

# Everything at a glance

## Process control system provides interface to plant asset management

Dr. Thomas Wunderlich

FieldCare, the software package for configuring, diagnosing, managing and optimising intelligent field devices and components, has been integrated into Plant iT, the open process control system. Since condition monitoring information for all field devices is now available directly from the user interface of the process control system, Plant iT can provide an interface to a plant asset management system. One of the first plants to profit from this Plant iT performance was commissioned by JohnsonDiversey in the Dutch city of Enschede.

Jupiter II is the name of the new JohnsonDiversey plant in Enschede for manufacturing cleaning and disinfection products. The company chose Plant iT, the open process control platform, not only to assure consistent automation of the agitator reactors, tanks and silos but also for the filling lines. JohnsonDiversey owns the following Plant iT modules: Plant Direct iT process control system, Plant Batch iT batch system, Plant Acquis iT production data management system, and Plant Connect iT as a parameterised connection to the ERP software. The company's decision in favour of Plant iT was swayed by the following decisive advantages:

- Batch functionality
- Direct job dispatching using ERP SAP/R3
- Batch tracking
- High flexibility thanks to modular customising
- Hardware independence
- Integration of FieldCare

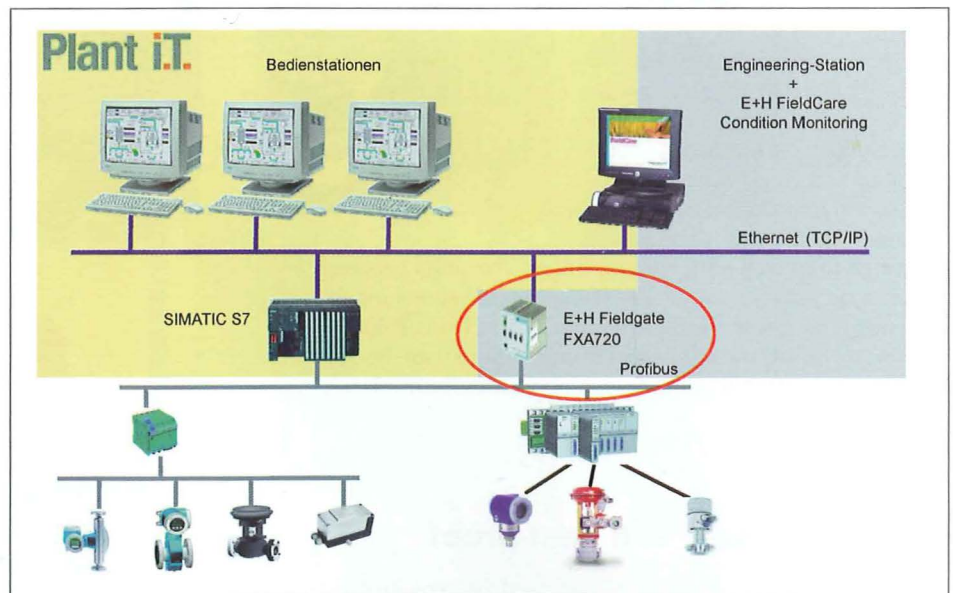
The control level consists of a Siemens Simatic S7-400, which is connected to the field level via Profibus DP. This bus network is used to acquire the data of the various devices – in this application approximately 2800 objects, from actuators and valves to measuring instruments and weigh beams. Plant management and monitoring take place in a central control room.

### Powerful batch functions

The production plant forms a complex matrix consisting of pipes, containers, valves, pumps and sensors. The many different recipes used are based on SAP specifications: the individual recipe ingredients are either

fed automatically from storage tanks or silos or dosed manually. After the mixing process, these special cleaning mixtures are filled from buffer tanks into containers of various sizes. To optimally run these batch processes, the customer was seeking a process control system that comprehensively

cipe models either strictly according to ISA 88 or using simplified, derived models. A large number of different products can be handled by processing jobs and recipe operations, which in this case are taken from SAP. Information about all processed materials, current consumption values and the quantities produced is available in real time. In addition to inventory management functionality, in other words, the materials management component also provides consistent batch tracking with a freely selectable starting point. Moreover, the process control system satisfies the requirement to prove GMP regulation 21 CFR Part 11. Jobs are dispatched from the ERP system to the process control system using the directly connected and parameterisable Plant Connect iT communications interface. Alongside the operator stations in the central control room, additional Ex-approved (Zone II) terminals with a touch display are implemented to allow simple on-site navigation at the agitator reactors. These terminals make all reactor-relevant information available to the operator in pixel graphic form. A redundantly configured server platform and an uninterruptible power supply for the computer and



System configuration: systematic linking of Plant iT with FieldCare

masters this functionality and thus guarantees total reliability with regard to recording and logging of all job and batch data – vital to comply with batch tracking requirements and the obligation to provide proof.

