

BISS-C Encoder interface

This page describes the **BISS-C encoder interface** of the Green Drive tubular linear motor. The BISS-C option provides an absolute single-turn position, which is useful for applications that need a defined reference after power-on.

Please contact NILAB to buy the programming cable and software to change the standard configuration.

The encoder BISS-C position corresponds to a single-turn absolute value, where the single turn is related to 60 mm of linear displacement.

Standard configuration

The interpolator is set to 8192 pulses/revolution, corresponding to $60/8192 = 7.32 \mu\text{m}$ of resolution. This resolution is on the AB TTL 5V digital output signal.

The screenshot displays the BISS-C Encoder interface software. At the top, there are tabs for 'Read Sensor', 'Period Counter', 'Singleturn Data', 'Error', 'Warning', 'Stop on Error', 'Continuous Read', 'Data Display', 'Save to File', and 'Cycle Count'. Below these are four main configuration panels: 'Signal Conditioning', 'Interpolator Setup', 'Interface Setup', and 'Hex Editor'. The 'Signal Conditioning' panel includes 'Converter Functions' (Resolution: 8192, Hysteresis: 0.7031°), 'Signal Monitoring' (Amplitude Monitoring: 1.0<->4.5 Vpp, Frequency Error: Enable, Amplitude Error: Enable), 'Incremental Signals' (Output A, B, Z: Normal, Zero Signal Position: 0.00°, Zero Signal Length: 90°, Zero Signal Logic: B=1, A=1), and 'Maximum Possible Converter Frequency' (FCTR: 0x0004, Max. Input Frequency: 170.90 Hz, Min. Transition Distance: 0.44 μsec, Oscillator Frequency: 56.0 min. to 90.0 max. MHz). At the bottom, there are buttons for 'Read RAM', 'Write RAM', 'Write Immediately', 'CRC', 'Save Config', 'Load Config', and 'Write EEPROM'. A status bar at the very bottom shows 'Interaction Feedback' (1. Loading configuration succeeded, 0. GUI initialized) and 'Online Help'.

Additional resolution can be selected: 4096, 2048, 1024 pulses/revolution.

The screenshot shows the 'Interface Setup' tab of a BiSS C configuration tool. At the top, there are fields for 'Read Sensor' (Decimal: 0), 'Period Counter' (0), and 'Singleturn Data' (0). To the right are checkboxes for 'Error' (Warning), 'Stop on Error' (On), 'Continuous Read' (On), 'Data Display' (On), 'Save to File' (On), and 'Cycle Count' (1). Below these are tabs for 'Signal Conditioning', 'Interpolator Setup', 'Interface Setup' (selected), and 'Hex Editor'.

The 'Interface Setup' section contains several sub-sections:

- Protocol Version:** BiSS C (0x00)
- Protocol Options:** BiSS C (0x01)
- Period Counter:** none (0x00)
- SSI Data Format:** binary coded (0x00)
- Timeout TIMO:** ca. 20 µs (0x00)
- CRC Polynomial - Status Messages:** 0x43 - nE, nW (0x01)
- Timeout TOA:** adaptive (0x01)
- Zero Bit:** no zero bit (0x01)
- BiSS Identifier ROM:** A row of 8 buttons, each showing '00'.
- BiSS Identifier:** A row of 8 buttons showing '4E', '51', '43', '35', 'C0', '83', '69', '43'. To the right is a dropdown menu set to 'iC-NQC 5'.

The 'Test Functions' section on the right includes:

- Test Mode:** OFF (0x00). Below it are buttons for 'PIN A', 'PIN B', 'PIN SDA', and 'PIN SCL'.
- Analog Test Mode:** A checkbox labeled 'Enable'.
- Register Access Safety Level:** A dropdown menu set to '0'.
- Bank 0 Config. Dat:** read / write
- Bank 1..7 EDS:** read / write
- Bank 8..15 User Data:** read / write
- 0x40..7F BiSS ID:** read / write

At the bottom, there are buttons for 'Read RAM', 'Write RAM', 'Write Immediately' (checked), 'CRC' (0xE4), 'Save Config', 'Load Config', and 'Write EEPROM'. An 'Interaction Feedback' section shows a log: '1. Loading configuration succeeded', '0. GUI initialized'. An 'Online Help' button is also present. In the bottom right corner, it says 'BiSS C with CDS'.

Notes

- The BiSS-C interface provides absolute position within one 60 mm turn. - The resolution can be changed with the programming cable and software from NILAB. - The digital output provides AB TTL 5V signals for the drive or controller. - For the connection and the encoder wiring, refer to the connection system page.

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Last update: **2026/09/11 07:55**

