution networks and alerting in case of anomalies.

### Tank and reservoir management

Energy-optimized management of sumps, reservoirs and tanks, eg above ground tanks.

### Colouring of network topology

Colouring of pipelines in the process picture, depending on eg flow rates or pump operating time.

### Reporting

Integration of third-party reports and evaluations from monitoring authorities or associations, such as, for example, the performance benchmarking for wastewater systems of the German Association for the Water, Wastewater and Waste Industry (DWA).

### EP2000 offers latest standard interfaces

- OPC UA
- IEC 60870-5-101
- IEC 60870-5-104
- ISO-on-TCP/PROFINET (Siemens)
- M-Bus Meter
- Modbus TCP
- SNMP<sup>2</sup> network details
- CSV/text file
- MQTT (IoT sensors)
- More options on request



<sup>2</sup> SNMP = Simple Network Management Protocol

## Technical data

### Scope of information

For each **type of information** (message, measured value, command, set point) up to 65,535 data points are possible. For long-term archiving, we use a highly available Microsoft SQL database. The depth of archived data is unlimited.

### Licence model

As already mentioned in the Interfaces paragraph, we provide a simple and modular licence model. This permits us to offer you the highest possible degree of flexibility at manageable costs. Our modules can be adapted or expanded at any time. **All modules**, except for communication interfaces, are **included in the basic licence**. Moreover, every workstation (desktop or remote workstation) is licensed. Redundancy of communication interfaces and/or archive database, as well as access licences for mobile devices, are available as expansion licences.

#### Basic licence scale:

- up to 300 data points
- up to 1,500 data points
- up to 5,000 data points
- more than 5,000 data points



## IT Security

In accordance with the BDEW white paper, we are continually improving security and respond to current requirements on process control systems in terms of cybersecurity.

In addition to many other security mechanisms, our control system can be fully integrated into existing network domains (centralized user rights administration via domain controller). We offer a temporary upgrade of user rights during operation without a new login to the system.



## Self-monitoring

### Control systems monitor processes – but who monitors control systems?

For this purpose, we developed the software module EP2000.systemcare. EP2000.systemcare monitors the system health, eg CPU temperature, network usage, etc. Deviations from the norm are reported to the operating staff or even directly to the VIVAVIS support centre. This enables early detection of problems even **before** they lead to trouble in the process control system.

### ... and what comes after commissioning?

Even after commissioning, we will not leave you on your own. We offer service and maintenance contracts as well as patch management and thus enable you to operate your system safely and without interruptions.

The software is continuously updated and adapted to current requirements. Regular upgrades keep your process control system up to date and state of the art. **This guarantees continuous protection of your investment and operational safety.**



## We think outside of the box!

Thanks to **partnerships across different sectors**, we are able to offer interfaces to various expert systems. If required, data exchange between these systems takes place via a standardized communication bus.

- Asset management system
  - asset management
  - fault management
  - maintenance management
  - workforce management
- GeoIT system
- Log management and SIEM (Security Information and Event Management)  
Collection, storage and analysis of log files, eg Windows log files
- Energy management