General Specifications

GS 33J62E10-01EN

Models A2FV50S, A2FV50D
Field Control Unit
Duplexed Field Control Unit
(for N-IO, 19-inch Rack Mountable type)

CENTUM VP

[Release 6]

■ GENERAL

This General Specifications (GS) covers the hardware specifications of a Field Control Unit (FCU) which is the intelligent part of the Field Control Station (FCS). This product supports both N-IO and FIO. However, only the communication module is supported among the I/O modules for FIO.

■ STANDARD SPECIFICATIONS

For the installation specifications and the environmental conditions common to the systems, refer to the GS "Integrated Production Control System CENTUM VP System Overview" (GS 33J01A10-01EN).

● Memory Protection During Power Failure

Battery
Battery Back-up for Main Memory: Max. 72 hours
Battery Recharge Time: Min. 48 hours

● READY Contact Output

2 terminals (NC, C)
Contact Points open during FCU failure
Contact Rating: 30 V DC, max. 0.3 A

● Control Bus Interface

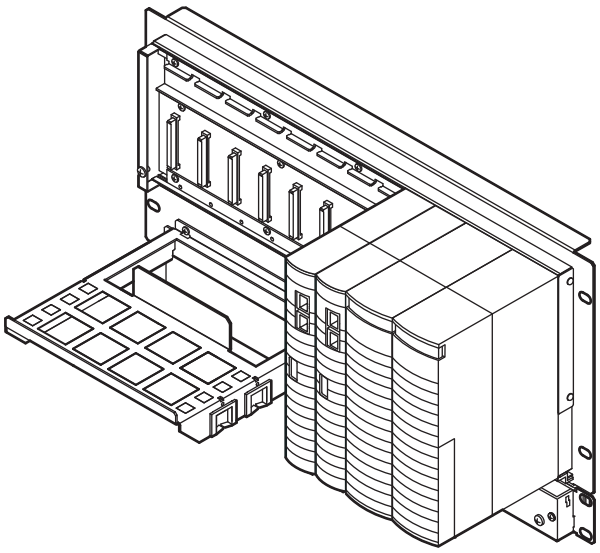
Vnet/IP Interface: Dual-redundant

For more details, refer to the GS "Integrated Prodction Control Systrm CENTUM VP System Overview" (GS 33J01A10-01EN)

● Installation Restrictions for Node Units

An N-IO node can be connected under EC4□1, A2EN40□, and ANT4□1 installed in A2FV50□ via an N-ESB bus or optical ESB bus.

An FIO node can be connected only under EC4□1 and ANT4□1 installed in A2FV50□ via an ESB bus or optical ESB bus.



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● No. of Node Units Connectable

The number of each of the nodes that can be connected is as follows. There is no limit to the number of nodes specified by the node expansion license, but the application capacity shall be selected as specified by the Software License (VP6F1800).

N-IO node (*1):	Max. 32 /FCU
N-IO I/O unit (*2):	Max. 108 /FCU
FIO node (*3):	Max. 8 /FCU

*1: An N-IO node consists of a node interface unit, I/O unit for N-IO, and associated cables. For details, refer to the GS "N-IO System Overview" (GS 33J62A10-01EN).
*2: A N-IO I/O unit consists of an I/O module and a base plate for N-IO. For details, refer to the GS "N-IO System Overview" (GS 33J62A10-01EN).
*3: ESB bus node unit (ANB10D) and Optical ESB bus node unit (ANB11D).

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GS 33J62E10-01EN

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Module Configuration

Power Supply Module (PW481 or PW482 or PW484):
2 modules for dual-redundant configuration.
Processor Module (CP461 style S2 or later or CP471):
2 modules for dual redundant configuration.
A dual-redundant configuration is enabled by using 2 identical modules with same model code (CP461 or CP471).
I/O Module (*1):
Each 2 modules for dual redundant configuration (*2) and total Max. 8

*1: The following modules can be installed in FCU. For details, refer to the GS of each module. [Communication Modules (ALR111, ALR121, ALE111, ALF111, and ALP121), ESB Bus Coupler Modules (EC401 and EC402), N-ESB Bus Coupler Modules (A2EN402 and A2EN404), and Optical ESB Bus Repeater Modules (ANT401 and ANT411)]

*2: ESB Bus Coupler Modules (EC401/EC402), N-ESB Bus Coupler Modules (A2EN402/A2EN404), and Optical ESB Bus Coupler Modules (ANT401/ANT411) shall always be used in a dual-redundant configuration. A single configuration or dual-redundant configuration can be selected for the Communication Modules (ALR111, ALR121, ALE111, ALF111, and ALP121).

