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FACTORY AUTOMATION

New Product Release

November 2025 [SV2511-1E]

AC Servo System MELSERVO-J5

Linear Servo Motors

LM-H4M Series

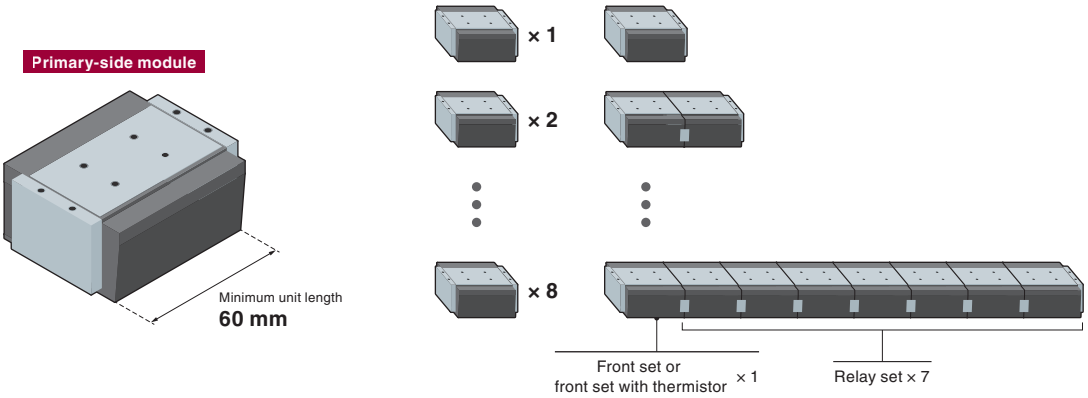
Features

- Compact, high-thrust motors for space efficiency
- Shorter cycle time with a maximum speed of 5.0 m/s
- Boost thrust and speed with expanded servo amplifier combinations
- Simplified inventory control with connection of a single type of module

Module Connection Mechanism

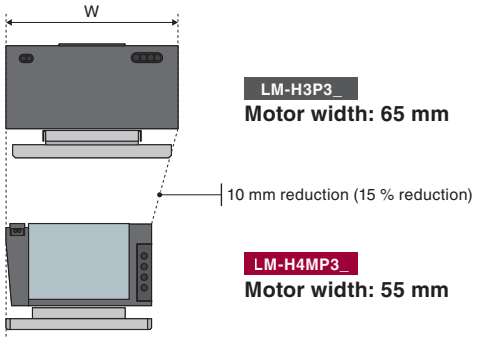
Patent pending

Combining the primary-side modules with a minimum unit length of 60 mm allows selection of the optimum stroke length and thrust for each application. Refer to "LM-H4M Series Specifications" for details of the combinations.



High-Speed/High-Thrust/Compact

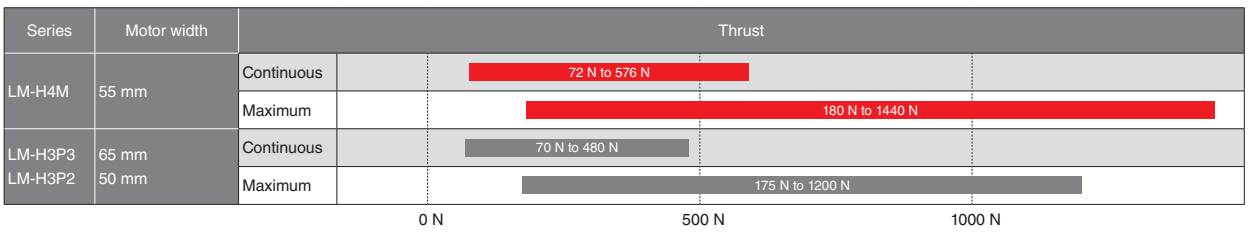
Compared with the previous model LM-H3P3, the motor is more compact and provides higher thrust, helping reduce the overall machine size. In addition, the maximum speed of 5.0 m/s leads to a shorter cycle time of the machine.



