

ABB Ability™ Manufacturing Operations Management

Shop Floor Integration for Life Sciences



ABB Ability Manufacturing Operations Management (MOM) with Shop Floor Integration Batch provides a qualified, flexible, cyber secure and easy to engineer solution from shop floor to ERP. It helps our customers in the manufacturing industries such as life science and food & beverage meet their regulatory requirements, produce high product quality, achieve fast time to market and benefit from significant cost savings.

Today many Production Management solutions for the life science industry are still not or less integrated, requiring high efforts in engineering and synchronization of data between MES (Manufacturing Execution System) and DCS (Distributed Control System). Especially in GMP plants (GMP = Good Manufacturing Practices) this has as a crucial influence on time to market, quality and profitability. The challenge for Automation suppliers is to create an efficient workflow, fulfilling FDA regulations following GAMP5 guideline (ISPE) for engineering and validation and ensuring data integrity.

The Solution

Shop Floor Integration provides an integration between Manufacturing Execution Systems (MES) and 800xA Batch Management, the integrated Batch system of ABB Ability System 800xA. It includes features for automatic parameter assignment and automatic synchronization of 800xA Batch Management recipe procedures and MES. This automated integration significantly reduces the engineering effort of the integration especially with the high

validation requirements in a GMP production environment.

Shop Floor Integration is an extension to the MOM offering and runs as a native Connectivity. The connectivity uses OPC Unified Architecture (UA), which is a modern industrial communication protocol that is open, secure, efficient and cross-platform well suited for IoT communication. In a first realization, Shop Floor Integration is integrated with the MES system Werum PAS-X.

Key Benefits

- Significantly reduced time to market, setting up new production plants and processes
- Improved agility and speed for new product introduction
- Significantly reduced operation cost by avoiding manual interactions and by automating operations
- Considerably reduced efforts and cost involved in regulatory compliance and validation
- Using a modern message based architecture that is designed to be highly secure and reliable

Operation of the process flow

Improve productivity, quality and time-to-market uniting systems, people.



Operation of the production flow

MES Master Batch Record (MBR) related



XML-based messaging



Standardized communication process significantly reduces validation efforts



Authenticated and cyber secure



Response time < 1 sec

Shop Floor Integration

Data Integration to plug and produce MES via message based interface



How does it work?

The Shop Floor Integration connectivity communication is based on OPC UA using XML messages based on a command and response type interface. This ensures an automated, robust and secure data exchange between the Werum PAS-X MES Electronic Batch Record and System 800xA. Batch Manager Action (BMA) blocks are used in 800xA Batch Management recipe procedures to synchronize the recipe execution with MES. This means only recipe procedures need to be updated to achieve the complete MES synchronization. Additionally Shop Floor Integration enables automatic assignment of parameters in MES using a recipe upload function. Both these features significantly reduce engineering and validation effort and costs. Shop Floor Integration can connect up to five different 800xA Batch Management systems to one Werum PAS-X system.

Pre-requisites

Shop Floor Integration is a native connectivity within ABB Ability™ Manufacturing Operations Management (MOM). With its common services and modules User Experience (UX), Reporting, Connectivity and Data Storage, MOM is an ISA-95 Level 3 plant data access and information system which ties any plant data from disparate data sources into one single information infrastructure. MOM is also a platform that hosts different type of industrial productivity software applications, MOM Applications. This enables MOM users to easy expand and add new relevant industrial software applications as requirements or business objectives change.