13bit SIN/COS Encoder converter - Interpolator

Overview

NL-NQ6D is an advanced interpolator for all kinds of SIN/COS 1Vpp encoders. This DIN-rail-mounting device converts the SIN/COS 1Vpp analog signal into quadrature digital output AB with TTL 5V level. Furthermore, it can convert the SIN/COS 1Vpp analog signal into digital output BiSS-C or SSI. This is necessary when the servo drive cannot directly use the SIN/COS signal as feedback.



Programming interface - Driver & Software

The interpolator can be programmed using the programming cable DE23500555-1M in combination with programming software.

The programming cable Windows driver can be downloaded here: :miniature_motors:usb_mb3u_driver_ftdi21224.zip

The GUI interface can be downloaded here: :miniature_motors:nqc_1so_gui_c8rte.zip

Features:

Item
13-bit interpolation with resolution up to 8192 angle steps per sine period
Binary and decimal resolution settings, e.g. 500, 512, 1000, 1024
Programmable angle hysteresis
Conversion time of just 250 ns, including amplifier settling
Direct sensor connection; selectable input gain
Input frequency of up to 250 kHz; signal conditioning for offset, amplitude and phase
A/B quadrature signals of up to 2 MHz with adjustable minimum transition distance
Zero signal processing, adjustable in index position and width
Absolute angle output via fast serial interface (BiSS, SSI)
Permanent bidirectional memory access to parameters and OEM data via BiSS C
Period counting with up to 24 bits
Error monitoring of frequency, amplitude and configuration
Device setup from serial EEPROM or using BiSS
ESD protection and TTL-/CMOS-compatible outputs
Ideal for all types of NILAB linear motors

The product is based on IC-Haus integrated circuits; see the datasheet for full information: :green_drive_motors:nqc_datasheet_e2en.pdf

Connectors

X1 connector is male d-sub 9, X2 connector is female d-sub 9, X3 connector is female d-sub 15.

X1 Connector – Incremental Output AB

Pin	Signal	Description
1	A+	Positive A
2	A-	Negative A
3	B+	Positive B
4	B-	Negative B
6	5VDC	Power supply
7	GND	Ground

X2 Connector – BISS-C Bus

Pin	Signal	Description
1	NC	-
2	MA+	Clock P
3	Ma-	Clock N
4	VDD	5V logic
5	MO-	Master data output N
6	GND	Ground
7	SL+	Device Data input P
8	SL-	Device Data output P
9	MO+	Master data output P

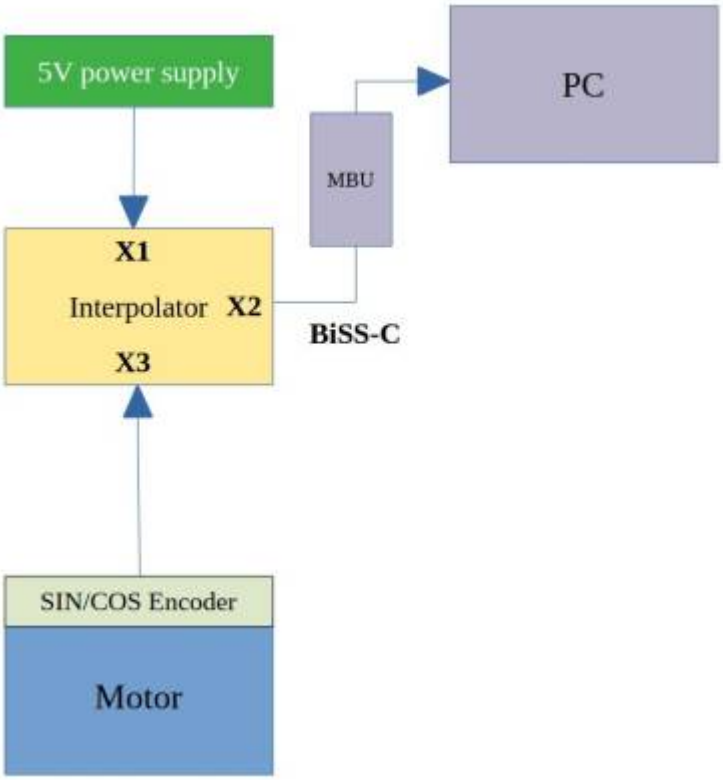
X3 Connector – SIN/COS 1Vpp encoder input

