Motionnet MNET-DA2 Single Axis Motion Control Board for Delta A2 Servo

Specifications

Motion Control

Item	Specifications
Applicable servo driver	AC servo driver A2 series from Delta Electronics, Inc. (Direct connection to the CN1 I/O signal connector)
Positioning control range	-134,217,728 to 134,217,727 (28 bits)
Command counter setting range	-134,217,728 to 134,217,727 (28 bits)
Pulse rate setting range	1 to 65,535 (16-bit)
Pulse rate multiplier setting range	0.1 to 66.6
Pulse train frequency	Maximum of 6.6 Mpps, with a minimum of 0.1 pps Output Voltage: ➢ Logic H: 2.5 V min. ➢ Logic L: 0.5 V max
Command pulse output	One of, based on environment settings: - CW/CCW method (2 pulse mode) - 90˚ phase difference method (AB phase pulse mode)
Encoder signal input interface (High Speed Isolation I/F)	Encoder A phase and B phase input: Maximum response frequency; 3.5 MHz Input Voltage: ➢ Logic H: 3 to 5V ➢ Logic L: 0 to 1.2V
Driver system Input (Isolation I/F)	Alarm input (ALM) Positioning complete input (INP) Servo ready input (SVRDY)
Driver system Output (Open collector output I/F)	Deflection counter clear output (ERC) Alarm reset output (ALMRES)
Dedicated Mechanical Input (Isolation I/F)	Positive end limit input (PEL) Negative end limit input (MEL) Slowdown input (SD)
Dedicated Mechanical Output (Differential output I/F)	Comparator output (CPP, CPN)

Serial Communications

Item	Specifications
Cyclic communication times and data transfer cycles	Data transfer cycle Maximum of 0.49 msec, when using 32 devices. (*1) Maximum of 0.97 msec, when using 64 devices. (*2)
Total serial communication line length	Maximum of 100 m (*3) Maximum of 50 m (*4) Maximum of 100 m (*5)
Serial communication interface	RS-485 with transformer isolation Half duplex communication 2.5/5/10/20 Mbps transmission rate can be set by software (Default 20 Mbps)

Serial Communications (cont'd)

Item	Specifications
Serial communication device number	64 Devices Maximum
LED indicator	RUN: While receiving serial communications normally, the green LED is lit. ERR: When a serial communication error occurs continuously, the red LED is lit.

Notes: (*1, *2) Data transfer speed: 20 Mbps, when using ADLINK recommended cable *1:100m, *2: 50m
(*3) Data transfer speed: 20 Mbps, with 32 devices connected using ADLINK recommended cables
(*4) Data transfer speed: 20 Mbps, with 64 devices connected using ADLINK recommended cables
(*5) Data transfer speed: 10 Mbps, with 64 devices connected using ADLINK recommended cables

Pin Assignment

CN1, 2 (serial communication connector)
Connects the Motionnet serial signal. The corresponding pins of CN1 and CN2 are internally connected.

Pin	Name	I/O	Function
1	RS485+	I/O	Serial communication data+
2	RS485-	I/O	Serial communication data-
3	FG	-	Frame ground

Note: The signal directions refer to the signal flow direction relative to the board, "I" = Input and "O" = Output. The Frame ground (FG) is connected to the FG on connector CN3.

CN3 (mechanical input/output, power supply connector)
Connects mechanical system Input/Output signals and control power for the board.

Pin	Name	I/O	Function
1	PEL	I	Positive end limit
2	NEL	I	Negative end limit
3	SD/CPP	I/O	Slowdown input / comparator output (+)
4	ORG	I	Zero position input
5	EMGI	I	Emergency stop input
6	CPN	O	Comparator output (-)
7	24V	I	24 VDC Power source
8	GND	I	Ground
9	GND	I	Ground
10	FG	-	Frame ground

Note: The signal directions refer to the signal flow direction relative to the board: "I" = Input and "O" = Output.

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Pin Assignment (cont'd)

CN4 (servo driver connector)
Insert the I/O signal connector CN1 on the A2 series AC servo driver (Delta Electronic, inc) directly into this connector. The connector housing is also the frame ground.

Pin	Name	I/O	Function	Pin	Name	I/O	Function
1	INP	I	Positioning complete	**26**	GND	-	Ground
2	-	-	-	**27**	GND	-	Ground
3	-		-	**28**	ALM	I	Alarm
4	-	-	-	**29**	PULSE_N	O	Pulse signal (-)
5	-	-	-	**30**	EMGO	O	Emergency stop
6	GND	-	Ground	**31**	GND	-	Ground
7	SVRDY	I	Servo ready	**32**	GND	-	Ground
8	-	-	-	**33**	ALMRES	O	Alarm reset
9	SVON	O	Servo ON	**34**	-	-	-
10	ERC	O	Defl. counter clear	**35**	-	-	-
11	24 V	-	24 V DC power supply	**36**	-	-	-
12	-	-	-	**37**	-	-	-
13	-	-	-	**38**	PULSE_P	O	Pulse signal (+)
14	-	-	-	**39**	-	-	-
15	-	-	-	**40**	DIR_N	O	Direction signal (-)
16	-	-	-	**41**	-	-	-
17	-	-	-	**42**	-	-	-
18	-	-	-	**43**	-	-	-
19	-	-	-	**44**	-	-	-
20	-	-	-	**45**	-	-	-
21	EAP	I	Encoder A phase (+)	**46**	DIR_P	O	Direction signal (+)
22	EAN	I	Encoder A phase (-)	**47**	GND	-	Ground
23	EBN	-	Encoder B phase	**48**	-	-	-
24	EZN	I	Encoder Z phase	**49**	GND	-	Ground
25	EBP	I-	Encoder B phase	**50**	EZP		Encoder Z phase (+)

Note: The signal directions refer to the signal flow direction relative to the board: "I" = Input and "O" = Output. A blank indicates no connection.

