General Specifications

GS 36J04B10-01E

NTPB001 – NTPB010
Exaquantum/Batch
Plant Information Management System

■ GENERAL

Exaquantum/Batch is an intelligent and scalable S88 based Batch PIMS (Plant Information Management System). It provides an analysis and reporting application that collects, stores and displays current and historical data from batch production, equipment and recipe viewpoints.

This enables your production and recipe management, process engineering, quality management and operations staff to easily access batch information for decision support, production planning and scheduling, analysis, process improvement and quality purposes.

Exaquantum/Batch is the ideal productivity improvements tool that enables you to focus on KPIs (Key Performance Indicators) such as a cycle time and frequency using the web based browsing, analysis and reporting user interface and to develop action plans for process improvements.

■ KEY FEATURES

The key features of Exaquantum/Batch are:

1. 'Out of the box' integration with Yokogawa's CENTUM CS 3000/VP for Batch control systems, providing immediate usability and benefits without complex engineering and database configuration.

2. Standard data analysis providing:
- Automatic calculation and charting of cycle times and unit utilization for each batch.
- Automatically calculated performance ratings for each batch.
- Comparison of batches to peer groups.
- A powerful tool for sorting and comparing batch history data.

3. A customizable web based user interface providing:
- Batch, master recipe and equipment data accessible from one place – BatchWeb.
- Ad-hoc web access to data without custom display generation.
- Secure data storage with minimal administration.

4. Optional 21 CFR Part 11 capable functionality through the use of electronic records and signatures.

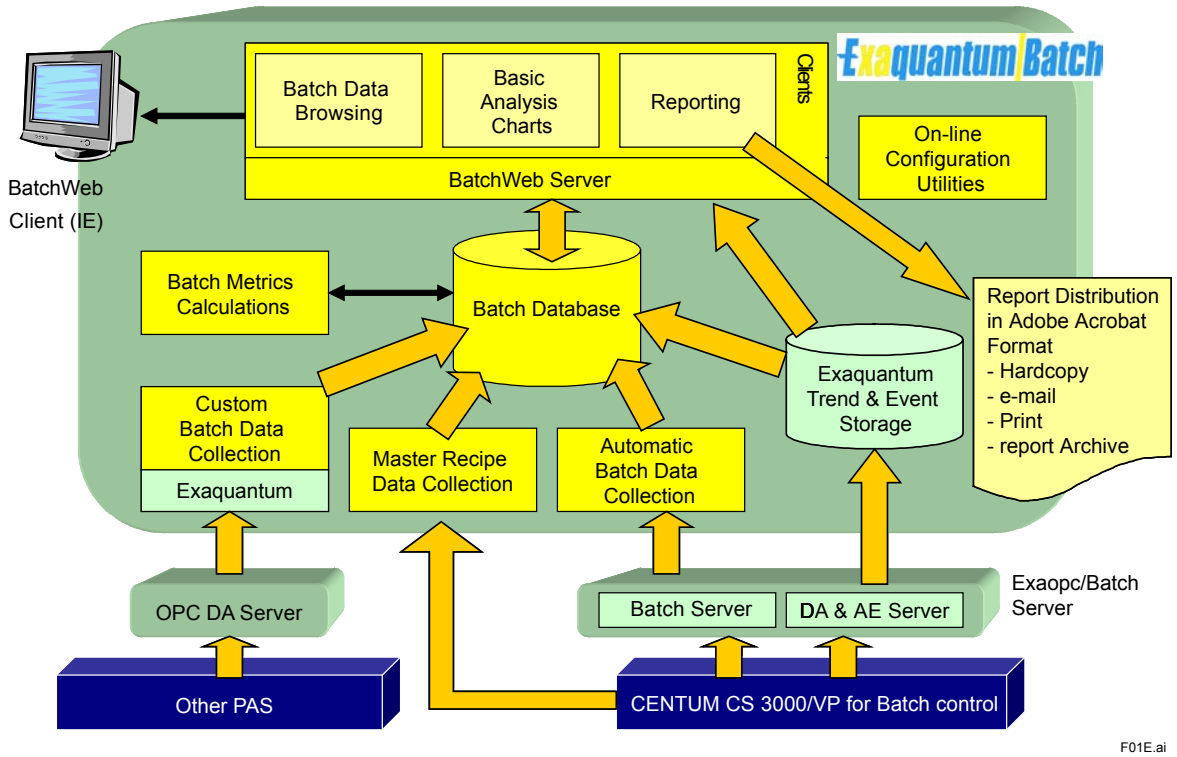

Figure: Exaquantum/Batch Overview

YOKOGAWA

Yokogawa Electric Corporation
2-9-32, Nakacho, Musashino-shi, Tokyo, 180-8750 Japan
Tel.: 81-422-52-6375 Fax.: 81-422-52-5994