Linear servo motor			LM-H3P3A	LM-H4MP3B (2 modules connected)
Thrust	Continuous	[N]	120	**144**
	Maximum	[N]	300	**360**
Dimensions	Length	[mm]	128	**130**
	Width	[mm]	65	**55**
	Height	[mm]	43	**40**
Maximum speed		[m/s]	3.0	**5.0**

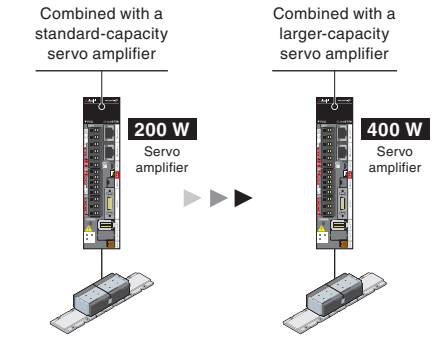
Expanding Product Lines

Connecting compact primary-side modules with a width of 55 mm enables a wide range of thrust.

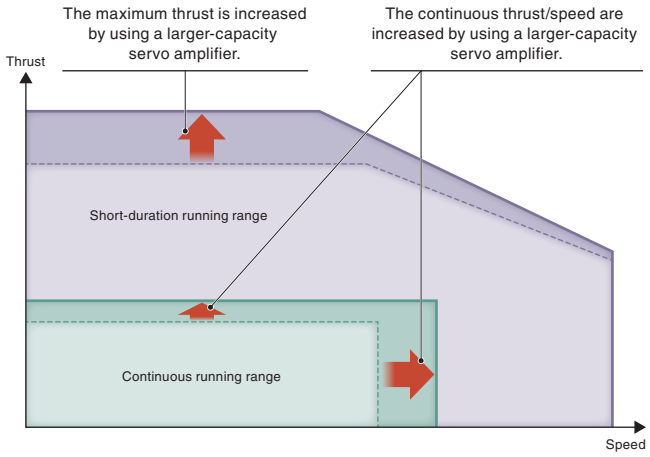


Expanding Combinations of Servo Amplifiers and Linear Servo Motors

Combining the servo motor with a larger-capacity servo amplifier increases the thrust and speed, leading to a shorter cycle time of the machine.



*1. The value is applicable for the continuous running range when two primary-side modules are connected.

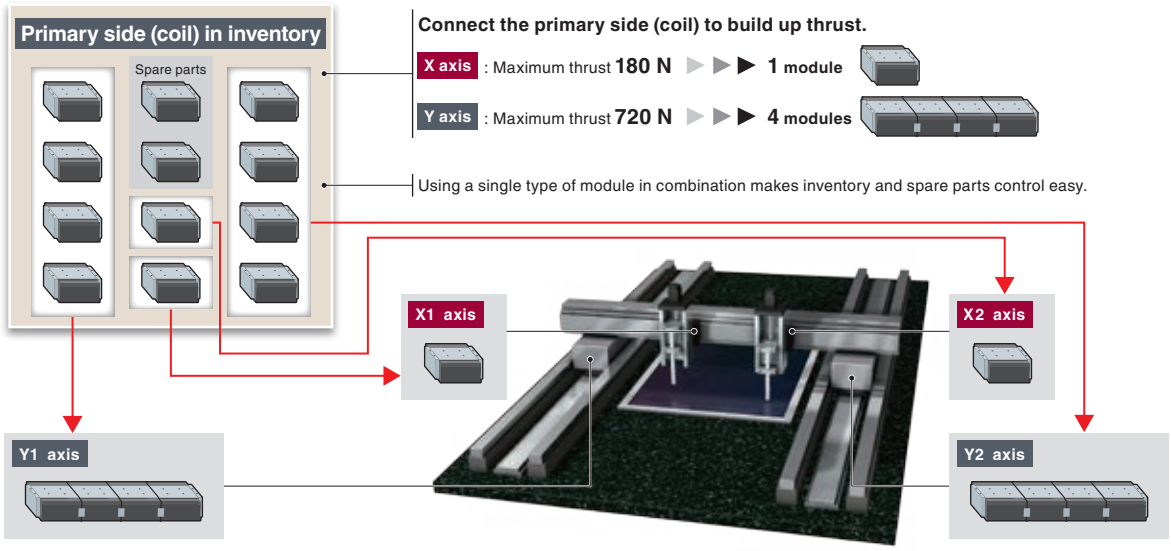


Simplified Inventory Control

The LM-H4M series uses a single type of primary-side module, eliminating the need for managing different models for each motor length as required in the previous series. This simplifies inventory and spare parts control.

