

# Discrete Line Performance Solutions

The Rockwell Automation Discrete Line Performance Solutions is being used by manufacturing companies to monitor operations and drive operational improvements. Utilizing reports that are standard in the solution, companies can identify causes of lost efficiency and analyze the results to discover opportunities for improvement. The solution is built on a FactoryTalk® enabled architecture, which allows the data to be viewed in the context of the user and be available for Comprehensive Manufacturing Execution Systems and uploaded to ERP Systems.



## Discrete Line Performance Solutions

- Visibility and Control to Improve Operations
- Rapid Implementation
- Scalable
- Connectivity to MES
- Global Implementation and Support

| Performance Solutions         |         |      |       |
|-------------------------------|---------|------|-------|
|                               | Machine | Line | Plant |
| OEE                           | ✓       | ✓    | ✓     |
| Machine Reporting             | ✓       | ✓    | ✓     |
| Operator/Order/Product Status |         | ✓    | ✓     |
| Line Reporting and Analysis   |         | ✓    | ✓     |
| Complete Tracking and Tracing |         |      | ✓     |
| Factory Order Scheduling      |         |      | ✓     |
| Plant Monitoring & Reporting  |         |      | ✓     |
| Manufacturing ERP Integration |         |      | ✓     |

*Technical Overview*

**Rockwell  
Automation**

**Global Manufacturing Solutions**

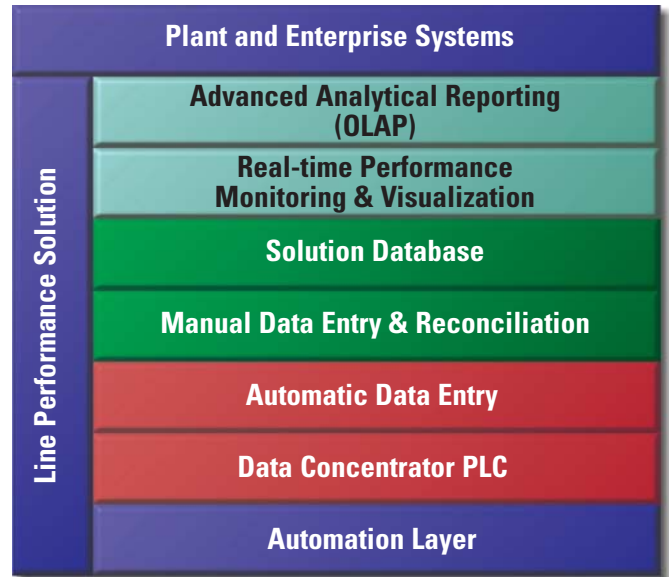
## Solution Architecture

### Automation layer

The automation layer consists of networked controllers that are being used to control the equipment, workcells, and production lines. A control template is utilized in each controller, specifically to capture the information needed for the Line Performance Solution. A control template assures that a consistent method is used throughout the data collection, and also reduces engineering time and cost when rolling the solution out to other lines. The control template, which is provided as part of the solution, is specific to the controller, whether it is Allen-Bradley or another supplier. Data can also be collected from Third party devices using an OPC Server to connect to the data needed.

