B&R X20DC4395

01 Encoder and output channel allocation

1 Map all eight configurable channels

Record which of the eight channels are used for SSI, AB, ABR, event counting or digital output. Save counter width, coding, scaling, timing mode and PWM settings. Check that the selected combination does not allocate the same physical channel to conflicting functions.

2 Resolve shared-channel assignments before wiring

Compare the SSI, AB, ABR and output allocations as one channel map. Preserve the saved physical-channel assignments so a PWM output is not enabled on a terminal intended for encoder feedback.

Record	Complete marking and installed position
Comparison	Field labels agree with application assignments
Module supply	24 VDC -15% / +20%
SSI encoder capacity	2 absolute encoders

02 Encoder-supply and load budget

1 Check the 24 V input and 600 mA encoder limit

Verify 24 V DC with the permitted -15%/+20% range at the module. Add the encoder loads before connecting them; the internal encoder supply is limited to 600 mA. Keep the field common arrangement intact because encoder and output circuits are not mutually isolated.

2 Account for all powered encoder loads

Add the current demand of the encoders sharing the internal supply. Keep this 600 mA budget separate from the output-channel limits and retain the common arrangement of circuits that are not mutually isolated.

Supply evidence	Measured at the device connection
Work condition	Power isolated while wiring is handled
ABR encoder capacity	2 incremental encoders
AB encoder capacity	4 incremental encoders

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03 Shielding, phase order and output loading

1 Restore the 24 V asymmetrical signal wiring

Use shielded connections for all signals and preserve AB phase order and reference wiring. The encoder interface is 24 V asymmetrical. Check output loads against 0.1 A per channel and 0.4 A total, including any inductive load connected to a PWM-capable output.

2 Check individual and aggregate output current

Evaluate the connected loads against both 0.1 A per channel and 0.4 A total. A load below the individual-channel rating can still contribute to an excessive combined output demand.

Wiring record	Connection-by-connection comparison
Physical inspection	Shield, connector and strain relief checked
Event counter capacity	8 counters
PWM outputs	4

04 Counter coding and PWM timing

1 Reapply counter width and SSI coding

Reapply SSI Gray or binary coding and its transfer rate, or the selected incremental-counter mode. Verify 16-bit/32-bit handling and rollover in the application. PWM periods span 41.6 microseconds to 1.36 seconds; verify the selected period and duty scale together.

2 Keep the PWM period and duty scale consistent

Verify the application uses the restored counter width and the intended rollover handling. For PWM, compare the measured period and duty with the same parameter set rather than checking either value in isolation.

Configuration	Approved settings restored
Diagnostic condition	Normal recognition before functional testing
Encoder input level	24 V asymmetrical
Incremental input frequency	100 kHz maximum

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05 Known-motion and pulse tests

1 Compare encoder movement with counted position

Turn each encoder through a known movement and compare direction and counts. Exercise reference inputs and counter rollover where applicable. Measure representative PWM duty and period, and use controlled pulses to verify event timing and the expected response to encoder-power faults.

2 Separate counting errors from timing errors

Use a known movement to assess direction and counts, then a controlled pulse sequence to assess event timing. Retain the two results separately so a correct count does not conceal an incorrect timing configuration.

Technical basis: B&R X20DC4395 Data sheet V3.30.

Related product navigation

B&R X20CP1584

B&R X20SL8000

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