Application Examples

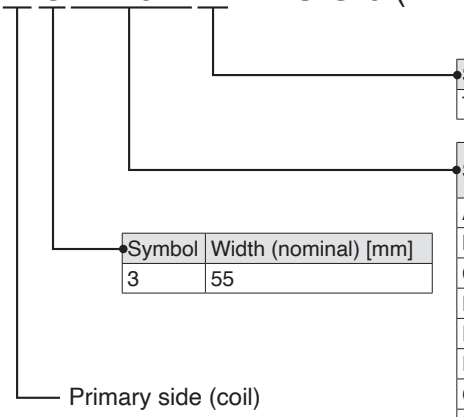
Connecting the primary-side modules enables a broad thrust range, suitable for various applications and specification requirements.



Primary-Side Model Designation

●Connection model

L M - H 4 M P 3 A - 0 7 T - K S S 0 (Primary side: coil)



Symbol	Width (nominal) [mm]
3	55

Symbol	Maximum speed [m/s]
T	5.0

Symbol	Length (nominal) (Note 1) [mm]	Continuous thrust [N]	Number of primary-side modules
A-07	70	72	1
B-14	130	144	2
C-21	190	216	3
D-28	250	288	4
E-36	310	360	5
F-43	370	432	6
G-50	430	504	7
H-57	490	576	8

Notes: 1. This length includes the end blocks enclosed with the front set and the front set with thermistor.

●Purchase model

L M - H 4 M P 3 A - 0 7 T - H S T - K S S 0 (Primary side: coil)

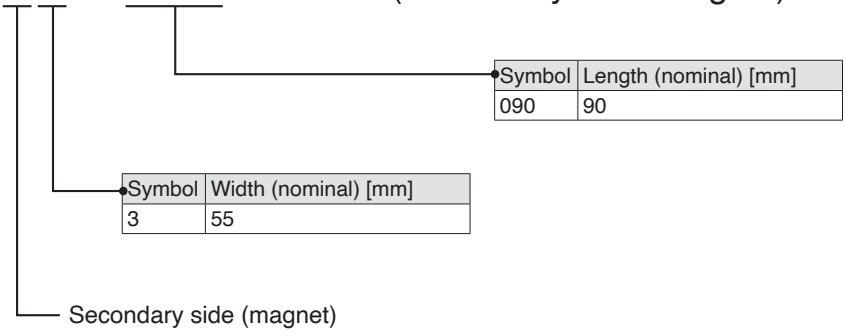
Symbol	Set name	Thermistor
HST	Front set with thermistor	Included
HS	Front set	None
RS0	Relay set	-

●Model category

Model name	Application	Example
Connection model	Use when writing servo amplifier parameters	LM-H4MP3E-36T-KSS0 (5-module connected model)
Purchase model	Use when purchasing the product	LM-H4MP3A-07T-HS-KSS0 (Front set model)

Secondary-Side Model Designation

L M - H 4 M S 3 0 - 0 9 0 - K S S 0 (Secondary side: magnet)



