



Motionnet MNET-MIA Single Axis Motion Control Board for MINAS, A4 series Servo

Specifications

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	63 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.

Motion Control

Item	Specifications
Applicable servo driver	Servo amplifier A, AIII, A4 series (pulse command supporting type) made by Matsushita Electric. (Direct connections to the CNI/F or CNX5 control 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 - 65,535 (16-bit)
Pulse rate multiplier setting range	0.1 - 66.6
Pulse train frequency	Maximum of 6.6 Mpps, with a minimum of 0.1 pps Output Voltage: ➤ Logic H: 2.5V min. ➤ Logic L: 0.5V max
Command pulse output	Select from the types below based on the 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 - 5 V ➤ Logic L: 0 - 2.4 V
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) Servo on output (SVON) Alarm reset output (ALMRES) Emergency stop output (EMGO)
Dedicated Mechanical Input (Isolation I/F)	Positive end limit input (PEL) Zero position input (ORG) Negative end limit input (MEL) Gain select output (GAINSEL) Slowdown input (SD)
Dedicated Mechanical Output (Differential output I/F)	Comparator output (CPP, CPN)

Note:

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

- Dimension:
W52.4 x D16.3 x H69.5 (Unit: mm)
- Weight: Approximately 50 g
- Operating Temperature: 0 to 50°C
- Operating ambient humidity: 80%RH or less (Non condensing through the 10°C to 50°C range)
- Power Consumption:
24 VDC±10%, 110 mA (Typ.)

Recycled Paper



Pin Assignment

CN1, 2 (serial communication connector)

Connect the Motionnet serial signal. The corresponding pins of CN1 and CN2 are internally connected.

Nbr.	Signal name	Function	Signal direction	Nbr.	Signal name	Function	Signal direction
1	RS485+	Serial communication data+	I/O	2	RS485-	Serial communication data-	I/O
3	FG	Frame ground	-	-	-	-	-

Note 1: The signal directions above refer to the signal flow direction as seen from the board: "I" = Input and "O" = Output.

Note 2: The FG above is connected to the FG on connector CN3.

CN3 (mechanical input/output, power supply connector)

Connect Mechanical system Input/Output signals and control power for the board.

No.	Signal name	Function	Signal direction	No.	Signal name	Function	Signal direction
1	PEL	Positive end limit	I	2	MEL	Negative end limit	I
3	SD/CPN	Slowdown input / comparator output (+)	I/O	4	ORG	Zero position input	I
5	EMGI	Emergency stop input	I	6	CPN	Comparator output (-)	O
7	24V	24VDC Power source	I	8	GND	Ground	I
9	GND	Ground	I	10	FG	Frame ground	-

Note 3: The signal directions above refer to the signal flow direction as seen from the board: "I" = Input and "O" = Output.

CN4 (servo driver connector)

