

I/O Systems - SDe Series I/O

ABB Ability™ Symphony® Plus hardware selector

The SDe I/O family includes a range of redundancy-enabled, intelligent analog, HART, digital, and mixed I/O modules that communicate with parent controllers over the native bus. Each module couples with an evolution mounting base for use in Harmony Rack systems and is fully compatible with the HR BRC410 and SD controllers.

The SDe Series I/O product family includes DIN Rail horizontally or vertically mounted digital and analog modules, as well as integration with intelligent field devices and protocols. Hardwire I/O and Fieldbus I/O coexist and use the same function block library to build real-time control applications.

Traditional SDe Series analog input modules interface with field inputs such as pressure and flow transmitter signals, thermocouple inputs, and resistive temperature device (RTD) inputs. Analog output modules provide output signals to adjust final control elements such as control valves, positioners, actuators, etc. SDe Series digital input modules have input channels to read the states of switches, relay contacts, solenoids, etc. Digital output modules provide output channels for DC or AC switching applications.

The digital outputs can be used to drive annunciators and drive two-state final control elements such as actuators, relays, and solenoids. For SDe Series Digital I/O, each channel can be individually configured as an SOE (Sequence of Events) point. This flexibility removes the cost and complexity of assigning additional digital inputs as SOE in the field. SOE with a 1 msec timestamp is available across the entire system, whether the I/O is local or remotely located.

Below is an outline of the range of different SDe I/O modules available.



Specific feature ¹	AD11e	AI12e	AI16e	AO02e
General info				
Article number	7PAA001452R1 (AD11e)	7PAA003099R1 (AI12e)	7PAA001446R1 (AI16e)	7PAA001447R1 (AO02e)
Type	Mixed I/O	Analog Input with HART	Universal Analog Input	Analog Output with HART
Signal specification	4...20 mA, 1...+5 V, 24/48/110/125 VDC, 100/120 VAC, 24-48 VDC	4...20 mA, 0...+1 VDC, 0...+ 5 VDC, 1...+5 VDC, -10...+10 VDC, 0...+10 VDC	Hi Lvl: 4...20 mA, 0/1...+5 VDC, -10/0...+10 VDCmV: -100/0...+100mVThermocouple: Type B, E, J, K, L, N(14 or 28 AWG), R, S, T, U or Chinese E, S RTD: 100 Ω Platinum U.S. & Euro Std, 120 Ω Nickel, Chinese 53 Ω Copper, and 10 Ω Copper	4...20 mA, 1...+5 VDC
Life cycle status	ACTIVE			
Number of channels	16			
Signal type	4xAI, 4xAO, 4xDI, 4xDO	High Level AI	Universal AI: High Level, mV, TC, and RTD	High Level AO
HART	Yes		No	Yes
SOE	Yes	No		
Redundancy	Yes			
Form factor	Compact (127 mm)			
Mounting	EMB01S-CIO	EMB01S-XIO	EMB01S-UAI	EMCB01S-XIO
MTBF (per MIL-HDBK-217-FN2)	PR: B = 141,529 Hours @ 30 °C 114,373 Hours @ 40 °C 65,974 Hours @ 70 °C	PR: D = 126,435 Hours @ 30 °C 99,979 Hours @ 40 °C 59,072 Hours @ 70 °C	PR: B = 185,127 Hours @ 30 °C 137,772 Hours @ 40 °C 52,055 Hours @ 70 °C (Hours)	PR: C = 162,004 Hours @ 30 °C 121,519 Hours @ 40 °C 53,989 Hours @ 70 °C
MTTR (Hours)	AD11e MTTR = 1 hour	AI12e MTTR = 1 hour	AI16e MTTR = 1 hour	AO02e MTTR = 1 hour
Dimensions				
Width	27 mm			
Depth	127 mm			
Height	127 mm			
Weight	191 g	181 g	204 g	181 g
Environment and certification				
RoHS compliance	RoHS Directive 2015/863			
WEEE compliance	DIRECTIVE/2012/19/EU			

¹ For detailed information on each module, please visit: [symphonyplushardwareselector.com](https://www.symphonyplushardwareselector.com)



Specific feature ¹	DI06e	DO01e	DO05e	PI01e
General info				
Article number	7PAA001448R1 (DI06e)	7PAA003100R1 (DO01e)	7PAA001450R1 (DO05e)	7PAA001451R1 (PI01e)
Type	Universal Digital Input	Transistor Digital Output	EMR Contact Digital Output	Pulse Input
Signal specification	24/48/110/125 VDC, 100/120 VAC	max 250 mA @ 24-48 VDC	max 3.0 A @ 120 VAC	9-24 VDC
Life cycle status	ACTIVE			
Number of channels	16		8	
Signal type	Universal DI	Transistor DO	EMR Contact DO	PI
HART	No			
SOE	Yes	No		
Redundancy	Yes			
Form factor	Compact (127 mm)			
Mounting	EMB01S-XIO	EMB01S-XIO, EMB01S-SOE	EMB01S-EMR	EMB01S-PIO
MTBF (per MIL-HDBK-217-FN2)	PR: C = 157,505 Hours @ 30 °C 126,769 Hours @ 40 °C 83,626 Hours @ 70 °C	PR: D = 365,931 Hours @ 30 °C 273,823 Hours @ 40 °C 111,541 Hours @ 70 °C	PR: C = 284,775 Hours @ 30 °C 217,809 Hours @ 40 °C 94,502 Hours @ 70 °C	PR: C = 252,114 Hours @ 30 °C 188,993 Hours @ 40 °C 87,738 Hours @ 70 °C
MTTR (Hours)	DI06e MTTR = 1 hour	DO01e MTTR = 1 hour	DO05e MTTR = 1 hour	PI01e MTTR = 1 hour
Dimensions				
Width	27 mm			
Depth	127 mm			
Height	127 mm			
Weight	181 g	159 g	204 g	159 g
Environment and certification				
RoHS compliance	RoHS Directive 2015/863			
WEEE compliance	DIRECTIVE/2012/19/EU			

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