B&R X20AI2437

01 Function and selected configuration

Product function

B&R X20AI2437 connects its configured field signals and diagnostic states to the automation task. Correct operation depends on retaining the installed hardware selection and the application settings together.

Selected configuration

Each differential current input has its own sensor power supply. The two channels and their supplies are isolated from each other, while each supply remains referenced to its own channel. Measurement range is selectable between 4-20 mA and 0-25 mA.

Functional path

Application settings	Analog Input Module	2 / configured interface	Diagnostics / process value

Input channels	2
Current ranges	4-20 mA or0-25 mA
Converter	16-bit sigma-delta

The 16-bit sigma-delta conversion rate and filter time are configurable per channel. Data output rates extend from 4.7 to 960 samples per second. NetTime associates a timestamp with the recorded measurement so the control application can distinguish value magnitude from acquisition time.

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02 Technical operating envelope

Input channels	2
Current ranges	4-20 mA or0-25 mA
Converter	16-bit sigma-delta
Data output rate	4.7-960 samples/s; configurable
Sensor supply	25 V +/-2%; per channel
Sensor output current	30 mA maximum

Common-mode range	0-7 V
Hardware input filter	2.5 kHz low-pass
Software filter	Sinc 4
Isolation test	1000 VAC channel/channel,bus,ground
Timestamp	NetTime; microsecond accuracy
Internal I/O power	1.15 W excluding sensor output

Software representation does not redefine converter resolution or processor timing. Apply the exact revision and operating-mode restrictions with the installed load or sensor arrangement.

Signal interpretation

The 16-bit sigma-delta conversion rate and filter time are configurable per channel. Data output rates extend from 4.7 to 960 samples per second. NetTime associates a timestamp with the recorded measurement so the control application can distinguish value magnitude from acquisition time.

Interface boundary

Monitoring covers upper and lower limits, open circuit, conversion errors and sensor-supply state. User-defined limits and replacement values support the required error response. Sensor power is nominal 25 V within+/-2%, with a maximum 30 mA per channel; sustained short-circuit protection uses current limiting.

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03 System integration and applications

Configured machine function

Each differential current input has its own sensor power supply. The two channels and their supplies are isolated from each other, while each supply remains referenced to its own channel. Measurement range is selectable between 4-20 mA and 0-25 mA.

Interface continuity

Load the channel-specific rate and filter settings. Reinstate the intended limit and replacement behavior before using measured values in automatic control.

Diagnostic acceptance

Check sensor-supply status, open-circuit/error handling and NetTime behavior where used. A numerical reading alone does not establish correct acquisition timing.

Controlled restoration

Use module and channel status to separate a conversion error from supply overload or a field-circuit fault. Correct the cause before enabling the loop.

System and supply context

X20AI2437 operates within its compatible B&R rack or X20 arrangement. Storage, bus modules, terminal blocks and field devices are separate unless included in the quotation.

Application boundary

Apply the exact hardware and software configuration to the assigned machine function. A similar connector or base family is insufficient to establish replacement compatibility.

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04 Engineering selection decisions

Can the inputs of X20AI2437 use different conversion settings?

Yes. Sampling/conversion timing and filtering are configurable individually for each channel.

How are the sensor supplies of X20AI2437 isolated?

The two sensor supplies are isolated from each other. Each supply is associated with its own input channel and is not isolated from that channel.

What distinguishes an input conversion error on X20AI2437?

The affected channel indicator double-flashes together with a single flash of the red module error indicator. Interpret the diagnostic status with the measured value.

What common-mode range must be respected at X20AI2437?

The specified common-mode range is 0-7 V. Galvanic channel isolation does not waive this input condition.

Restore terminal assignments	Fit the X20TB12 terminal block and matching bus arrangement. Reconnect each current loop and sensor feed to the retained channel assignment.
Test with known loop currents	Apply approved current references in the configured 4-20 mA or0-25 mA range. Compare measured values and application scaling independently for both channels.

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05 Configuration boundary and references

Lifecycle and support

The current manufacturing and factory-support phase of X20AI2437 is not confirmed. Apter Power availability is assessed separately from manufacturer lifecycle status.

Replacement assessment

Preserve the complete model, actual hardware revision, installed interfaces and application settings. Validate the required function before releasing automatic operation.

Document roles

Use the original manufacturer excerpt for its preserved technical tables and drawings. This product brief explains selection and system context. The separate installation guide covers preparation, connection, tests and handover; it does not replace manufacturer instructions.

Technical basis

B&R X20AI2437 Data Sheet V1.40.

Related product navigation

- B&R X20CP3585
- B&R X20AI2237

These are related references, not confirmed substitutes or an automatically approved assembly.

Product enquiries