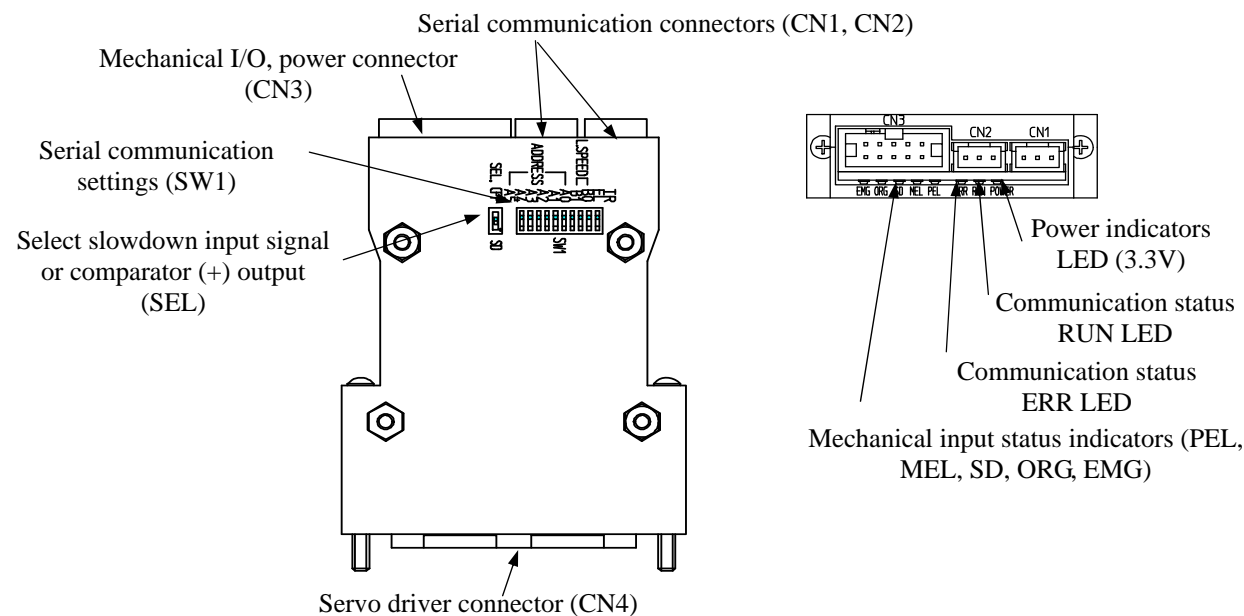
Insert the control signal connector CNI/F or CNX5 on the A, AIII, A4 series servo amplifier (Matsushita Electric) directly into this connector. The connector housing is also the frame ground.

No.	Signal name	Function	Signal direction	No.	Signal name	Function	Signal direction
1	-	-	-	2	-	-	-
3	PULSN	Pulse signal output (-)	O	4	PULSP	Pulse signal output (+)	O
5	DIRN	Direction signal output (-)	O	6	DIRP	Direction signal output (+)	O
7	24V	24 VDC power supply	O	8	-	-	-
9	-	-	-	10	-	-	-
11	-	-	-	12	-	-	-
13	GND	Ground	O	14	-	-	-
15	-	-	-	16	-	-	-
17	-	-	-	18	-	-	-
19	-	-	-	20	-	24 VDC power supply	O
21	EAP	Encoder A phase input (+)	I	22	EAN	Encoder A phase input (-)	I
23	EZP	Encoder Z phase input (+)	I	24	EZN	Encoder Z phase input (-)	I
25	-	-	-	26	-	-	-
27	GAINSEL	Gain select output	O	28	-	-	-
29	SVON	Servo ON output	O	30	ERC	Deflection counter clear	O
31	ALMRES	Alarm reset output	O	32	-	-	-
33	-	-	-	34	GND	Ground	O
35	SVRDY	Servo ready input	I	36	GND	Ground	O
37	ALM	Alarm input	I	38	GND	Ground	O
39	INP	Positioning completion input	I	40	-	-	-
41	-	-	-	42	-	-	-
43	-	-	-	44	PULSN	Pulse signal output (-)	O
45	PULSP	Pulse signal output (+)	O	46	PULSN	Direction signal output (-)	O
47	DIRP	Direction signal output (+)	O	48	EBP	Encoder B phase input (+)	I
49	EBN	Encoder B phase input (-)	I	50	FG	Frame ground	O

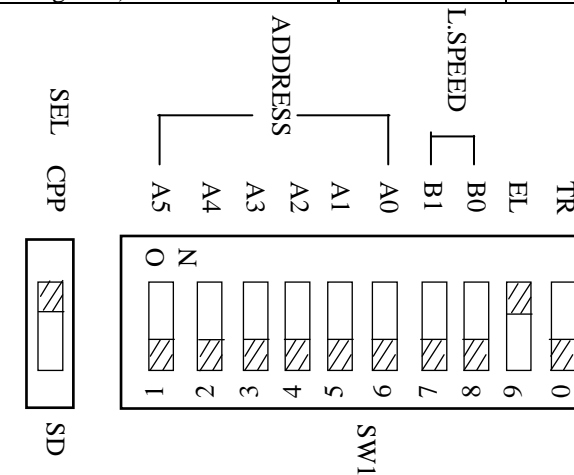
Note 4: The signal directions above refer to the signal flow direction as seen from the board: "I" = Input and "O" = Output.
 Note 5: A blank means not connected.

