

General Specifications

Digital I/O Modules (for FIO)



GS 33K50F70-50E

[Release 5]

■ GENERAL

This GS covers the hardware specifications of the Digital I/O Modules (FIO) that can be installed in the ESB Bus Node Unit (ANB10S, ANB10D), Optical ESB Bus Node Unit (ANB11S, ANB11D), the ER Bus Node Unit (ANR10S, ANR10D) and the Field Control Unit (AFV30S, AFV30D, AFV40S, AFV40D, AFF50S, AFF50D, AFV10S, AFV10D).

■ STANDARD SPECIFICATIONS

● Digital Input Modules

The Digital Input Modules receive 32-channel or 64-channel 24 V DC ON/OFF signals.
The ADV151 and ADV161 can be used in dual redundant configuration.

Item	Specifications			
	Model	ADV151-P/ADV151-E (*1)	ADV157	ADV161
Number of input channels		32	32	64
Rated input voltage (*2)		24 V DC (sink/source)	24 V DC (sink/source)	24 V DC (sink/source)
Input ON voltage		18 to 26.4 V DC	18 to 26.4 V DC	20 to 26.4 V DC
Input OFF voltage		5.0 V DC or less	5.0 V DC or less	5.0 V DC or less
Input current (at rated input voltage)		4.1 mA±20 % / channel	4.1 mA±20 % / channel	2.5 mA±20 % / channel
Maximum allowable input voltage		30.0 V DC	30.0 V DC	30.0 V DC
Withstanding voltage	Between input signal and system: 2 kV AC, For 1 minute Between commons: 500 V AC, For 1 minute, common every 16-channel (*3)			
Functions				
Status input		Function for detecting ON/OFF status	Function for detecting ON/OFF status	Function for detecting ON/OFF status
Pushbutton input		Function for counting the pushbutton edges	—	Function for counting the pushbutton edges
Input response time	8 ms or less (for status input)			
Minimum ON detection time	20 ms (for pushbutton input)			
Maximum ON/OFF cycle	25 Hz (for pushbutton input)			
Maximum current consumption		500 mA (5 V DC)	350 mA (5 V DC)	550 mA (5 V DC)
Weight		0.3 kg	0.4 kg	0.3 kg
External connection		Pressure clamp terminal, Dedicated cable (AKB331), MIL connector cable	Pressure clamp terminal	Dedicated cable (AKB337), MIL connector cable

*1: ADV151-E cannot be installed in the ER Bus Node Unit.

*2: ADV151, ADV157 and ADV161 are common every 16-channel. All voltage input signals to be connected (24 V DC) must be in the same polarity.

*3: The withstanding voltage for using a dedicated cable is 500 V AC (between input signal and system).
The withstanding voltage for using MIL connector cable depends on the electrical specifications of its cable.

● **AC Digital Input Modules**

The AC Digital Input Modules receive 16-channel 100 V AC or 220 V AC ON/OFF signals. They can be used in dual redundant configuration.

Item	Specifications	
	Model	ADV141
Number of input channels	16	16
Rated input voltage (*1)	100 to 120 V AC, 50/60 Hz	200 to 240 V AC, 50/60 Hz
Input ON voltage (peak value)	80 V AC (113 V) to 132 V AC (187 V)	160 V AC (226 V) to 264 V AC (373 V)
Input OFF voltage (peak value)	20 V AC (28 V) or less	40 V AC (56 V) or less
Input current (TYP)	4.7 mA (@120 V/60 Hz) / channel	6.2 mA (@240 V/60 Hz) / channel
Input current (MAX)	7 mA / channel	9.3 mA / channel
Withstanding voltage	Between input signal and system: 2 kV AC, For 1 minute Between commons: 1.35 kV AC, For 1 minute, common minus (-) side every 8-channel	
Functions		
Status input	Function for detecting ON/OFF status	
Pushbutton input	Function for counting the pushbutton edges	
Input response time	160 ms or less (for status input)	
Minimum ON detection time	200 ms (for pushbutton input)	
Maximum ON/OFF cycle	2.5 Hz (for pushbutton input)	
Maximum current consumption	500 mA (5 V DC)	500 mA (5 V DC)
Weight	0.3 kg	0.3 kg
External connection	Pressure clamp terminal, Dedicated cable (AKB332)	Pressure clamp terminal, Dedicated cable (AKB333)

Note: AC input signals to the same common should be the same phase.

*1: Input a sine wave, for AC signals.

