

6ES7231-4HF32-0XB0

SIMATIC S7-1200 SM 1231 Analog Input Module

INSTALLATION, INTERFACE AND VALIDATION WORKBOOK

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.

STEP	GATE	ENGINEERING PURPOSE
01	IDENTIFY	Confirm article, host and hardware
02	ISOLATE	Secure power and stored energy
03	CONNECT	Restore documented interfaces
04	VALIDATE	Prove diagnostics and function

WORKBOOK PURPOSE

Field-ready identity, isolation, connection, commissioning and closeout records for this exact Siemens article.

APTER POWER SALES TEAM

WHATSAPP / PHONE +86 180 3023 5313

EMAIL sales13@apterpower.com

WEBSITE www.apterpower.com



6ES7231-4HF32-0XB0

Installation Readiness Gate

Complete the identity, host-system and isolation checks before disturbing the installed hardware.

- 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.

Pre-Work Evidence

EVIDENCE ITEM	RECORDED VALUE
Complete article marking	6ES7231-4HF32-0XB0
Host / carrier	Siemens SIMATIC S7-1200
Primary system role	Provides eight differential analog input channels
Acceptance boundary	Apply controlled voltage and current signals to verify all eight inputs before release.
Source record	Data sheet 6ES7231-4HF32-0XB0

WORK AUTHORIZATION RECORD

Work order: _____

Drawing / revision: _____

Checked by: _____

Date: _____

Isolation and Access Register

CONTROL POINT	ENGINEER RECORD
Incoming supply	Isolated / proved
Stored energy	Discharged / proved
Field connections	Identified / protected
ESD control	Established / recorded

Pre-Work Documentation

DOCUMENT	ENGINEER RECORD
Connection photograph	Reference / file
Configuration backup	Reference / revision
Diagnostic baseline	Reference / result

Connection and Installation Sequence

INSTALLATION PRINCIPLE

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.

- 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.

Connection Record

CONNECTION GROUP	AS-FOUND / AS-LEFT RECORD	STATUS
Power / field connection	Reference / terminal	Checked
Signal / interface	Reference / connector	Checked
Ground / shield	Reference / point	Checked
Accessory / carrier	Reference / part	Checked

MODEL-SPECIFIC RELEASE LIMIT

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.

Interface Acceptance Criteria

ACCEPTANCE ITEM	REQUIRED EVIDENCE
Identity	6ES7231-4HF32-0XB0
Host match	Siemens SIMATIC S7-1200
Connection proof	Restore the documented TIA Portal hardware configuration and scaling.
Configuration proof	Review module and channel diagnostics after controlled energization.

Commissioning and Acceptance Record

Record each controlled verification step before the equipment returns to automatic operation.

NO.	ACCEPTANCE CHECK	RESULT	RECORD
1	Article and host identity	PASS / FAIL	Initial / date
2	Mechanical installation	PASS / FAIL	Initial / date
3	Power and field wiring	PASS / FAIL	Initial / date
4	Grounding and shielding	PASS / FAIL	Initial / date
5	Configuration restoration	PASS / FAIL	Initial / date
6	Signal or power-path response	PASS / FAIL	Initial / date
7	Diagnostics and alarms	PASS / FAIL	Initial / date
8	Final functional release	PASS / FAIL	Initial / date

Engineering Notes

RECORD AREA	ENGINEER ENTRY
As-found condition	
Corrective action	
As-left configuration	
Outstanding restriction	
Release authorization	

CONTROLLED COMMISSIONING

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

Diagnostics and Release Log

EVENT	ENGINEERING RECORD
Initial energization	Result / observation
Interface or signal response	Result / observation
Alarm and diagnostic review	Result / observation
Functional release	Name / date

Maintenance Verification and Closeout

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.

Related Engineering Pages

MODEL	ENGINEERING ROLE	APTER POWER 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
Siemens	6ES7223-1BL22-0XA0 S7-200 I/O module	View Siemens page
Siemens	6AU1455-2AD00-0AA0 SIMOTION controller	View Siemens page

MANUFACTURER SOURCE RECORD

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

APTER POWER SALES TEAM

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



6ES7231-4HF32-0XB0