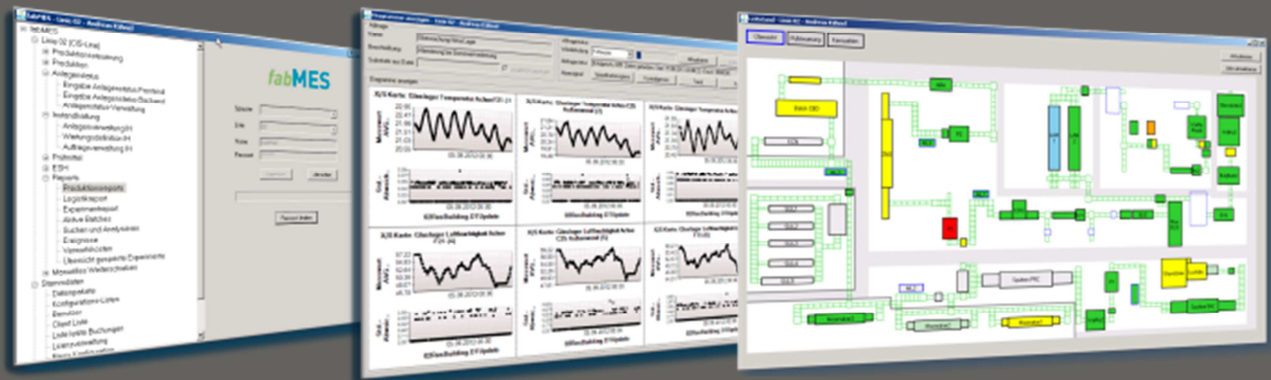


**fabMES**

**The Manufacturing Execution System**



The MES has been developed and approved for 10 years in production lines for photovoltaic solar modules and is optimized for the standard production processes and environments with fast changing processes in research and development.

The modular design and scalability of the software allows the growth of the software together with the rising technical requirements of the industry.

fabMES is the essential tool for all kinds of productivity and efficiency increasing, especially for use of lean production principles.

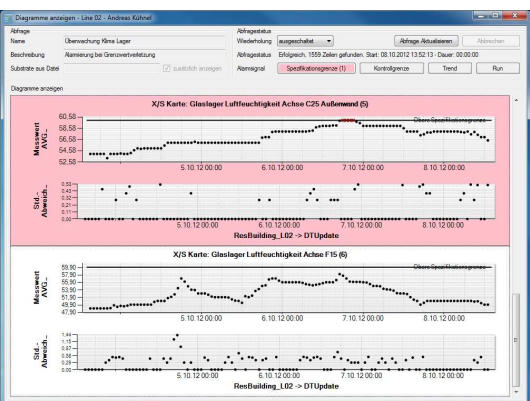
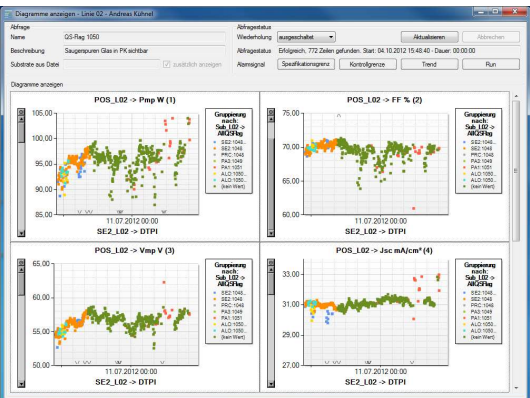
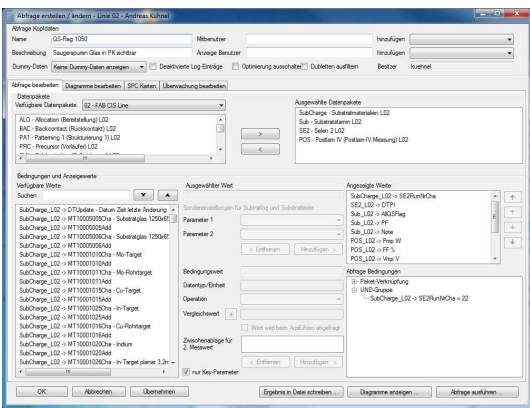
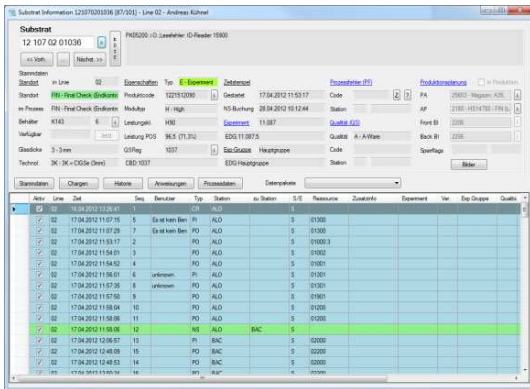
# MANUFACTURING EXECUTION SYSTEM

## Features

### Comprehensive traceability of logistics data

Your production process is evaluable and traceable at any time because of high scale data integration. All information builds the fundament for a complete quality management and optimizing of production.