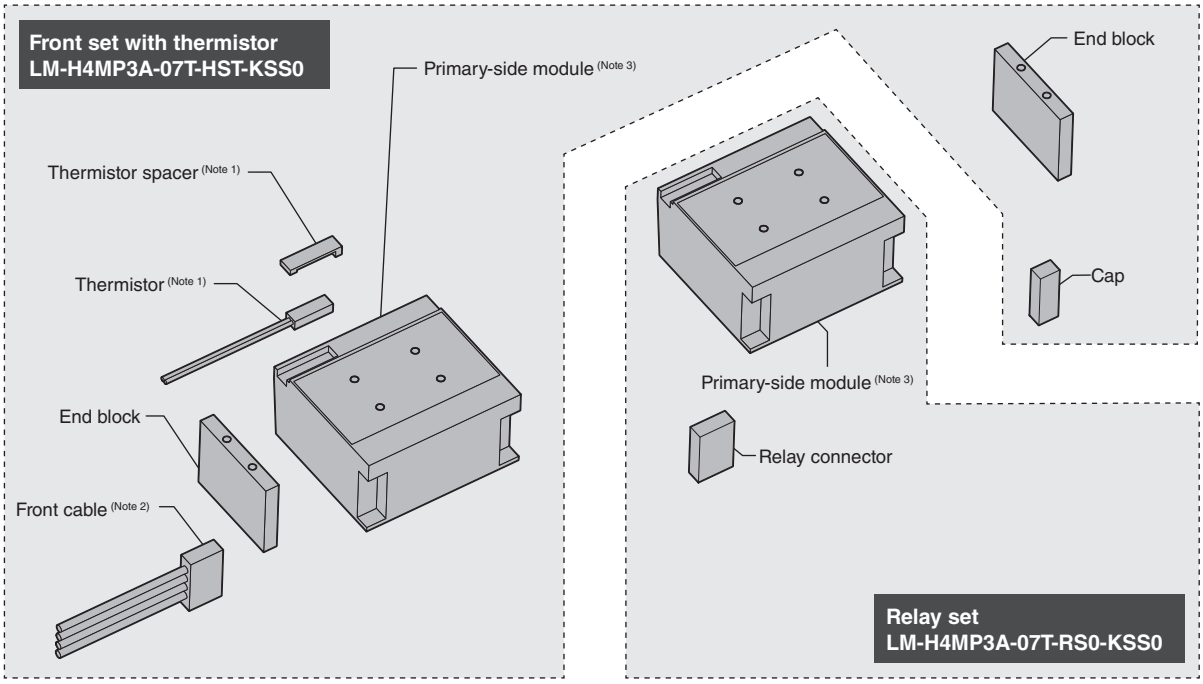
Symbol	Width (nominal) [mm]
3	55

Symbol	Length (nominal) [mm]
090	90

When purchasing the primary side, please order using the purchase model name.

Primary-Side Purchase Model Details

●Product configuration



Notes: 1. The thermistor and thermistor spacer are not included in the front set (LM-H4MP3A-07T-HS-KSS0). If necessary, please purchase the front set with thermistor (LM-H4MP3A-07T-HST-KSS0).
2. Connect the front cable to the front side of the primary-side module. When connecting to the opposite side, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
3. The primary-side modules included in the front set with thermistor, front set, and relay set are the same.

●Number of sets required

Connection model	Purchase model	
	LM-H4MP3A-07T-HST-KSS0 (Front set with thermistor) or LM-H4MP3A-07T-HS-KSS0 (Front set)	LM-H4MP3A-07T-RS0-KSS0 (Relay set)
LM-H4MP3A-07T-KSS0	1	0
LM-H4MP3B-14T-KSS0	1	1
LM-H4MP3C-21T-KSS0	1	2
LM-H4MP3D-28T-KSS0	1	3
LM-H4MP3E-36T-KSS0	1	4
LM-H4MP3F-43T-KSS0	1	5
LM-H4MP3G-50T-KSS0	1	6
LM-H4MP3H-57T-KSS0	1	7

Primary-Side Purchase Example

(1) When requiring 5 modules connected and a thermistor (Connection model: LM-H4MP3E-36T-KSS0)
- Front set with thermistor LM-H4MP3A-07T-HST-KSS0 × 1
- Relay set LM-H4MP3A-07T-RS0-KSS0 × 4

(2) When requiring 2 modules connected and not a thermistor (Connection model: LM-H4MP3B-14T-KSS0)
- Front set LM-H4MP3A-07T-HS-KSS0 × 1
- Relay set LM-H4MP3A-07T-RS0-KSS0 × 1

