

# General Specifications

Model LHS5100, LHM5100  
Standard Builder Function



GS 33K10D10-50E

[Release 5]

## ■ GENERAL

The standard builder function package is used for configuring the system of CENTUM VP. It creates database necessary for implementing operation and monitoring functions and control functions.

## ■ FUNCTION SPECIFICATIONS

The following table shows data defined by the Standard Builder Function:

Category	Builder Name	Description
Project Common	Station Configuration Viewer	Displays station addresses and station models in the system.
	Security Builder	Defines security such as HIS user management and right of access to tags.
	Operation Mark Builder	Defines operation marks used on HIS.
	Multiple Project Connection Builder (*1)	Defines multiple projects.
	Plant Hierarchy Builder	Defines plant hierarchy.
	Tag Name Hierarchy Builder	Defines tag name hierarchy.
	Engineering Unit Symbol Builder	Defines engineering unit symbols.
	Switch Position Label Builder	Defines switch position labels.
	State Transition Matrix Builder	Defines state transition matrix of units.
	Alarm Processing Builder	Defines how alarms occur.
	Alarm Priority Builder	Defines alarm priority.
	User-Defined Status Character String Builder	Defines status names (character strings).
	System-fixed Status Character String Builder	Displays system-fixed status character string.
	Status Change Command Character String Builder	Defines status change command.
	CAMS for HIS Alarm Builder	Defines alarms and events operation, attributes and the user privilege.
	CAMS for HIS Alarm Group Builder	Defines alarm groups.
CAMS for HIS Shelf Builder	Defines shelf information.	
CAMS for HIS Message Monitor Builder	Defines the layout of the message monitor of CAMS for HIS.	
Batch Functions (*1)	Process Management Configuration Builder	Defines entire process and each recipe group.
	Common Block Builder	Defines common blocks.
	Unit Common Block Builder	Defines common block associations with a unit or operation block.
	Train Builder	Defines trains.
	Product Control Builder	Defines the Product Control Window.

\*1: Requires optional package(s)

Category	Builder Name	Description
Control Functions (for FCS)	FCS Constant Builder	Defines constants of FCS.
	Equipment Builder	Defines equipment.
	IOM Builder	Defines the specifications for terminals of IOM.
	Fieldbus Builder	Defines fieldbus devices. (*2)
	PROFIBUS-DP Configurator	Defines PROFIBUS-DP devices. (*3)
	Communication I/O Builder	Defines each point of devices connected with subsystem communication packages
	Common Switch Builder	Defines common switches.
	Global Switch Builder	Defines global switches.
	Annunciator Builder	Defines annunciator messages.
	Operator Guide Message Builder	Defines operator guide messages.
	Print Message Builder	Defines printed (logged) messages.
	Signal Event Message Builder	Defines signal event messages.
	Function Block List Builder	Defines the order of execution, tag name, and model of each function block.
	Control Drawing Builder	Graphically defines the order of execution, tag name, model and connections of each function block in the control drawing.
	Function Block Details Builder	Defines the detailed specifications of each function block.
	Status Display Builder (*1)	Defines the Control Drawing and Status Display Window for logic charts.
	SEBOL User Function Builder	Defines SEBOL user functions.
SFC Sequence Builder	Defines SFC sequences.	
Unit Procedure Builder	Defines unit procedures.	
Operation and Monitoring Functions (for HIS)	HIS Constant Builder	Defines constants of HIS.
	Trend Data Acquisition Pen Assignment Builder	Assigns data items to trend acquisition pens.
	Scheduler Builder	Defines the schedule of Windows applications.
	Sequence Message Request Builder	Defines the processing corresponding to sequence messages sent from FCS.
	Function Key Assignment Builder	Defines function key assignment.
	Graphic View Builder (*1)	Defines the Graphic View.
	Panel-set Builder	Defines the window combination for a panel-set.
Others	Help Dialogue Builder	Defines Help for tags and windows.
	BCV Builder (property)	Defines constants of BCV.
	CGW Builder (property)	Defines constants of CGW.
	Tag List Generation Builder	Specifies tags and messages of previous Yokogawa control systems which are to be accessed from HIS. Creates tag lists of SCS for ProSafe-RS.

