Siemens 6ES5460-4UA12

01 Isolated Analog Input Module / system role

Product function

Siemens 6ES5460-4UA12 supports low-level signal acquisition where gain selection and thermal-voltage control matter as much as the nominal transducer range.

Selected configuration

Each range submodule serves four inputs. The module-wide mode and the installed divider, shunt or continuity submodule together determine the usable signal range; changing only the software scale does not change the hardware input circuit.

Integration checkpoints

- Process-transducer acquisition
- Resistance temperature measurement
- Low-level voltage sensing
- Analog-loop restoration

Low-level acquisition	Selectable amplification for sensitive inputs
Diagnostic workflow	Test-current disable for parallel measurements
Configuration control	Pair range modules with both mode-switch blocks

The selectable gain extends the low-level measuring range. Thermoelectric offsets become particularly significant at these signal levels, so connector condition, compensation arrangements and a stable reference source are important during calibration checks.

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02 Technical operating envelope

Analog inputs	8
Range-module grouping	4 channels per submodule
Digital representation	13-bit two’s complement or 12 bits plus sign
Conversion method	Integrating dual slope
Integration at 50 / 60 Hz	20 ms / 16⅔ ms

Coding time at 50 / 60 Hz	60 ms / 50 ms per value
Eight-channel cycle at 50 Hz	Approximately 0.48 s
Permissible common-mode potential	60 V AC / 75 V DC maximum
Low-level range	±12.5 mV with selected gain

Ratings apply to the stated hardware execution and operating conditions; companion hardware and configured functions require separate compatibility checks.

Range hardware

Two four-channel submodules define the electrical input circuits. Verify their part numbers and mode compatibility before connecting a current loop or voltage source.

Sensor-reference boundary

The Pt100 wiring arrangement does not retain isolation between individual inputs. Assess common references and the permitted common-mode voltage for the actual sensor circuit.

Sampling and diagnostics

Disable the open-circuit test current in accordance with the wiring instructions when performing a parallel voltage measurement; otherwise the measuring instrument can affect the diagnostic current path.

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03 System integration and applications

Process-transducer acquisition

Convert the supported current or voltage range to the S5 input word.

Resistance temperature measurement

Use the specified Pt100 excitation and reference wiring.

Low-level voltage sensing

Match gain, compensation and input submodule to the sensor signal.

Analog-loop restoration

Retain hardware range and numerical representation during replacement.

Application and compatibility boundary

The integration setting must suit the mains frequency, and the program must decode the chosen signed-number representation. Validate the complete sensor-to-program path using an appropriate signal source, including the configured overflow and open-circuit response.

Available unit verification

Check both range submodules, both mode-switch blocks and the sensor-front-connector arrangement. Confirm input module, range submodules and front connector as individually itemized in the quotation. Evaluate the actual interfaces and included accessories against the installed arrangement.

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04 Engineering selection decisions

When should the increased gain of 6ES5460-4UA12 be used?

Use it only when the intended low-level range and installed submodule require it. Recheck scaling and usable headroom; gain selection is not a general cure for noisy wiring.

Why can a voltmeter connected beside 6ES5460-4UA12 distort an open-circuit check?

Its parallel current path can interact with the diagnostic test current. Use the designated test-current-disable arrangement before interpreting the measurement.

What makes connector temperature gradients significant for 6ES5460-4UA12?

Thermoelectric junction voltages can be material compared with a millivolt-level signal. Keep connections stable and assess compensation before correcting an apparent offset in software.

How should a zero offset be separated from a range error on 6ES5460-4UA12?

Apply a suitable zero reference and at least two nonzero points. Check gain, submodule and wiring first; a single-point adjustment cannot establish the full conversion slope.

Can all inputs of 6ES5460-4UA12 use different ranges independently?

The hardware is organized around four-channel submodules and module mode settings. Verify permitted range combinations rather than assuming per-channel software programmability.

Why can a disconnected Pt100 current lead appear as zero on 6ES5460-4UA12?

A break in an excitation-current lead can produce a zero digital value. Validate the complete RTD circuit and diagnostic behavior instead of interpreting zero as a healthy sensor.

What must be reviewed before enabling open-circuit detection on 6ES5460-4UA12?

Confirm that the selected measurement range supports the function and that the chosen group and sensor wiring match the diagnostic settings.

How should 6ES5460-4UA12 be accepted after a low-level input repair?

Compare stable reference points through the full configured range, verify sign and compensation, then test the intended wire-break response without leaving temporary test wiring in place.

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05 Configuration boundary and references

Lifecycle and support

The current manufacturing and manufacturer-support stage for this exact model is not confirmed.

Replacement assessment

Retain the exact 12 execution, range submodules, mode switches, sensor wiring and program data format; a nearby analog-input code is not sufficient.

Available unit details

Offered reference: Siemens 6ES5460-4UA12. Condition: New, original product. Check both range submodules, both mode-switch blocks and the sensor-front-connector arrangement. Confirm input module, range submodules and front connector as individually itemized in the quotation; companion equipment is included only when itemized.

Document roles: The original excerpt retains manufacturer tables and drawings; this brief addresses selection and system context; the separate installation guide covers field procedures and acceptance.

Technical basis: SIMATIC S5 Analog Modules, C79000-B8576-C300-06.

Related product navigation

- Siemens 6ES7953-8LF11-0AA0
- Siemens 6ES7322-1BL00-0AA0
- Siemens 6ES7331-7KF02-0AB0

Related products for separate application assessment; verify the platform and interface. No interchangeability is implied.

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