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■ BENEFITS

- Market new products in less time.
- Reduced material costs.
- Increased productivity and plant utilization.
- Production data for improved decision making.
- Powerful data analysis and reporting capabilities leading to quicker batch approval.
- Supports Six Sigma programs.

■ BATCH DATA FUNCTIONS OVERVIEW

Exaquantum/Batch incorporates the field proven Exaquantum Data Historian. Users can analyze batch data through web clients and generate reports for improved decision making.

● Data Collection

Exaquantum/Batch includes the standard Exaquantum PIMS functions for trend, event and alarm data collection. In addition, Exaquantum/Batch provides the following two methods of data collection:

1. Automatic Batch Data Collection (ABDC)
ABDC is used to collect data from CENTUM CS 3000/VP for Batch control systems automatically. This is the primary method of data collection used by Exaquantum/Batch and once configured, will collect master recipe, equipment, batch and control recipe data without the need for complex engineering.

The detection of new master recipes or changes to existing recipes will trigger the collection of the master recipe allowing the master recipe contents at any point in time to be reconstructed.

2. Custom Batch Data Collection (CBDC)
CBDC is used to collect data from CENTUM CS 3000/VP for Batch control systems that do not use the Yokogawa batch package, batch control systems from other manufacturers or any OPC Data Access 2.05a enabled control or MES system.

● Data Storage and Integrity

Batch data is stored in a Microsoft SQL Server database. An internal log is maintained to provide an audit trail of user actions. To maintain the reliability and integrity of batch data, the following methods are used:

- Access Control – controls access to data collection and configuration tools.
- Audit Trail – logs all instances of manual data manipulation to a user name.
- Electronic Signature – requests approval of all changes and additions to Exaquantum/Batch data through user names and passwords. This is an optional feature that must be specified when purchasing Exaquantum/Batch.

● Batch Metrics

Exaquantum/Batch automatically provides batch metrics based on cycle times and other data in the batch record.

■ DATA VIEWS OVERVIEW

To enable users to quickly focus on specific information, a number of default 'views' are available through a menu selection. Each view has a number of related views, which may then be selected to display the data in a different format.

