Product role and integration

ABB / DC523-1SAP240500R0001

ABB DC523-1SAP240500R0001

ABB DC523-1SAP240500R0001 is an S500 digital I/O module with 24 configurable 24 V DC channels for AC500 control systems.

24 V DC field devices — DC523 + TU515 / TU516 — S500 bus / AC500 CPU

Installed-system role

In an AC500 station, ABB DC523-1SAP240500R0001 links binary field devices to the S500 I/O bus. Configure the channel directions in the controller project and match the terminal unit to the field wiring.

Supply boundary

Confirm the DC523 electronic module, terminal-unit requirement and the installed field wiring. A terminal unit or communication interface is included only when itemized in the quotation.

Configuration context

The channel count is shared between inputs and outputs. Assigning a point as an output does not create an additional input point; document the installed direction and signal address for every channel.

Technical scope

Channel, electrical and terminal-unit values apply to DC523. Communication capabilities depend on the selected AC500 CPU or station interface.

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Technical capability map

ABB / DC523-1SAP240500R0001

Parameter	Value
Manufacturer	ABB
Type designation	DC523
Product ID	1SAP240500R0001
System family	S500 I/O for AC500
Configurable digital channels	24; each selectable as input or output
Process voltage UP	24 V DC nominal
Output technology	Transistor
Rated output per channel	0.5 A at UP = 24 V DC
Maximum aggregate output current	8 A
Input characteristic	EN 61131-2 Type 1
Input signal 0	-3 to +5 V DC

Parameter	Value
Input signal 1	+15 to +30 V DC
Input delay	8 ms typical; configurable 0.1-32 ms
Input current at 24 V DC	5 mA typical
Signal-1 output voltage	UP minus 0.8 V
Output readback	Supported
Output short-circuit protection	With automatic reclosure
Module isolation	Galvanic isolation per module
Required terminal unit	TU515 or TU516; selected separately
Module electronics supply	Internal I/O extension bus
Fieldbus access	Via AC500 CPU or communication interface module
Internal addressing	Automatic

Channel, electrical and terminal-unit values apply to DC523. Communication capabilities depend on the selected AC500 CPU or station interface.

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Applications and engineering precautions

ABB / DC523-1SAP240500R0001

Binary sensor acquisition

Allocate channels as 24 V DC inputs for discrete field states. Check the Type 1 input thresholds and selected delay against the sensor signal.

Low-power actuator commands

Allocate transistor outputs for compatible DC loads. Respect the 0.5 A channel limit and 8 A aggregate output-current boundary.

Central I/O expansion

Extend an AC500 station through the S500 I/O bus and retain the terminal-unit wiring while planning an electronic-module replacement.

Distributed station signals

Use the module behind an appropriate communication interface for decentralized I/O. The interface defines fieldbus access; DC523 is not a stand-alone Ethernet controller.

Precaution	Engineering check
Allocate the 24 channels	Keep one project assignment for each channel and confirm its configured input or output direction before wiring.
Choose the terminal unit	Match TU515 or TU516 to the installation. Verify terminal identification and include the required base separately in the supply scope.
Separate process and logic power	Check UP and the internal bus supply independently. Isolate field power before altering load or sensor wiring.
Respect load limits	Keep each transistor output within 0.5 A and the total output current within 8 A. Review inductive and lamp switching duty.
Check input timing	Match the configurable 0.1-32 ms input delay to the process. Do not confuse an input filter setting with a guaranteed application response time.
Investigate automatic reclosure	Remove the cause of an output overload before releasing the machine. Automatic reclosure can re-energize a connected load when the fault clears.

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Exact-model engineering questions

ABB / DC523-1SAP240500R0001

Does DC523-1SAP240500R0001 provide 24 inputs and another 24 outputs?

No. The module has 24 configurable digital channels, each assigned as an input or output. The configured directions share the same pool of 24 points.

Which terminal units support DC523-1SAP240500R0001?

The ABB S500 ordering table assigns TU515 or TU516 to DC523. Select the terminal unit for the installed wiring arrangement and confirm whether it is included in the offered scope.

How should output loading be checked for DC523-1SAP240500R0001?

The nominal output rating is 0.5 A per channel at a 24 V DC process supply, with an aggregate limit of 8 A. Apply both limits rather than multiplying 24 by the channel rating.

Can DC523-1SAP240500R0001 directly switch a 230 V AC actuator?

Its configurable outputs are 24 V DC transistor outputs. A 230 V AC load requires a separately selected interface and circuit design; it must not be connected directly to a DC523 output.

What input levels distinguish signal 0 and signal 1 on DC523-1SAP240500R0001?

The Type 1 input characteristic defines signal 0 from -3 to +5 V DC and signal 1 from +15 to +30 V DC. The interval between +5 and +15 V DC is not a defined logic-state range.

Why can a short sensor pulse be missed by DC523-1SAP240500R0001?

The input delay is typically 8 ms and can be configured from 0.1 to 32 ms. Check the selected delay against the pulse duration and the controller sampling arrangement.

Where does DC523-1SAP240500R0001 obtain its communication connection?

The electronic module connects through the internal I/O extension bus. An AC500 CPU or suitable communication interface provides access to the fieldbus; the module does not supply a separate network port.

What happens after an output short circuit clears on DC523-1SAP240500R0001?

The output protection supports automatic reclosure. After correcting the field fault, verify the command state and connected load before permitting an automatic restart of the machine function.

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Lifecycle, verification and portfolio

ABB / DC523-1SAP240500R0001

Manufacturer lifecycle context

ABB DC523 Data Sheet 3ADR010043, revision 14 dated 28 November 2025, identifies product 1SAP240500R0001 as Active. This is the phase recorded in that publication.

Support boundary

Confirm current manufacturer support for the exact product ID and installed AC500 configuration. Apter Power availability and quotation lead time are confirmed separately.

Technical references

ABB Automation Products catalog - Scalable PLC AC500, 1SBC125003C0205 2012.

Commissioning focus

Compare each field point with its configured direction and address. Apply controlled 0 and 1 states to each configured input.

Release criterion

Retain the channel map, terminal-unit identity and test results. Installation record reflects the final configuration.

Related ABB portfolio references

Independent catalogue references; these links do not establish compatibility, substitution or endorsement.

Complete product reference	Navigation
ABB AI810 3BSE008516R1	View ABB AI810 3BSE008516R1
ABB AO810 3BSE008522R1	View ABB AO810 3BSE008522R1
ABB AI815 3BSE052604R1	View ABB AI815 3BSE052604R1
ABB PM866K01 3BSE050198R1	View ABB PM866K01 3BSE050198R1

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