

● **Voltage Output Module (Non-Isolated)**

This module provides 16 outputs of -10 to +10 V DC signal. It can be used in dual-redundant configuration.

Items	Specifications
Model	AAV542
Number of output channels	16, non-isolated
Output signal	-10 to 10 V
Withstanding voltage	—
Allowable load resistance	10 kΩ or larger
Accuracy	Larger of ±0.3 %/FS and ±12 mV
Data update period	10 ms
Output step response time	40 ms
Temperature drift	Larger of ±0.1 %/10 °C and ±10 mV/10 °C
Maximum current consumption	450 mA (5 V DC)
Weight	0.2 kg
External connection	Pressure clamp terminal, KS cable, MIL connector cable

● **Current Input Modules (Isolated)**

This module provides 16 inputs of 4 to 20 mA signal. It can be used in dual-redundant configuration.

Items	Specifications	
Model	AAI143 (*1)	
Number of input channels	16, isolated	
Input signal	4 to 20 mA	
Allowable input current	24 mA	
Withstanding voltage	Between input and system: 1500 V AC, for 1 minute (*4)	
Input resistance	Power ON	270 Ω (20 mA) to 350 Ω (4 mA) (*2)
	Power OFF	500 kΩ or larger
Accuracy	±16 μA	
Data update period	10 ms	
Transmitter power supply	19.0 V or higher (at 20 mA) 25.5 V or less (at 0 mA) (output current limit: 25 mA) (*5)	
Setting of 2-wire or 4-wire transmitter	For each channel by setting pin	
Drift due to ambient temperature change	±16 μA/10 °C	
Maximum current consumption	230 mA (5 V DC), 540 mA (24 V DC)	
Weight	0.3 kg	
External communication	Pressure clamp terminal, MIL connector cable, dedicated cable (KS1)	
HART communication (*3)	Available	

*1: A Zener barrier is not allowed to be connected with this module. Use an isolation barrier when the module is used in intrinsically safe application.

*2: The module input resistance viewed from the terminals depends on the current strength as calculated as below:

$$250 \Omega + \frac{\text{voltage drop in the input protection circuit}}{\text{current value}} \quad \text{F04E.ai}$$

*3: When this module is installed to a ER bus node unit with HART function, the EB401 firmware must be rev. 2 or later.

*4: When the dedicated cable is used, the withstanding voltage is 500 V AC (between the input signal and the system). When the ML connector cable is used, the withstanding voltage depends on the electrical specifications of the cable.

*5: This voltage is generated between the connecting terminals for 2-wire transmitters for this module. When calculating the minimum operating voltage for transmitters, consider to allow margins for voltage drop in external wiring.

		Description
Model	AAI143	Analog Input Module (4 to 20 mA, 16-channel, Isolated)
Suffix Codes	-S	Standard type
	-H	With digital communication (HART protocol)
	5	With no explosion protection
	E	With explosion protection
	0	Basic type
Option Codes	3	With ISA Standard G3 option and temperature (-20 to 70 °C) option
	/K4A00	With KS Cable Interface Adapter (For connecting AEA4D Terminal Board) [Model: ATK4A-00]
	/A4S00	With Pressure Clamp Terminal Block [Model: ATA4S-00]
	/A4S10	With Pressure Clamp Terminal Block (surge absorber) [Model: ATA4S-10]
	/A4D00	With Dual Pressure Clamp Terminal Block [Model: ATA4D-00]
	/A4D10	With Dual Pressure Clamp Terminal Block (surge absorber) [Model: ATA4D-10]
	/CCC01	With Connector Cover for MIL Cable [Model: ACCC01]

		Description
Model	AAI543	Analog Output Module (4 to 20 mA, 16-channel, Isolated)
Suffix Codes	-S	Standard type
	-H	With digital communication (HART protocol)
	5	Standard switch-over response in redundant configuration with no explosion protection(*1)
	6	Fast switch-over response in redundant configuration with no explosion protection(*2)
	E	Standard switch-over response in redundant configuration with explosion protection(*1)
	F	Fast switch-over response in redundant configuration with explosion protection(*2)
	0	Basic type
	1	With ISA Standard G3 option
Option Codes	3	With ISA Standard G3 option and temperature (-20 to 70 °C) option
	/K4A00	With KS Cable Interface Adapter (For connecting AEA4D Terminal Board) [Model: ATK4A-00]
	/A4S00	With Pressure Clamp Terminal Block [Model: ATA4S-00]
	/A4S10	With Pressure Clamp Terminal Block (surge absorber) [Model: ATA4S-10]
	/A4D00	With Dual Pressure Clamp Terminal Block [Model: ATA4D-00]
	/A4D10	With Dual Pressure Clamp Terminal Block (surge absorber) [Model: ATA4D-10]
	/CCC01	With Connector Cover for MIL Cable [Model: ACCC01]

*1: If "standard switch-over response in redundant configuration" is selected, "basic type" or "with ISA Standard G3 option and temperature (-20 to 70 °C) option" may be specified.

*2: If "fast switch-over response in redundant configuration" is selected, "basic type" or "with ISA Standard G3 option" may be specified.

		Description
Model	AAV144	Analog Input Module (-10 to +10 V, 16-channel, Isolated)
Suffix Codes	-S	Standard type
	5	With no explosion protection
	E	With explosion protection
	0	Basic type
Option Codes	3	With ISA Standard G3 option and temperature (-20 to 70 °C) option
	/K4A00	With KS Cable Interface Adapter [Model: ATK4A-00]
	/A4S00	With Pressure Clamp Terminal Block for Analog [Model: ATA4S-00]
	/A4S10	With Pressure Clamp Terminal Block for Analog (surge absorber) [Model: ATA4S-10]
	/A4D00	With Dual Pressure Clamp Terminal Block for Analog [Model: ATA4D-00]
	/A4D10	With Dual Pressure Clamp Terminal Block for Analog (surge absorber) [Model: ATA4D-10]
		/CCC01