General Specifications

Digital I/O Modules (for FIO)

CENTUM VP

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.

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● Digital Output Modules

The Digital Output Modules output 32-channel or 64-channel transistor contact signals.
The ADV551 and ADV561 can be used in dual redundant configuration.

Item	Specifications		
Model	**ADV551**	**ADV557**	**ADV561**
Number of output channels	32	32	64
Rated applied voltage	24 V DC	24 V DC	24 V DC
Load voltage	24 V DC, 50 mA	24 V DC, 50 mA	24 V DC, 100 mA
External power supply voltage range	20.4 to 26.4 V DC	20.4 to 26.4 V DC	20.4 to 26.4 V DC
Output ON voltage maximum value	2 V DC	2 V DC	2 V DC
Leak current maximum value when output OFF	0.1 mA	0.1 mA	0.1 mA
Output format	Current sink	Current sink	Current sink
Maximum load current (*1)	100 mA/channel, 26.4 V	100 mA/channel, 26.4 V	100 mA/channel, 26.4 V
Withstanding voltage	Between output signal and system: 2 kV AC, For 1 minute Between commons: 500 V AC, For 1 minute, common minus (–) side every 16-channel (*2)		
Functions			
Status output	ON/OFF status output function	ON/OFF status output function	ON/OFF status output function
Pulse width output	One-shot pulse width output function	—	One-shot pulse width output function
Time-proportioning output	Time-proportioning ON/OFF	—	Time-proportioning ON/OFF
Output response time	3 ms or less (for status output) 10 ms or less (for mixed status and pulse outputs)		
Pulse width	8 ms to 7200 s		
Pulse width resolution	8 ms, but ON/OFF delay of maximum 1 ms is added		
Maximum current consumption	700 mA (5 V DC) 60 mA (external power supply)	550 mA (5 V DC) 60 mA (external power supply)	700 mA (5 V DC) 120 mA (external power supply)
Weight	0.2 kg	0.3 kg	0.3 kg
External connection	Pressure clamp terminal, Dedicated cable (AKB331), MIL connector cable	Pressure clamp terminal	Dedicated cable (AKB337), MIL connector cable

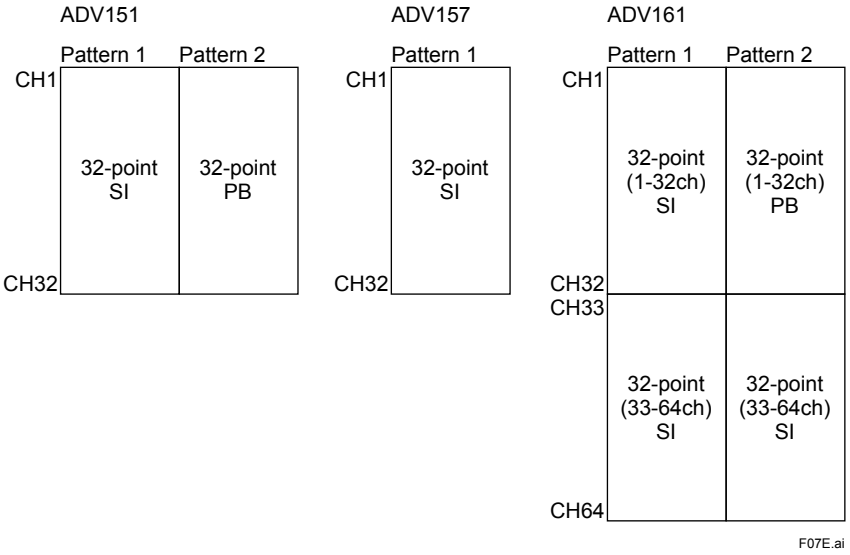
*1: Connect a spark killer diode when driving DC relay.
*2: The withstanding voltage for using a dedicated cable is 500 V AC (between output signal and system).
The withstanding voltage for using MIL connector cable depends on the electrical specifications of its cable.