Installation Restrictions

When using EC401 or EC402 ESB bus coupler module, install them in slots 7 and 8 of the FCU.

A pair of ANT401 or ANT411 optical ESB bus repeater master modules is to be installed in an odd-number slot and the one on the right of the slots 1 to 6 according to the number of branches.

A pair of A2EN402 or A2EN404 N-ESB bus coupler modules is to be installed in an odd-number slot and the one on the right of the slots 1 to 8 according to the number of branches. Note that the pair of A2EN402/A2EN404 cannot be installed in slots 7 and 8 of the FCU when EC401/EC402 are installed (as these modules occupy slots 7 and 8).

For remarks on installation of the communication modules and the bus interface modules, refer to the GS “N-IO System Overview” (GS 33J62A10-01EN).

Power Supply

Voltage: 100-120 V AC, Frequency: 50/60 Hz
Voltage: 220-240 V AC, Frequency: 50/60 Hz
Voltage: 24 V DC
Specify with the Suffix Code.

Power Consumption

100-120 V AC: 200 VA
220-240 V AC: 230 VA
24 V DC: 5.5 A

Weight

Approx. 6.9 kg (A2FV50S)
Approx. 7.7 kg (A2FV50D)

Mounting

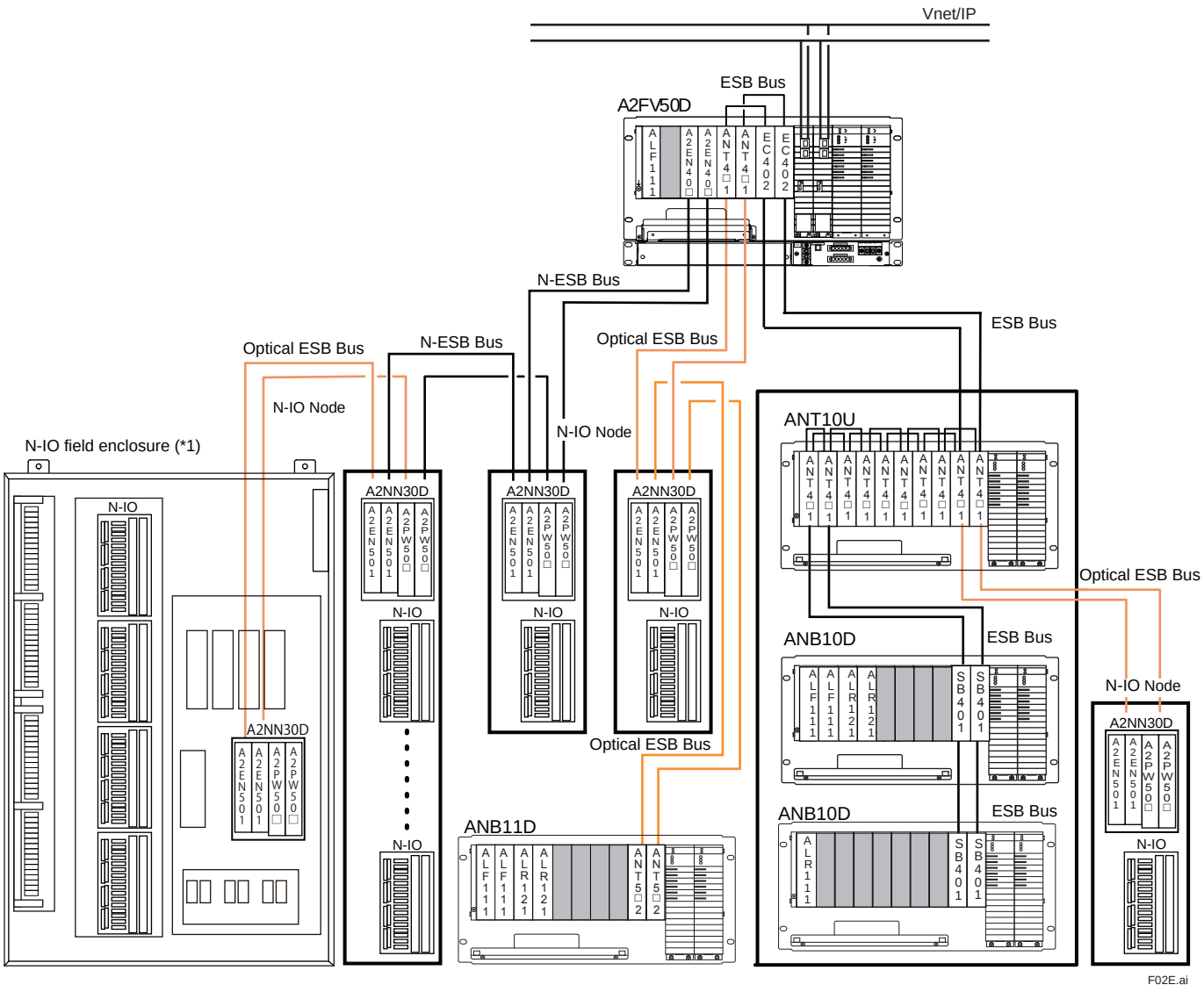
19-inch Rack Mounting:
Rack mount (M5x8 screws)
Insulation bush (accessory)

