B&R X20cDC2190

01 Connections checks

1 Identify rods and magnet allocation

Record which physical rod serves each input and how its magnets map to the four measurement paths. Preserve the order of the magnets and their associated controller values before moving the terminal block.

2 Verify coated hardware and revision

Retain the full X20cDC2190 identity and the hardware revision. The coating does not change the IP20 enclosure requirement, and sensor-supply short-circuit protection depends on revision D0 or later.

Connections	2 rods
Paths	4 maximum
Protection	IP20

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02 Supply checks

1 Check the 24 V sensor budget

Add the connected rod current demands and compare them with the 150 mA maximum sensor supply. Use the configured supply-monitoring threshold when evaluating an undervoltage indication at the rod terminals.

2 Restore differential signal pairs

Reconnect start and stop pairs according to the pinout and preserve the shield connection at the bus module. Do not treat the RS422 interface as a generic single-ended 24 V digital input.

Supply	24 V DC, 150 mA maximum
Signal level	RS422 differential
Pulse	1.6 microseconds

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03 Protocols checks

1 Choose the rod protocol

Match Start/Stop, EP or DPI/IP to the connected transducer. An unsupported selected protocol can time out and revert to normal rod treatment, so verify actual communication rather than relying on the chosen setting.

2 Apply rod calibration deliberately

Read rod length and ultrasonic speed when the protocol permits it, then compare them with the approved measurement settings. The module does not automatically use those uploaded values to configure the position calculation.

Protocols	Start/Stop, EP, DPI/IP
Uploaded calibration	Application-controlled

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04 Position checks

1 Handle frozen values during upload

Keep the controlled movement disabled while rod parameters transfer. Existing position and speed values are held during the upload; use valid status and completed communication before accepting them as live feedback.

2 Test position across the used stroke

Move each magnet through controlled known positions and compare sign, zero and scale. Stay within the transducer stroke and the module measurement envelope; module range does not establish the physical rod length.

Position	0.01 mm resolution
Position range	+/-5.2 m
Speed range	+/-3.2 m/s

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05 Speed resolution checks

1 Check derived speed independently

Use a controlled movement of known direction and compare the indicated speed with the position change. Allow for the calculation from values 100 ms apart, particularly around stops and direction reversals.

2 Retain rod-specific settings

Save the rod protocol, magnet allocation, length, ultrasonic speed and supply thresholds with the accepted tests. Keep these settings associated with the exact rod identity so a future sensor replacement can be evaluated accurately.

Technical basis: B&R X20(c)DC2190 Data sheet V2.40.

Related product navigation

B&R X20SM1446-1

B&R X20HB8884

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