B&R X20AT2222

01 Function and selected configuration

Product function

B&R X20AT2222 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 channel can select Pt100 or Pt1000 sensing, while the two- or three-wire arrangement is configured for the module. Internal linearization converts the sensor resistance to temperature with 0.1 degree resolution. Direct resistance measurement is also available in two ranges.

Functional path

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

Input channels	2
Sensor types	Pt100 / Pt1000
Sensor range	-200.0 to 850.0 degrees C

The 16-bit sigma-delta converter uses a constant measurement current of 250 microamps. Filter time is configurable from 1 to 66.7 ms. At the 50 Hz filter setting, conversion is 20 ms for one channel and 80 ms for two channels; these timings must be considered separately from the controller task period.

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02 Technical operating envelope

Input channels	2
Sensor types	Pt100 / Pt1000
Sensor range	-200.0 to 850.0 degrees C
Temperature resolution	0.1 degrees C
Converter	16-bit sigma-delta
Measurement current	250 microamps +/-1.25%

Filter time	1-66.7 ms; configurable
Resistance ranges	0.1-4500 ohms /0.05-2250 ohms
Input filter	First-order;500 Hz
Isolation	Channels to bus; not between channels
Bus power	0.01 W
Internal I/O power	1.1 W

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 converter uses a constant measurement current of 250 microamps. Filter time is configurable from 1 to 66.7 ms. At the 50 Hz filter setting, conversion is 20 ms for one channel and 80 ms for two channels; these timings must be considered separately from the controller task period.

Interface boundary

Input monitoring distinguishes lower limit, upper limit and open-circuit conditions. Invalid and fault values must be interpreted with the channel status rather than as real temperatures. Channels are isolated from the bus, but not from each other; terminal block and bus module are separate system components.

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03 System integration and applications

Configured machine function

Each channel can select Pt100 or Pt1000 sensing, while the two- or three-wire arrangement is configured for the module. Internal linearization converts the sensor resistance to temperature with 0.1 degree resolution. Direct resistance measurement is also available in two ranges.

Interface continuity

Connect sensor and sense leads according to the original wiring scheme. Maintain the intended lead-compensation arrangement for three-wire measurement.

Diagnostic acceptance

Check the application response to an approved open-circuit or range simulation. Confirm that status and substitute values do not become valid process temperatures.

Controlled restoration

Allow the selected filter and conversion cycle to settle. Compare both channels under stable input rather than assuming the controller cycle equals conversion time.

System and supply context

X20AT2222 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 X20AT2222 use Pt100 on one channel and Pt1000 on the other?

Yes. Sensor type is configurable per channel. The two-/three-wire connection arrangement is configured for the module.

How does the 50 Hz filter affect conversion on X20AT2222?

The conversion time is 20 ms for one channel and 80 ms for two channels at the 50 Hz filter setting.

Are the two input channels of X20AT2222 isolated from one another?

No. The channel side is isolated from the bus, but channel-to-channel isolation is not provided.

Which terminal blocks can be used with X20AT2222?

X20TB06 is the intended 6-pin block; X20TB12 may also be used. The selected bus module and terminal block must be included separately in the system arrangement.

Restore the configuration	Load the retained sensor types, connection method and filter setting. Do not select Pt1000 solely to compensate for an incorrect resistance reading.
Test with known sensor values	Apply an approved resistance or temperature reference and compare both channel values. Use the configured range and 0.1 degree temperature resolution when assessing results.

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05 Configuration boundary and references

Lifecycle and support

The current manufacturing and factory-support phase of X20AT2222 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 X20AT2222 Data Sheet V3.32.

Related product navigation

- B&R X20CP1485-1
- B&R X20SC0842

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

Product enquiries