Connector and Switch Information

The layout of the connectors and switches is shown below.



Item	Setting details	Item	Setting details																					
Serial comm. device number assignment (SW1-A0 to 5)	Assign a device number for serial communication. (A0 to A5 correspond to 1, 2, 4, 8, 16, and 32. The sum of these values will be the device number.) (Default setting: All off)	Setting termination resistance (SW1-TR)	Setting termination resistance <table border="1"> <tr><td>TR</td><td>Output status</td></tr> <tr><td>OFF</td><td>-</td></tr> <tr><td>ON</td><td>Insert a termination resistance</td></tr> </table> (Default setting: Off)	TR	Output status	OFF	-	ON	Insert a termination resistance															
TR	Output status																							
OFF	-																							
ON	Insert a termination resistance																							
Setting the transfer speed (SW1-B0, B1)	Setting the transfer speed <table border="1"> <tr><th>B0</th><th>B1</th><th>Transfer speed</th></tr> <tr><td>OFF</td><td>OFF</td><td>20Mbps</td></tr> <tr><td>ON</td><td>OFF</td><td>10Mbps</td></tr> <tr><td>OFF</td><td>ON</td><td>5Mbps</td></tr> <tr><td>ON</td><td>ON</td><td>2.5Mbps</td></tr> </table> (Default setting All off)	B0	B1	Transfer speed	OFF	OFF	20Mbps	ON	OFF	10Mbps	OFF	ON	5Mbps	ON	ON	2.5Mbps	Switching mechanical input/output (SEL)	Select slowdown input signal or comparator (+) output <table border="1"> <tr><td>SEL</td><td>Connecting destination</td></tr> <tr><td>SD</td><td>Slowdown input</td></tr> <tr><td>CPP</td><td>Comparator (+) output</td></tr> </table> (Default setting: CPP)	SEL	Connecting destination	SD	Slowdown input	CPP	Comparator (+) output
B0	B1	Transfer speed																						
OFF	OFF	20Mbps																						
ON	OFF	10Mbps																						
OFF	ON	5Mbps																						
ON	ON	2.5Mbps																						
SEL	Connecting destination																							
SD	Slowdown input																							
CPP	Comparator (+) output																							
Setting the PEL + MEL logic (SW1-EL)	Setting the logic for PEL + MEL <table border="1"> <tr><th>EL</th><th>Logic</th></tr> <tr><td>OFF</td><td>The end limit signal goes on when the respective photocoupler turns on.</td></tr> <tr><td>ON</td><td>The end limit signal goes off when the respective photocoupler turns on.</td></tr> </table> (Default setting: ON)	EL	Logic	OFF	The end limit signal goes on when the respective photocoupler turns on.	ON	The end limit signal goes off when the respective photocoupler turns on.																	
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Ordering Information

- DB-8153: Single Motionnet master controller daughter board
- PCI-8154: Advanced 4-axis stepping & servo motion control card
- PCI-8158: Advanced 8-axis stepping & servo motion control card
- DPAC-3100: AMD LX-800 CPU with HSL and Motionnet bus
- DPAC-3200: Intel® Celeron® M 1GHz with HSL and Motionnet bus