Note: HIS: Human Interface Station. FCS: Field Control Station. IOM: I/O Module. BCV: Bus Converter. CGW: Communication Gateway Unit. SCS: Safety Control Station

\*1: Requires optional package(s)

\*2: Use of Software download functions requires the HIS-OPC server.

\*3: This configurator is applicable only to ALP121 module. For details, refer to GS for PROFIBUS-DP Communication Module (for FIO) (GS 33K50G85-50E). As for the configurator for ALP111 module, refer to GS for PROFIBUS-DP Communication Module (for FIO) (GS 33K50G80-50E).

## ■ COORDINATION WITH SmartPlant Instrumentation

The DCS engineering and the instrumentation design engineering in the upper phase treat the same definition information such as the tag name and the span. CENTUM VP (hereinafter referred to as VP) has the interface function with SmartPlant Instrumentation of Intergraph Corporation, which enables the VP builder and SmartPlant Instrumentation to reuse the common definition information each other. If the database of SmartPlant Instrumentation is set a master, the SmartPlant Instrumentation side can consolidate the management of the plant engineering data including the lower phase engineering data of VP builder.

By consolidating the management of the database and providing the interactive interface between SmartPlant Instrumentation and VP, the duplicative definition information entry, omission and mistakes in each of SmartPlant Instrumentation and VP can be prevented, so that the engineering work can be efficiently performed.

The matches of versions between VP and SmartPlant Instrumentation for data exchange are shown as follows. The match of versions not listed in the table cannot exchange data.

CENTUM VP Software Release Number	Smartplant Instrumentation Version Number	
	V7+SP6 (*1)	V8 (*2)
R5.01	Applicable	Applicable
R5.02	Applicable	Applicable
R5.03	Applicable	Applicable

\*1: Version 7 Service Pack 6

\*2: Version 2007 Service Pack 6 Hot Fix 7

### ● Engineering Data Exchange Function

The VP engineering function exchanges the engineering data with SmartPlant Instrumentation interactively, which allows the correction of the database of SmartPlant Instrumentation to be reflected in the data of VP. Also, VP can reflect the engineering data in SmartPlant Instrumentation when SmartPlant Instrumentation is introduced newly.

### ● Applicable Data for Data Exchange

The following data are available for the data exchange between SmartPlant Instrumentation and VP.

- FIO Data
- FOUNDATION™ fieldbus Device Data

Seeing from the VP engineering function side, the following databases are exchangeable.

FCS data on which FIO I/O module can be installed

- Data about the system view
  - The FCS name, the node number, the slot number, the card name, and dual-redundancy of the card
- IOM builder
  - The terminal number, the I/O name, signal transformation, the P&ID tag name, the IOM range lower limit, the IOM range upper limit, and the IOM range industrial unit
- Control drawing (single loop)
  - The I/O name, the function block tag name, the drawing number, the instrument model, the combination terminal, the range lower limit, the range upper limit, the industrial unit, the I/O comment, the function block tag comment, and input process

FOUNDATION fieldbus device Data

- System view
  - The FCS name, the node number, the slot number, the card name, dual-redundancy of the card, and the segment number
- Fieldbus builder
  - The device tag name, the manufacturer name, the device type, the device revision, the FOUNDATION fieldbus faceplate block tag name, the node address, and the block ID
- Control drawing
  - The FOUNDATION fieldbus faceplate block tag name, the drawing number, the instrument model, the OUT\_SCALE lower limit, OUT\_SCALE upper limit, the OUT\_SCALE industrial unit, the XD\_SCALE lower limit, the XD\_SCALE upper limit, the XD\_SCALE industrial unit, the tag comment, and input process

### ● Data Transfer Unit

The data transfer unit can be selected from the following.

- FCS
- the node
- the I/O card
- Drawing

### ● Export Function

The Export function converts the database of VP into a form that allows it to be loaded into the SmartPlant Instrumentation side. It is used to transfer the database on the VP side to the master when SmartPlant Instrumentation is introduced.

### ● Import Function

If the database on the SmartPlant Instrumentation side is a master, it is necessary to reflect the change on the SmartPlant Instrumentation side in the database on the VP side. This function detects the difference between the databases on the SmartPlant Instrumentation side and on the VP side and reflects the difference in the VP side.

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## ■ BACK-UP FUNCTION ON ENGINEERING FILE

Normally, the entire project is backed up. Target FCS project databases and common project files related to the FCS can also be backed up automatically.

