Siemens 6ES7321-1BH10-0AA0

Technical Reference and System Integration Map

Siemens 6ES7321-1BH10-0AA0 is a SIMATIC S7-300 SM 321 digital input module. Its exact order identity must be matched with the installed supply or automation configuration before replacement.

01 Exact identity and evidence boundary

Exact offered identity	6ES7321-1BH10-0AA0
Product type	SIMATIC S7-300 SM 321 digital input module
Manufacturer	Siemens
System or platform	SIMATIC S7-300 digital input system
Evidence scope	Values are taken from the manufacturer product data for the exact order number; installation still depends on the delivered revision and approved system design.

Technical purpose

The complete 6ES7321-1BH10-0AA0 order number establishes the product family and exact electrical function; verify the installed revision, wiring and companion equipment before release.

Verified engineering data

Product family	SIMATIC S7-300 SM 321
Module function	Isolated digital input module
Input count	16 digital inputs
Nominal input voltage	24 V DC
Connector interface	One 20-pole front connector
Input supply range	20.4 to 28.8 V DC
Signal 0 range	-30 to +5 V DC
Signal 1 range	13 to 30 V DC
Typical input current	7 mA at signal 1
Input grouping	Channels organized in isolated groups per module design

02 Parameter groups and system relationship

Two-wire sensor support	Supported within the documented sensor-current limits
Cable length, shielded	Up to 1000 m under stated conditions
Cable length, unshielded	Up to 600 m under stated conditions
Diagnostics	Observe CPU and program diagnostics; no substitute for field-circuit testing
Replacement status	Managed as a spare-part product; confirm current Siemens availability
Configuration boundary	Hardware configuration and process-image assignment remain project-specific

System integration map

01 **Identity**

Confirm the complete marking and supplied revision before applying any base-family value.

02 **Interfaces**

Match every mechanical, electrical and communication interface to the installed design.

03 **Companion equipment**

Preserve the documented probe, cable, monitor, connector, supply or controller relationship.

04 **Configuration**

Record the installed settings, channel assignment and baseline before replacement.

05 **Acceptance**

Prove the static reading and operating response against the approved maintenance record.

Operating interpretation

6ES7321-1BH10-0AA0 brings sixteen 24 V DC field states into a SIMATIC S7-300 station through one 20-pole front connector. The module isolates its input circuitry according to the documented grouping and presents channel states to the configured CPU process image.

Replacement requires more than matching the front width: verify slot, hardware configuration, front-connector keying, channel assignments, sensor supply, commons and field polarity. Preserve the original connector schedule before removing the installed module.

Signal thresholds and cable limits assume the documented supply and wiring conditions. Acceptance should prove each channel from the field device through the input LED and PLC variable while checking inactive channels for unintended voltage or shared-common errors.

Application and compatibility boundaries

Discrete sensor acquisition

Read 24 V DC proximity switches, limit switches and approved two-wire sensors within the documented current limits.

Machine interlock inputs

Bring field contacts into an S7-300 program where hardware and software assignments have been validated.

Status and alarm collection

Collect on/off equipment states with documented commons, channel naming and cable routes.

Module replacement

Retain slot, front connector, hardware configuration and channel mapping during maintenance.

03 Diagnostic and acceptance reference

How should the 20-pole front connector of 6ES7321-1BH10-0AA0 be transferred without losing channel identity?	Label and photograph the connector, terminal schedule and wire markers, isolate field power, then move the keyed connector while preserving every common and channel assignment.

Diagnostic and acceptance reference — continued

How can a shared-common fault be isolated on 6ES7321-1BH10-0AA0?	Measure group reference and each input at the connector, compare inactive-channel voltage, and separate field wiring by group before replacing the module.
What test proves a two-wire sensor works correctly with 6ES7321-1BH10-0AA0?	Confirm off-state leakage and on-state current against the documented input limits, then prove the module indication and PLC variable in both states under actual supply voltage.
How should long field cables be assessed for 6ES7321-1BH10-0AA0?	Apply the shielded or unshielded cable limit together with voltage drop, interference environment and routing. Prove terminal voltage and inactive-channel noise at the installed length.
How should the complete marking of 6ES7321-1BH10-0AA0 be recorded before removal?	Photograph the full order identity, installed position, companion components and cable route. Save the stopped-machine baseline so the replacement can be returned to the same documented configuration.
Which compatibility check is most important before installing 6ES7321-1BH10-0AA0?	Confirm that every companion component belongs to the documented SIMATIC S7-300 digital input system. Connector fit alone does not establish electrical calibration or mechanical compatibility.

Commissioning sequence

01 **Before removal**

Photograph full markings, terminations, companion identities and the installed mechanical datum.

02 **Bench review**

Check the offered item for revision, connector condition and configuration-sensitive differences.

03 **Installation**

Apply the manufacturer mounting, wiring, shielding, ventilation and environmental rules.

04 **Prove and close**

Verify supply, continuity, gap, bias or channel state, compare the operating response with the accepted baseline, and save the as-left record before release.

Technical notes

Installation relationship	Use the exact order number and manufacturer wiring or installation data for the delivered revision.
System boundary	Verify companion equipment, field wiring and configuration before energizing.
Technical reference	Siemens Industry Mall technical data and SIMATIC S7-300 Module Data Manual for 6ES7321-1BH10-0AA0.

Engineering decision log

Identity decision	Exact offered marking accepted / held for clarification
Compatibility decision	Installed interfaces and companion equipment confirmed / action required
Operating proof	Static and dynamic checks accepted / additional test required

04 Field documentation worksheet

Use this model-specific worksheet to keep the offered identity, installed-system evidence and acceptance record together.

Additional engineering questions

How should cable and connector integrity be tested for 6ES7321-1BH10-0AA0?	Isolate the channel, inspect contacts for moisture, contamination and damage, verify continuity and insulation with an approved method, and support the cable so the connector carries no tensile load.
What commissioning evidence should be retained for 6ES7321-1BH10-0AA0?	Retain full markings, mechanical datum, companion identities, wiring or chain-length checks, as-left measurements and the operating response accepted by the maintenance authority.

Field record

Complete order marking	6ES7321-1BH10-0AA0
Revision and approval marks	Record from the supplied nameplate or label
Installed system and channel	Record cabinet, rack, slot, monitor or machine location
Companion equipment	Record the matched cable, connector, base, monitor, supply or controller identities
Interface check	Record mechanical fit, terminal assignment, polarity, shielding and communication details
Pre-removal baseline	Record the accepted static reading, channel state and operating response
As-left verification	Record the measured result after installation and the approved acceptance method

Release evidence package

Identity evidence	Nameplate, label and complete-order photographs
Interface evidence	Connector, terminal, cable, mounting and companion-equipment record
Configuration evidence	Installed assignment, setting, revision or chain-length record
Test evidence	Static measurement, channel state and operating-response result
Release evidence	Exceptions, corrective actions, reviewer and approval date

Related Apter Power product references

Related product	6DD1601-0AE0
Related product	6EP1336-2BA10
Related product	6ES7321-1BH10-0AA0
Related product	6ES5470-4UC12

Discuss the exact marking and installed application with Apter Power.
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