Motion Controllers

JOHNSON ELECTRIC

innovating motion

XCD-EDGE-BD-01 | Drive and Control

Application Recommendations

- Auto Focus/Zoom Modules

- Shutter & Aperture Control

- Filter Changers

- Pan and Tilt Modules

ORDERING INFORMATION

Part Number: XCD-EDGE-BD-01

Drive and Control

RELATED PRODUCTS/ ACCESSORIES

Part Number: EM1-S-0

EM1-V-0

EDGE motor

Part Number: XCDE150100-00

XCD EDGE Motherboard Assembly

Product Description

Nanomotion's XCD – Drive & Control redefines the art of miniaturized drive and control electronics with the smallest hardware for operating piezo ceramic servo motors. The XCD provides complete servo control for the OEM market, coupled with the power stage and drive electronics on one board. XCD will have an OEM specific, motherboard for connecting to the motor, position sensor, communication and power.

The XCD for the Edge motor is provided as a single axis board which can operate in the 'AB5' mode with brake on/off, or in the more traditional AB1A mode. The XCD for the Edge motors accepts a single ended encoder signal and is programmed via an IIC interface and the NanoCommander user software.
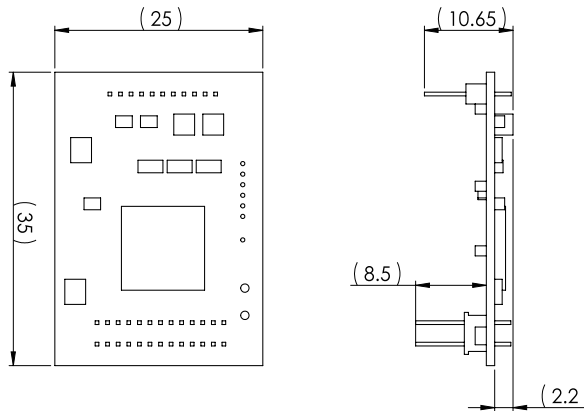
MECHANICAL DRAWINGS AND INTERFACE

TECHNICAL SPECIFICATIONS

Dimensions:

35.0 x 25.0 x 10.65 mm

Motors supported : EDGE

Input Power: 5 V

Drive Mode AB5

(brake on/off) or AB1A mode

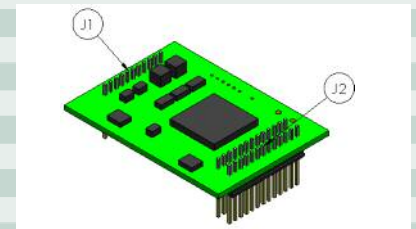Communication IIC

Operating Temperature:

-40 to 85 °C

ELECTRICAL

Power Consumption:

500 mW (max)

ELECTRICAL INTERFACE

pin number	J2 Main Connector		J1 Motor and Encoder Connector	
	pin name	pin description	pin name	pin description
1	+5v	5vdc pc:mer input	+5v	5vdc pow er out
2	+5v	5vdc pc:mer input	a	encoder inc rem ental signals
3	spi clk	spiclock	b	encoder inc rem ental signals
4	spi en	spi enable	index	encoder reference mark
5	miso	master in slave out	gnd	system ground
6	mosi	master out slavein	urn it sw right	limit switc h right
7	n.c.	nc(conected	lim sw len	limit sw itch len
8	n.c.	not conected	gnd	svstem ground
9	rxd	rs232 receive	p1	mc(or phase 1
10	txd	rs232 transmit	com	mc(or common
11	sda	12c serial data	p2	mc(or phase 2
12	scl	12c serial clock		
13	gpi01	ppw		
14	gpi02	n/a		
15	gpi03	general purpose digital output 3		
16	gpi04	general purpose digital output 4		
17	an2	analog input 1		
18	an1	analog input 2		
19	emergency	emeroencv stop		
20	an3	analoo input 3		
21	anlg out2	analog 0uput 2		
22	anlg out1	analog 0uput 1		
23	n.c.	n/a		
24	pwm out	keep alive		
25	gnd	system ground		
26	gnd	svstem oround		

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XCD-HRx-BD-01

Drive and Control

Application Recommendations

- Auto Focus/Zoom Modules

- Shutter & Aperture Control

- Filter Changers

- Pan and Tilt Modules

- OEM stages

ORDERING INFORMATION

Part Number: XCD-HR1-BD-01

XCD-HR2-BD-01

XCD-HR4-BD-01

RELATED PRODUCTS/ ACCESSORIES
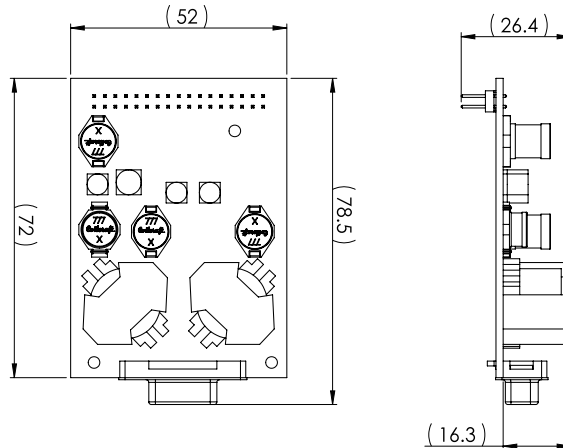
Part Number: HR1-1, HR2-1, HR4-1 Motors

