Motionnet MNET-GP Single Axis Motion Control Board for General Application

Specifications

Physical Features

Item	Specifications
Dimensions	98 W x 71.8 D x 52.7 H mm, (3.86 x.2.83 x 2.07 inches)
Environmental temp. range	0˚C to 60˚C (32˚F to 140˚F)
Environmental humidity range	80% RH or less (Non-condensing, 10˚C to 50˚C)
Power consumption	24 V DC±10%, 110 mA (avg.)

Motion Control

Item	Specifications
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, with output voltage for logic H, 2.5 V minimum, and for logic L, 0.5 V maximum
Command pulse output	Based on environment settings, either CW/CCW method (2 pulse mode), or 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 with input voltage for logic H, 0 to +5V, and logic L, -3 to -5 V
Driver system input (isolation I/F)	Alarm input (ALM) Positioning complete input (INP) Servo ready input (RDY)
Driver system output (open collector output I/F)	Deflection counter clear output (ERC) Alarm reset output (ARM-RST) Servo ON output (SVON)
Dedicated mechanical input (isolation I/F)	Positive end limit input (PEL) Zero position input (ORG) Negative end limit input (MEL) Emergency stop input (EMGI) Slowdown input (SD) Latch (LTC)
Dedicated mechanical output (differential output I/F)	Comparator output (CMP+, CMP-)

Serial Communications

Item	Specifications
Cyclic communication times and data transfer cycles	Maximum data transfer cycle of 0.49 msec when using 32 devices. (*1) Maximum data transfer cycle 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 #r	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.

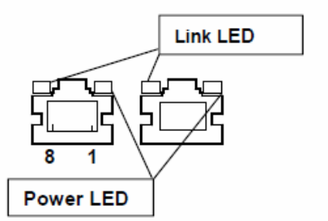
Notes: (*1, *2) Data transfer speed: 20 Mbps, when using ADLINK recommended cable *1:100m, *2: 50m
(*3) Data transfer speed: 20 Mbps, with 32 devices connected using ADLINK recommended cables
(*4) Data transfer speed: 20 Mbps, with 64 devices connected using ADLINK recommended cables
(*5) Data transfer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

Pin Assignments

Serial Communication Connectors (RJ1, RJ2)

The MNET-GP supports two LEDs indicating Motionnet communication and 24 V DC power supply status as shown. The connector housing is also the frame ground.

Pin	Name	I/O	Function	Pin	Name	I/O	Function
1	NA	--	NA	**5**	RS485+	I/O	Serial communication data+
2	NA	--	NA	**6**	NA	--	NA
3	NA	--	NA	**7**	NA	--	NA
4	RS485-	I/O	Serial communication data-	**8**	NA	--	NA

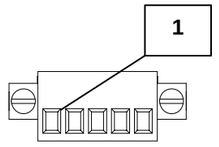


Note: The signal directions refer to the signal flow direction relative to the board, "I" = Input and "O" = Output. The Frame ground (FG) is connected to the FG on connector CN3.

Power Supply Input (PWR1)

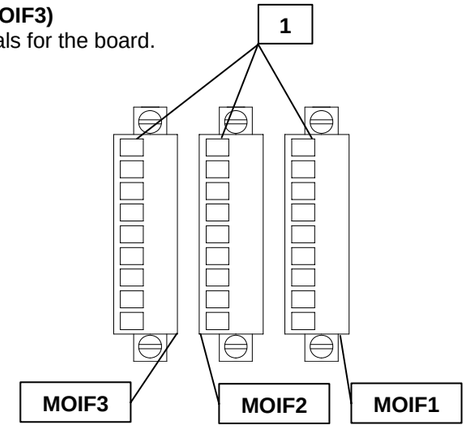
Connects control power and frame ground for the module.

Pin	Name	I/O	Function	Pin	Name	I/O	Function
1	E24V	I	Ext. power supply input (+24 V DC±5%)	**4**	E24V	I	Ext. power supply input (+24 V DC±5%)
2	EMG	I	Emergency stop signal input	**5**	FGND	--	Shielding ground
3	EGND	--	Ext. power supply ground				



Servo Driver & Mechanical Input/Output (MOIF1, MOIF2, MOIF3)

Connects servo driver & mechanical system Input/Output signals for the board.