### FCS Automatic Back-up Function

In order to prevent loss of the project database due to the reasons such as hard disk failure, the FCS's latest database is automatically backed up to another computer disk at each on-line load. For this purpose, the free disk space of 200 MB or more is required on the computer. Should an inconsistency in the FCS databases occur, the FCS generation check function will cause an error message during the next generation or system view start-up.

## ■ Device Panel

This tool is a function included in the fieldbus engineering function. It facilitates applying the device database created in the engineering work to an actual device. Moreover, a wealth of functions to replace the field devices efficiently are available.

In the engineering work of the FOUNDATION fieldbus system, the database of the device in the fieldbus system is created with the fieldbus engineering tools.

This work is available offline, so actual fieldbus devices need not be connected.

Then, if the database of the device created in the engineering work is applied to the device in the field at the start-up work, the fieldbus system that actually operates together with the CENTUM VP system will be completed.

### ● Function of DevicePanel

- A series of works related to device information registration (database) can be done in DevicePanel.
- System construction/operation can be more efficient by putting device parameter value as well as information related to its setting procedures into one template and using it for other devices of the same type.
- This function manages the actual state of the device connected with the fieldbus segment (whether the engineering database is reflected in the actual machine, whether it is combined to the CENTUM VP system, whether there is any communication abnormality) and can take the appropriate responses to the device state.
- The information on the device connected with the segment can be visually displayed.
- The database created in the engineering work can be applied to the actual device easily and easy replacement work of the devices can be realized.
- It is available in the field because it operates even on the computer not connected directly with the control bus. (using the Server for Remote Operation and Monitoring Function)

### ● Relation to Other Functions

- This function is called a device information list display function by the CENTUM VP fieldbus builder. (\*1)  
\*1: A series of works for device newly connected to a segment, from device identification to registration to database and equalization, can be done on DevicePanel without using fieldbus builder.

## ■ OPTIONAL SOFTWARE PACKAGES

The following optional software packages are available to add on to Standard Builder Function:

- LHS5150 Graphic Builder
- LHS5165 Batch Builder
- LHS5166 Recipe Management Package
- LHS5420 Test Function (If LHS5100 is used)
- LHM5150 Test Function (If LHM5100 is used)
- LHS5425 Expanded Test Functions
- LHS5426 FCS Simulator Package
- LHS5427 HIS Simulator Package
- LHS5450 Multiple Project Connection Builder
- LHS5490 Self-Documentation Package

## ■ OPERATING ENVIRONMENT

### ● Hardware Requirements

Hardware requirements for LHS5100, LHM5100 Standard Builder Function package are described in this section. As to the hardware requirements for LHS1100, LHM1101 Standard Operation and Monitoring Function package (GS 33K05D10-50E), and LHS1150, LHM1150 Server for Remote Operation and Monitoring Function package (GS 33K05D20-50E), see the corresponding General Specifications.

The Standard Builder Function runs on a computer which meets the following requirements:

For Windows 7

<b>CPU</b>	Required	Core2 Duo minimum 2.13 GHz Xeon dual core minimum 2.0 GHz
<b>Main memory</b>	Required	6 GB
<b>Hard disk</b>	Required	Free space of minimum 20 GB
	Recommended	Free space of minimum 40 GB
<b>Display</b>	Required	Minimum SXGA (1280x1024) resolution, True Color (min. 16.77 million colors)
	For wide screen	Minimum WXGA+ (1440x900) resolution, True Color (min. 16.77 million colors)
<b>Graphics</b>	Required	DirectX 9-class GPU(Graphics Processing Unit) that supports <ul style="list-style-type: none"> <li>• A WDDM(Windows Driver Display Model) Driver</li> <li>• Pixel Shader 2.0 in hardware</li> <li>• 32 bits per pixel</li> <li>• 128 MB Graphics memory</li> </ul>
<b>Expansion slot</b>	Required	1 slot is used for control network interface (*1)
<b>Mouse</b>	Required	
<b>Optical disc drive</b>	Required	DVD-ROM

\*1: VI702/VI701 or VF702/VF701 is required for control network interface card.

