Motionnet MNET-SAN Single Axis Motion Control Board for Sanyo Denki R series Servo

Specifications

Physical Features)

Item	Specifications
Dimensions & weight	W52.4 x D16.3 x H69.5 mm, (2.06 x.0.64 x 2.74 inches), approx. 50g (0.11 lb)
Environmental temperature tolerance	0 to 50˚C (32 to 122˚F)
Environmental humidity tolerance	80%RH or less (Non condensing through the 10˚C to 50˚C range)
Power consumption	24 V DC±10%, 110 mA (Avg.)

Motion Control

Item	Specifications
Applicable servo driver	R series (w/ pulse command support) from Sanyo Denki Electric. (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) Servo ON output (SVON)
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 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	MEL	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 control signal connector CN1 on R and Q series servo drive (Sanyo Denki). The connector housing is also the frame ground.

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

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+ NEL logic (SW1-EL)
Sets the logic for PEL + NEL

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

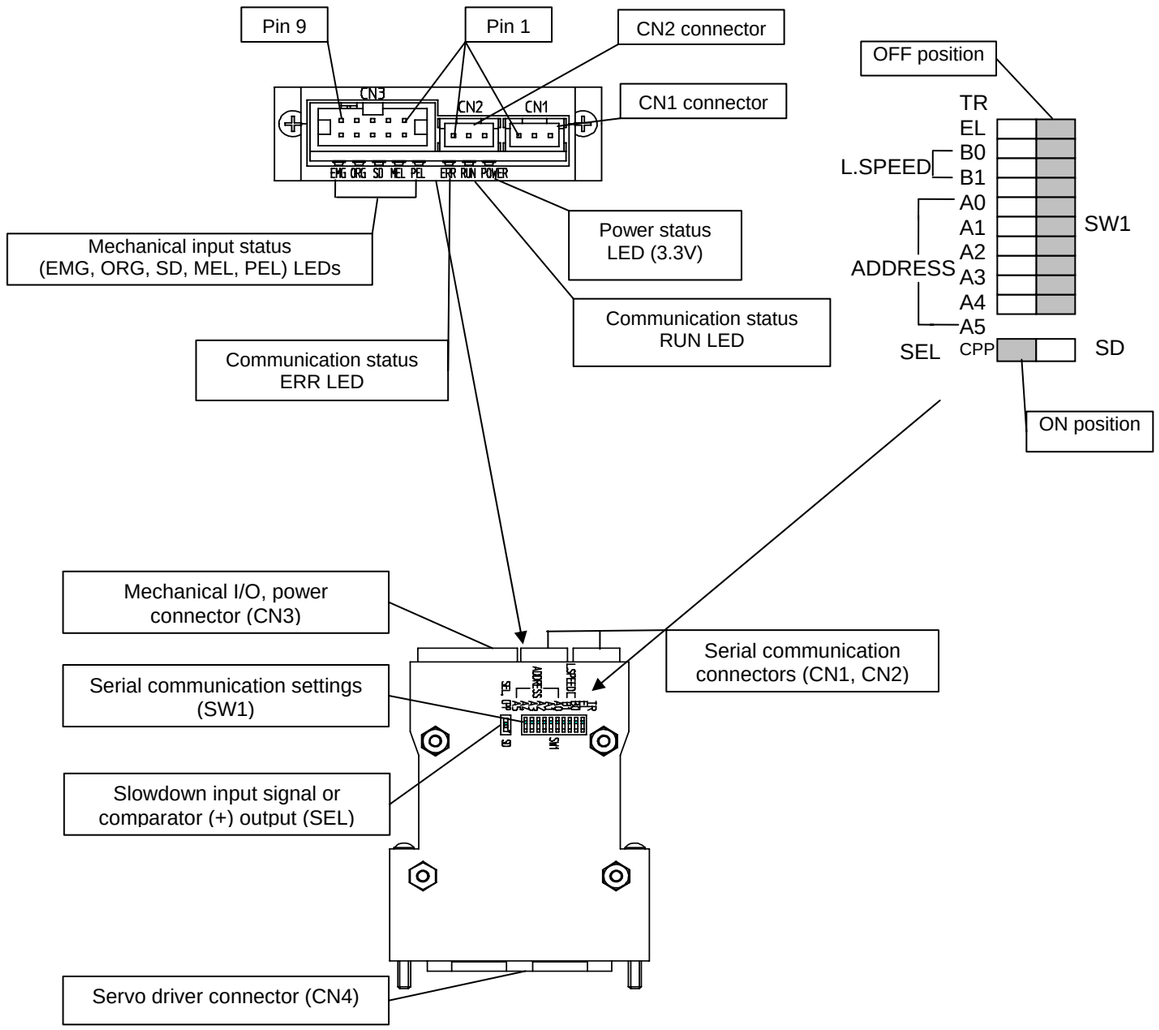
Default setting: Off

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



Contact ADLINK

Web: http://www.adlinktech.com
Service: service@adlinktech.com

Tel: +886-2-8226-5877 Fax: +886-2-8226-5717

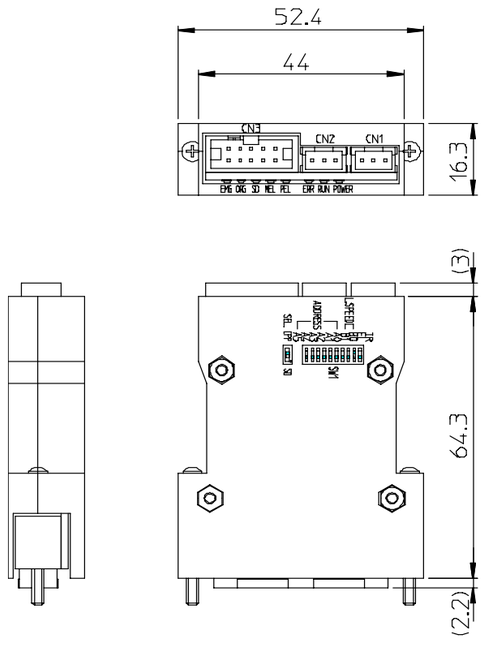
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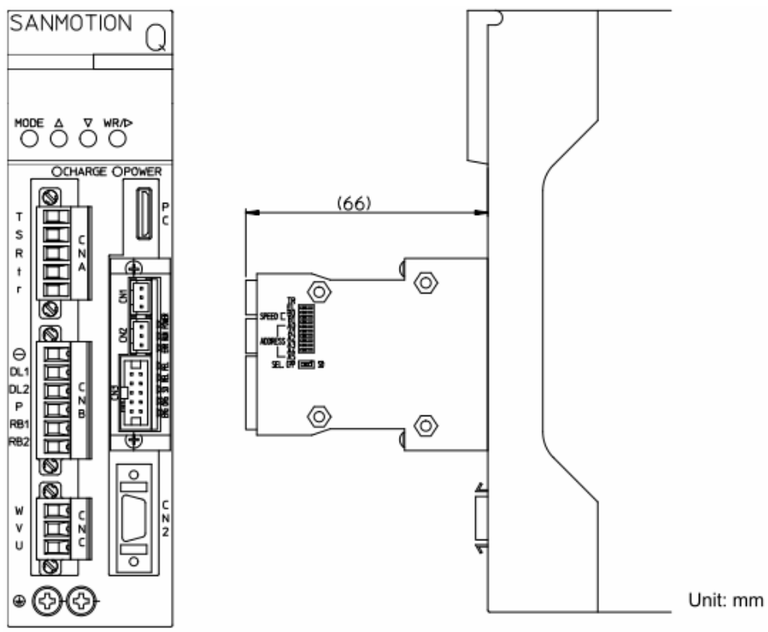
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External dimensions (all units shown are mm):



Unit: mm

Dimensions when connected to a Sanyo Denki servo pack (all units shown are mm):



Unit: mm

Note: *This page only appears in the electronic version of this document.*

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