

# General Specifications

Model LFS1250  
GSGW  
Generic Subsystem Gateway Package



GS 33K20F10-50E

[Release 5]

## ■ GENERAL

GSGW is an operation and monitoring station for subsystems that are pre-process and post-process pieces of equipment in a DCS. With its PC platform, GSGW can communicate with subsystems through a general-use OPC DA interface.

GSGW incorporates function blocks, and subsystems data are assigned thereto. These function blocks, like control stations, allow subsystem operation and monitoring through a human interface station (HIS). In subsystem communications functions using an FCS, dedicated hardware and interface features allow subsystem operation and monitoring with high reliability. GSGW uses general hardware and an interface to address subsystem operation and monitoring functions.

## ■ SYSTEM CONFIGURATION

GSGW connects to a V net or Vnet/IP. For OPC servers, subsystem supplier or the third-party vendor servers are used. Connections to an OPC server are classified into two types as given below:

### ● When GSGW is on a PC separate from the OPC server

Connection to the subsystem network is made through an OPC server through Ethernet or Vnet/IP. This configuration is used to connect to multiple OPC servers.

### ● When GSGW and the OPC server are on the same PC

Connection to a network specific to subsystems is made directly from GSGW. Insert an interface card connected to the subsystem network into GSGW. This configuration is used to connect to one OPC server.

Note: If an OPC server of the third-party vendor runs on the same PC as GSGW, make sure that it will cause no problem. Contact Yokogawa.

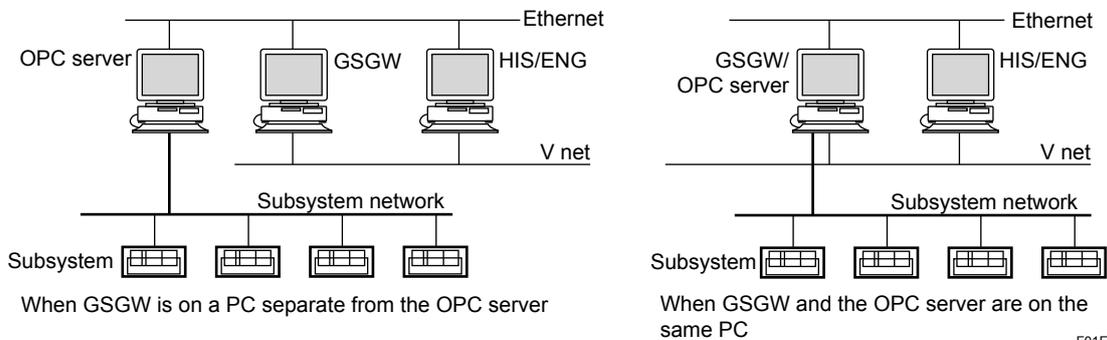


Figure GSGW and OPC Server Configuration (for V net)

