

# General Specifications

## AW810D Wide Area Communication Router



GS 33J50D20-01EN

[Release 6]

### ■ GENERAL

Wide Area Communication Router (WAC Router) is the hardware equipment to connect Vnet/IP domains via Wide Area Network (WAN). Operations and monitoring of the FCS/SCS that are distributed in remote areas can be realized. Satellite communications can also be used as a WAN.

### ■ STANDARD SPECIFICATIONS

About the installation and environmental conditions of the WAC Router, refer to "Integrated Production Control System CENTUM VP System Overview" (GS 33J01A10-01EN), which is common with the WAC Router.

#### ● Communication specifications

Vnet/IP Communication Interface (\*1):

Dual-Redundant

WAN Communication Interface:

Single or Duplexed (100BASE-TX)

\*1: For more details, refer to "Integrated Production Control System CENTUM VP System Overview" (GS 33J01A10-01EN).

#### ● Hardware configuration

Power Supply Module (PW441, PW442, or PW444): Two modules for dual-redundant configuration

Communication Module (VI461): Two modules for dual-redundant configuration

Note: No single configuration is available.

#### ● Mounting type

19-inch Rack-mount (M5 x 4 screws)

Insulation bushes are used as accessory.

#### ● Connection terminal specifications

Power Supply: M4 screw terminal connection

Grounding: M4 screw terminal connection

Vnet/IP (BUS1/BUS2): RJ-45 Modular jack (ISO8877-compliant)

WAN (WAN1/WAN2): RJ-45 Modular jack (ISO8877-compliant)

#### ● Power supply voltage and frequency

100-120 V AC, 50/60 Hz (PW441)

220-240 V AC, 50/60 Hz (PW442)

24 V DC (PW444)

Specify with Suffix Codes.

#### ● Power consumption

100-120 V AC: 80 VA

220-240 V AC: 110 VA

24 V DC: 1.7 A

Power supply by a single power line or dual power line is available.

#### ● Weight

Approx. 5.0 kg

### ■ WAN Requirements

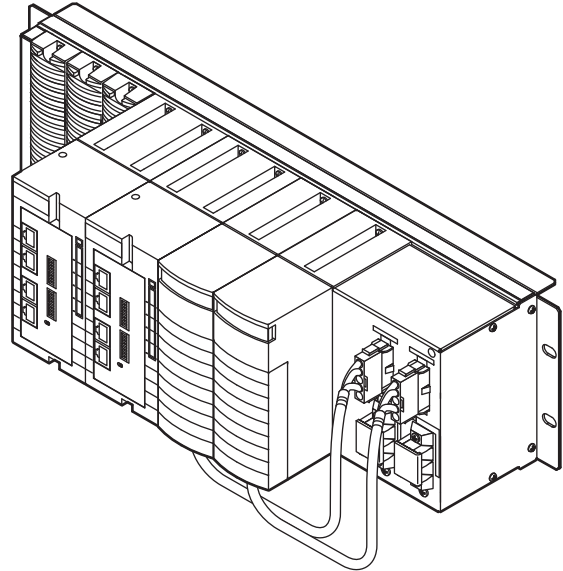
One-way transmission bandwidth: 0.5 Mbps and faster (\*1)

One-way transmission delay: 500 ms or less

Transmission quality:  $1 \times 10^{-6}$  or less (\*2)

\*1: In case the WAC Router is used with the bandwidth less than 0.5 Mbps, please contact YOKOGAWA for more details.

\*2: This is the bit error rate (BER) between the WAC Routers. It is equivalent to the packet loss rate of  $5 \times 10^{-4}$  for the packet length of 64 byte and  $1 \times 10^{-2}$  for 1518 byte.



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## ■ Performance and Functions

### ● Transmission data capacity

Bandwidth	Transmission data capacity
0.5 Mbps	500 data/second
1 Mbps	1,000 data/second
1.5 Mbps	1,500 data/second
2 Mbps	2,000 data/second
2.5 Mbps or more	2,500 data/second

Note: Transmission data capacity may be changed by the specification of WAN.

### ● Frame filters function

By using Frame filters function, the transmission data is filtered on the WAC Router. This function reduces the control communication frames to be transmitted, enabling efficient use of the limited bandwidth of the WAN. The specified type of message and time stamps can be transmitted among specified domains and stations.

### ● Time synchronization function

Time synchronization function maintains the time differences among the Vnet/IP domains within 5 seconds via the WAC Routers. With an SNTP sever installed in each Vnet/IP domain shortens this time differences to less than 5 seconds.