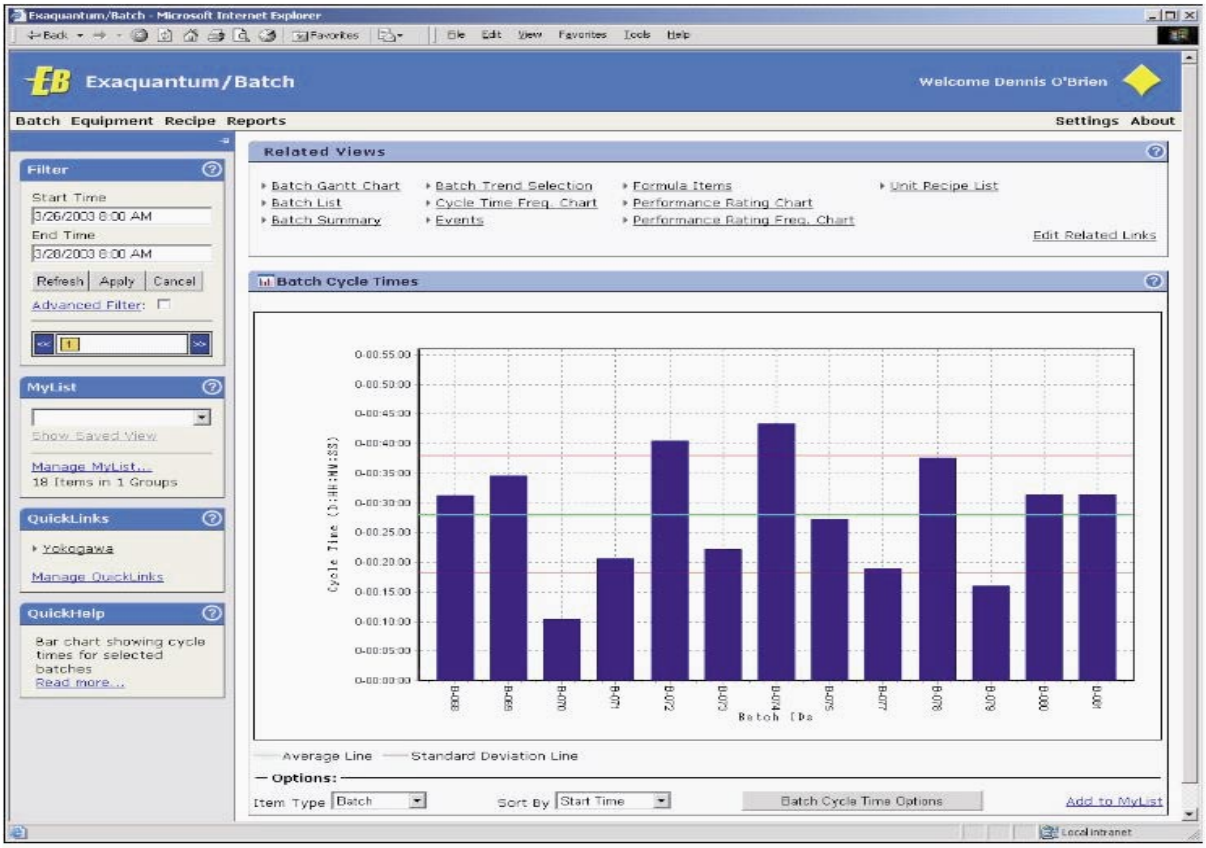

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Figure: Example BatchWeb View

● BatchWeb User Interface

BatchWeb is a web based user interface organized as a web site. Through on-screen menu selections, different sets of continuously updated batch, master recipe and equipment data, from both the Exaquantum and Exaquantum/Batch databases, may be viewed and selected for analysis using standard charts and lists.

● Batch View

Selecting the Batch View displays a list of batch records. By using the filter, batch records may be displayed for any time period and then selected for display in the following standard preformatted views:

- Batch Summary – displays a list of a batch's header and equipment properties.
- Formula – displays a list of a batch's formula items.
- Unit Recipes – displays a list of the unit recipes used in a batch.
- Events – displays a list of event messages for one or more batches, unit recipes or units.
- Gantt Chart – displays a chart showing how long each batch and unit recipe took to complete.
- Batch Trend Chart – displays a chart of batch trends based on one or more batch data values from the same or different time periods.
- Cycle Time Chart – displays a chart showing the cycle times for a set of batches or unit recipes.
- Cycle Time Frequency Chart – displays a chart showing the number of batches for a set of cycle time periods.
- Performance Rating Chart – display a chart showing performance ratings for a set of batches or unit recipes.
- Performance Rating Frequency Chart – displays a chart showing the number of batches for a range of performance ratings.

● Equipment View

Selecting the Equipment View displays a list of units available in the Exaquantum/Batch database from the equipment hierarchy which may then be selected for display in the following standard preformatted views:

- Equipment Hierarchy – displays the equipment hierarchy tree for a given point in time.
- Change Summary – displays a table showing how often a unit has been modified.
- Unit Usage Table – displays a list of batches and unit recipes that used a particular unit.
- Unit Utilization Chart – displays a Gantt chart showing how units have been used by unit recipes over time.

● Master Recipe View

Selecting the Master Recipe View display a list of master recipes available in the Exaquantum/Batch database which may then be selected for display in the following standard preformatted views:

- Detail – displays a 'printer friendly' listing of properties for a master recipe.
- Version History – displays an information summary for all or a set of master recipe revisions in the Exaquantum/Batch database.

● Report View

Selecting the Report View displays the Report Archive which provides a list of Exaquantum/Batch reports run, including reports run on events by the Exaquantum/Batch Server. Users may select a report template and manually run reports.

■ REPORTS

This powerful Exaquantum/Batch reporting feature provides:

- Secure Microsoft Excel based flexible reporting incorporating data from Batches, Master Recipes, Equipment, Trend values, Alarms and Events.
- Built-in reporting workflow to configure templates, approve templates, assign to report scheduler, run templates to generate reports, approve reports and view reports.
- 21 CFR Part 11 capable option is available, if required.