The Batch iT module of the Plant iT process control system not only convinces with a high degree of batch functionality but also integrates a process-oriented materials management component. This extremely powerful system for recipe and job management generates plant, process and re-

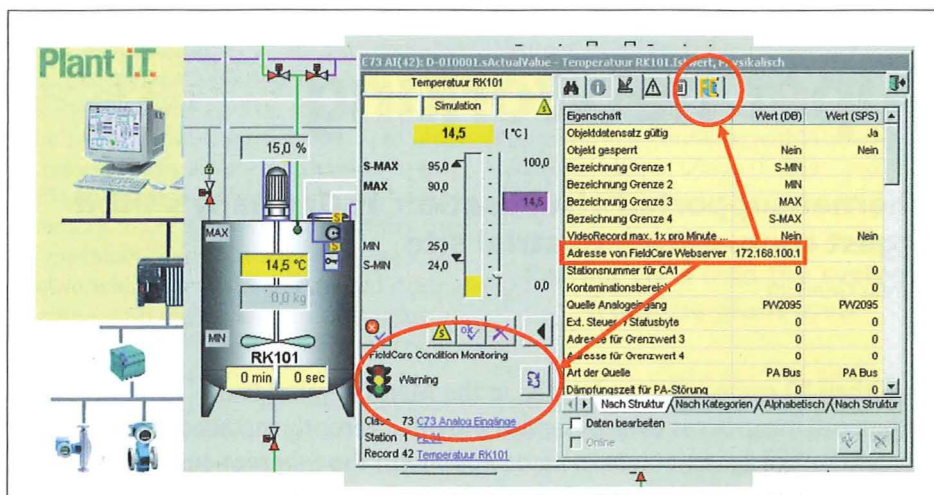
the Simatic S7-400 controller components safeguard the three-shift operation stipulated by JohnsonDiversey. There are plans to standardise all automation components based on the Proleit Plant iT system family in the foreseeable future.

A Fieldgate, which can be used to retrieve the status information for condition monitoring of the individual devices in the field using the non-proprietary FDT (Field Device Tool) interface definition, is installed parallel to the PLC field connection. This information is evaluated by FieldCare, an

open software tool from Endress+Hauser for configuring, diagnosing, managing and optimising intelligent field devices and components.

## Asset management integrated in the operating level

The Plant Direct iT system is linked to FieldCare on the engineering station of the process control system to form Jupiter II, a modern, plant-level asset management system that optimises plant availability. A significant advantage of this open system is the ability to access all FieldCare information via the Ethernet connection at any time using any Proleit operator station. The adoption of the non-proprietary FDT standard for FieldCare means that proprietary device drivers – so-called DTMs (Device Type Managers) – can be integrated without difficulty. Comprehensive communication with FieldCare is therefore possible not only with Endress + Hauser devices but also with third-party products. The consistent integration of FieldCare in Plant iT allows communication with all field level devices and enables the I&C technology to be visualised directly in the process control system, giving the operator instant access to all relevant information about these devices. For the first time, a traffic light integrated in the detail view of the process control system provides a fast and straightforward overview of sensor and device states. If a warning is signalled, the status and error information on the FieldCare web server can be displayed immediately, simply by clicking a separate FieldCare tab. All diagnostic information is available on



Status display and parameterisation for condition monitoring

the Plant iT process visualisation user interface – and the operator is shown help and additional tips about how to interpret condition monitoring information as well as suitable methods for correcting problems in the field. If, for example, a flow sensor must always be filled with a medium, but this is not currently the case, the sensor uses the Fieldgate to automatically send the appropriate error code to the monitoring software. The plant operator also sees the appropriate information about error handling or avoidance in plain text on the user interface of the process control system. In addition to short-term error correction, FieldCare also has functions for analysing any long-term changes that occur in field devices and equipment. The history that is saved automatically for each field device can be used to detect drifts. Furthermore, FieldCare furnishes information about the immediate environment of a sensor. By

analyzing data from other sensors in the vicinity, for instance, it can determine when a pipe is in danger of becoming clogged due to the formation of deposits.

The integration of FieldCare in Plant iT, and thus in the user interface of the process control system, simplifies and accelerates operator responses to alarms and warning information. The operator always sees everything at a glance and has immediate access to any necessary maintenance interventions. Alarms and warnings are forwarded to the Plant iT messaging system, so that this information is likewise archived and no additional data need be prepared. The Plant iT process control system implements plant asset management to facilitate highly targeted maintenance and servicing of a plant and its components.

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