For Windows Vista

<b>CPU</b>	Required	Core2 Duo minimum 2.13 GHz Xeon dual core minimum 2.0 GHz
<b>Main memory</b>	Required	4 GB
<b>Hard disk</b>	Required	Free space of minimum 20 GB
	Recommended	Free space of minimum 40 GB
<b>Display</b>	Required	Minimum SXGA (1280x1024) resolution, True Color (min. 16.77 million colors)
	For wide screen	Minimum WXGA+(1440x900) resolution, True Color (min. 16.77 million colors)
<b>Graphics</b>	Required	DirectX 9-class GPU(Graphics Processing Unit) that supports <ul style="list-style-type: none"> <li>• A WDDM(Windows Driver Display Model) Driver</li> <li>• Pixel Shader 2.0 in hardware</li> <li>• 32 bits per pixel</li> <li>• 128 MB Graphics memory</li> </ul>
<b>Expansion slot</b>	Required	1 slot is used for control network interface
<b>Mouse</b>	Required	
<b>Optical disc drive</b>	Required	DVD-ROM

\*1: VI702/VI701 or VF702/VF701 is required for control network interface card.

For Windows Server 2008

<b>CPU</b>	Required	Xeon dual core minimum 2.93 GHz
<b>Main memory</b>	Required	4 GB
<b>Hard disk</b>	Required	Free space of minimum 20 GB
	Recommended	Free space of minimum 50 GB
<b>Display</b>	Required	Minimum SXGA (1280x1024) resolution, True Color (min. 16.77 million colors)
	For wide screen	Minimum WXGA+ (1440x900) resolution, True Color (min. 16.77 million colors)
<b>Graphics</b>	Required	DirectX 9-class GPU(Graphics Processing Unit) that supports <ul style="list-style-type: none"> <li>• A WDDM(Windows Driver Display Model) Driver</li> <li>• Pixel Shader 2.0 in hardware</li> <li>• 32 bits per pixel</li> <li>• 128 MB Graphics memory</li> </ul>
<b>Expansion slot</b>	Required	1 slot is used for control network interface (*1)
<b>Mouse</b>	Required	
<b>Optical disc drive</b>	Required	DVD-ROM

\*1: VI702/VI701 or VF702/VF701 is required for control network interface card.

For Windows Server 2008 R2

<b>CPU</b>	Required	Xeon dual core minimum 2.93 GHz
<b>Main memory</b>	Required	8 GB
<b>Hard disk</b>	Required	Free space of minimum 20 GB
	Recommended	Free space of minimum 50 GB
<b>Display</b>	Required	Minimum SXGA (1280x1024) resolution, True Color (min. 16.77 million colors)
	For wide screen	Minimum WXGA+ (1440x900) resolution, True Color (min. 16.77 million colors)
<b>Graphics</b>	Required	DirectX 9-class GPU (Graphics Processing Unit) that supports <ul style="list-style-type: none"> <li>• A WDDM(Windows Driver Display Model) Driver</li> <li>• Pixel Shader 2.0 in hardware</li> <li>• 32 bits per pixel</li> <li>• 128 MB Graphics memory</li> </ul>
<b>Expansion slot</b>	Required	1 slot is used for control network interface (*1)
<b>Mouse</b>	Required	
<b>Optical disc drive</b>	Required	DVD-ROM

\*1: VI702/VI701 or VF702/VF701 is required for control network interface card.

● **Software Requirements**

Software requirements for LHS5100, LHM5100 Standard Builder Function package are described in this section.

As to the software requirements for LHS1100, LHM1101 Standard Operation and Monitoring Function package (GS 33K05D10-50E), and LHS1150, LHM1150 Server for Remote Operation and Monitoring Function package (GS 33K05D20-50E), see the corresponding General Specifications.

**Windows OS**

The relations between Windows and CENTUM VP	Windows 7 Professional	Windows Vista Business Edition	Windows Server 2008 Standard Edition	Windows Server 2008 R2 Standard Edition	Windows Server 2003 Standard Edition	Windows Server 2003 R2 Standard Edition
	64-bit	32-bit	32-bit	64-bit	32-bit	32-bit
	SP1	SP2	SP2	SP1	SP2	SP2
R5.01	Yes	Yes	Yes	Yes	No (*1)	No (*1)
R5.02	Yes	Yes	Yes	Yes	No (*1)	No (*1)
R5.03	Yes	Yes	Yes	Yes	No (*1)	No (*1)
R5.04	Yes	Yes	Yes	Yes	No (*1)	No (*1)

Note: Service Pack is abbreviated as SP (Example: SP1 stands for Service Pack 1).