ADLINK on the Internet

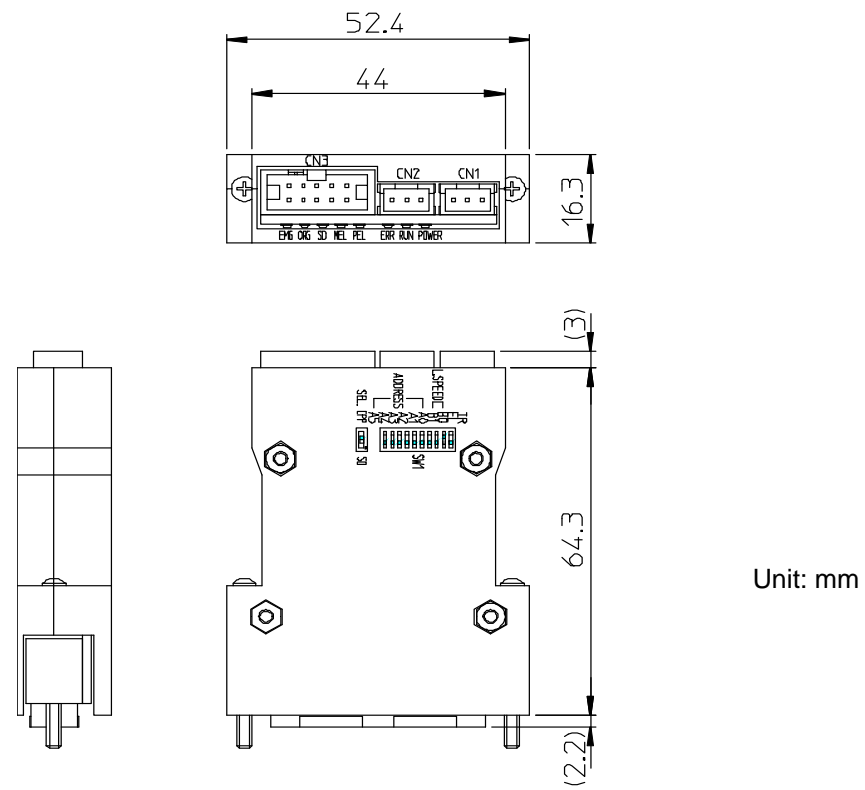
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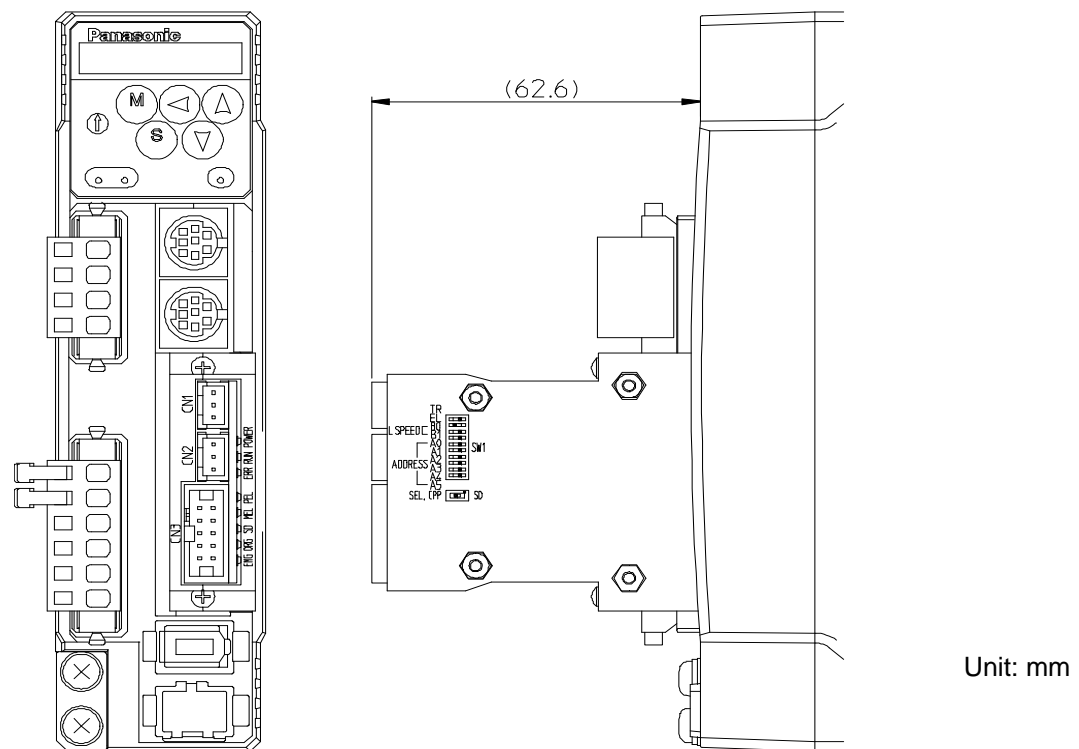
Dimensions

The external dimensions of MNET-MIA are shown below.



Unit: mm

Dimensions when connected to a servo amplifier (MINAS, A4 series)



Unit: mm