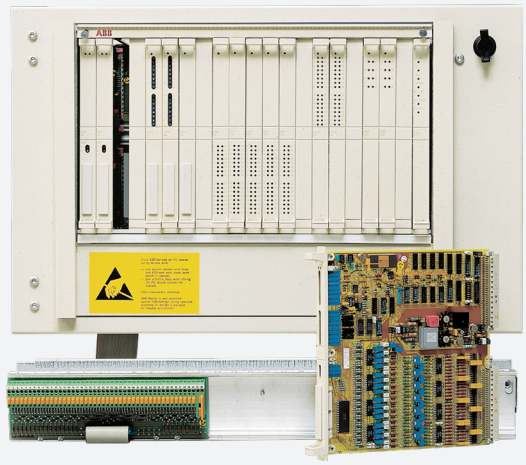
Advant® Master
S100 I/O system



The S100 I/O process interface modules for Advant Controller 400 series process controllers come with connection units, simplifying cable termination and keeping noise and destructive spikes away from the central electronics.

S100 I/O is the central process interface for Advant Controller 400 series process controllers. Thanks to built-in cablemarshalling facilities and parallel communication with the host controller, it is the right choice for centralized I/O systems and high-speed applications.

The range of process I/O modules is complete, consisting of general purpose digital and analog inputs and outputs and special interfaces for special tasks. These specials include pulse counting, frequency measuring, positioning, motor speed control and communication with other controllers. All I/O modules provide simple interfacing, accurate - yet fast - control, and easy integration of individual loops into a comprehensive plant-wide control and supervision system.

The interface modules connect to the process through screw terminals on connection units normally installed inside, at the back of the cabinet. This solution keeps noise and destructive voltage spikes away from the central electronics and provides a neat and tidy process interface that is easy to maintain.

Prefabricated cables interconnect modules with connection units. The cables come in different lengths, permitting termination and marshalling in controller cabinets, in adjacent cabinets, or in cabinets a greater distance away.

There are connection units that support signal-oriented or device-oriented field wiring. The former means that field wires with the same electrical characteristics (e.g. all 24 V d.c. inputs) are grouped and terminated together, the latter that field wires to/from the same field devices are grouped and terminated together. The combination means maximum installation flexibility.

S100 I/O system
For centralized I/O systems and high-speed applications

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01 Example of S100 I/O installation. RE500 cabinets with S100 I/O subrack, connection units and power supply for sensors.
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02 Example of S100 I/O installation. The picture shows an RE500 cabinet with process cables (bottom of the cabinet) and field wires terminated on connection units

On-board processing capabilities
The process I/O modules are “intelligent” in the sense that module-related signal and data processing is performed on board as opposed to centrally, by the CPU of the host controller. Time tagging of events, filtering and gain control are some examples of board-level tasks. This functional distribution improves real-time performance and reliability of the system as a whole and maintains processing capacity when the system is expanded.

Comprehensive self-diagnostics
Comprehensive self-diagnostics continuously monitor the modules and report any errors through LEDs on the module fronts and through alarm messages and indications to process operator stations.

Malfunctioning inputs can be disabled and simulated by manual entry while failing outputs are deactivated or driven to a predetermined safe state automatically. All I/O modules can be replaced while the system is in service. Some modules can even be arranged, transparently into dually redundant configurations forenhanced availability.

High disturbance immunity
All modules conform to the highest standards of electromagnetic noise immunity and satisfy the requirements of the EU directives 2014/30/EU and 2014/35/EU. For the above reasons, S100 I/O is likely to be the best help you can get for putting your control system in touch with your field devices.