MOIF1

Pin	Name	I/O	Function
1	E24V	-	External power supply input (+24 V DC±5%)
2	SVON	O	Servo on output
3	ERC	O	Deflection counter clear output
4	ARM-RST	O	Alarm reset output
5	EGND	-	External power supply ground
6	OUT+	O	Pulse output signal (+)
7	OUT-	O	Pulse output signal (-)
8	DIR+	O	Direction signal (+)
9	DIR-	O	Direction signal (-)

MOIF2

Pin	Name	I/O	Function	Pin	Name	I/O	Function
1	EA+	I	Encoder A phase (+)	**6**	EZ-	I	Encoder Z phase (-)
2	EA-	I	Encoder A phase (-)	**7**	CMP+	O	Comparator output (+)
3	EB+	I	Encoder B phase (+)	**8**	CMP-	O	Comparator output (-)
4	EB-	I	Encoder B phase (-)	**9**	EGND	-	External power supply ground
5	EZ+	I	Encoder Z phase (+)				

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Servo Driver & Mechanical Input/Output (MOIF1, MOIF2, MOIF3) (cont'd)

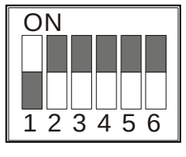
MOIF3

Pin	Name	I/O	Function	Pin	Name	I/O	Function
1	INP	I	Positioning complete	**6**	MEL	I	Negative end limit
2	RDY	I	Servo ready	**7**	ORG	I	Zero position input
3	ALM	I	Alarm	**8**	SD	I	Slowdown input
4	PEL	I	Positive end limit	**9**	LTC	I	Latch input
5	EGND	-	Positioning complete				

DIP Switch Settings

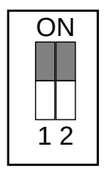
Serial Comm. Device Number Assignment (SW1)
Assigns a device number for serial communication. (SW1 switches 1 to 6 correspond respectively to 1, 2, 4, 8, 16, and 32, with the sum of these values equaling the device number. Example: 101010 will correspond to a device number of 21; 010101 to a device number of 42)

1 = On 0 = Off



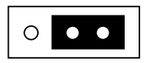
Switch Setting	Address
000000	Address 0
100000	Address 1
010000	Address 2
111111	Address 63

Setting Transfer Speed (SW2-1, SW2-2)



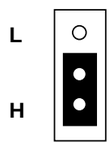
1	2	Transfer speed (Mb/s)
OFF	OFF	20
ON	OFF	10
OFF	ON	5
ON	ON	2.5

Jumper Settings

ON  **OFF**

Setting Termination Resistance (TR1)
Sets termination resistance (Default: OFF)

TR1	Output status
OFF	-
ON	Inserts termination resistance

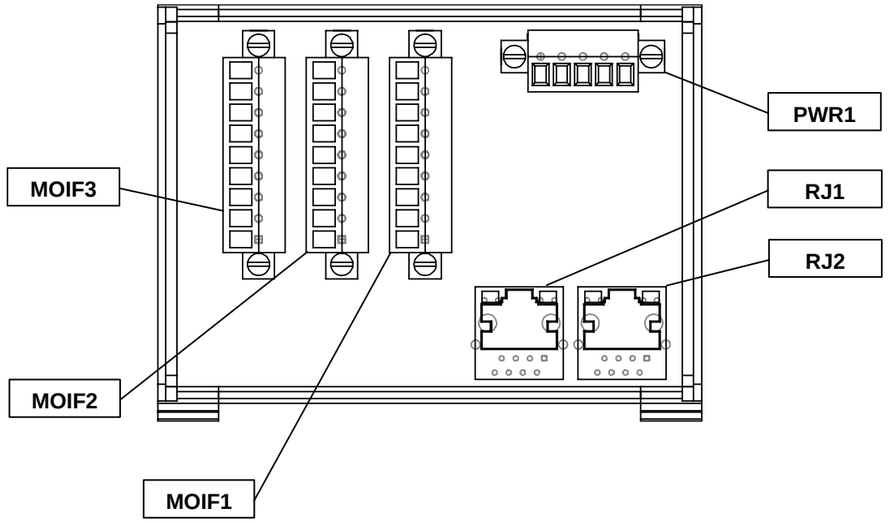


Setting End Limit Logic (ELL1)
Sets end limit logic (Default: Active high)

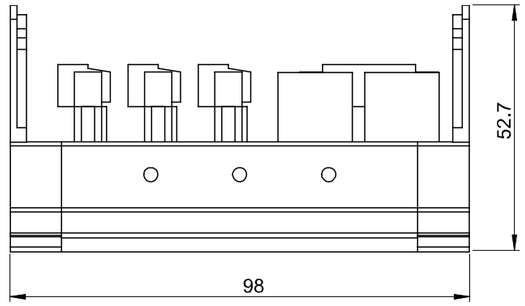
ELL1	Output status
H	Active high
L	Active low

Mechanical Drawings

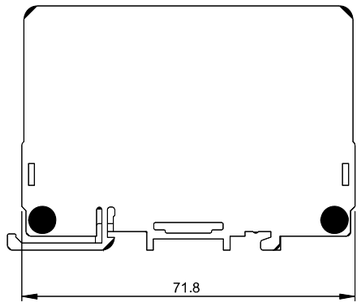
External dimensions (all units shown are mm):



Top View



Front View



Side View

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