LM-H4M Series Specifications

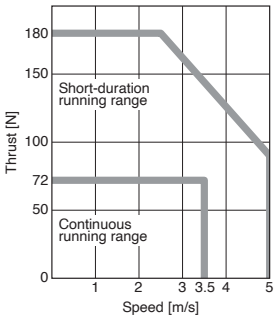
Number of primary-side modules			1	2	3	4	5	6	7	8
Connection model Primary side (coil)		LM-H4M	P3A-07T-KSS0	P3B-14T-KSS0	P3C-21T-KSS0	P3D-28T-KSS0	P3E-36T-KSS0	P3F-43T-KSS0	P3G-50T-KSS0	P3H-57T-KSS0
Model Secondary side (magnet)		LM-H4M	S30-090-KSS0							
Cooling method			Natural cooling							
Thrust	Continuous (Note 2, 4, 5)	[N]	72	120 (144)	180 (216)	230 (288)	360	360 (432)	504	576
	Maximum (Note 5)	[N]	180	300 (360)	500 (540)	630 (720)	900	1080	1260	1440
Maximum speed (Note 1, 5)	Continuous running range	[m/s]	3.5	3.0 (3.5)	3.5			3.0 (3.5)	3.5	
	Short-duration running range	[m/s]	5.0				3.5 (5.0)	3.0 (5.0)	5.0	
Magnetic attraction force		[N]	650	1300	1950	2600	3250	3900	4550	5200
Rated current (Note 5)		[A]	1.1	1.7 (2.1)	2.6 (3.2)	3.2 (4.2)	5.3	5.3 (6.3)	7.4	8.4
Maximum current (Note 5)		[A]	3.6	5.4 (7.2)	8.8 (10.0)	11.2 (14.4)	17.8	20.5	24.6	28.0
Recommended load to motor mass ratio (Note 3, 5)	For 3 m/s or less		50 times or less	28 times or less (50 times or less)	34 times or less (50 times or less)	50 times or less	50 times or less			
	For over 3 m/s		19 times or less	9 times or less (17 times or less)	11 times or less (42 times or less)	32 times or less				
Type			Permanent magnet synchronous motor							
Thermistor			External (Included in the front set with thermistor) (Note 7)							
Insulation class			155 (F)							
Structure			Open (IP rating: IP00)							
Vibration resistance		[m/s^2]	49							
Environment			The operating environment is the same as that for the other series linear servo motors. Refer to "Environment" in "MELSERVO-J5 catalog (L(NA)03179ENG)".							
Mass	Primary side (coil) (Note 6)	[kg]	0.61	1.1	1.6	2.2	2.7	3.2	3.7	4.3
	Secondary side (magnet)	[kg]	0.25							

Notes: 1. The maximum speed of the linear servo motor or the rated speed of the linear encoder, whichever is smaller, is the upper limit of the linear servo motor speed.
2. Use the linear servo motor at 70 % or less of the effective load ratio when it is in the servo lock state or in a small reciprocating motion.
3. This is the ratio of the load to the linear servo motor primary side mass. Contact your local sales office if the load to motor mass ratio exceeds the value in the table.
4. The continuous thrust is the value when an aluminum plate (table) with the following dimensions (L [mm] × W [mm] × H [mm]) is attached to the primary side. (Reference value)
   LM-H4MP3A-07T-KSS0: 150 × 100 × 10
   LM-H4MP3B-14T-KSS0: 254 × 254 × 25
   LM-H4MP3C-21T-KSS0: 254 × 254 × 25
   LM-H4MP3D-28T-KSS0: 336 × 315 × 30
   LM-H4MP3E-36T-KSS0: 480 × 315 × 40
   LM-H4MP3F-43T-KSS0: 480 × 315 × 40
   LM-H4MP3G-50T-KSS0: 624 × 315 × 40
   LM-H4MP3H-57T-KSS0: 624 × 315 × 40
5. The values in brackets are applicable when the thrust or the speed is increased by combining a larger-capacity servo amplifier. Refer to "Combinations of Linear Servo Motors and Servo Amplifiers" in this brochure for combinations.
6. The mass includes the end blocks.
7. Linear servo motors without a thermistor are also available. Please purchase the set product according to whether a thermistor is required.
   A thermistor is required: front set with thermistor (LM-H4MP3A-07T-HST-KSS0)
   A thermistor is not required: front set (LM-H4MP3A-07T-HS-KSS0)

