B&R X20AI4632

01 Function and selected configuration

Product function

B&R X20AI4632 captures four signals in the same 50 microsecond conversion interval, helping keep related process measurements aligned in time.

Selected configuration

Each channel has separate current and voltage input terminals with a common negative input. Selection therefore depends on the field connection as well as the application configuration; the X20TB12 terminal block carries all four channels.

Functional path

Four transmitters	Differential inputs	SAR conversion	X20 process values

Analog channels	4 differential inputs
Voltage range	+/-10 V
Current range	0 to 20 mA

The SAR conversion produces signed voltage data and nonnegative current data. Per-channel filtering and user scaling adapt the acquired values to the application, while configurable limit analysis and trace functions support signal examination.

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02 Technical operating envelope

Analog channels	4 differential inputs
Voltage range	+/-10 V
Current range	0 to 20 mA
Conversion time	50 microseconds for all inputs
Converter	SAR, 16-bit
Voltage input impedance	20 megohms

Current input load	Less than 400 ohms
Common-mode range	+/-12 V
Hardware filter	Third-order low-pass, 10 kHz cutoff
Isolation test	500 Veff channel to bus
Internal I/O consumption	1.5 W
Bus consumption	0.01 W

The technical values apply to this model in the specified installation and configuration.

Signal interpretation

The SAR conversion produces signed voltage data and nonnegative current data. Per-channel filtering and user scaling adapt the acquired values to the application, while configurable limit analysis and trace functions support signal examination.

Interface boundary

Inputs are isolated from the bus but not from one another. Observe the +/-12 V common-mode range and separate this module from the listed controller, bus-receiver and supply modules by at least one module to reduce disturbance.

Can X20AI4632 isolate one field transmitter from another?

No. The channels are isolated from the bus but not from each other, so inter-channel potential differences must stay within the permitted common-mode range.

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03 System integration and applications

Synchronized analog capture

Observe four related voltage or current measurements within a common conversion interval.

Mixed signal wiring

Connect voltage and current transmitters to their respective channel terminals.

Transient analysis

Use sampled-value recording and trace settings to examine fast analog events.

Software threshold monitoring

Apply individual scaling, filtering and limit analysis to the acquired signals.

System and supply context

The analog input module is applied in the Four transmitters / Differential inputs / SAR conversion / X20 process values arrangement. Select associated equipment for the actual channel or installation.

Application boundary

The technical values apply to this model in the specified installation and configuration. The examples below address the stated product function.

How is current input selected on X20AI4632?

Wire the signal to the current-input terminal rather than the voltage-input terminal and use the corresponding channel settings. The two signal types use different positive terminals.

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04 Engineering selection decisions

Are the four X20AI4632 channels converted one after another?

All four inputs are converted within a 50 microsecond conversion interval, supporting simultaneous signal acquisition.

What loading does X20AI4632 present to a voltage transmitter?

Voltage input impedance is 20 megohms within the signal range. Confirm the source and common-mode conditions as well as the nominal signal amplitude.

Does an open input always produce an open-line indication on X20AI4632?

Open-line detection is available for voltage measurement only. A zero current reading cannot automatically be interpreted as a detected cable break.

Why is module spacing relevant when installing X20AI4632?

At least one module must separate it from the specified controller, X20BR9300 and listed X20 supply modules to prevent disturbances in the analog measurement.

Terminate unused channels correctly	Check which channels are unused and apply the recommended bridge or current configuration to reduce dissipation.
Reapply individual input filters	Restore the filter assigned to each channel rather than copying one setting across all four.

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05 Configuration boundary and references

Lifecycle and support

The current manufacturing and factory-support phase of X20AI4632 is unconfirmed.

Replacement assessment

Preserve analog channels 4 differential inputs, voltage range +/-10 V, current range 0 to 20 mA. Check analog channels and voltage range against the installed configuration.

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; use it together with the applicable manufacturer instructions.

Technical basis

B&R X20AI4632 Data sheet V3.21.

Related product navigation

- B&R X20SC0842
- B&R X20CP1584

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

Product enquiries