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Advant Controller
ABB

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Technical shortcut

Analog inputs

±10 V/±20 mA

- 16 ch., differential, 12 bits + sign resolution, CMV ≤ 50 V, CMRR > 100 dB (at 50 Hz), (DSAI 130A)

0…+10 V/0…+20 mA

- 32 ch. (DSAI 133A[1]), single-ended, 12 bits resolution

-100…+320/-200…+640°C

- 31 measuring + 1 reference ch., Pt100, 3-wire, 12 bits + sign resolution, (DSAI 146)

Thermocouples

- 14 measuring, 2 reference + 1 compensation ch., measuring ranges B, C, E, J, K, R, S and T with grounded or floating output signals, 12/13 bits + sign resolution, CMV ≤ 16 V, CMRR > 100 dB (at 50 Hz), (DSAI 155A)

Analog outputs

±10 V/±20 mA

- 8 ch., 12 bits + sign resolution, galvanically isolated, (DSAO 120A)

0…20 mA

- 16 ch., 12 bits resolution, (DSAO 130A)

Analog inputs/outputs

0…+10 V/0…+20 mA

- 8 input ch., single-ended, 12 bits resolution;
- 8 output ch., 12 bits resolution (DSAX 110A[1])

Digital inputs

24 V d.c.

- 32 ch. in 4 groups, optoisolated, read by scanning or interrupts (DSDI 110AV1[2]/DSTD 190V1, DSDI 110AV1[2]/DSTD 150A, with screw terminals or DSDI 110AV1[2]/DSTD 195, galvanic isolated)

24/48 V d.c.

- 32 ch. in 4 groups, optoisolated, read by scanning or interrupts (DSDI 110AV1[2]/DSTD 196P)

48 V d.c.

- 32 ch. in 4 groups, optoisolated, read by scanning or interrupts (DSDI 120AV1[2]/DSTD 190V1 or DSDI 120AV1[2]/DSTD 150A, with screw terminals)

110 V d.c. or 120 V a.c

- 32 ch. in 4 groups, optoisolated, read by scanning or interrupts (DSDI 110AV1[2]/DSTD 197)

230 V a.c.

- 32 ch. in 4 groups, optoisolated, read by scanning or interrupts (DSDI 110AV1[2]/DSTD 198)

Digital outputs

24…250 V a.c. or d.c.

- 32 ch., (DSDO 115A/DSTD 108P), relay contacts. Relay data: Load current; max. 3 A, min 0,1 A at 24 V d.c. or 2,5 VA a.c. Breaking capacity a.c max 720 VA at cos Φ > 0.4; d.c. max 44 W at L/R <40 ms.
- 32 ch., (DSDO 115A/DSTD 108LP), relay contacts. Relay data: Load current; max. 200 mA, min 1 mA, 0.05 VA. Breaking capacity a.c max 5 VA at cos Φ > 0,4; d.c. max. 5 W at L/R <40 ms.

24 V d.c.

- 32 ch., short-circuit-proof transistor, max. 500 mA, (DSDO 115A)
- 32 ch., (DSDO 115A/DSTD 109P) short-circuit-proof transistor, max. 2 A

Pulse counting and positioning

5/12/24 V d.c.

- 12 ch., max. 10 kHz, (DSDP 150)

Complete interface (DSDP 140A) for one positioning loop, consisting of:

- Pulse inputs: 3 (A, B and STROBE), ±15 mA, max. 80 kHz DI/DO: 24 V d.c. DO max. 150 mA AO: ±10V/±20 mA, 11 bits resolution

Complete interface (DSDP 170) for

- 4 position transducers, each circuit consisting of: Pulse inputs: 3 (A, B and STROBE), 5/12/24 V or ±15 mA d.c., max. 2.5 MHz DI/DO: 24 V d.c. DO max.150 mA

Digital speed control of motors

Complete interface (DSDC 111) for one d.c. motor, consisting of:

3 pulse inputs for A, B and STROBE
1 DI, 24 V d.c.
1 DO, 24 V, 150 mA d.c.
1 AO, ±10 V/±20 mA, 12 bits resolution

[1] Supports transparent dual redundancy.
[2] Digital Input Modules with Event detection.

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3BSE004616R0201 Rev A 2019