

General Specifications

VP6H2411, VP6H2412
Exaopc OPC Interface Package (for HIS)
CENTUM Data Access Library



GS 33J05F10-01EN

[Release 6]

■ GENERAL

This document describes about Exaopc OPC interface package which provides process data server function with the Human Interface Station (HIS). Exaopc enables the client application accesses the process data and events via the OPC server. With this package, CENTUM VP can easily be connected with Manufacturing Execution System (MES) software or Plant Information Management System (PIMS) software.

By using the CENTUM's data access library, the client application can be developed efficiently.

■ VP6H2411 EXAOPC OPC INTERFACE PACKAGE (FOR HIS)

The Exaopc OPC interface package (for HIS) provides an interface that is compliant with the OPC standard interface developed by the OPC Foundation. It also has Yokogawa's proprietary functions to act as a more advanced interface.

Exaopc is an OPC server, which can be connected to a variety of Process Control Systems (PCs) and provides an OPC client with process data via OPC interface. With the package, the OPC client can acquire and define process data from DCSes and receive alarm and events.

This General Specifications covers the specifications of the Exaopc OPC Interface Package.

Major Applications

The Exaopc OPC Interface can be used in a wide variety of the OPC client applications.

- Yokogawa's MES packages such as Exapilot (Operation Efficiency Improvement Package)
- User applications created by Visual Basic or Visual C#

● Functional Specifications

The Exaopc OPC interface package provides an interface compliant with the OPC specifications.

Data Access (DA) Server

DA Server is adopted to read and write process data using item IDs as identifiers.

Alarms & Events (A&E) Server

A&E Server notifies the following alarms and events that asynchronously occur in plants. (*1)

- System alarm messages
- Process alarm messages
- Mode/status change messages
- Sequence messages
- Operation guide messages
- Engineering maintenance messages
- Operation record messages
- Server internal errors

*1: The Exaopc OPC Interface Package (NTPF100-S6□) is required for receiving alarms and events generated by Consolidated Alarm Management Function (CAMS for HIS).

Historical Data Access (HDA) Server

The OPC client is enabled to access PCS data by connecting to the HDA Server.

Batch Server

Batch Server is adopted to read and write common blocks and recipe data.

● System Configuration

Server/Client Composition

Two client/server configurations are available as shown below:

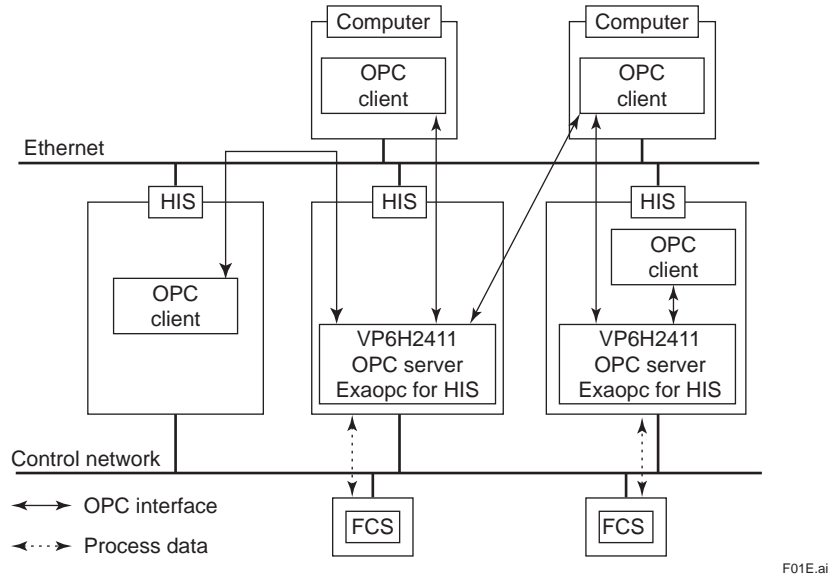
- The OPC client is installed in a computer with the Exaopc.
- The OPC client is installed in a different computer from the one with the Exaopc.

