■ LIMITATIONS AND PRECAUTIONS FOR INSTALLATION

● Limitations of Installation of Modules Imposed by Capacity of Power Supply to Transmitters

Installation of modules in any one of Node Units (ANB10□, ANB11□, and ANR10□) and Field Control Units (AFV30□, AFV40□, and AFV10□) imposes a limitation on the total number of modules considering the power supply.

ANB10□, ANB11□, and ANR10□:

For application to non-hazardous area
Σ (factor B for each module to be installed) ≤ 100 (*1)
For application to hazardous area
ANB10□-□□E, □□G, ANB11□-□□E, and ANR10□-□□E:
Σ (factor B for each module to be installed) ≤ 88
ANB10□-□□F, ANB11□-□□F, and ANR10□-□□F:
Σ (factor B for each module to be installed) ≤ 80 (*1)

AFV10S, AFV30S, and AFV40S (*2):

For application to non-hazardous area or hazardous area
Σ (factor A for each module to be installed) +
Σ (factor B for each module to be installed) ≤ 85

AFV10D, AFV30D, and AFV40D (*2):

For application to non-hazardous area
Σ (factor A for each module to be installed) ≤ 20 and
Σ (factor A for each module to be installed) +
Σ (factor B for each module to be installed) ≤ 65

AFV10D and AFV30D:

For application to hazardous area
Σ (factor A for each module to be installed) ≤ 5 and
Σ (factor A for each module to be installed) +
Σ (factor B for each module to be installed) ≤ 65

*1: Mount a node (-20 to 70 °C optional temperature environment) under the condition, and a condition of “Limitations of Installation under the Ambient Operating Temperature Conditions” described later.
*2: AFV40□ is prohibited to use in hazardous area.

Table Factor for Each Module

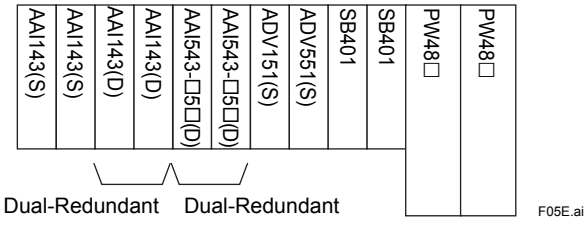
	Model	Factor	
		Single	Each Pair in Dual-redundant Configuration
A	ADV869 (ST5)	3	-
	ADV169 (ST6)	3	-
	ADV569 (ST7)	3	-
	AAV544	3	3
	EB401	1	2
	AGP813	3	6
B	AAI841	17	26
	AAB841(MAC2/VM2)	9	17
	AAI141	16	16
	AAI143	22	24
	AAI543-□5□, -□E□ (standard response)	21	25
	AAI543-□6□, -□F□ (fast response)	21	29
	AAP135	16	25
	AAP849	9	17
	AAI135	15	19
	AAI835	15	22
	AAB141	1	2
	AAB842	11	20
	ASI133	22	33
	ASI533	17	26
	AST143	5	10
	ASR133	3	6
	ASD143	6	12
	ASD533	25	38
	Others	0	0

When all channels are connected in 4-wire connection (example: Barrier connection); however, refer to the next table.

Table Factor when all channels are connected in 4-wire connection

	Model	Factor	
		Single	Each Pair in Dual-redundant Configuration
B	AAI841-S□□	10	19
	AAI841-H□□	10	20
	AAI141-S□□	0	0
	AAI141-H□□	1	1
	AAI143	4	7
	AAI135-S□□	4	8
	AAI135-H□□	6	11
	AAI835-S□□	8	16
	AAI835-H□□	11	22

Example: When installing modules in an ANB10D as follows where “(S)” indicates Single and “(D)” indicates Dual-Redundant.



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● Limitations of Installation under the Ambient Operating Temperature Conditions

When the node (-20 to 70 ˚C - optional temperature environment) is to be used under the temperature environment (60 to 70 ˚C), please follow the restrictions below:

ANT10U can be used at temperatures from 60 to 70°C without any additional restrictions in the same way as at temperatures from -20 to 50°C.

- Max. number of installable input/output modules (IOM): Up to 4 modules can be installed per node.
- Make an empty slot (one or more) between SB401, ANT401, ANT411, ANT502, ANT512, EB501 and IOM. When installing modules with built-in barriers, insulating partition (Part No. T9083NA) must be installed in slot No. 8.
- When installing IOM, make an empty slot (one or more) between IOM and IOM.
  When installing duplexed IOM, make an empty slot (at least two slots) for each duplexed IOM.
- Up to 8 relay output modules (ADR541) can be used.
- The external load resistance of output channel must be 200 Ω or more when using current IOM (AAI841, AAI835 or AAI543-□5□, -□E□(standard response)).
- AAI543-□6□, -□F□ (fast response) cannot be installed.

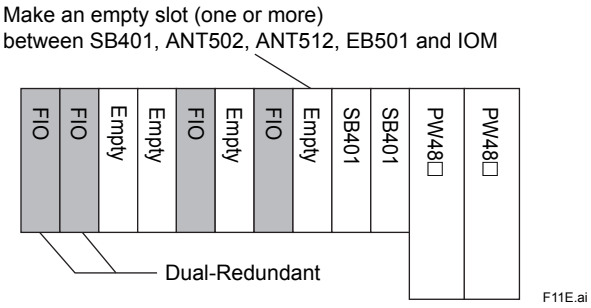


Figure IOM Installation in a Node

Note: When the following modules are installed in a node, the ambient temperature should be 0 to 50 °C.
AAP149, AAP849, ADV157, ADV557, ADV161, ADV561, ADV859, ADV159, ADV559, ADV869, ADV169, ADV569, ALR111, ALR121, ALE111, ALF111, ALP111, ALP121
When AAI543-□6□, -□F□ (fast response) is installed in a node, the ambient temperature should be 0 to 60 °C.

