AKO-TEC AG
Automatisierungs- und Kommunikationstechnik

PD-MI-System
PD-MANAGEMENT INFORMATION-SYSTEM

Seeing more means working more effectively

PD-MI-System is the new product of our PDE- family. PD-MI-System is the further development based on the extended user requirements.

PD-MI-System is based upon a modern client-server architecture and it supports interfaces based on industry standards. This interface concept enables the connection of automation systems of different manufacturers and it allows the vertical and horizontal integration in nearly all existing IT- infrastructures.

PD-MI-System possesses a future-oriented modular program structure with which it is possible to integrate customer specific add-ons.

Your Benefit

- **Data archiving**
  Validation and archiving of evidence-process-data

- **Process analysis/-optimization**
  Representation, observation and link of law-suits

- **Quality assurance**
  Threshold control, comparison and surveillance

- **Information's- Management**
  Creating customer specific reports, data-transfer at superior- systems (vertical system-integration)

- **Maintenance**
  Monitoring of current time / maintenance-management

- **Higher economic efficiency**
  through optimized process flows and operating recourses

PD-MI-System sets new yardsticks in the range of operation, comfort and ergonomics.
All menu and dialog boxes are improved, partially dynamic.

➤ **Language selection**
  PD-MI-System offers "English" or "German" language to the user during installation. Further languages are available as an option.

Data- archiving, validation and compression

The PDE- loggers are the physical interfaces between the automation- systems and the PD-MI-System.
The PDE-loggers are available with interfaces for many automation systems.

➢ One PDE-logger can collect process- data with up to 10 different cycle- times. The smallest possible collection- cycle depends on the number of to collection process-data as well as of the bandwidth and capacity-use of the bus-system. The data-filing is made in archives on a local PDE-logger pc or alternatively via network on a server. If the request data file is being edited, the system maps a new data archive to ensure a permanent data consistency.

➢ **Data archiving and compression**
The collected process data will be written consecutively into a database. Every day (0.00 clock) a new image-file will be created and the image file of the day before will be closed. With a ringbuffer it can be set after which time the data images are compressed".
After the compression process the images have 5-10% of the original size. With that it is possible to access the process-files of several years on a much smaller archive than before.

➢ **Data validation**
PD-MI-System is protected against mani-pulation of data. With each data record of the database we create a "Hash-value" with MD5-algorithm (128-bit). To each reading-cycle a manipulation will be found if it's there.
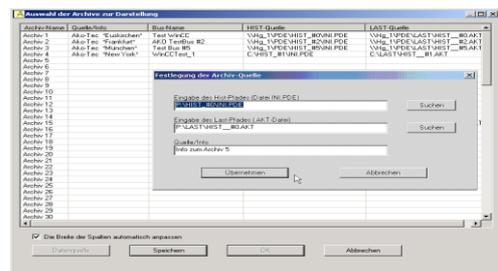
PD-MI-System

All in the database existing data (process- data, protocols, etc.) stands for further processing with the PD-MI-System or superior systems for disposal. Without delay you will receive the process and production information.

➢ **Pass through access over all connected plants**
PD-MI-System can access all available con-nected PDE- loggers.
A modern style infrastructure allow the monitoring and analysis of process- and production data worldwide.
A curve-group can be built from process-data of all connected PDE-loggers, also from other connected plants.

Picture 1. Archive selection

➢ **Displaying charts with different collection cycle times**
PD-MI-System visualizes all charts with the cycle-time of the data collection.
This new method leads to a higher resolution of the display.

Online
Process analysis/ -optimization and quality assurance analysis

➢ **Selection and parameterization of process data**
A curve-group consists of 1-20 charts, max. 15 are visualized.
The charts in the curve-group could come from different archives.
For each chart you could edit following properties:

- Color, Style, visibility
- Scaling / Auto-scaling
- Positioning, look, labeling and
  Intervals of the scale
- Griding and background colors

In the Multi-Layer-Technology (MLT)- mode these adjustments are pre-configured and are adjustable for each Layer and each chart.
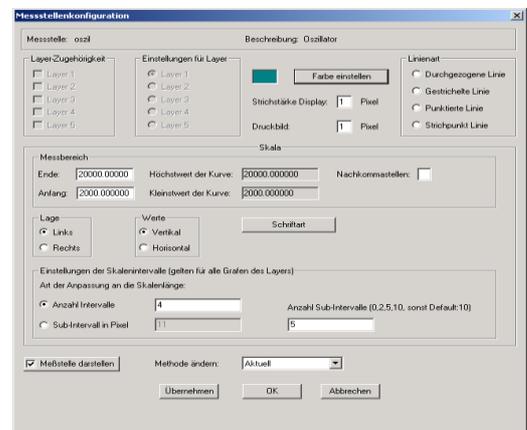


