● **Current/Voltage I/O Modules (Non-Isolated)**

These modules provide 8 inputs and 8 outputs to support up to 8 loops. They can be used in dual-redundant configuration.

Items		Specifications					
Model		**AAI841 (*1)**		**AAB841 (*5)**		**AAB842 (*5) (*6)**	
Number of I/O channels		8-channel input/8-channel output, non-isolated		8-channel input/8-channel output, non-isolated (differential input)		8-channel input/8-channel output, non-isolated When the voltage input is selected the differential input is applied.	
I/O signal		Input: 4 to 20 mA	Output: 4 to 20 mA	Input: 1 to 5 V (allowable common mode voltage ±1 V or less)	Output: 4 to 20 mA	Input (*7) Voltage input: 1 to 5 V DC (allowable common mode voltage ±1 V or less) Current input: 4 to 20 mA DC	Output: 4 to 20 mA
Allowable input current/ voltage		25 mA	—	±7.5 V	—	Voltage input : ±7.5 V Current input : 25 mA	—
Withstanding voltage		—					
Input resistance	**Power ON**	400 Ω (at 20 mA) to 1000 Ω (at 4 mA) (*2)	—	1 MΩ or larger	—	Voltage input: 1 MΩ or larger Current input: 290 Ω (at 20 mA) to 450 Ω (at 4 mA) (*2)	—
	Power OFF	500 kΩ or larger	—	340 kΩ or larger	—	Voltage input: 340 kΩ or larger Current input: 500 kΩ or larger	—
Allowable load resistance		—	0 to 750 Ω (*3)	—	0 to 750 Ω	—	0 to 750 Ω (*4)
Circuit-open detection		—	Less than 0.65 mA	—	Less than 0.65 mA	—	Less than 0.65 mA
Accuracy		Input: ±16 μA	output: ±48 μA	Input: ±4 mV	output: ±48 μA	Voltage input : ±4 mV Current input : ±16 μA	±48 μA
Data update period		10 ms					
Input step response time		100 ms					
Output step response time		40 ms					
Transmitter power supply		14.8 V or higher (at 20 mA) 26.4 V or less (at 0 mA) (*4)		—			
Setting of 2-wire or 4-wire transmitter		For each channel by setting pin		—			
Temperature drift		±0.1 %/10 °C					
Maximum current consumption		310 mA (5 V DC), 500 mA (24 V DC)		310 mA (5 V DC), 250 mA (24 V DC)		410 mA (5 V DC), 290 mA (24 V DC)	
Weight		0.3 kg					
External connection		Pressure clamp terminal, KS cable, MIL connector cable				KS cable	
HART communication (*8)		Available		—		Available (at Current input and output)	

*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:

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

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*3: When this module is used in the ambient temperature of 60 to 70 ºC by being installed in a node unit that conforms to the temperature environment, the allowable load resistance is 200 to 750 Ω.

*4: 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.

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

*6: A Zener barrier is not allowed to be connected with this module for current input. Use an isolation barrier when the module is used in intrinsically safe application. And this module can be used only with the following FCSs – AFG30□, AFG40□, AFG8□□, AFF50□, AFV10□, AFV30□, or AFV40□.

*7: Input mode for each channel is selectable by software.

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