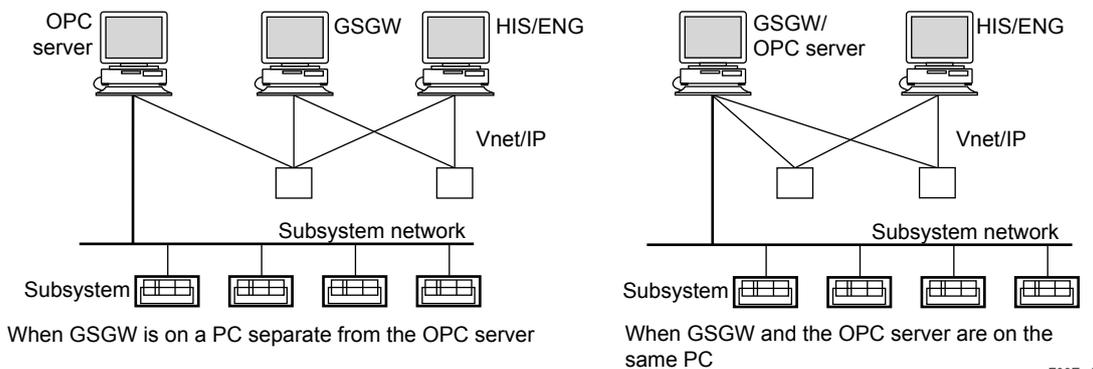


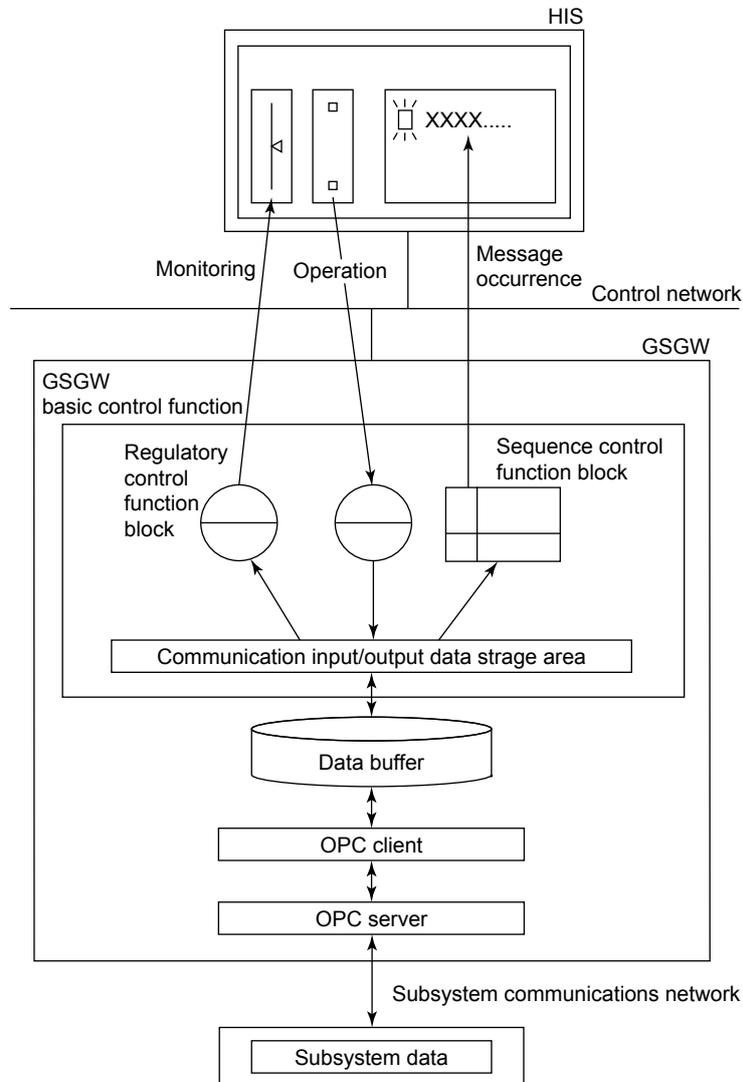
Figure GSGW and OPC Server Configuration (for Vnet/IP)

## ■ FUNCTION SPECIFICATIONS

### ● Summary of Communications with Subsystems

Communications in cases where GSGW basic functions and the OPC server are on the same PC are summarized below:

Subsystem data acquired via an OPC DA server are stored in the data buffer. Data stored in the data buffer are assigned to the communication input/output data storage area. These assigned data can be accessed from the function blocks or sequence tables in the same process as in a normal FCS.



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### ● GSGW Communications Specifications

Number of OPC DA servers that can be communicated with: 4

Amount of data that can be communicated: 4,000 words

Maximum definitions that can be assigned: 1,664

## ● Function blocks

GSGW incorporates function blocks necessary for operation and monitoring. GSGW monitors Subsystem data with the input indicator block, switch instrument block, sequence table block, etc. Manual loader and switch instrument blocks are also used for operation.

GSGW does not incorporate function blocks for control applications, such as a PID controller block, SFC-type or SEBOL-type operators.

GSGW is not for control purposes, so a control-oriented PID controller block cannot be used. The function blocks used in GSGW are listed below:

### Regulatory Control Blocks

- Input Indicator Blocks: Input indicator, Input indicator with deviation alarm
- Manual Loader Blocks: Manual loader, Manual loader with input indicator, Manual loader with Auto/Man SW
- Signal Setter Blocks: Ratio set, 13-zone program set
- Signal Limiter Block: Velocity limiter
- Signal Selector Blocks: Auto selector, Signal selector, Dual-redundant signal selector

### Sequence Blocks

- Sequence Table Blocks: Table type sequence Sequence Table:
  - Standard: Total of 64 input and output signals and 32 rules
  - Rule extension table: Each one adds 32 rules to sequence table
- Logic Chart Block: Interlock block diagram to describe the relationship between input and output signals with logical operators. It consists of 32 inputs, 32 outputs and 64 logical operators. The following logical operators are available: AND, OR, NOT, Set-/Reset-dominant flip-flop with 1 or 2 outputs, Wipeout, ON-/OFF-delay timers, One-shot, Comparator (>, ≥, =) Bitwise AND block, Bitwise OR block, Bitwise NOT block
- Extended Switch Instrument Blocks: Mainly used to operate and monitor motors and valves. 1 input, 2 inputs, 1 output, 2 outputs, 1 input 1 output, 1 input 2 outputs, 2 inputs 1 output, 2 inputs 2 outputs
- Sequence Element Blocks: Mainly used to generate input signals for sequence tables.
  - Sequence Elements 1: Timer, Software counter, Code input, Code output.
  - Sequence Elements 2: Relational expression, Representative alarm, Valve monitor
- SFC Blocks: Describe sequences in SFC Graphical Language. Three-position switch SFC, Pushbutton SFC, Analog SFC.

## Calculation Blocks

These function blocks are mainly used to perform calculation.