● Limitations of Installation for AAT141 (the combination of Thermocouple input and Pressure clamp terminal)

To keep the reference junction compensation accuracy, make sure to meet the following conditions. The pressure clamp terminal should not be affected by radiated heat,

For details of the reference junction compensation accuracy, refer to “Analog I/O Modules” (GS33K50F60-50E).

Specifications for node only

- Do not install a heat-radiating unit beneath the AAT141 installed node.
- Do not install AAT141 in the place where airflow affects directly.
- Do not install an AAT141 next to the CP461 and CP451.
- Do not install AAT141 next to the bus interface modules, SB401,ANT502,ANT512 and EB501.
- The installable modules in the next to AAT141 are as follows. When installing other than following IOM, make an empty slot (one or more) in each side.

Installable modules: AAT141, AAT145, AAR181,AAR145, AAV141, AAV142, AAV542

Installation in Cabinet

If there is a fan in the upper space of the cabinet, install the module in a position that is 3 units (1 unit = 44.45 mm) lower than the fan.

- Do not install an AAT141 next to the CP461 and CP451.
- Do not install AAT141 next to the bus interface modules, SB401, ANT502, ANT512 and EB501.
- The installable modules in the next to AAT141 are as follows. When installing other than following IOM, make an empty slot (one or more) in each side. Installable modules: AAT141, AAT145, AAR181, AAR145, AAV141, AAV142, AAV542
- When installing AAT141 to AFV40□ or ACB51, it should be installed to the following positions (3, 4, 5, 7, 8, 9, 10) as shown in the figure below.
- At the positions of 6, 11 and 12, the heat-generating devices should not be installed.
- Moreover, the node that AAT141 is installed should not be placed above or under the node fan unit.

Field wiring

Nominal conductor cross-sectional area of this module is 1.25 mm2 or less. Connect to from the CH1 of terminal.

Note: The reference junction compensation accuracy is for when the temperature environment is in stability condition. If the temperature environment is varied, accuracy error may occur until the temperature becomes stability condition.

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● Limitations of Installation for AST143 (the combination of Thermocouple input and Pressure clamp terminal)

To keep the reference junction compensation accuracy, make sure to meet the following conditions. The pressure clamp terminal should not be affected by radiated heat.

For details of the reference junction compensation accuracy, refer to “Analog I/O Modules” (GS 33K50F60-50E).

- Do not install a heat-radiating unit beneath the AST143 installed node.
- Do not install AST143 in the place where airflow affects directly.
- The installable modules in the next to AST143 is AST143 or ASR133. When installing other than AST143 or ASR133, make an empty slot (one or more) in each side.
- Do not install cooling near the AST143 installed node. When a FAN is located above node, make sure the IOM installing place is 3 units (unit: 44.45 mm) away from the FAN place.

Field wiring

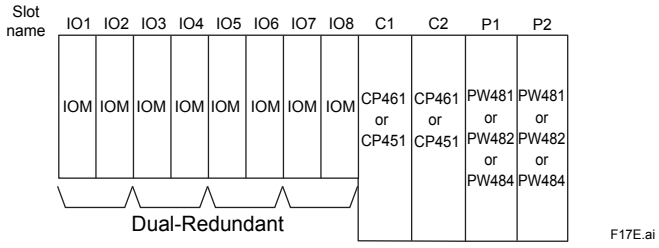
Nominal conductor cross-sectional area of this module is 1.25mm^2 or less. Connect to from the CH1 of terminal.

Note: The reference junction compensation accuracy is for when the temperature environment is in stability condition. If the temperature environment is varied, accuracy error may occur until the temperature becomes stability condition.

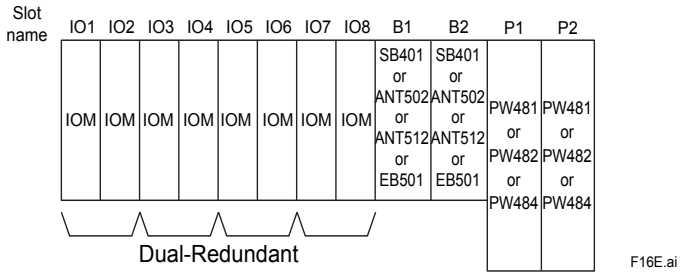
● Installation to Make I/O Modules Dual-Redundant

To make I/O Modules dual-redundant, install the I/O Modules in slots numbered IO1-IO2, IO3-IO4, IO5-IO6 and/or IO7-IO8, as shown in the figure below.

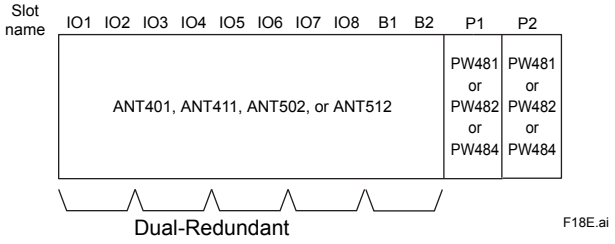
Field Control Unit (for FIO)



Node Unit



Unit (ANT10U)



● Protection of Empty Slots

When I/O Modules are not installed, be sure to use a dummy cover (ADCV01) to protect the empty slots.

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