Part Number: XCDH150100-00 XCD HR Motherboard Assembly

Product Description

Nanomotion's XCD – Drive & Control redefines the art of miniaturized drive and control electronics with the smallest hardware for operating piezo ceramic servo motors. The XCD provides complete servo control for the OEM market, coupled with the power stage and drive electronics on one board. XCD will have an OEM specific, motherboard for connecting to the motor, position sensor, communication and power.

The XCD for ST/HR motors is provided as a single axis board which can drive the ST, HR1, HR2, or HR4motor. The XCD can operate in the 'AB5' mode with brake on/off, or in the more traditional AB1A mode. The XCD for ST/HR motors accepts a differential quadrature encoder signal and is programmed via an IIC interface and the Nano-Commander user software.

Drive and Control

MECHANICAL DRAWINGS AND INTERFACE

TECHNICAL SPECIFICATIONS

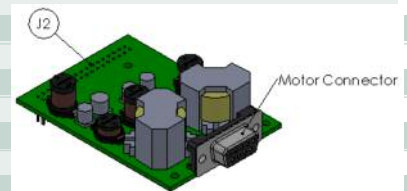Mechanical

Dimensions: 52mm x 72mm x 26.4mm

PERFORMANCE

- Motors supported: HR1, HR2, HR4
- Drive mode : AB5 , AB1
- Support AQB sensor (Differential Single ended 5V)
- Communication: SPI slave, Uart (LVTTL)
- Safety : Limit switches , motor interlock, Emergency
- 2 x input TTL (5v/3.3v)
- 2 x output LVTTL (3.3v)
- 3 x Analog input: NTC , Joystick , Potentiometer (Ain range: 0V to 3.3V)
- 2 x Analog out (pwm)

ELECTRICAL

Drive voltage: 12V

Power consumption: 13W

(52) (26.4)

(72) (78.5)

(16.3)

ELECTRICAL INTERFACE

pin number	Main Connector		Motor Connector	
	pin name	pin description	pin name	pin description
1	+12v	12vdc power input	gnd	system ground
2	+12v	12vdc power input	n.c.	not connected
3 output	spi_clk	spi clock	motor_up	high voltage
4 output	spi_en	spi enable	motor_common	high voltage
5 output	miso	master in slave out	motor_down	high voltage
6	mosi	master out slave in	motor_connected	input
7	rxd	rs232 receive	shield	inner shield
8	txd	rs232 transmit	n.c.	not connected
9	gnd	system ground	n.c.	not connected
10	gnd	system ground		
11	sda	i2c serial data		
12	scl	i2c serial clock		
13	gpio1	general purpose digital input 1		
14	gpio2	n/a		
15	gpio3	general purpose digital output 3		
16	gpio4	general purpose digital output 4		
17	an1	analog input 1		
18	an2	analog input 2		
19	anlg_out1	analog ouput 1		
20	an3	analog input 3		
21	anlg_out2	analog ouput 2		
22	emergency	emergency stop		
23	+5v	5vdc power out		
24	pwm_out	keep alive		
25	a+	incremental signals		
26	limit_sw_left	limit switch left		
27	a-	encoder incremental signals		
28	limit_sw_right	limit switch right		
29	b+	encoder incremental signals		
30	index+	encoder reference mark/positive signal		
31	b-	incremental signals		
32	index-	encoder reference mark/negative signal		

Motor Connector

J2

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IC000028 | XCD Component

Application Recommendations

- Auto Focus/Zoom Modules

- Shutter & Aperture Control

- Filter Changers

- Pan and Tilt Modules

- OEM Stages

ORDERING INFORMATION

Part Number: IC000028
NM XCD BLANK

Part Number: XCD-XX-01
XCD SW/VER:1.1.0.4

RELATED PRODUCTS/ ACCESSORIES

All Nanomotion motors
EDGE motor
ER-15-4 motor
HR Motors

Product Description

Nanomotion's XCD drive & control is a miniature closed loop servo control with the smallest hardware for operating piezo ceramic servo motors. The XCD provides complete servo control for Security market applications with a built in motor driver.

The XCD component is provided on a chip level and can be integrated into user electronics with the addition of a motor power stage. The component level product will accept single ended or differential encoder input (motor size dependent) and is programmed via an IIC interface and our NanoCommander user software.

XCD Component

MECHANICAL DRAWINGS AND INTERFACE

TECHNICAL SPECIFICATIONS

Mechanical:

Dimensions: 12mm x 12mm

height : 1.2 mm

Functional:

Motors supported:

All Nanomotion motors

Drive mode : AB5 , AB1

Support AQB sensor

(Single ended 5V/3.3V)

Communication: IIC, SPI (slave, master), Uart (LVTTL).