Connector and Switch Information

Serial comm. device number assignment (SW1-A0 to A5)
Assigns a device number for serial communication. (A0 to A5 correspond respectively to 1, 2, 4, 8, 16, and 32, with the sum of these values the device number.)
Default setting: All off.

Setting transfer speed (SW1-B0, B1)
Sets the transfer speed

B0	B1	Transfer speed (Mbps)
OFF	OFF	20
ON	OFF	10
OFF	ON	5
ON	ON	2.5

Default setting: All off

Setting termination resistance (SW1-TR)
Sets termination resistance

TR	Output status
OFF	-
ON	Inserts termination resistance

Default setting: Off

Setting PEL+ MEL logic (SW1-EL)
Sets the logic for PEL + MEL

EL	Logic
OFF	The end limit signal is triggered when set to Active-HIGH
ON	The end limit signal is disabled when set to Active-LOW

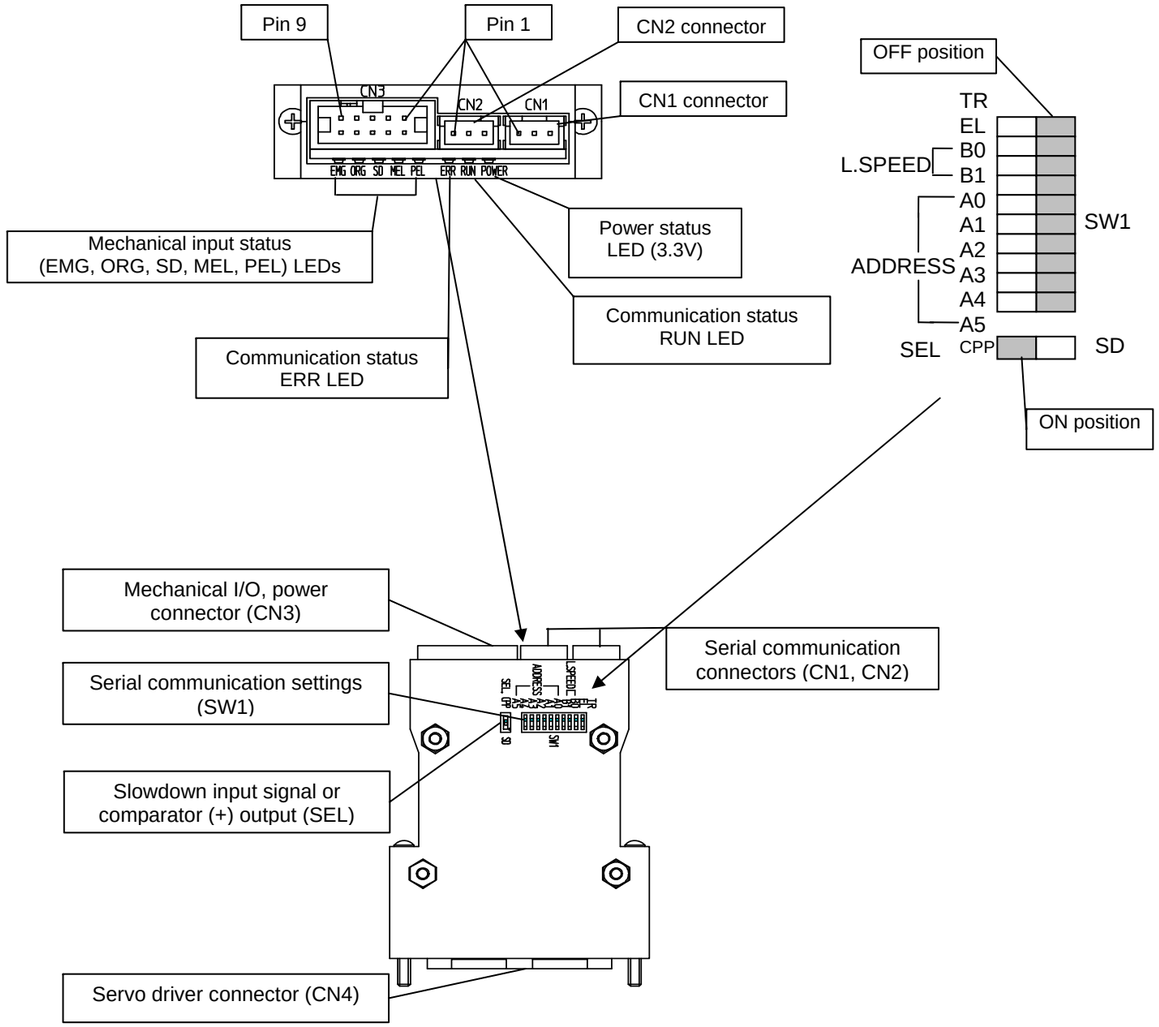
Default setting: Off

Switching mechanical input/output (SEL)
Selects slowdown input signal or comparator (+) output

SEL	Connecting destination
SD	Slowdown input
CPP	Comparator (+) output

Default setting: CPP

Connector and switch layouts



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