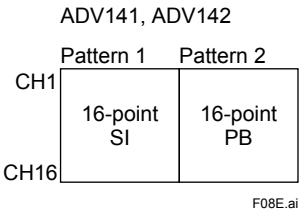
● Function Assignment in Digital Modules

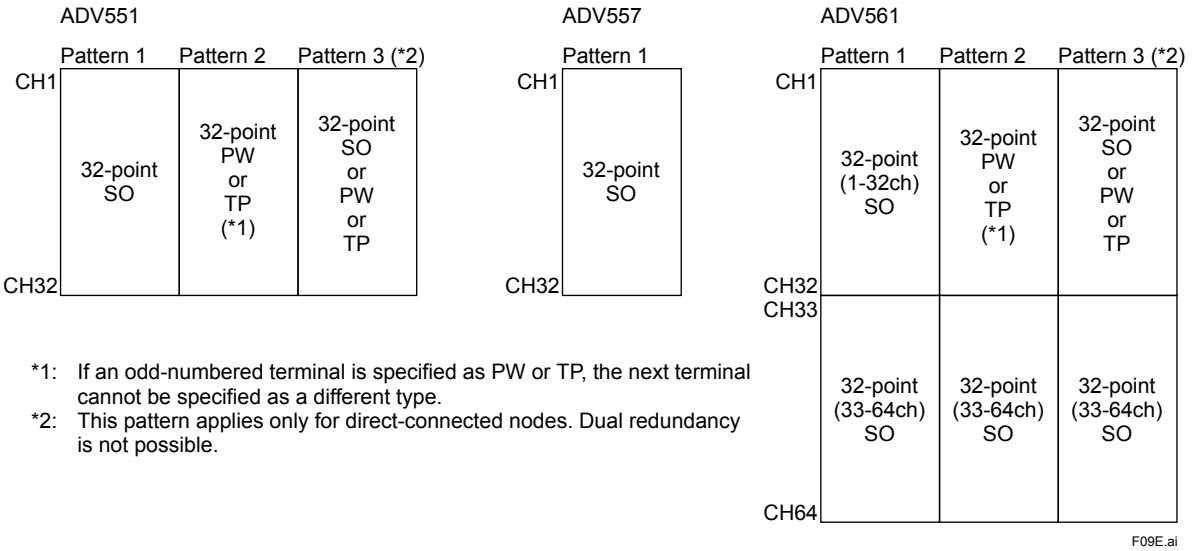
Select the patterns for assigning functions channel-by-channel in digital modules.
The following table lists the correspondence between the module types and point modes.

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



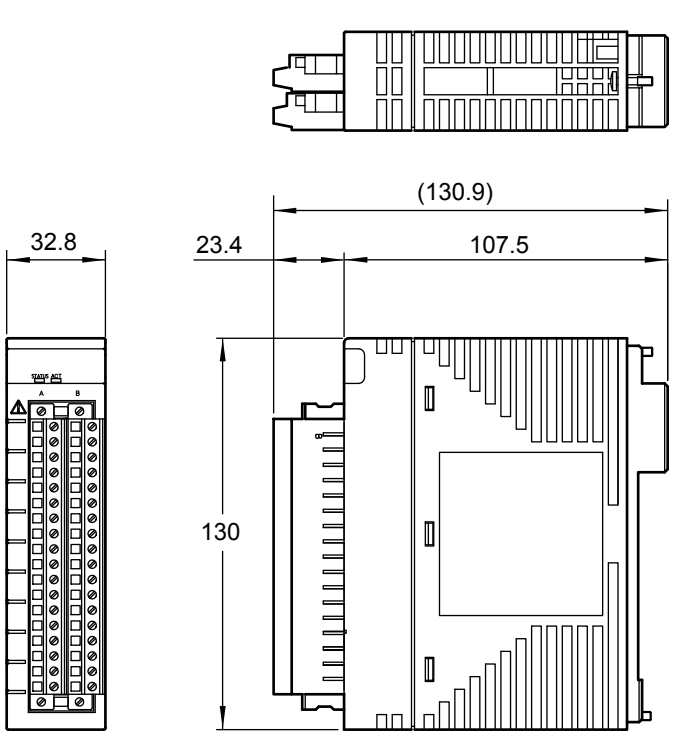




*1: If an odd-numbered terminal is specified as PW or TP, the next terminal cannot be specified as a different type.
*2: This pattern applies only for direct-connected nodes. Dual redundancy is not possible.