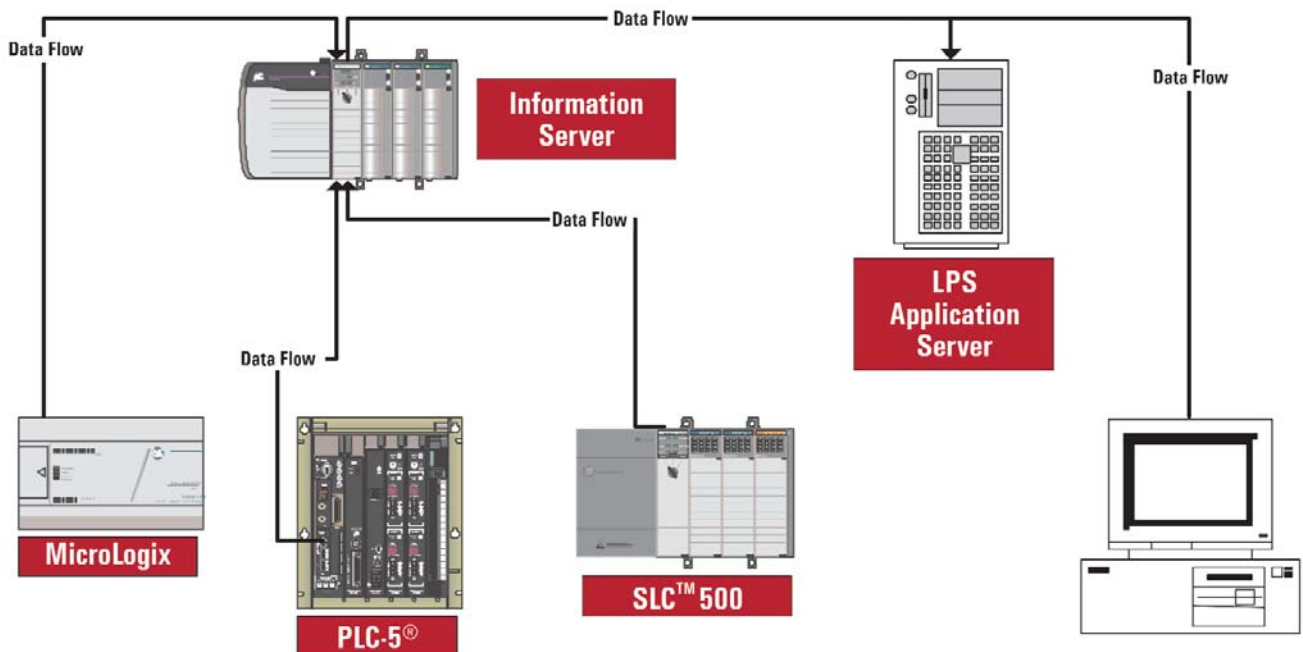
### Database layer

The database used is a SQL Server 2000 database, which is used for all BizWare products. The database is based on ISO S95 and uses the Factory Data Model, which allows for extensibility to other BizWare products.



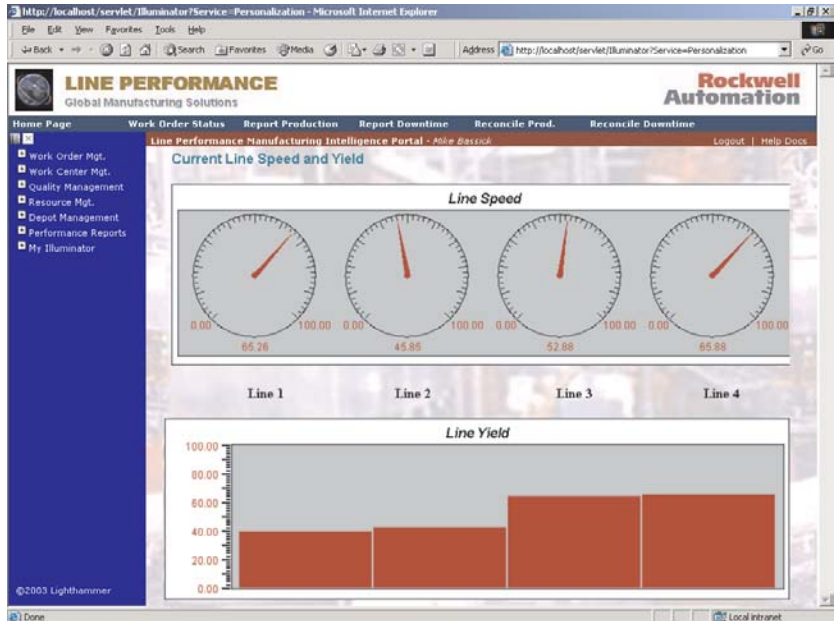
### Reporting layer

The Line Performance Solution is delivered with preconfigured reports that are specific to the type of production lines the solution is being applied to. The reports have been developed to allow the user to easily use the solution for analyzing operations and understanding problems. The preconfigured solution allows for consistency in the reports when deploying the solution, as well as providing consistent data collection from the control layer.