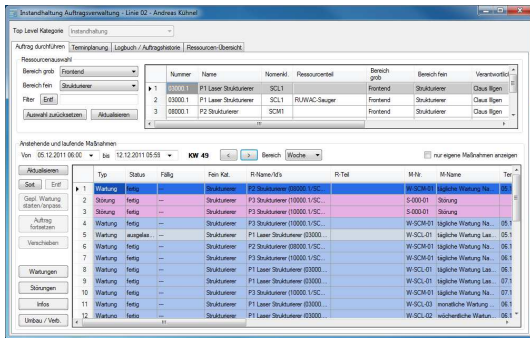
- Traceability of all machine, process and material data.
- Entire traceability of all products with machine booking times, process data and material charges.
- Integrated quality management system for production.
- Ordering, traceability and reporting of rework.
- Tagging of single production objects for later tracking and evaluation with flags and notes.
- Integrated experiment management and tracking, parallel to standard production.



### Recording and evaluation of measurement data

With well structured, efficient and long term storage of all business relevant data, you are able to define complex evaluations for real time and historical analyzing. All relevant data of existing environment can be integrated in the system.

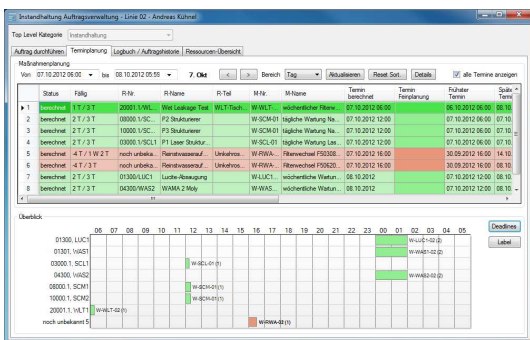
- Automatic and manually capturing of all process relevant data with object or time reference.
- The flexible interface system allows the connection to third-party systems with particular and proprietary communication protocols.
- Possible connection to different infrastructure systems (ERP, automation, machines, building management system, etc.)
- Comprehensive manually and automatically evaluation with access to all data in a analyzing application. User defined charts and data export in different formats.
- Online SPC with configurable multi-level alarm system (email, popup-window, telephone, short message service, loud speaker system).
- Online visualization of data and processes with user defined displays.



## Maintenance

The integrated maintenance module allows the automatic data exchange between production control and maintenance management. Production data can be involved in maintenance planning and maintenance information can be used for controlling of production.

- Completely integrated maintenance management system with equipment management, order planning and order execution, efficiency and down time evaluation, tracking of faults and machine modifications.
- The flexible management tool can be also used for other types of maintenance and approvals (test equipment management, safety systems, maintenance of building or telecommunication systems).



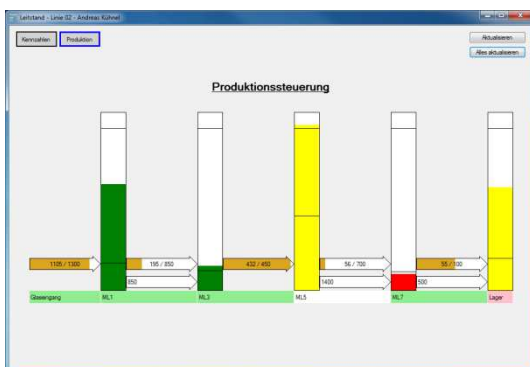
## Production controlling with lean manufacturing principle

The automatically production control reduce the organizational work of production staff and allows to optimize the production with lean manufacturing concepts.

The full automatic controlling can be switched on/off for every production section or used in half-automatic mode (automatically generated orders started by user). This allows a straightforward implementation of production controlling in single steps.

- Monitoring of material flow, product flow and stock.
- Manually entering of orders or takeover production orders from ERP system.
- Automatically or half automatic pull system.
- Automatically or manually recording of machine status.

Parallel production of different technologies in one or more production lines also on different plant places.



## Services

The MES was built in deep collaboration of software development team together with process engineers and R&D department, parallel to operation of a manually production line and a construction of a full automatically production plant. This expertise and knowledge of special logistics and process requirements in manually and high automated productions are integrated in the MES. We would like to share our experience and assist you with the implementation of MES software in your production:

- Analyzing of process and organization requirements.
- Customizing of MES and definition of process parameters.
- Definition, programming and setup of interfaces to third-party systems.
- Consulting for possible further process optimizing with MES.

## What benefits will I receive from *fabMES*?

### Flexible, modular and user-friendly

With *fabMES* you will get a flexible system which can be ideal customized to your business processes. The further development and roadmap is coordinated and verified with the user and follows their requirements to achieve the best and realistic results. The modular system design allows the integration of customer specific applications and components.

### Low cost, high-performance and high-availability

The software uses standard hardware and can be installed on central, high-available server or on simple distributed standard desktop computers. On installation as distributed system on desktop computers, the assignment of tasks with redundancy over several computers guarantees the performance and high availability. The usage of existing standard computers omits big and expensive servers and lowers the investment costs.

The consistency and safety of your data is warranted by the low cost, high-performance and transactional database Oracle-MySQL. The usage of standard SQL query language allows the porting of software to other database systems of your choice.

### International and future-proof

The software is prepared for international usage and will be delivered with integrated English and German language. Other languages (also Asian) can be integrated with assistance of a specialized translator and reasonable costs.

The constant development and software enhancements by a motivated expert software team guarantee an ideal adaptation of the MES to your requirements with fast and result-oriented solutions.



## Contact

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