■ USER ACCESS

Access to BatchWeb is controlled by a System Administrator through the use of Microsoft Windows user accounts and groups.

■ Batch Data Archiving

Batch Data Archiving allows batches and/or reports to be archived for a user selectable date & time range. Once archived, the batch information and/or reports will be removed from the Exaquantum/Batch database.

There is currently no function to restore archived data however Batch data formula can be viewed by using the Archive Details Screen and reports can be viewed using Adobe Reader.

The Exaquantum archive function can be used to archive batch trend data and Alarms & Events.

■ HARDWARE/SOFTWARE PRE-REQUISITES

● Exaquantum/Batch Server – Small System with a maximum of 5 BatchWeb Clients

Hardware

- Single Intel 2 GHz Xeon processor minimum
- 1 Gbyte RAM minimum, 2 Gbytes recommended
- 100 Gbytes disk with Ultra SCSI interface

Software

- Windows Server 2003 Standard Edition (SP2) or
- Windows Server 2003 Standard Edition R2 (SP2) or
- Windows Server 2008 (SP2) 32-bit
- Internet Information Services (IIS)
- Microsoft Excel or Office 2000/XP/2003/2007 (*1)
- Microsoft Internet Explorer 6.0 (SP1 or SP2) or
- Microsoft Internet Explorer 7.0 or 8.0
- Adobe Reader 7/8.0/9.3 (*2)

*1: Only Office 2007 is supported at Windows Server 2008.

*2: It is neccessary to install Adobe Reader 7/8.0/9.3 to read Instruction Manual of Exaquantum/Batch.

● Exaquantum/Batch Server – Large System with no BatchWeb Clients (requires a separate web server) Exaquantum/Batch Data Server

Hardware
- Dual Intel 2 GHz Xeon processors minimum
- 2 Gbytes RAM minimum, 3 Gbytes recommended
- 200 Gbytes disk with Ultra SCSI interface

Software
- Windows Server 2003 Standard Edition (SP2) or
- Windows Server 2003 Standard Edition R2 (SP2) or
- Windows Server 2008 (SP2) 32-bit
- Internet Information Services (IIS)
- Microsoft Excel or Office 2000/XP/2003/2007 (*1)
- Microsoft Internet Explorer 6.0 (SP1 or SP2) or
- Microsoft Internet Explorer 7.0 or 8.0
- Adobe Reader 7/8.0/9.3 (*2)

● Exaquantum/Batch Web Server (with a maximum of 50 Concurrent BatchWeb Clients per server)

Hardware
- Dual Intel 2 GHz Xeon processors minimum
- 2 Gbytes RAM minimum, 3 Gbytes recommended
- 18 Gbytes disk with Ultra SCSI interface

Software
- Windows Server 2003 Standard Edition (SP2) or
- Windows Server 2003 Standard Edition R2 (SP2) or
- Windows Server 2008 (SP2) 32-bit
- Internet Information Services (IIS)
- Microsoft Internet Explorer 6.0 (SP1 or SP2) or
- Microsoft Internet Explorer 7.0 or 8.0
- Adobe Reader 7/8.0/9.3 (*2)

● Exaquantum/Batch Administration Client (Option)

Hardware
- Intel 1 GHz Pentium 4 processor
- 256 Mbytes RAM minimum, 512 Mbytes recommended, in case of Windows Vista, 1 Gbytes is recommended
- 4 Gbytes disk
- Screen resolution: 1024 x 768
- Display colors: 65,536 colors or more

Software
- Windows Server 2003 Standard Edition (SP2) or
- Windows Server 2003 Standard Edition R2 (SP2) or
- Windows Server 2008 (SP2) 32-bit or
- Windows XP Professional (SP3) or
- Windows Vista Business Edition (SP1 or SP2)
- Microsoft Internet Explorer 6.0 (SP1 or SP2) or
- Microsoft Internet Explorer 7.0 or 8.0
- Microsoft Excel or Office 2000/XP/2003/2007 (*1)
- Adobe Reader 7/8.0/9.3 (*2)

● Exaquantum/Batch Client (Batch/Web)

Hardware
- Intel 1 GHz Pentium 4 processor
- 256 Mbytes RAM minimum, 512 Mbytes recommended, in case of Windows Vista, 1 Gbytes is recommended
- 4 Gbytes disk
- Screen resolution: 1024 x 768
- Display colors: 65,536 colors or more