- Arithmetic Calculation Blocks: Addition, Averaging, Multiplication, Division.
- Analog Calculation Blocks: Square root, Exponential, First-order lag, Integration, Derivative, Ramp, Lead/lag, Dead-time, Dead-time compensation, Moving-average, Cumulative-average, Variable line-segment function, Temperature and pressure correction, ASTM correction: Old JIS, ASTM correction: New JIS
- General-Purpose Calculation Blocks: General-purpose calculation, General-purpose calculation with string I/O
- Logic Operation Blocks: AND, OR, NOT, Set-/Reset-dominant flip-flop with 1 or 2 outputs, Wipeout, ON-/OFF-delay timers, One-shot, Comparator (>, ≥, =), bitwise AND/OR/NOT.
- Auxiliary Blocks: Three-pole three-position selector switch, One-pole nine-position selector switch, Selector switch for 16 data, Selector switch for 16 string data, Data set, Data set with input indicator.
- Batch Data Blocks: One-batch data set, One-batch string data set, Two-batch data set, Two-batch string data set, Batch data acquisition, Batch string data acquisition.

### Faceplate Blocks

These faceplate blocks have a human-machine interface function that allows several function blocks to be represented by a single tag.

- Analog Faceplate Blocks: Groups the control loops of a multi-block configuration as a single tag.
- Dual-pointer indicating station: Indicates PVs and sets SVs.
- Dual-pointer manual station: Sets SVs and manipulated output values.
- Triple-pointer manual station: Indicates PVs and sets SVs and manipulated output values.
- Sequence Faceplate Blocks: Used for push-button operation from the HIS, and display and operation of sequence processes as a human-machine interface for sequence control function.
- Batch status indicator: Displays sequence processes and lamps of 3-push-button switch, uses for push-button operation.
- Extended 5-push-button switch: Displays five lamps and uses for push-button operation.
- Extended 10-push-button switch: Displays ten lamps and used for push-button operation.
- Hybrid Faceplate Block: Has the functions of analog and sequence faceplate blocks.
- Extended hybrid manual station: Has the functions of triple-pointer operating station and 5-push-button switch.

● **Application Capacity**

Item		Capacity
Tag Names	For elements per FCS (*1)	2000
	For function blocks (*2)	6000
Communication I/O	Data volume (in 16 bit units)	4000
	Maximum definitions	1664
	Maximum divided area	8
Internal Switches	Global switches	256
	Common switches	4000
Message Output	Annunciator messages	2000
	Messages printed	1000
	Operator guide messages	500
	Request message	200
	Voice messages (%VM)	100
	Event messages (%EV)	200
Function Blocks	Regulatory control blocks	2500
	Sequence table blocks	200
	General-purpose calculation block	500
	SFC blocks	50
	Operation blocks	0
	Enhanced switch instrument block	2000
	Sequence element 1	300
	Faceplate blocks	200
	Arithmetic/logic calculation block	100
	Sequence element 2	150
	Batch data block	200
	Unit Instrument	0
	User-defined Block	0
Others	ADL	512
	SEBOL user function	50
Control Functions	Control Drawings	200
1 second Trend	Acquisition points	256

\*1: The number of tag names for elements per FCS indicates the maximum number of a total of contact inputs/outputs (%Z elements), common switches (%SW elements), and communication inputs/outputs (%WB elements) to which tag names can be assigned. However, up to a thousand %WB elements can only be given tag names.

\*2: The number of tag names indicates the maximum number of a total of function blocks (%BL elements) and annunciators (%AN elements) to which tag names can be assigned.

● **Scan period**

Standard scan period: 1 sec. (fixed)

● **Input/output functions**

Communications input and output disconnection/connection functions.

■ **OPERATING ENVIRONMENT**

● **Hardware Requirements**

Type of equipment: IBM PC/AT compatible PC  
CPU: 1 GHz

Main memory:  
Windows 7 6 GB or higher  
Windows Vista 2 GB or higher  
Windows Server 2008 4 GB or higher  
Windows Server 2008 R2 8 GB or higher  
ECC memory recommended.

Network environment:  
Ethernet-compliant network card  
Vnet interface card (VF702/VF701) or  
Vnet/IP interface card (VI702/VI701)  
Bus interface cards for the OPC server  
(When OPC server runs on the same PC as GSGW)

Peripheral devices: installation of uninterruptible power supply (UPS) recommended

Note: The hardware requirements of the OPC server also should be met when the OPC server runs on the same PC as GSGW.

● **Software Requirements**

Windows OS and Service Pack conform to the operating environment for LHS5100, LHM5100 Standard Builder Function.

OPC Server shall be compliant with OPC DA2.0 custom interface.

Note: When GSGW works on a PC with Windows Vista, the time clock of the application may become slower. In case the accurate time management on GSGW is required for the application in use, please use a PC with Windows Server 2003/2008.

■ **MODEL AND SUFFIX CODES**

		Description
Model	LFS1250	GSGW Generic Subsystem Gateway Package [Media model: LH5KM50-V11]
	-V	Software license
Suffix Codes	1	Always 1
	1	English version

■ **ORDERING INFORMATION**

Specify the model and suffix codes when ordering.

■ **TRADEMARKS**

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