Multiple Clients

Users can access one Exaopc from multiple OPC clients.

Multiple Servers

Users can access multiple Exaopc from one OPC client.



- **Application Capacity**

DA Server

Number of clients (Number of server objects) :4 clients
 Number of groups (Number of group objects): 20 groups
 Number of Item IDs: 1000 item IDs/group, 20000 item IDs/ all groups
 Cache update period (Data gathering period): 1 to 3600 sec
 Throughput of data access: Max. 500 item IDs/sec

A&E Server

Number of clients (Number of server objects): 4 clients
Number of event-registered objects: Max. 20 objects (Max. number of event subscription objects)

HDA Server

Number of clients (Number of server objects): 4 clients
 Number of browser (Number of browser objects): 8 browser/server object, 32 browser/all server objects
 Number of item IDs: 1000 item IDs/group
 Max. historical data save period: Not restricted (Depends on trend definitions)

Batch Server

Number of clients (Number of server objects): 4 clients
Number of groups (Number of group objects): 5 groups
Number of item IDs: 1000 item IDs/group

● Supported OPC Specifications

The Exaopc OPC interface package provides the OPC client an interface with the following specifications:

DA Server

- OPC Data Access Custom Interface Specification Version 2.05A
- OPC Data Access Automation Specification Version 2.0
- OPC Security Custom Interface Specification Version 1.0 (*1)

A&E Server

- OPC Alarms and Events Custom Interface Specification Version 1.10
- OPC Security Custom Interface Specification Version 1.0 (*1)

HDA Server

- Yokogawa Electric Corporation's proprietary specification. The HDA server refers to a server dedicated for the CENTUM data access libraries.
- OPC Security Custom Interface Specification Version1.0 (*1)

Batch Server

- Yokogawa Electric Corporation's proprietary specification. The batch server refers to a server dedicated for the CENTUM data access libraries.

*1: When connecting each OPC server with an OPC client, a log-in user can be authenticated by user/password.

● Operating Environment

VP6H2411 Exaopc OPC Interface Package (for HIS)

The operating environment is the same as Model VP6H1100 Standard Operation and Monitoring Function.

Necessary Software: VP6H1100 Standard Operation and Monitoring Function

OPC Client

A computer with Windows OS

Windows OS and Service Pack (abbreviated as SP) conform to the operating environment for VP6H1100 Standard Operation and Monitoring Function.

The following Windows OS is also supported.

- Windows 10 Pro (32-bit / 64-bit)

■ VP6H2412 CENTUM DATA ACCESS LIBRARY

● General

CENTUM Data Access Library processes all the OPC communication protocols within the library and provides an interface to access process data. With this library, users are enabled to develop applications more efficiently since coding for complicated OPC communication protocols, which demands lots of resources, are no longer needed.

● Functional Specifications

The CENTUM Data Access Library is provided as a library control for Microsoft Visual Basic.NET and Visual C# with the following functions:

Station information (DA server)

Acquires a list of stations defined by the system configuration definition and other station information such as models and operating statuses.

Tag information (DA server)

Acquires a list of tags contained in control stations and other tag information such as tag comments and instrument names.

Tag data item information (DA server)

Acquires a list of tag data items as well as other tag data item information (e.g. engineering units and item comments), current values, and quality codes. Values for tag data items can also be set.

Common Block information (Batch server)

Acquires a list of common blocks defined in the system.

Common block data item information (Batch server)

Acquires a list of common block data items as well as other common block data item information (e.g. engineering units and item comments), and current values. Values for the common block data items can be set.

Recipe information (Batch server)

Acquires information related to recipe headers (e.g. recipe names, recipe product names), as well as lists of names of recipes defined by the system and control recipe batch IDs.

Messages (A&E server)

Acquires historical messages and generates operator guide messages using arbitrary character strings.

Trend data (HDA server)

Acquires a list of item IDs ("tag name, tag data item name, and data acquisition cycle") of target historical trend data as well as historical trend data during the specified period.

