

INDUSTRIAL AUTOMATION PRODUCT

6ES7231-4HF32-0XB0

SIMATIC S7-1200 SM 1231 Analog Input Module

Siemens 6ES7231-4HF32-0XB0 is a SIMATIC S7-1200 SM 1231 analog input module with eight differential current or voltage inputs. It supports ±10 V, ±5 V, ±2.5 V, 0–20 mA and 4–20 mA ranges with 12-bit-plus-sign or 13-bit ADC conversion.

IDENTITY	VERIFIED VALUE
Manufacturer	Siemens
System family	Siemens SIMATIC S7-1200
Part number	6ES7231-4HF32-0XB0
Product role	Provides eight differential analog input channels
Lifecycle	Installed product record

DOCUMENT SCOPE

Exact-article identity, technical data, host role, installation checks, applications, precautions and engineering verification.

MODEL-SPECIFIC ENGINEERING NOTE

Install 6ES7231-4HF32-0XB0 in the documented S7-1200 station and record the slot, wiring, sensor ranges and channel diagnostics before removal. Restore the approved TIA Portal hardware configuration, protect the analog commons and verify all eight channels with controlled voltage or current inputs.

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WHATSAPP / PHONE +86 180 3023 5313
EMAIL sales13@apterpower.com
WEBSITE www.apterpower.com



6ES7231-4HF32-0XB0

Technical Specifications

Technical values below are limited to the named Siemens product record and directly applicable manufacturer documentation.

PARAMETER	VALUE	PARAMETER	VALUE
Country of origin	Germany	Resolution	12 bit + sign / 13 bit ADC
HS code	8537101190	Rated supply	24 V DC
Siemens article number	6ES7231-4HF32-0XB0	Typical current consumption	60 mA
Product type	SM 1231 analog input	Power loss	1.5 W typical
Analog inputs	8 differential current or voltage inputs	Cycle time	625 µs maximum
Voltage ranges	±10 V, ±5 V, ±2.5 V	Input resistance	≥9 MΩ voltage; 280 Ω current
Current ranges	0–20 mA, 4–20 mA		

Verified Product Record

DATA GROUP	VERIFIED VALUE
Installed host / carrier	Siemens SIMATIC S7-1200
Primary system role	Provides eight differential analog input channels
Connection boundary	Install 6ES7231-4HF32-0XB0 in the documented S7-1200 station and record the slot, wiring, sensor ranges and channel diagnostics before removal. Restore the approved TIA Portal hardware configuration, protect the analog commons and verify all eight channels with controlled voltage or current inputs.
Controlled acceptance duty	S7-1200 process measurement

ENGINEERING BOUNDARY

Confirm 6ES7231-4HF32-0XB0, Siemens SIMATIC S7-1200 host, slot, SM 1231 channel map, voltage/current ranges, 24 V supply, analog commons, shields, TIA Portal configuration and controlled eight-channel test results before commissioning.

Pre-Installation Checks

1	Confirm 6ES7231-4HF32-0XB0 and SM 1231 on the module marking.	2	Place the S7-1200 controller and process in the approved maintenance state.
3	Isolate the 24 V supply and all external analog sensor loops.	4	Record the slot, eight channel assignments, sensor ranges, commons and shield terminations.

Documented Service Record

RECORD ITEM	REQUIRED ENTRY
As-found article	6ES7231-4HF32-0XB0
Installed host	Siemens SIMATIC S7-1200
Connection record	Capture before removal
Controlled release	Diagnostics and functional proof

System Role and Architecture

Siemens 6ES7231-4HF32-0XB0 is a SIMATIC S7-1200 SM 1231 analog input module with eight differential current or voltage inputs. It supports $\pm 10\text{ V}$, $\pm 5\text{ V}$, $\pm 2.5\text{ V}$, $0\text{--}20\text{ mA}$ and $4\text{--}20\text{ mA}$ ranges with 12-bit-plus-sign or 13-bit ADC conversion.

FUNCTION 1
Provides eight differential analog input channels

FUNCTION 2
Accepts voltage ranges up to $\pm 10\text{ V}$

FUNCTION 3
Accepts $0\text{--}20\text{ mA}$ and $4\text{--}20\text{ mA}$ current inputs

FUNCTION 4
Uses 12-bit-plus-sign / 13-bit ADC conversion

Matched System Components

NO.	DOCUMENTED COMPONENT / ROLE
1	Siemens SIMATIC S7-1200
2	8537101190
3	S7-1200 process measurement
4	Install 6ES7231-4HF32-0XB0 in the documented S7-1200 station and record the slot, wiring, sensor ranges and channel diagnostics before removal. Restore the approved TIA Portal hardware configuration, protect the analog commons and verify all eight channels with controlled voltage or current inputs.