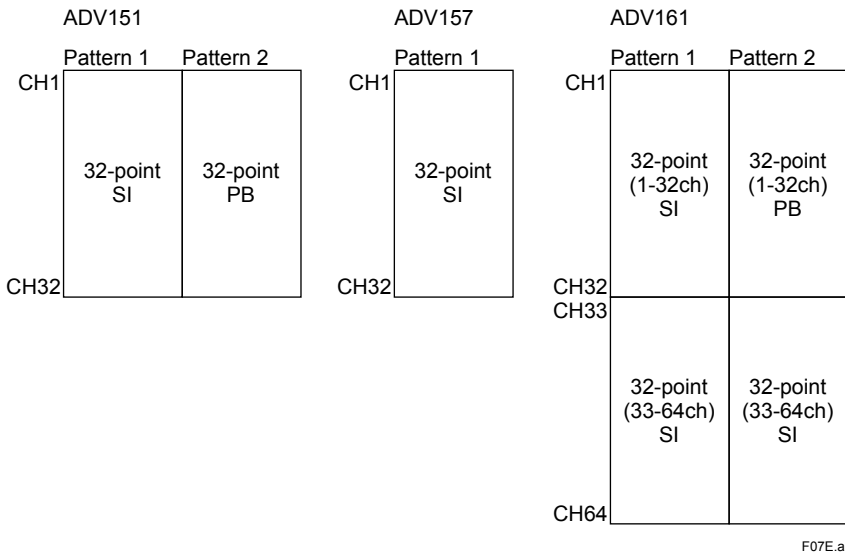
● **Function Assignment in Digital Modules**

Select the patterns for assigning functions channel-by-channel in digital modules.

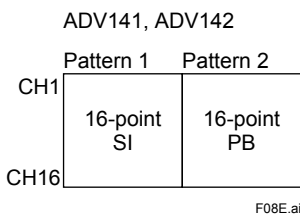
The following table lists the correspondence between the module types and point modes.

Table: Correspondence Between the Module Types and Point Modes

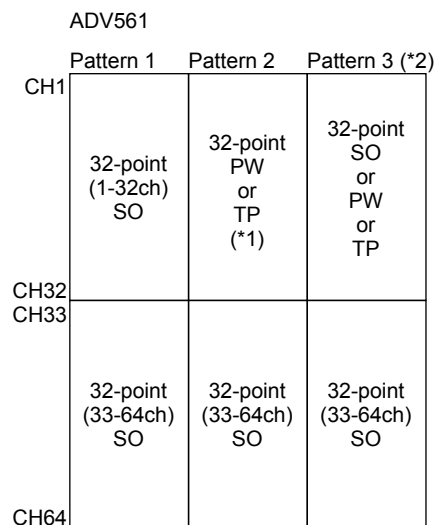
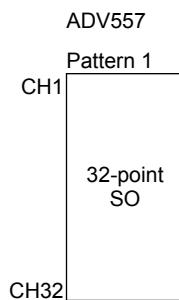
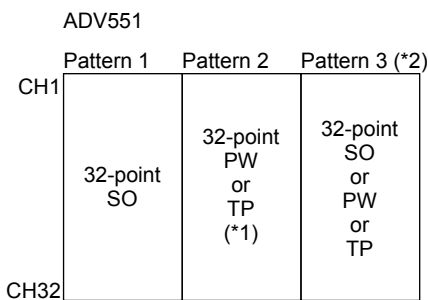
Point Mode	Module Type
SI	Status input
PB	Pushbutton input
SO	Status output
PW	Pulse width output
TP	Time-proportioning ON/OFF output



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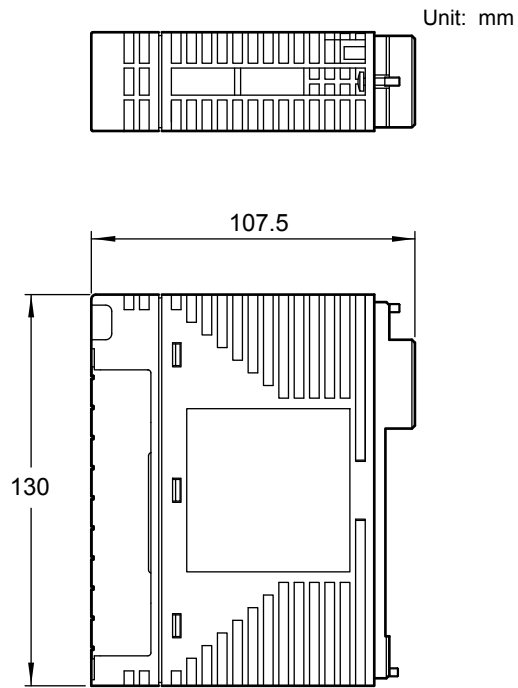