Closing data (HDA server)

Acquires a list of item IDs ("tag name, tag data item name") of target closing data, and closing data during the specified period.

HIS Startup information (A&E server)

Acquires the start date and time of the HIS which is the target of the OPC server.

Event (A&E server)

Acknowledges the occurrence of sequence messages, operator guide messages, and HIS shutdown as events.

● Operating Environment

User Application Development Environment

The following user application development environments are supported.

- Visual Studio 2008 SP1 Visual Basic (*1)
- Visual Studio 2012 Visual Basic (*2)
- Visual Studio 2013 Visual Basic (*2)
- Visual Studio 2017 Visual Basic (*3)
- Visual Studio 2019 Visual Basic (*4)
- Visual Studio 2008 SP1 C# (*1)
- Visual Studio 2012 C# (*2)
- Visual Studio 2013 C# (*2)
- Visual Studio 2017 Visual C# (*3)
- Visual Studio 2019 Visual C# (*4)

Note: The CENTUM data access library can be used by 32-bit or larger applications.
Programs must be developed as 32-bit applications.

- *1: Visual Studio 2008 is supported by R6.05.00 or before. But it does not support Windows 10 by R6.04.00 and R6.05.00.
- *2: Visual Studio 2012 and 2013 is supported by R6.05.00 or before.
- *3: Visual Studio 2017 is supported by R6.06.00 or later. But it does not support Windows 10 (IoT) Enterprise 2016 LTSC, Windows 10 (IoT) Enterprise LTSC 2019, and Windows 10 (IoT) Enterprise LTSC 2021.
- *4: Visual Studio 2019 is supported by R6.10.00 or later. But it does not support Windows 10 (IoT) Enterprise 2016 LTSC, Windows 10 (IoT) Enterprise LTSC 2019, and Windows 10 (IoT) Enterprise LTSC 2021.

User Application Execution Environment

An HIS or a computer connected to the network.

As for Windows OS and associated Service Packs, the operating environment must conform with the ones for VP6H1100 Standard Operation and Monitoring Function. The following Windows OS can also be used for computers other than HIS.

- Windows 10 Pro (32-bit / 64-bit)

VP6H2412 CENTUM Data Access Library

The same operating environment for as the VP6H1100 Standard Operation and Monitoring Function is applied.

Necessary Software:

VP6H1100 Standard Operation and Monitoring Function, VP6H2411 Exaopc OPC Interface Package (for HIS), and VP6H6660 (*1) Process Management Package are required.

- *1: Required when accessing batch data (common blocks and recipe data). Batch data access is not supported for CENTUM CS system.

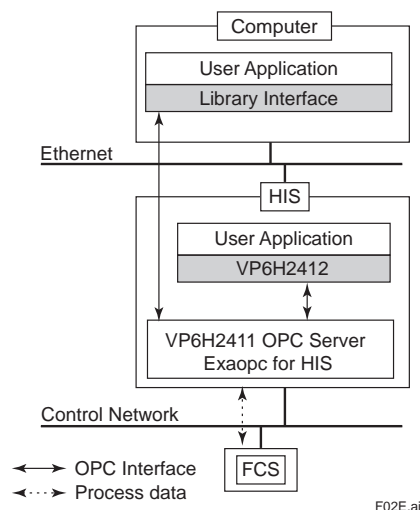


Figure HIS or a computer where user applications are performed

● Application Capacity

The same application capacity as the VP6H2411 Exaopc OPC Interface Package (for HIS) applies.

■ MODEL AND SUFFIX CODES

Exaopc OPC Interface Package (for HIS)

		Description
Model	VP6H2411	Exaopc OPC Interface Package (for HIS)
Suffix Codes	-V	Software license
	1	Always 1
	1	English version

CENTUM Data Access Library

		Description
Model	VP6H2412	CENTUM Data Access Library
Suffix Codes	-V	Software license
	1	Always 1
	1	English version

■ ORDERING INFORMATION

Specify model and suffix codes.

■ TRADEMARK ACKNOWLEDGMENT

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