Limit switch: left limit, right limit

Emergency (optional)
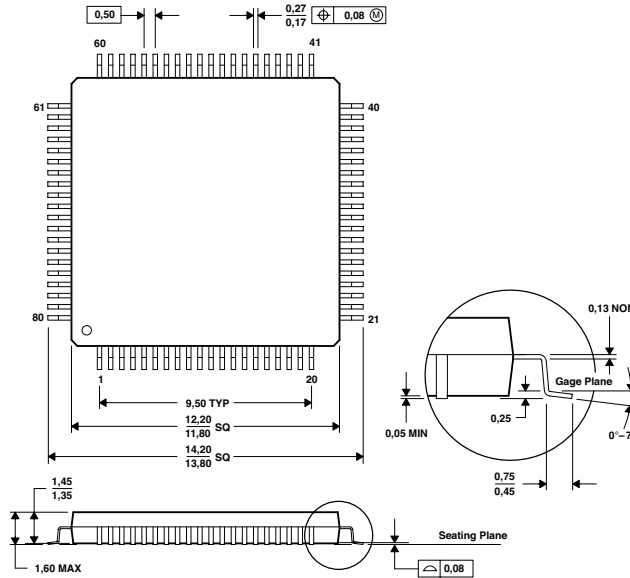
2 x input TTL (5v/3.3v)

2 x Input/Output LVTTL (3.3v)

3 x Analog input: NTC, Joystick, Potentiometer

(Vin range: 0V to 3.3V)
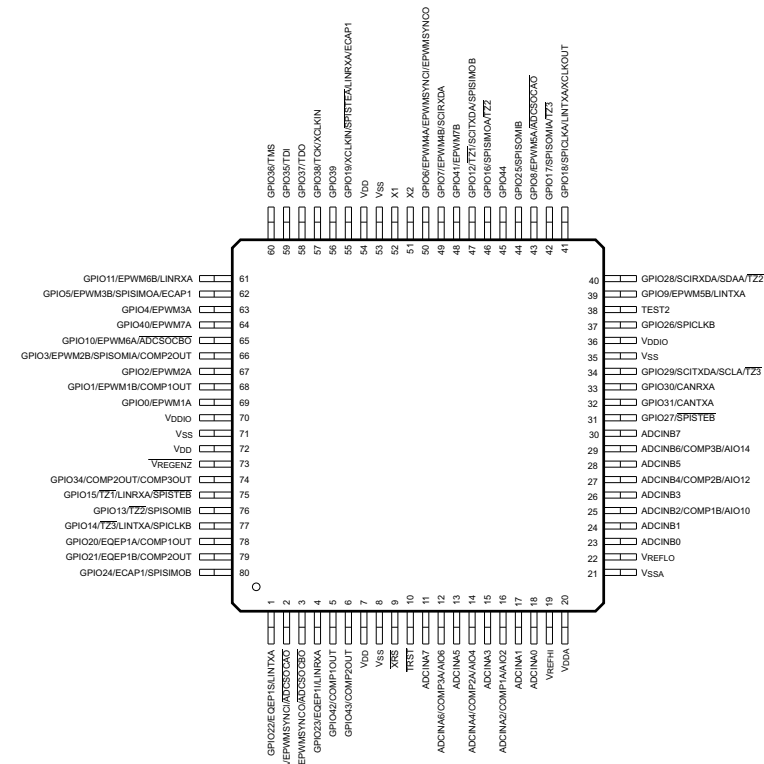
2 x Analog out (pwm)

ELECTRICAL

Main power: 5V

ENVIRONMENTAL

Operating Temperature :

-40°C– 85°C

ELECTRICAL INTERFACE

NM NANOMOTION

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FlexDC Motion Controller

Technical Specifications

Dimensions 2U Enclosure	123mm H x 361mm W x 308mmD
Weight	5.2 kg (depending on configuration)
Up to 2 axes integrated	AB1A or AB5 driver cards, up to 16 elements per axis
Servo Rate	8kHz
DAC Output	+/- 10V, 16 bit
A quad B Encoder Input	One per axis
Sin/Cos Encoder with on board 8192 resolution interpolators	Optional (one per axis)
Discrete Inputs	One per axis

I/O

8 x Digital Isolated Inputs

2 x Digital Isolated Outputs

2 x Digital Fast Inputs

2 x Digital Fast Outputs

Communications

RS232, CAN-open, Ethernet	ASCII Based RS232 Communication protocol
Full Binary, high baud rate, CAN Bus communication protocol	

Environmental

Ambient Operating Temperature	0°C to 45°C
Storage Temperature	Up to 70°C
Operating Humidity	Up to 80% non-condensing

Power

Universal Input Voltage	100-240VAC 50-60 Hz
Power Consumptions	130VA max