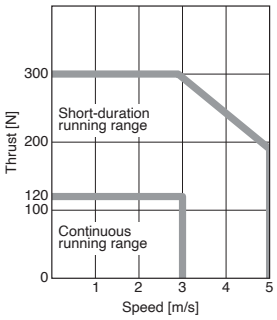
LM-H4M Series Thrust Characteristics (Note 1, 2)

: For 3-phase 200 V AC

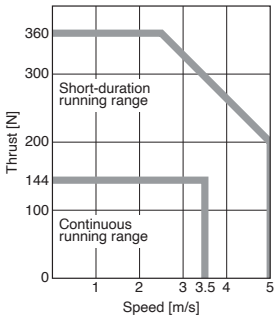
LM-H4MP3A-07T-KSS0
Standard thrust



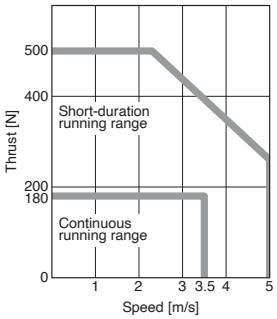
LM-H4MP3B-14T-KSS0
Standard thrust



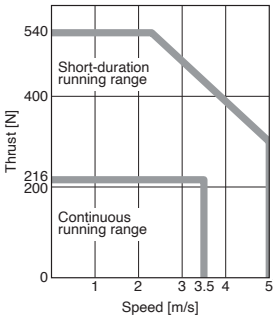
LM-H4MP3B-14T-KSS0
Thrust/speed increased



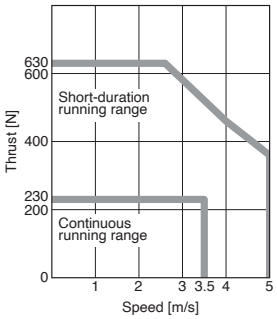
LM-H4MP3C-21T-KSS0
Standard thrust



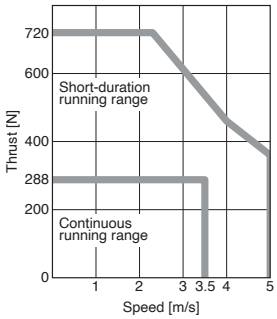
LM-H4MP3C-21T-KSS0
Thrust/speed increased



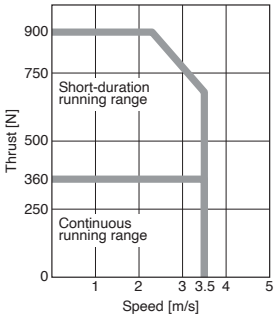
LM-H4MP3D-28T-KSS0
Standard thrust



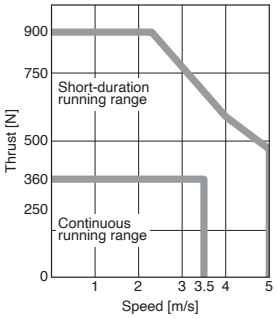
LM-H4MP3D-28T-KSS0
Thrust/speed increased



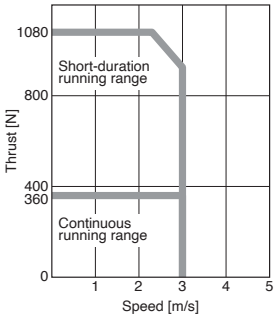
LM-H4MP3E-36T-KSS0
Standard thrust



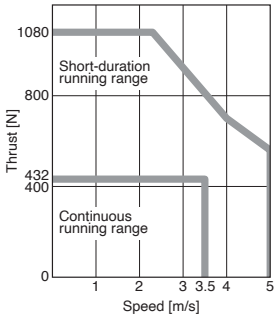
LM-H4MP3E-36T-KSS0
Thrust/speed increased



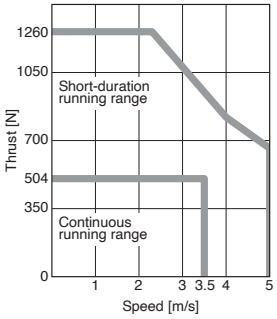
LM-H4MP3F-43T-KSS0
Standard thrust



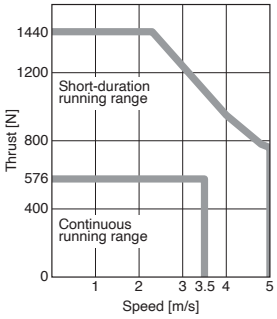
LM-H4MP3F-43T-KSS0
Thrust/speed increased