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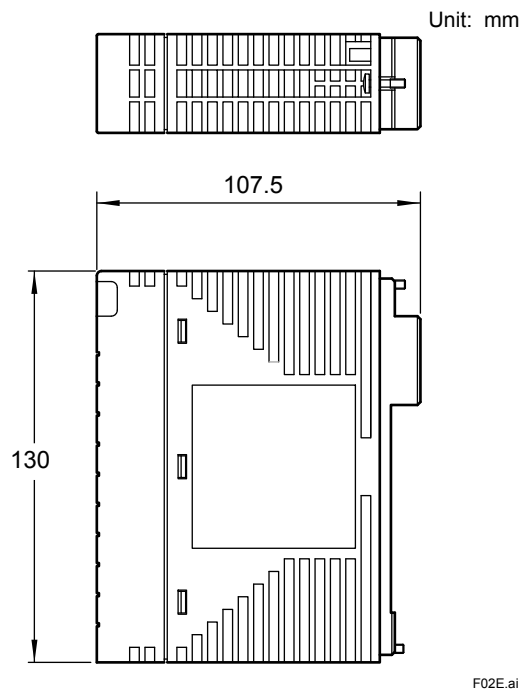
- *1: If an odd-numbered terminal is specified as PW or TP, the next terminal cannot be specified as a different type.
- *2: This pattern applies only for direct-connected nodes. Dual redundancy is not possible.

EXTERNAL DIMENSIONS

● ADV151, ADV551 Digital I/O Module



● ADV141, ADV142, ADR541 Digital I/O Module



■ MODELS AND SUFFIX CODES

Digital Input Module

		Description
Model	ADV151	Digital Input Module (32-channel, 24 V DC, Isolated)
Suffix Codes	-P	With pushbutton input
	-E	With SOE capture (*1)
	5	Without status display; with no explosion protection
	6	With status display; with no explosion protection
	E	Without status display; with explosion protection
	F	With status display; with explosion protection
	0	Basic type
Option Codes	/D5A00	With KS Cable Interface Adapter for 32-channel digital [Model: ATD5A-00]
	/B5S00	With Pressure Clamp Terminal Block for Digital Input [Model: ATB5S-00]
	/B5S10	With Pressure Clamp Terminal Block for Digital Input (surge absorber) [Model: ATB5S-10]
	/B5D00	With Dual Pressure Clamp Terminal Block for Digital Input [Model: ATB5D-00]
	/B5D10	With Dual Pressure Clamp Terminal Block for Digital Input (surge absorber) [Model: ATB5D-10]
	/CCC01	With Connector Cover for MIL Cable [Model: ACCC01]

*1: Please refer to GS 33K30D10-50E when using it with the Vnet/IP system, and GS 33K30D20-50E when using it with the Vnet system.

		Description
Model	ADV141	Digital Input Module (16-channel, 100V - 120 V AC, Isolated)
Suffix Codes	-P	With pushbutton input
	5	Without status display; with no explosion protection
	E	Without status display; with explosion protection
	0	Basic type
	3	With ISA Standard G3 option and temperature (-20 to 70 °C) option
Option Code	/C4S50	With Pressure Clamp Terminal Block for Digital [Model : ATC4S-50]

		Description
Model	ADV142	Digital Input Module (16-channel, 200 V - 240 V AC, Isolated)
Suffix Codes	-P	With pushbutton input
	0	General-purpose type
	0	Basic type
	3	With ISA Standard G3 option and temperature (-20 to 70 °C) option
Option Code	/C4S60	With Pressure Clamp Terminal Block for Digital [Model : ATC4S-60]

		Description
Model	ADV157	Digital Input Module (32-channel, 24V DC, Pressure Clamp Terminal support only, Isolated)
Suffix Codes	-S	Standard type
	5	With no explosion protection
	E	With explosion protection
	0	Basic type
	1	With ISA Standard G3 option

		Description
Model	ADV161	Digital Input Module (64-channel, 24 V DC, Isolated)
Suffix Codes	-P	With pushbutton input
	5	Without status display; with no explosion protection
	E	Without status display; with explosion protection
	0	Basic type
	1	With ISA Standard G3 option