Software
- Windows Server 2003 Standard Edition (SP2) or
- Windows Server 2003 Standard Edition R2 (SP2) or
- Windows Server 2008 (SP2) 32-bit or
- Windows XP Professional (SP3) or
- Windows Vista Business Edition (SP1 or SP2)
- Microsoft Internet Explorer 6.0 (SP1 or SP2) or
- Microsoft Internet Explorer 7.0 or 8.0
- Adobe Reader 7/8.0/9.3 (*2)

● Recommended for use with ABDC CS 1000 and CS 3000 Batch HIS Batch Server

Hardware (Recommended)
- Intel 2 GHz Pentium 4 processor minimum
- 512 Mbytes RAM minimum
- 4 Gbytes disk

● Exaopc/Batch Server

Hardware (Recommended)
- Intel 2 GHz Pentium 4 processor minimum
- 512 Mbytes RAM
- 4 Gbytes disk

*1: Only Office 2007 is supported at Windows Server 2008.
*2: It is neccessary to install Adobe Reader 7/8.0/9.3 to read Instruction Manual of Exaquantum/Batch.

■ MODELS AND SUFFIX CODES

● Exaquantum/Batch Lite

Exaquantum/Batch Lite is an entry level product. It licenses the use of Exaquantum/Batch for 2 named Clients and a maximum of 10 recipes and 500 Exaquantum tags. Recipes are 'Active Recipes' when they are currently active within a CENTUM CS 3000 or VP Project. 'Tags' are Exaquantum/PIMS data historian tags (data points.)

An option for 21 CFR Part 11 is available.

Exaquantum/Batch Lite does not include CBDC, Exaopc or Exaopc/Batch which must be ordered separately, below.

Additional Recipes, Tags and/or Clients can only be purchased by upgrading to Exaquantum/Batch.

		Description
Model	NTPB010	Exaquantum/Batch Lite
Suffix Codes	-S	Basic Software License
	1	New Order (with Media)
	1	English Version
	-0001	10 Active Recipes/500 Tags
Option Code	/Part11	With 21 CFR Part 11

● Exaquantum/Batch

The license for Exaquantum/Batch includes 4 named Clients with a maximum of 999 recipes and 5000 Exaquantum tags. Recipes are 'Active Recipes' when they are currently active within a CENTUM CS 3000 or VP Project. 'Tags' are Exaquantum/PIMS data historian tags (data points.)

An option for 21 CFR Part 11 is available.

Exaquantum/Batch does not include CBDC or Exaopc/Batch which must be ordered separately, below. Additional Clients may also be ordered below.

		Description
Model	NTPB001	Exaquantum/Batch
Suffix Codes	-S	Basic Software License
	1	New Order (with Media)
	1	English Version
	-0011	10 Active Recipes/1000 Tags
	-0053	50 Active Recipes/3000 Tags
	-0095	999 Active Recipes/5000 Tags
Option Code	/Part11	With 21 CFR Part 11

● Exaquantum/Batch Clients (BatchWeb)

The standard version of Exaquantum/Batch includes 4 named user licenses however additional user licenses may be purchased. Additional BatchWeb Clients cannot be ordered with Exaquantum/Batch Lite.

		Description
Model	NTPB002	Exaquantum/Batch
Suffix Codes	-S	Basic Software License
	1	Always 1
	1	English Version
	-XX	Enter the exact number of additional Clients required

● Exaquantum/Batch Custom Batch Data Collection (CBDC) Package

This package provides a Custom Batch Data Collection interface for Exaquantum/Batch.

CBDC can be ordered with Exaquantum/Batch Lite or Exaquantum/Batch.

Exaquantum/Batch could support one ABDC and 15 CBDC systems.

When there is a requirement for both Automatic Batch Data Collection (ABDC) and Custom Batch Data Collection (CBDC), please contact Yokogawa in advance.

		Description
Model	NTPB003	Exaquantum/Batch Options
Suffix Codes	-S	Basic Software License
	1	New Order (with Media)
	1	English Version
	-0001	Custom Batch Data Collection Package

Note: Neither Exaquantum/Batch R1.01 (or later) or Exaopc/Batch R3.01.50 (or later) supports CS Batch 3000, CENTUM VP for Batch control Multiple Project Connections.

■ TRADEMARKS

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