### ● The Bandwidth Limit Function and Preferential Forwarding of Control Communication Frames Function

Bandwidth Limit Function suppresses the Control Communication Frame data volume to interexchange among the WAN within the limit of the specified bandwidth or less. Data overflow among the WAN exceeding the contracted bandwidth is prevented.

When the Bandwidth Limit Function is activated, the Preferential Forwarding of Control communication Frames Function also becomes activated. In case the transmission request to exceed the bandwidth limit occurs, the control communication frame is transmitted by giving the priorities based on the below table. Even when the WAC Router abandons any data exceeding the bandwidth limit by its Bandwidth Limit Function; however, transmission of important control communication frames can be protected.

Priority	Communication frame types
1 (high)	Safety communication between SCSs
2	Communication between FCSs by Inter-station connection link block (ADL), and process data setting.
3	Messages (*1)
4 (low)	Other than the above (1 to 3)

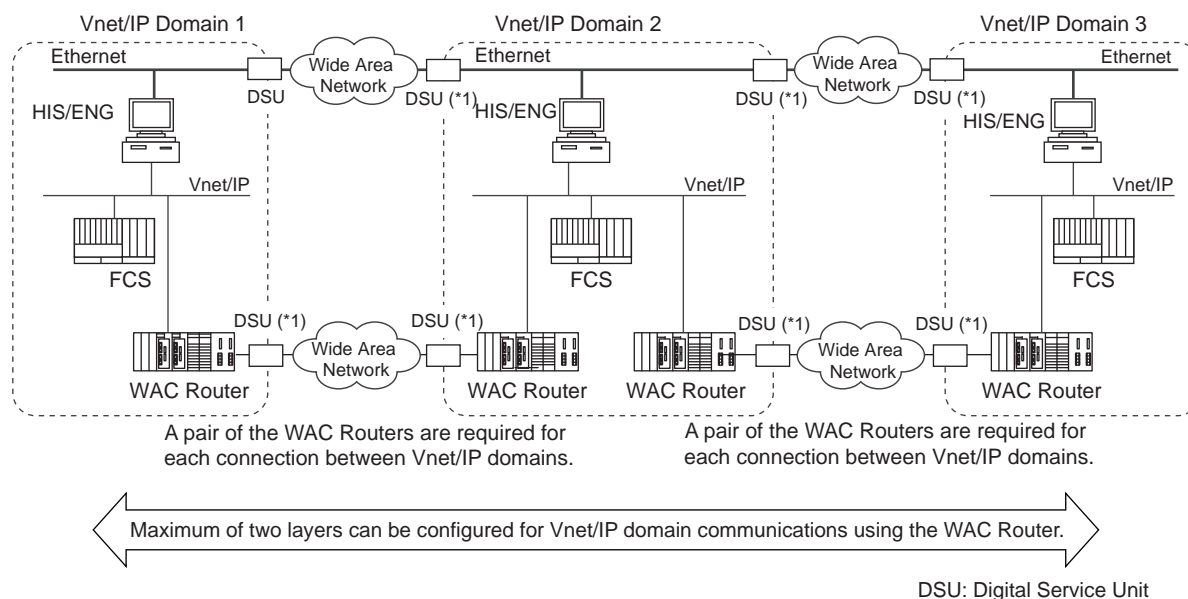
\*1: SCS messages, FCS messages, HIS messages, and so on.

### ● Security function

In addition to the Vnet/IP's security function, the WAC Router has the function to destroy packets (such data as unused protocols and unused port numbers) which are not used in the WAC Router to reduce vulnerability.

## ■ SYSTEM CONFIGURATION

This is to show a typical system architecture using a single-line WAN with the WAC Router.