System Integration Record

INTEGRATION ITEM	DOCUMENTED ROLE
Host identity	Siemens SIMATIC S7-1200
Interface role	Provides eight differential analog input channels
Field / power context	The SM 1231 module is installed in an S7-1200 rack with its documented sensor wiring and TIA Portal configuration. Commissioning verifies the slot identity, range selection, 24 V supply, analog commons and individual input response.
Commissioning evidence	Apply controlled voltage and current signals to verify all eight inputs before release.

Installation and Connection Checks

- 1

Use ESD controls and inspect the front connector, keying and terminal condition.
- 2

Restore the documented TIA Portal hardware configuration and scaling.
- 3

Review module and channel diagnostics after controlled energization.
- 4

Apply controlled voltage and current signals to verify all eight inputs before release.

MANUFACTURER SOURCE RECORD

Data sheet 6ES7231-4HF32-0XB0
Siemens SIMATIC S7-1200 product data sheet, 2026-02-13

Applications and Engineering Context

S7-1200 process measurement

Acquires documented voltage or current signals for a SIMATIC control program.

Transmitter loop monitoring

Reads 0–20 mA or 4–20 mA sensors with the configured channel range.

Machine analog feedback

Captures differential voltage feedback for closed-loop machine functions.

I/O station commissioning

Supports channel-by-channel scaling, diagnostics and controlled signal tests.

TECHNICAL NOTE

Install 6ES7231-4HF32-0XB0 in the documented S7-1200 station and record the slot, wiring, sensor ranges and channel diagnostics before removal. Restore the approved TIA Portal hardware configuration, protect the analog commons and verify all eight channels with controlled voltage or current inputs.

Model-Specific Acceptance Evidence

CHECK	ACCEPTANCE CONDITION
Identity	6ES7231-4HF32-0XB0 recorded
Host / carrier	Siemens SIMATIC S7-1200
Physical interface	Provides eight differential analog input channels
Configuration	Review module and channel diagnostics after controlled energization.
Functional proof	Apply controlled voltage and current signals to verify all eight inputs before release.

IMPORTANT NOTICE

Confirm 6ES7231-4HF32-0XB0, Siemens SIMATIC S7-1200 host, slot, SM 1231 channel map, voltage/current ranges, 24 V supply, analog commons, shields, TIA Portal configuration and controlled eight-channel test results before commissioning.

Controlled Release Summary

RELEASE ITEM	MODEL-SPECIFIC CONDITION
Article identity	6ES7231-4HF32-0XB0
Approved role	S7-1200 process measurement
Final validation	Apply controlled voltage and current signals to verify all eight inputs before release.

Engineering Precautions

1	Confirm 6ES7231-4HF32-0XB0 and SM 1231 on the module marking.	2	Place the S7-1200 controller and process in the approved maintenance state.
3	Isolate the 24 V supply and all external analog sensor loops.	4	Record the slot, eight channel assignments, sensor ranges, commons and shield terminations.
5	Use ESD controls and inspect the front connector, keying and terminal condition.	6	Restore the documented TIA Portal hardware configuration and scaling.
7	Review module and channel diagnostics after controlled energization.	8	Apply controlled voltage and current signals to verify all eight inputs before release.

Related Products on Apter Power

MODEL	SYSTEM ROLE	APTER POWER PAGE
Siemens	6ES7223-1BL22-0XA0 S7-200 I/O module	View Siemens page
Siemens	6AU1455-2AD00-0AA0 SIMOTION controller	View Siemens page
Siemens	6SL3120-2TE21-0AA4 SINAMICS Motor Module	View Siemens page
Siemens	6SL3320-1TE33-1AA3 SINAMICS Motor Module	View Siemens page
Siemens	6SL3200-0SP01-0AA0 CIM PM-IF assembly	View Siemens page
Siemens	6SE7041-8HK85-1HA0 PER2 interface	View Siemens page
Siemens	6RA8075-6DS22-0AA0 SINAMICS DC converter	View Siemens page
Siemens	6ES7314-6BH04-0AB0 S7-300 CPU	View Siemens page

MANUFACTURER SOURCE RECORD

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Siemens SIMATIC S7-1200 product data sheet, 2026-02-13

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