● ADV157, ADV557 Digital I/O Module

Unit: mm



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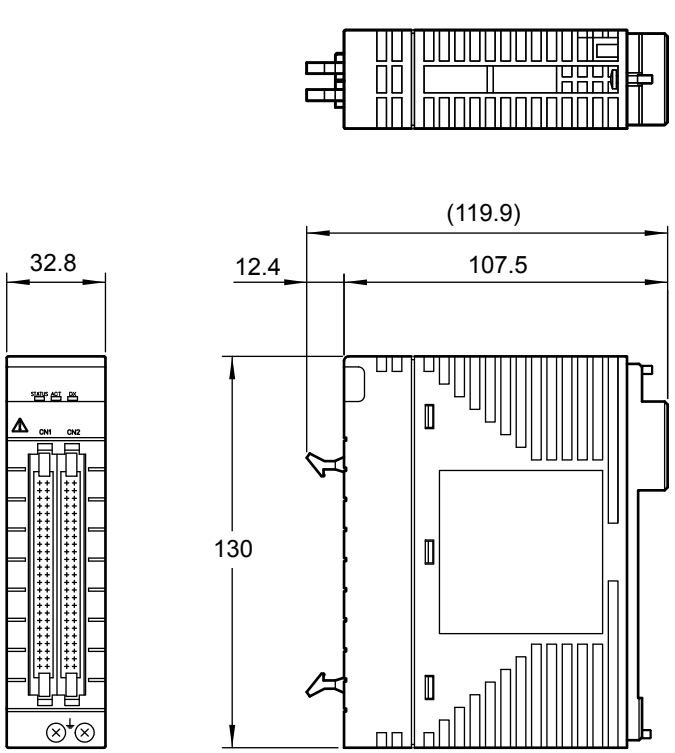
● ADV161, ADV561 Digital I/O Module

Unit: mm



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Digital Output Module

		Description
Model	ADV551	Digital Output Module (32-channel, 24 V DC, Isolated)
Suffix Codes	-P	With pulse width output function/time-proportional output function
	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
	3	With ISA Standard G3 option and temperature (-20 to 70 °C) option
Option Codes	/D5A00	With KS Cable Interface Adapter for 32-channel Digital [Model : ATD5A-00]
	/D5S00	With Pressure Clamp Terminal Block for Digital Output [Model : ATD5S-00]
	/D5S10	With Pressure Clamp Terminal Block for Digital Output (surge absorber) [Model : ATD5S-10]
	/D5D00	With Dual Pressure Clamp Terminal Block for Digital Output [Model : ATD5D-00]
	/D5D10	With Dual Pressure Clamp Terminal Block for Digital Output (surge absorber) [Model : ATD5D-10]
	/CCC01	With Connector Cover for MIL Cable [Model : ACCC01]

		Description
Model	ADR541	Relay Output Module (16-channel, 24 to 110 V DC/100 to 240 V AC, Isolated)
Suffix Codes	-P	With pulse width output function/time-proportional output function
	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	/C4S70	With Pressure Clamp Terminal Block for Digital Input [Model : ATC4S-70]

		Description
Model	ADV557	Digital Output Module (32-channel, 24 V 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	ADV561	Digital Output Module (64-channel, 24 V DC, Isolated)
Suffix Codes	-P	With pulse width output function/time-proportional output function
	5	Without status display; with no explosion protection
	E	Without status display; with explosion protection
	0	Basic type
	1	With ISA Standard G3 option