Pin	Signal	Description
1	NC	-
2	NC	-
3	NC	-
4	+5VDC	Encoder power supply
5	0V	Ground
6	SIN+	Positive sine
7	COS+	Positive Cosine
8	NC	-
9	PE	Shield
10	NC	-
11	NC	-
12	NC	-
13	SIN-	Negative Sine
14	COS-	Negative Cosine
15	NC	-

Power supply

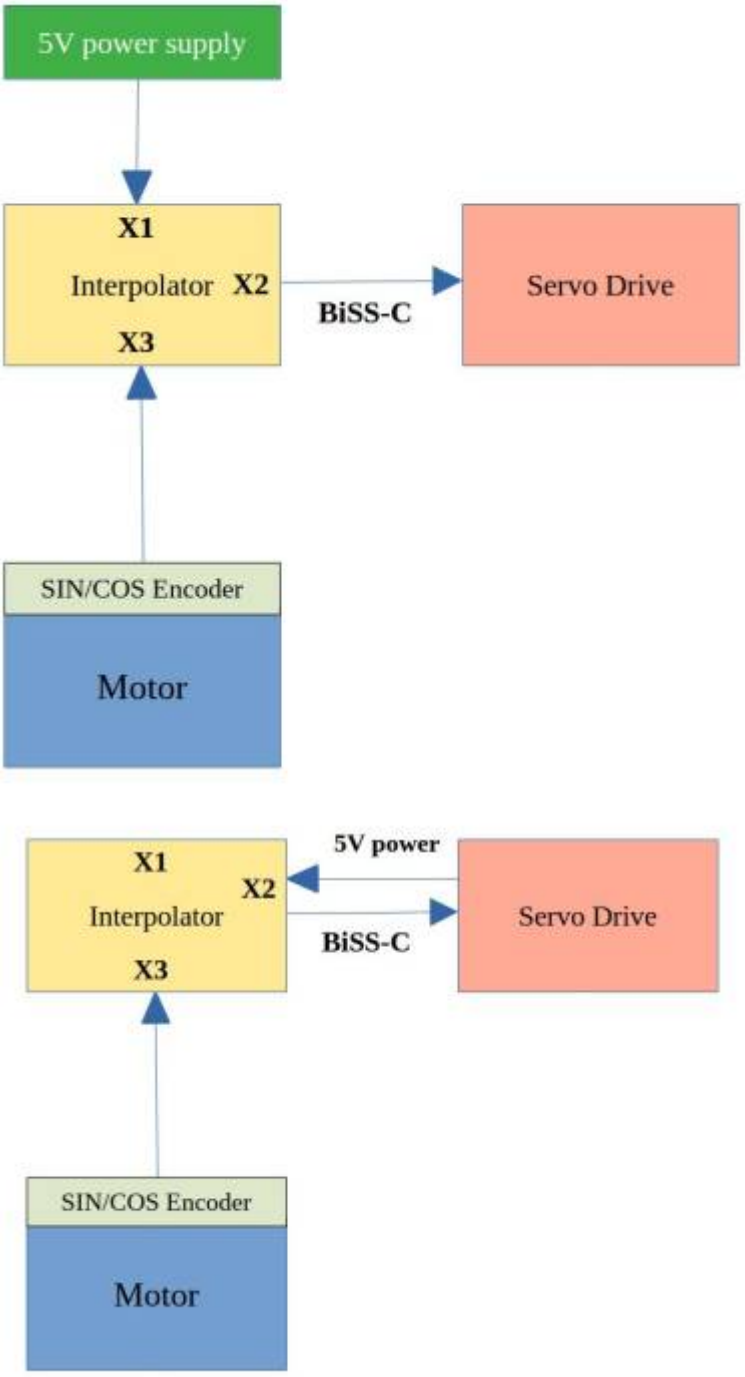
Using programming cable

When the programming cable is used, the power supply for the interpolator and the connected SIN/COS encoder can be provided by USB (in this case check that the current is sufficient for correct operation) or by an external 5V power supply connected on port X1.



Using Servo Drive

When connecting a servo drive BiSS interface, the 5V power can be provided by the feedback port of the servo drive, or by an external 5V power supply connected on port X1.



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