



## Technical & Specialty Gases Filling Stations Product Datasheet

### Production Management

#### Production Management at a Glance

To manage the intensified production of Technical, Medicinal & Specialty Gases in large-scale Filling stations, Production Management system is a must!

Enforcement of company SOPs and GMPs has never been so easy before! Have a clear overview of running and pending tasks. Re-schedule the tasks, equipment as well as personnel in order to maximize the efficiency of work, yet not compromising the delivery time requirements, all in a matter of seconds!

Introduction of PM system together with adequate level of automation brings you not only many advantages on its own, but also simultaneously leverages the Industry 4.0 concepts.

Step ahead and unlock vast array of benefits the modern era has to offer!

#### PRODUCT HIGHLIGHTS

##### SEAMLESS DATA ACQUISITION

Seamless integration of data from IoT enabled devices, Modbus TCP and Profinet, be it a control PLC, Analyzer, Intelligent Sensor or Actuator

##### INTERFACE TO THIRD-PARTY SYSTEMS

Communication Gateway Service independent from the rest of the system, thus versatile in both functionality and scalability

##### DATA AGGREGATION TO COMPLETE JOB RECORD

Data from various sources aggregated to completely describe the batch, starting by cylinder preparation, filling and final analysis to meet QA demands

##### TRACKING & TRACING

Tracking and Tracing down to individual job or even individual cylinder

##### DYNAMIC MANAGEMENT OF TASKS

AI Knowledge-based system to prioritize, delay & aggregate tasks as well as to distribute the tasks between operators and equipment

##### STATISTICS ON TASKS

Detailed statistics on tasks, equipment (OEE/DTM) and personnel activities

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### **Product Overview**

Every job/task in a typical production environment consists of one or more sub-tasks. The sub-tasks must be assigned to equipment and personnel, monitored and finally evaluated in order to secure in-time & quality delivery of the product. In large scale facilities, this is a burden almost impossible to accomplish without computer aid.

The Production Management solution from ExPS is an IoT Platform, backed-up with powerful logic in form of Artificial Intelligence algorithms. The PM is tailored to the specific needs of Technical & Specialty Gases Filling Stations, yet in a certain level of abstraction, the same principles could be applied to manage many other industrial scale production processes.

The PM solution already features many ready-to-use modules, with a short overview listed below. Besides the pre-configured PM modules, the architecture can easily be extended with new functional modules on-demand of the customers. Thanks to its modular concept design, the integration of a new module or a modification of existing one is standard and seamless operation.

### **Field I&C Connectivity Module**

Bi-directional data exchange with field devices like control PLCs, Analyzers, Intelligent Sensors and Actuators:

- IoT Enabled devices - OPC UA, AMPQ & MQTT
- Modbus TCP Communication Protocol
- Profinet Communication Protocol

### **Mobile Devices Connectivity Module**

Users are granted the possibility to interact with the PM system not only through the standard PC interface, but also through the mobile devices, giving the required flexibility and scalability of the solution:

- Mobile phones and tablet with Android OS
- ZEBRA Barcode readers with Android OS

### **Presentation Module**

The system features a presentation module, enabling the users to configure presentation of various data, information as well as multimedia files on large Information Panels (Flat panel TV and Multimedia micro computer not included).

### **Gateway to third-party systems**

Gateway module is responsible for data-exchange with third-party systems, like the ordering system, billing system, logistics & many other enterprise planning and management systems. Besides the Job editor, this is the point where new tasks spring into

existence based on external requests and information regarding task completion can be forwarded back to the task originator.

- Direct interface to InLabel included, other interfaces on-demand.

### **Work-flow Server**

Core of the PM system responsible for the Task handling. Each job generated through the Job editor or acquired through the Gateway service is first translated by internal algorithms to special semantics, which is more suitable for automated processing.

Every job/task consists of one or more sub-tasks. The sub-tasks can be assigned to the personnel and equipment either manually through the Job editor, or fully automatically with the help of Artificial Intelligence algorithms of the Knowledge based system mixed with selected features of fuzzy logic. In case of automatic processing, the work-flow server effectively distributes the sub-tasks to personnel and equipment in order to maximize the throughput and secure in-time delivery of the conforming products to the customers.

The data originating from various equipment and personnel executing the sub-tasks are aggregated, checked for consistency and processed into meaningful information and complete job record.

### **Archiving, Reporting, Tracking & Tracing**

All data gathered from various sources can be archived in SQL server for further processing, including:

- Automated or on-demand reports
- Depicting graphs, time-lines and XY Graphs
- Tracking and Tracing in the production history
- Statistics on tasks, equipment, personnel
- Predictive and pro-active operations and maintenance

**There is more of the story to be told...**

**We stand ready to answer all your questions!**