Connection

Power Supply: M4 screw terminal connection
Grounding: M4 screw terminal connection
READY Contact Output:
M4 screw terminal connection
Vnet/IP Interface:
Connect UTP cable (CAT5e or better) to Layer 2 switch.

● System Configuration

The following shows a configuration example of an N-IO system of A2FV50□, N-IO and FIO nodes.



N-IO: I/O Unit for N-IO
ANT4□1: ANT4□1-□E, -□F
*1: For N-IO field enclosure, refer to the GS “N-IO field enclosure” (GS 33J62R10-01EN)

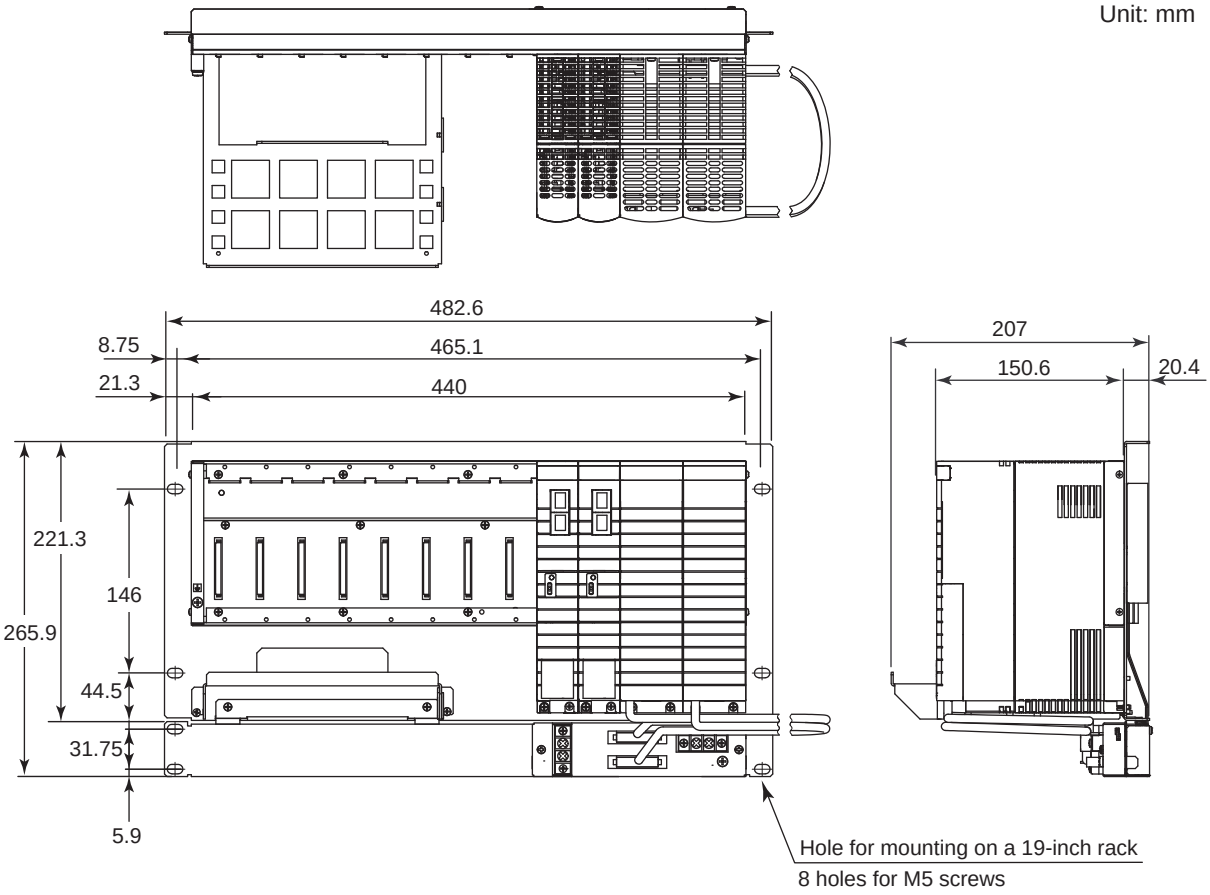
Figure N-IO System Configuration

■ LIMITATIONS OF INSTALLATION AND NOTICES FOR INSTALLATION

There are limitations on the number of I/O modules that can be installed in A2FV50□ and the installation method. For details, refer to the GS “Installation Limitations and Notes” in the “N-IO System Overview” (GS 33J62A10-01EN).

