

Siemens 6ES7961-1AA00-0AC0

Digital I/O Submodule

Product scope

- Combines eight isolated digital inputs and eight protected digital outputs on one M7 submodule.
- Generates process interrupts from a configured rising or falling input edge.
- Allows 750 microsecond or 3 millisecond input filtering to balance response and cable length.

Manufacturer source

Exact-model technical record

Verified model-specific overview, function, operating principle, applications and technical data.

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Siemens 6ES7961-1AA00-0AC0

Digital I/O Submodule

Product overview

Siemens 6ES7961-1AA00-0AC0 is the SIMATIC M7 IF 961-DIO submodule with eight isolated 24 V DC inputs and eight protected 24 V DC outputs. It provides compact binary interfacing through a 25-pin D-sub connection.

6ES7961-1AA00-0AC0 equips an M7-300 or M7-400 automation computer with eight input channels arranged in isolated pairs and eight outputs arranged in groups of four. Input delay can be selected between 750 microseconds and 3 milliseconds.

The card acquires 24 V process states, detects configured rising or falling edges and switches low-current actuators from the same compact submodule slot. Electronic short-circuit protection supervises the output side.

A replacement must use the IF 961-DIO device identifier 02H and the correct M7 carrier supply. Cable shielding and maximum route length depend on the chosen input delay, so the original engineering setting should be retained.

Technical specifications

Digital inputs	8
Input isolation grouping	4 groups of 2
Rated input voltage	24 V DC
Input current	4 to 8.5 mA
Logic 0 range	-30 to +5 V
Logic 1 range	+13 to +30 V
Selectable input delay	750 µs or 3 ms
Input interrupt	Rising or falling edge
Digital outputs	8
Output grouping	2 groups of 4
Rated output current	0.1 A per channel
Output current range	5 mA to 0.1 A
Logic 0 output	3 V maximum
Logic 1 output	L+ minus 1.5 V minimum
Lamp load	2.4 W
Resistive switching frequency	500 Hz
Inductive switching frequency	2 Hz at 0.1 A
Output protection	Electronic short-circuit protection
Connector	25-pin D-sub
Submodule identifier	02H
M7-300 current consumption	0.03 A at 24 V
M7-400 current consumption	0.085 A at 5 V
Power loss	2.4 W

6ES7961-1AA00-0AC0 function and operating principle

Ordered configuration

This order number is the IF 961-DIO binary interface for SIMATIC M7, identified as submodule 02H.

System role

It couples 24 V field states and compact actuator commands directly to the automation computer.

Selection and installation

Carrier type, connector wiring, filtering choice and output load category must be checked against the saved M7 project.

Functional path

- Combines eight isolated digital inputs and eight protected digital outputs on one M7 submodule.
- Generates process interrupts from a configured rising or falling input edge.
- Allows 750 microsecond or 3 millisecond input filtering to balance response and cable length.

Application scenarios

- M7 machine controllers use the input pairs for isolated limit and interlock signals while driving small indication or relay loads.
- Test systems can trigger software processing from a selected transition instead of continuously polling every channel.
- Retrofit cabinets use the card where a mixed 8-input and 8-output interface must remain within one M7 submodule position.

6ES7961-1AA00-0AC0 engineering checks

Monitoring

- Each input can be configured to create an interrupt on either the rising or falling signal edge.
- Output short circuits are handled electronically to protect the channel electronics.
- Input grouping isolates pairs so process potentials can be organised across four channel sections.

Installation

- Field wiring terminates through the documented 25-pin D-sub assignment.
- Shielded cable can extend to 1000 m, while unshielded limits depend on the selected input delay.
- The carrier must provide the correct M7-300 24 V or M7-400 5 V submodule supply.

Configuration & Programming

- The system identifies the submodule by code 02H during hardware setup.
- Input filtering is selectable between 750 microseconds and 3 milliseconds.
- Interrupt enable and edge polarity are set independently for the required process response.

Critical technical note

Before changing 6ES7961-1AA00-0AC0, record the 750 μ s or 3 ms input-delay selection because it also determines the permitted cable length.

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