Plan the installation scope

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.

Apter Power engineering guide. Apply the manufacturer procedure and the approved site design for the installed equipment.

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

Configuration and 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.

Identification checkpoint	Required value
Type designation	DC523
Product ID	1SAP240500R0001
System family	S500 I/O for AC500
Configurable digital channels	24; each selectable as input or output

Operating 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.

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.

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.

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Prepare power and interfaces

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

Technical boundary	Applicable value
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
Input signal 1	+15 to +30 V DC
Input delay	8 ms typical; configurable 0.1-32 ms

Power relationship

The internal I/O bus supplies the electronics; the 24 V DC UP circuit supplies the field side. Verify both boundaries during commissioning.

Output protection

Transistor outputs support short-circuit protection with automatic reclosure. Remove wiring faults and control unintended load re-energization.

System relationship

The module electronics receive their supply through the I/O extension bus, while UP supplies the process circuits. Check the process supply and aggregate load separately from the logic-side bus connection.

Additional interface criterion	Documented boundary
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

Install with controlled hold points

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Complete the identity and safe-state checks before disturbing the installed circuit. The following hold points follow the product-specific installation boundary.

01 / Allocate the 24 channels

Keep one project assignment for each channel and confirm its configured input or output direction before wiring.

02 / Choose the terminal unit

Match TU515 or TU516 to the installation. Verify terminal identification and include the required base separately in the supply scope.

03 / Separate process and logic power

Check UP and the internal bus supply independently. Isolate field power before altering load or sensor wiring.

04 / 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.

05 / 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.

06 / 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.



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.

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Commission and verify operation

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Stage	Controlled action	Acceptance focus
Channel map	Compare each field point with its configured direction and address.	Input and output assignments match the project.
Logic supply	Check the I/O-bus connection before enabling field loads.	Module is present in the intended station.
Process supply	Verify the 24 V DC UP circuit and load grouping.	Process power is correctly identified and protected.
Input test	Apply controlled 0 and 1 states to each configured input.	Indication follows the expected input threshold and delay.
Output test	Command outputs individually under controlled conditions.	Correct loads operate without overcurrent or unexpected restart.
Handover	Retain the channel map, terminal-unit identity and test results.	Installation record reflects the final configuration.

Application configuration

Output readback and automatic reclosure support diagnosis, but the complete field circuit still needs suitable protection and controlled functional testing. Use the matching TU515 or TU516 terminal unit.

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.

Acceptance decision

Compare the controlled observations with the installed configuration and the manufacturer procedure. Investigate a disagreement before returning the function to service; retain the measured state and the corrective action in the handover record.

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Diagnose and hand over

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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.

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.

Lifecycle and service planning

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.

Related ABB portfolio references

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

Complete product reference	Navigation
ABB DI810 3BSE008508R1	View ABB DI810 3BSE008508R1
ABB DO810 3BSE008510R1	View ABB DO810 3BSE008510R1
ABB DI811 3BSE008552R1	View ABB DI811 3BSE008552R1
ABB DO818 3BSE069053R1	View ABB DO818 3BSE069053R1

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