■ EXTERNAL DIMENSIONS

Unit: mm



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Nominal Tolerances :

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

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

■ SOFTWARE REQUIREMENT

A software license is required for A2FV50□ separately. For details, refer to the GS “VP6F1800 Control Function for Field Control Station (for A2FV50□)” (GS 33J15C15-01EN) and “VP6F3100 Project I/O License” (GS 33J15A10-01EN).

■ STANDARD ACCESSORIES

The FCU is delivered with the following standard accessories.

Parts Names	Parts Numbers	Quantity	Remarks
Insulating bush	S9049PM	8	Accessory

■ MODELS AND SUFFIX CODES

Field Control Unit

		Description
Model	A2FV50S	Field Control Unit (for N-IO, 19-inch Rack Mountable)
Suffix Codes	-A	Standard type (for CP471) (*1) (*2)
	-S	Standard type (for CP461) (*3)
	3	Dual-redundant Vnet/IP, single power supply
	4	Dual-redundant Vnet/IP, dual-redundant power supply
	1	Always 1
	1	100 - 120 V AC power supply (*4)
	2	220 - 240 V AC power supply (*4)
	4	24 V DC power supply (*4)
	0	With no explosion protection
	1	With explosion protection
	0	Basic type
	1	With ISA Standard G3 option
	0	Always 0
Option Code	/ATDOC	Explosion Protection Manual (*5)
	/MRN	With Marine Standards (*2)

*1: CP471 runs with CENTUM VP R6.05 or later version of Control Function for Field Control Station. CP471 can be combined with the style code S3 or later of ESB bus coupler module EC401. See GS 33J60E30-01EN.
*2: Select the option code “/MRN” if A2FV50☐ with marine standards is required. Combination of the suffix code “-A” and the option code is inhibit.
*3: Shipped with CP461. Also CP471 is usable. Replacement from CP461 to CP471 is prohibited to perform by a user. Replacement work must be done by the service engineer authorized by Yokogawa Electric Corporation. CP471 can be combined with the style code S3 or later of ESB bus coupler module EC401. See GS 33J60E30-01EN.
*4: To meet the safety standards and EMC standards, the unit must be installed in a keyed metallic cabinet.
*5: Select the option code “/ATDOC” to follow the ATEX Directive when any of N-IO components are used for explosion protection.

Duplexed Field Control Unit

		Description
Model	A2FV50D	Duplexed Field Control Unit (for N-IO, 19-inch Rack Mountable)
Suffix Codes	-A	Standard type (for CP471) (*1) (*2)
	-S	Standard type (for CP461) (*3)
	4	Dual-redundant Vnet/IP, dual-redundant power supply
	1	Always 1
	1	100 - 120 V AC power supply (*4)
	2	220 - 240 V AC power supply (*4)
	4	24 V DC power supply (*4)
	0	With no explosion protection
	1	With explosion protection
	0	Basic type
	1	With ISA Standard G3 option
	0	Always 0
Option Code	/ATDOC	Explosion Protection Manual (*5)
	/MRN	With Marine Standards (*2)

*1: CP471 runs with CENTUM VP R6.05 or later version of Control Function for Field Control Station. CP471 can be combined with the style code S3 or later of ESB bus coupler module EC401. See GS 33J60E30-01EN.
*2: Select the option code "/MRN" if A2FV50☐ with marine standards is required. Combination of the suffix code "-A" and the option code is inhibit.
*3: Shipped with a pair of CP461. Also a pair of CP471 is usable. Replacement from CP461 to CP471 is prohibited to perform by a user. Replacement work must be done by the service engineer authorized by Yokogawa Electric Corporation. CP471 can be combined with the style code S3 or later of ESB bus coupler module EC401. See GS 33J60E30-01EN.
*4: To meet the safety standards and EMC standards, the unit must be installed in a keyed metallic cabinet.
*5: Select the option code "/ATDOC" to follow the ATEX Directive when any of N-IO components are used for explosion protection.

■ APPLICABLE STANDARDS

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

■ ORDERING INFORMATION

Specify models, suffix codes, and option codes when ordering.

For selecting the right products for explosion protection, please refer to TI 33Q01J30-01E without fail.

■ TRADEMARK

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