B&R X20BC0087

01 Function and selected configuration

Product function

B&R X20BC0087 provides a network-facing I/O station that maps local X20 expansion data into the configured Modbus application.

Selected configuration

The controller can operate with a B&R controller or another system providing the required Modbus master functionality. Its integrated switch simplifies Ethernet wiring while the X2X Link connects the local expansion modules.

Functional path

Modbus master	Ethernet switch	Bus controller	X2X Link I/O

Protocol	Modbus TCP or UDP slave
Ethernet	Two-port 10/100 Mbit/s switch
I/O expansion	X2X Link with configurable cycle

Address switches and stored parameters determine startup addressing. DHCP and BOOTP operation are supported, but certain switch settings initialize parameters or save received addressing, so replacement requires more than copying the visible IP address.

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02 Technical operating envelope

Fieldbus role	Modbus TCP/UDP slave
Ethernet ports	2 shielded RJ45, integrated switch
Transfer rate	10/100 Mbit/s
Physical layer	10BASE-T / 100BASE-TX
Duplex	Half or full duplex
Maximum segment	100 m
Minimum fieldbus cycle	1 ms

Minimum X2X cycle	500 microseconds
Configured I/O cycle	0.5–4 ms
Bus power	2 W
Local expansion	Up to 250 additional modules
Electrical isolation	Modbus isolated from bus and I/O
Operating temperature	-25 to +60°C horizontal; -25 to +50°C vertical

The 0.5–4 ms I/O setting, minimum fieldbus cycle and network-dependent response time describe different parts of the signal path.

Signal interpretation

Minimum cycle time is 1 ms for the fieldbus and 500 microseconds for X2X Link. These limits do not establish synchronized end-to-end response.

Interface boundary

Use the uncoated module limits: 5–95% noncondensing humidity and the orientation-specific temperature range.

What does address switch 0x00 do on X20BC0087?

The switches do not override system parameters at 0x00; valid flash-memory parameters are used, otherwise factory defaults apply.

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03 System integration and applications

Remote Modbus I/O

Connect an X20 station to the compatible master application.

Local X2X expansion

Acquire or control the installed expansion modules through the station.

Ethernet line wiring

Use the integrated two-port switch within the approved topology.

Network diagnostics

Distinguish missing clients, duplicate IP addresses and I/O configuration faults.

System and supply context

The controller presents X2X Link I/O to a compatible Modbus master over Ethernet.

Application boundary

Use the configured station map and application timing; do not infer deterministic synchronization between the network and local bus.

Why are there two RJ45 ports on X20BC0087?

They form an integrated 10/100 Mbit/s switch for the approved Ethernet wiring topology.

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04 Engineering selection decisions

Is X20BC0087 the Modbus master of the network?

No. It operates as a Modbus TCP/UDP slave connected to a compatible master.

Can the fieldbus and X2X cycles of X20BC0087 be synchronized?

No. Synchronization between these bus systems is not available.

Why should 0xFE be avoided during ordinary replacement of X20BC0087?

At boot, 0xFE initializes all bus-controller parameters to defaults rather than reading the stored values.

How many additional modules can X20BC0087 address through X2X Link?

The integrated local expansion supports up to 250 additional modules, subject to the configured system and power design.

Timing	Check both fieldbus and X2X cycle requirements.
Cable length	Keep Ethernet segments within 100 m.

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05 Configuration boundary and references

Lifecycle and support

The current production and factory-support status of X20BC0087 is unconfirmed.

Replacement assessment

Retain the address mode, register map, I/O configuration and power/base assembly.

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 X20(c)BC0087 Data sheet V2.40.

Related product navigation

- B&R X20BC8084
- B&R X20DO8332

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

Product enquiries