Yes: Compatible

No: Incompatible

\*1: Windows Server 2003 Standard Edition, Windows Server 2003 R2 Standard Edition can only be used as file server of project database.

The following software is required for some packages used with LHS1100, LHM1101 Standard Operation and Monitoring Function package.

As to the required versions for respective software, refer to the tables below.

**Windows Internet Explorer**

The relations between Internet Explorer and CENTUM VP	Internet Explorer	
	8.0	9.0
R5.01	Yes	Yes
R5.02	Yes	Yes
R5.03	Yes	Yes
R5.04	Yes	Yes

**Microsoft Visual Studio**

The relations between Microsoft Visual Studio and CENTUM VP	Microsoft Visual Studio	
	2008 SP1	2012
R5.01	Yes	No
R5.02	Yes	No
R5.03	Yes	No
R5.04	Yes	Yes

**Microsoft Excel**

The relations between Microsoft Excel and CENTUM VP	Microsoft Excel					
	2007		2010			2013
	32-bit		32-bit			32-bit
	SP2	SP3	without SP	SP1	SP2	SP1
R5.01.00	Yes	No	Yes	Yes	No	No
R5.01.10	Yes	No	Yes	Yes	No	No
R5.01.20	Yes	Yes	Yes	Yes	No	No
R5.02	Yes	Yes	Yes	Yes	No	No
R5.03.00	Yes	Yes	Yes	Yes	Yes	Yes (*1)
R5.03.20	Yes	Yes	No	Yes	Yes	Yes (*1)
R5.04	No	Yes	No	No	Yes	Yes (*2)

\*1: In case the Repot Package is used with Microsoft Excel 2013, please contact Yokogawa for more details.

\*2: In case of using Microsoft Excel 2013, please use a Microsoft Open License.

**Adobe Acrobat**

The relations between Adobe Acrobat and CENTUM VP	Adobe Acrobat			
	9.4	9.5	10.1	11.0
R5.01	Yes	Yes	Yes	No
R5.02	No	Yes	Yes	No
R5.03	No	Yes	Yes	Yes (*1)
R5.04	No	Yes	Yes	Yes (*1)

\*1: Adobe Acrobat version 11.0 does not support Windows Vista Business Edition SP2.

## ■ MODEL AND SUFFIX CODES

		Description
<b>Model</b>	LHS5100	Standard Builder Function [Media model: LHSKM50-V11]
<b>Suffix Codes</b>	-V	Software license
	1	Always 1
	1	English version
<b>Option Codes</b>	/N0001	The number of FCSes is one station.
	/N0003	The number of FCSes is up to three stations.
	/N0004	The number of FCSes is up to four stations.
	/N0099	The number of FCSes is more than five stations.

Note: Specify optional code “/N□□□□” which determines the number of FCSs that can be engineered. Count the number of all the FCSs in the same project. The number of SCSs (Safety Control Stations) can be ignored as those can be engineered without counting. When LHS5450/LHS4450 Multiple Project Connection Package (GS 33K05K20-50E) is applied, the FCSs in other projects can be engineered without counting as well.

		Description
<b>Model</b>	LHS5100	Standard Builder Function (for Expansion) [Media model: LHSKM50-V11]
<b>Suffix Codes</b>	-E	Software license for the number of stations added
	1	Always 1
	1	English version
<b>Option Codes</b>	/N0103	From 1 station to 3 stations or less
	/N0104	From 1 station to 4 stations or less
	/N0199	From 1 station to 5 stations or more
	/N0304	From 3 stations or less to 4 stations or less
	/N0399	From 3 stations or less to 5 stations or more
	/N0499	From 4 stations or less to 5 stations or more

		Description
<b>Model</b>	LHM5100	Standard Builder Function for CENTUM VP Entry Class [Media model: LHSKM50-V11]
<b>Suffix Codes</b>	-V	Software license
	1	Always 1
	1	English version

Note: ABC11D-H□□□□□ (For Dual-Redundant HF-bus) is not available.

### ■ NOTE

If you want to run general-purpose Windows application software on the computer with Standard Builder Function, ask Yokogawa’s sales office about compatibility issues.

### ■ ORDERING INFORMATION

Specify model and suffix codes.

### ■ TRADEMARKS

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