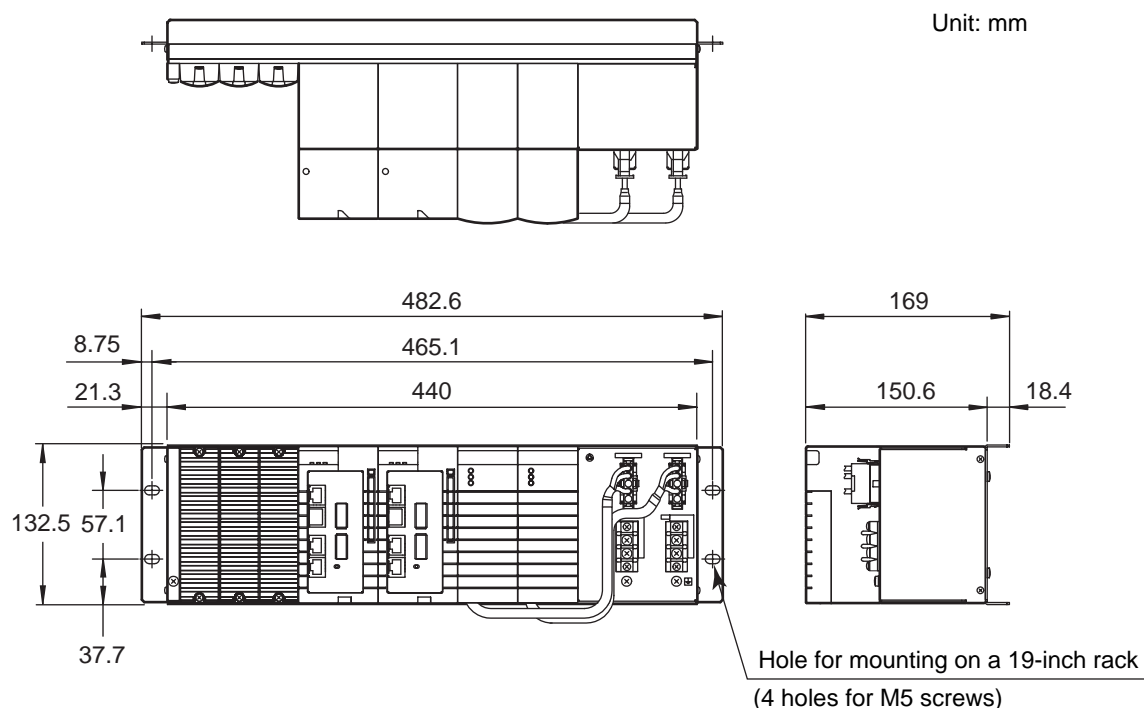


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- WAN is required for Vnet/IP and Ethernet.
- A PC with the system builder function is required for each Vnet/IP domain where the WAC Router is applied.
- A Vnet/IP domain connected by the WAC Router must be identified as a different project and let those projects connected via Multiple Project Connection function. YOKOGAWA strongly recommends that Vnet/IP domains to be connected with WAC routers are built as separate projects and connected by using the Multiple Project Connection package. If the single project configuration of Vnet/IP domains is required, please contact to YOKOGAWA for more details.

- 1: A digital service unit (DSU) is required for the communication in between a WAC Router and a wide area network, and the DSU is usually provided by the network service provider. Other network equipment such as a router, firewall, or network switch has to be installed as necessary.

## EXTERNAL DIMENSIONS



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Note: The above drawings are for AW810D-A220□□.

Nominal tolerances:

Nominal tolerance is  $\pm 0.8$  mm for the dimensions of 0.5 mm or more and 120 mm or less, and the combined nominal tolerance is  $\pm 1.5$  mm.

The nominal tolerance is in accordance with JEM 1459 for the dimensions over 120 mm.

## MODELS AND SUFFIX CODES

### Wide Area Communication Router

		Description
<b>Model</b>	AW810D	Wide Area Communication Router (Duplexed Communication Module, Duplexed Power Supply)
<b>Suffix Codes</b>	-A2	WAN Interface (Common for both single and dual lines)
	1	Single power system
	2	Dual power system
	0	Always 0
	1	100-120 V AC power supply
	2	220-240 V AC power supply
	4	24 V DC power supply
	5	Basic type with no explosion protection
	6	With ISA Standard G3 option with no explosion protection
	E	Basic type with explosion protection
	F	With ISA Standard G3 option and explosion protection
<b>Option Code</b>	/ATDOC	Explosion Protection Manual (*1)

Note: For compliance with EMC Standards, AW810D must be installed in a keyed metallic cabinet.

\*1: Select the option code "/ATDOC" to follow the ATEX Directive and UKEX Regulation for use in potentially explosive atmospheres.

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## ■ ACCESSORIES

Parts Names	Parts Numbers	Quantity	Remarks
Insulating bush	S9049PM	4	Accessory

## ■ APPLICABLE STANDARDS

Refer to the GS “Integrated Production Control System CENTUM VP System Overview” (GS 33J01A10-01EN).

## ■ ORDERING INFORMATION

Specify model and suffix codes.

## ■ TRADEMARK ACKNOWLEDGMENT

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