Siemens 6ES5430-4UA12

01 Digital Input Module

Siemens 6ES5430-4UA12 conditions field signals for the S5 input image. Thresholds, response time and the common enable circuit determine whether a transition becomes valid controller data.

1. Switching signal
2. Threshold/delay
3. Common enable group
4. S5 input image

Input grouping and field reference

The 32 inputs share one isolated group. Nominal input current is 7 mA with typical 3.3 kΩ resistance. Assess the common reference and field supply instead of assuming channel-by-channel isolation.

Guaranteed states and signal timing

Logical zero is −3 to 7 V and logical one 13 to 33 V. The intermediate region is not a guaranteed state. Include input delay and response time when selecting sensors or attempting to capture brief pulses.

Common enable and sensor supply

F+/F− enable has its own thresholds and wiring requirements. Preserve the approved enable jumper and test it with the inputs. Two-wire BERO connections also have a specific supply requirement beyond a generic nominal-24 V description.

Values apply to exact 6ES5430-4UA12. The 32 inputs form one isolated group, not 32 individually isolated channels.

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02 Ratings, interfaces and applicable limits

Input channels	32
Isolation	1 group of 32
Nominal voltage	24 V DC
Logical zero	−3 to 7 V
Logical one	13 to 33 V
Nominal input current	7 mA
Input delay	3 ms typical; 1.4–5 ms
Response time	6 ms typical; 4–10 ms
Maximum input frequency	100 Hz
Simultaneous factor	100%

Configuration-specific engineering data

Input resistance	3.3 kΩ typical
Bus current	100 mA at 5 V, typical
Field supply	20–30 V DC
Two-wire BERO supply	22–33 V DC

Applying these values to the complete installation

Values apply to exact 6ES5430-4UA12. The 32 inputs form one isolated group, not 32 individually isolated channels. Measure at loaded input terminals; intermediate voltage is not guaranteed logic.

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03 Application decisions and system boundaries

01 Discrete sensing

Acquire signals within the voltage and timing limits.

02 Common-group circuits

Use a compatible shared field reference.

03 Two-wire proximity sensors

Apply BERO supply and off-state checks.

04 S5 input maintenance

Preserve connector mapping and enable behavior.

Voltage margin

Measure at loaded input terminals; intermediate voltage is not guaranteed logic.

Timing assessment

Combine conditioning delay and controller scan before relying on short events.

Common enable

Check F+/F− and jumpers when group-wide behavior changes.

Replacement boundary: Match input grouping, enable arrangement and addressing; recheck sensor thresholds and timing for any different module.

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04 Eight questions beyond the specification table

1 Why is a mid-range sensor voltage unreliable at 6ES5430-4UA12?

Between 7 and 13 V is outside guaranteed logic regions. Measure under load and correct the circuit so both states meet thresholds.

2 Can isolation between all individual channels be assumed on 6ES5430-4UA12?

No. They form one group. Check shared references before connecting signals from different potential systems.

3 Why might a short pulse be missed by 6ES5430-4UA12?

Conditioning and response time can prevent it reaching the input image. Test actual pulse width and controller scan behavior.

4 What should be checked if every channel on 6ES5430-4UA12 stops responding?

Inspect the shared supply, reference and F+/F− enable before diagnosing independent sensor failures.

5 How does a two-wire BERO sensor affect 6ES5430-4UA12's wiring assessment?

Check its 22–33 V supply requirement and residual off-state behavior, then measure loaded input states.

6 Does the 100 Hz limit prove 6ES5430-4UA12 captures every edge?

No. Pulse width, input response and program timing also matter. Test the actual waveform and scan path.

7 How should 6ES5430-4UA12 be tested after connector replacement?

Check terminal assignments, references and enable, then exercise representative inputs in both states against their controller addresses.

8 Why record the enable jumper before removing 6ES5430-4UA12?

It defines the intended common control. Restore and test the approved arrangement rather than assuming identical factory configuration.

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05 Selection boundary and service reference

Identify the offered assembly

Compare full order number, front connector, channel map and enable wiring. Request available label and connector photos. Have your maintenance team compare the offered 6ES5430-4UA12 with the installed equipment and applicable Siemens documents.

Lifecycle and replacement assessment

The current production and manufacturer-support stage of this exact execution is unconfirmed. Match input grouping, enable arrangement and addressing; recheck sensor thresholds and timing for any different module.

Companion equipment and scope

Confirm the input module; connector and sensors only when itemized. A related product is not an automatic substitute; assess the installed interface and application requirements independently.

Engineering handover

Check F+/F− and jumpers when group-wide behavior changes. Retain the complete hardware identities, approved configuration and accepted test outcome with the installation record.

Related product references

Siemens 6ES7214-1AG40-0XB0

Siemens 6ES7972-0AA01-0XA0

Siemens 6ES7221-1BH32-0XB0

Technical basis: Siemens SIMATIC S5 U-Periphery, 6ES5 430-4UA12 Technical Data. Apter Power technical synthesis for this product configuration.