Picture 2. Attribute window charts/layer

> ## MLT- „Multi-Layer-Technology"
> The Multi-Layer technology has been a standard in CAD Systems for a long time. This feature allows the PD-MI-System to compare processes and plants.
> There are two different functions available:
>
> *Batchlayer* compares process-data of one plant at different times. The time synchronization is made via a trigger point (process value) or manually by mouse.
>
> *Universal layer* compares process-data of several plants/machines with each other. The time-synchronization is made via trigger point. If there is no trigger point, a manual (by mouse) time-synchronization is possible.
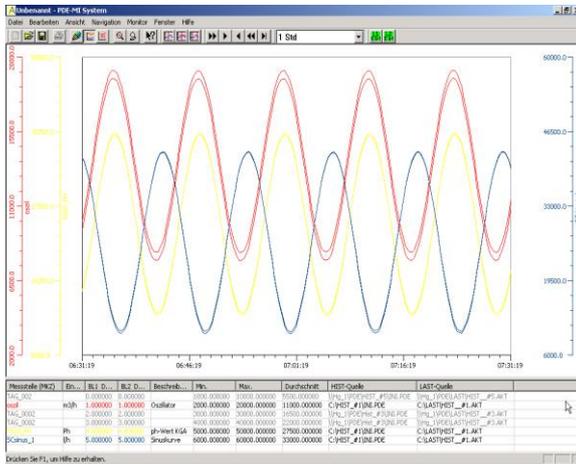


Picture 3. MLT- Process- Analyser

> There are at the most 5 layers which can be edited individually, e.g. charts can be added or properties can be modified.

> ## graphical display of the min. and max. value
> The min. and max. value of all charts are displayed with a marker. If a defined threshold is exceeded the PD-MI-System creates a message.

> ## define reference charts
> Beyond the MLT-function it is possible to build up an „online"-chart overlaying the reference-chart. So it is simple to see deviations.

> ## x/y-charts
> The PC-MI-System can create x/y graphics with up to 3 charts. The displayed points can be analyzed.
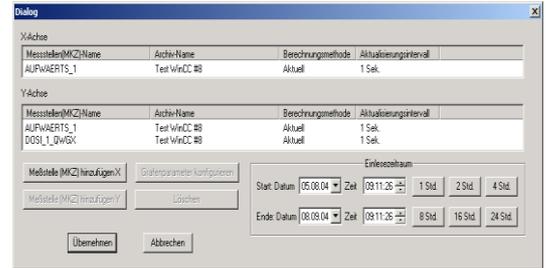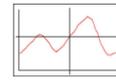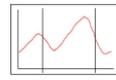

Picture 4. X/Y- input- menu

> ## Ruler technology
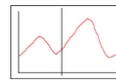
 Ruler for displaying all process values of the chart group in the „serration-point".

 „Cross-hairs" for easy point-accurate positioning and determination of process data.

 multiple-ruler-technology for determination of „mean values", leanings, material balance accounting (m³/h in m³ or kilowatt-hour in kilowatt), limit value-threshold overrun as well as terms with binary values.

> ## Access to historical values (archive values)
> is made via the definition of the display-timeframe. Via button or slider the display-timeframe can be adjusted in every direction. Further functions, as zoom, display time-frame, a.o. are variable.

> ## Writing of binary process data only on state change
> For a better overview of binary curve-groups the PD-MI-System offers the user different possibilities to display charts.
> Visualization of binary signals on the desktop can be suppressed as long as there is no change in state (low ⇔ high).

> ## Mastertime
> With setting the master time, all added charts, curve-groups or layers start automatically at the master time.

> ## Flow chart generator
> Pure numbers do not satisfy you? Use the possibilities of the flow chart generator.
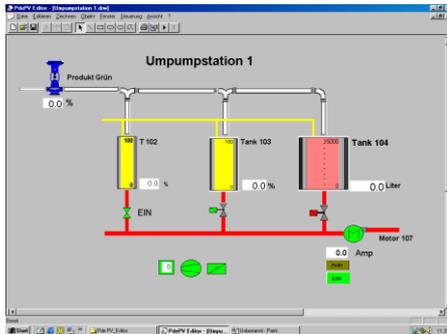
Picture 5. flow chart generator

The flow chart generator visualizes the hyperlinked process data and enables the user to display processes graphically.

The process-pictures consist of bitmaps linked with Control-objects. For these objects functions, looks, scales, colors, threshold values, etc. can be determined.

The existing library can be extended by any customized bitmaps.

You are able to build your individual process pictures very quickly.

Online Excel sheets can be implemented.

Information Management/ Reporting and Maintenance

➢ **Report**
PDE-report creates customized reports, e.g. shift, daily protocols, etc. into database (SQL o. Oracle). These reports include current values, min.- and max. values, mean- values, sums, etc.) and they can include individual calculations (energy balance statements, operating-resource input, batch quantities, etc.).

➢ **Data-export**
Collected process data can be exported. Process values, the method (min.- and max. Values, average values, middle values, etc.) are also values that can be exported.
The cycle time and the file format can also be selected for the export.
Furthermore, filters can be set by the user for further data selection/-reduction.

Batch-Recording

➢ **Batch-Analyzer**
PDE-batch can assign the collection of process data to a read batch number.

The start/stop trigger that defines a running batch can be set by the user.

By recording the values, the Start and End date/time for each batch will be stored. With this information, the time scale of the curves can be automatically set by selecting a specific batch number.

Technical data

System requirements	
Product	PD-MI-System
PDE- logger	all PDE- logger are for MS- Windows
OS-System	Win7/Win10/Win Server 2012(R2)

vCard

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