16bit SIN/COS Encoder converter - Interpolator with Hall commutation signal outputs

Overview

NL-NQ8D is an advanced interpolator for all kind of encoders with SIN/COS 1Vpp. This device with DIN rail mounting converts the SIN/COS 1Vpp analog signal into Quadrature Digital output AB with TTL 5V level output. Furthermore, it can also convert the SIN/COS 1Vpp analog signal into digital output BiSS-C or SSI. Additional UVW output signals for commutation purpose are programmable from 1 to 32 polepairs.

This is necessary when the servo-drive is not able to use directly the SIN/COS signal as feedback.

Programming interface - Driver & Software

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

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:

- Resolution of up to 16384 angle steps per sine period
- Binary and decimal resolution settings, e.g. 500, 512, 1000, 1024; programmable angle hysteresis
- Count-safe vector follower principle, real-time system with 80 MHz sampling rate
- Direct sensor connection; selectable input gain
- Rail-to-rail input (frequency of up to 500 kHz)
- Calibration for offset, amplitude, phase and distortion
- A/B quadrature signals of up to 10 MHz with adjustable minimum transition distance
- Up to 32 bit period counting with zero processing or absolute data interface
- Absolute angle output via fast serial interface (BiSS, SSI, SPI)
- Permanent bidirectional memory access to parameters and OEM data by BiSS C
- Error monitoring of frequency, amplitude and configuration
- ESD protection and TTL-/CMOS-compatible outputs

The product is based on IC-Haus integrated circuits, please see datasheet for the full information:
:https://www.ichaus.de/product/ic-nqe/

Connectors

X1 connector is male d-sub 15 hd, X2 connector is female d-sub9, X3 connector is female d-sub 15.

X1 Connector - Incremental Output AB e UVW commutation signals

Pin	Signal	Description
1	A+	Positive A
2	A-	Negative A
3	B+	Positive B
4	B-	Negative B
5	-	-
6	+5VDC	Power supply
7	GND	Ground
8	U	Commutation signal U
9	V	Commutation signal V
10	W	Commutation signal W
11,12,13,14,15	-	-

X2 Connector - BiSS-C Bus

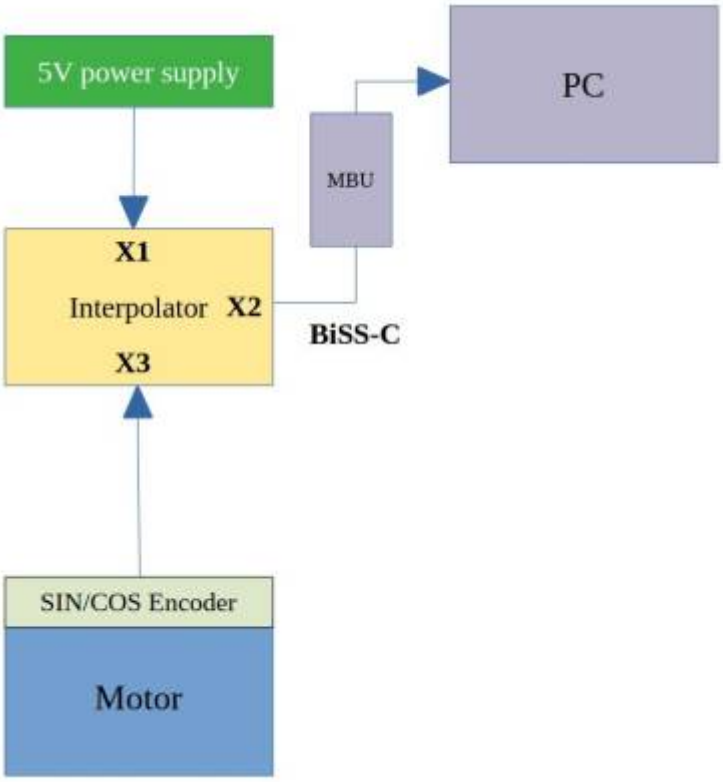
Pin	Signal	Description
1	-	-
2	MA+	Clock P
3	MA-	Clock N
4	VDD	5V Logic
5	MO-	Master data output N
6	GND	Ground
7	SL+	Device Data input P
8	SL-	Device Data output P
9	MO+	Master data output P

X3 Connector - SIN/COS 1Vpp encoder input

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

Using programming cable

When the programming calbe is used the power supply for Interpolator and the connected SIN/COS encoder can be provided
by USB (in this case check is the current will be enought for the correct ioperation) or with external 5V power supply connected
on the power X1.



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Using Servo Drive

Connecting a servo drive BiSS interface, the 5V power can be porvided by the feedback port of the servo drive or
using external 5V power supply connected on port X1.