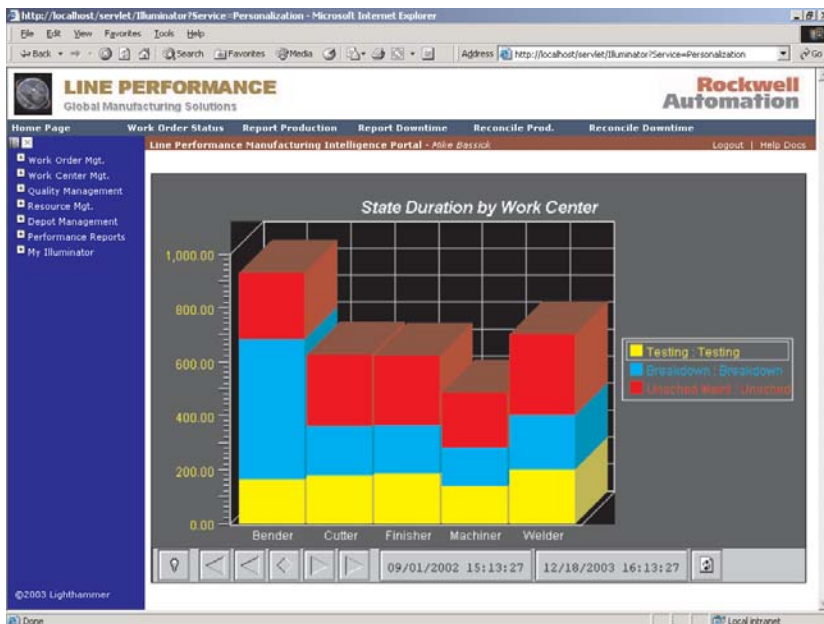
## Solution Capability

The Discrete Line Performance Solution is a powerful tool for improving your Quality, Production Performance and Equipment Availability issues. By focusing on the collection and display of the data needed to monitor and analyze the Operational Equipment Efficiency (OEE), the solution allows you to view the critical performance data from your production lines. You can then drill down into the data to understand the root causes of inefficiencies, helping you to target continuous improvement efforts.



## Reporting

Reports allow you to monitor the key factors that impact OEE, Equipment Availability, Performance Efficiency and Quality Rate. You can view the data based on time interval (shift, day, week, etc.), operator, equipment/workcell, or production line. This is combined with an on-demand dashboard, which presents current operating conditions and performance.



## Web Based User Interface

The user interface is role based, allowing each user to have a personalized view of information in the system. Only reports required by each user are displayed on their view. The dashboard view of current Line Performance status is user defined and presents the information needed by the user for their job.

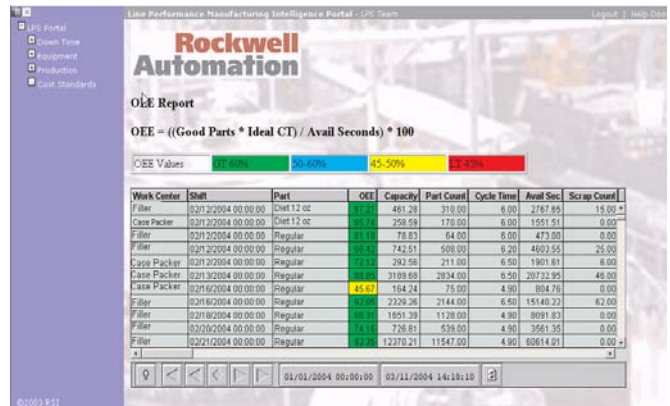
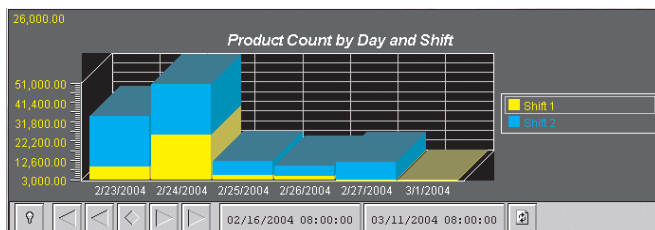
## Types of Reports available in the Discrete Line Performance Solution

### Core Functionality

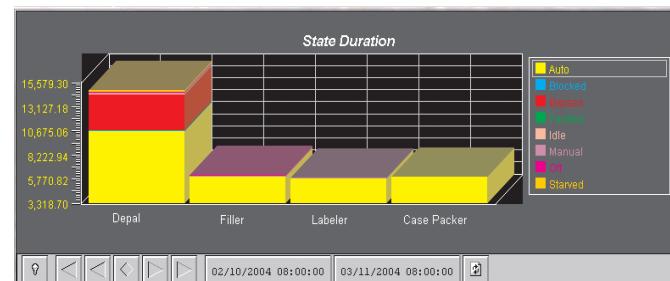
- Dashboard Overview
- Performance Efficiency Reports
  - Production Summary
  - Capacity Reports
  - Part Count Trending
- Equipment Availability
  - Top 5 Downtime Reports
  - Machine Mode Reports
  - Changeover Reports
- Quality Rate
  - Scrap Reports
  - Part Count Reports
  - Machine Startup Scrap Identification Reports

### Additional Functionality

- An Online Analytical Processing (OLAP) reporting engine that utilizes the core Line Performance data can be provided as an option. OLAP reporting is a fast and flexible tool to create ad hoc reports on production data. These OLAP reports allow the user to drag and drop the data elements onto the report, then drill down into details of interest. This intuitive approach allows the user to analyze performance, downtime, etc. in terms of multiple different dimensions (i.e. plant, line, product), depending on what the user's interest is at any particular point in time.



- Alarm notification can be generated from the Line Performance Solution and notify all necessary personnel via email, pager, Palm® or phone. You can create business rules for out of target calculations or faults, and configure automated responses to rule exceptions - all from a single platform.



### Upgrade Potential

Discrete Line Performance is the data-collection foundation for Plant Performance solutions that address:

- Finite Capacity Scheduling
- Work Order Tracking
- WIP Tracking
- Business System Integration
- Quality Management

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