LM-H4MP3G-50T-KSS0
Standard thrust



LM-H4MP3H-57T-KSS0
Standard thrust



Notes: 1. Thrust drops when the power supply voltage is below the specified value.
2. Contact your local sales office for the thrust characteristics under 1-phase 200 V AC.

Combinations of Linear Servo Motors and Servo Amplifiers (Note 1)

The thrust and speed can be increased by combining a large-capacity servo amplifier.
The thrust characteristics vary by the combinations. Refer to "LM-H4M Series Specifications".

1-axis servo amplifier

◯: Standard thrust ◎: Thrust/speed increased

Linear servo motor			Servo amplifier MR-J5-					
	Primary side (coil) (Note 3)	Secondary side (magnet)	20G/B/A	40G/B/A	60G/B/A	70G/B/A	100G/B/A	200G/B/A
LM-H4M series (Note 2)	LM-H4MP3A-07T-KSS0 (Number of primary-side modules: 1)	LM-H4MS30-090-KSS0	◯	◯	-	-	-	-
	LM-H4MP3B-14T-KSS0 (Number of primary-side modules: 2)		◯	◎	-	-	-	-
	LM-H4MP3C-21T-KSS0 (Number of primary-side modules: 3)		-	◯	◎	◎	-	-
	LM-H4MP3D-28T-KSS0 (Number of primary-side modules: 4)		-	-	◯	◎	-	-
	LM-H4MP3E-36T-KSS0 (Number of primary-side modules: 5)		-	-	-	◯	◎	-
	LM-H4MP3F-43T-KSS0 (Number of primary-side modules: 6)		-	-	-	◯	-	◎
	LM-H4MP3G-50T-KSS0 (Number of primary-side modules: 7)		-	-	-	-	-	◯
	LM-H4MP3H-57T-KSS0 (Number of primary-side modules: 8)		-	-	-	-	-	◯

Multi-axis servo amplifier

◯: Standard thrust ◎: Thrust/speed increased

Linear servo motor			Servo amplifier MR-J5W2-				Servo amplifier MR-J5W3-	
	Primary side (coil) (Note 3)	Secondary side (magnet)	22G/B	44G/B	77G/B	1010G/B	222G/B	444G/B
LM-H4M series (Note 2)	LM-H4MP3A-07T-KSS0 (Number of primary-side modules: 1)	LM-H4MS30-090-KSS0	◯	◯	-	-	◯	◯
	LM-H4MP3B-14T-KSS0 (Number of primary-side modules: 2)		◯	◎	-	-	◯	◎
	LM-H4MP3C-21T-KSS0 (Number of primary-side modules: 3)		-	◯	◎	◎	-	◯
	LM-H4MP3D-28T-KSS0 (Number of primary-side modules: 4)		-	-	◎	◎	-	-
	LM-H4MP3E-36T-KSS0 (Number of primary-side modules: 5)		-	-	◯	◎	-	-
	LM-H4MP3F-43T-KSS0 (Number of primary-side modules: 6)		-	-	◯	◯	-	-

Notes: 1. The combinations of linear servo motors and servo amplifiers with special specifications (excluding MR-J5-B-LL) are the same as those of standard servo amplifiers. Refer to the servo amplifiers with the same rated output. MR-J5-B-LL does not support linear servo motors.
2. Use the servo amplifiers with firmware version F0 or later. If the servo amplifiers with the previous firmware version are connected, an alarm occurs.
3. The primary-side model indicates the model according to the number of coil connections.

Power Supply Capacity

When the servo motor runs at less than the rated speed, the power supply capacity is smaller than the value in the table.

Linear servo motors (primary side)		Servo amplifier (Note 3)	Power supply capacity [kVA] (Note 1, 2)
LM-H4M series	LM-H4MP3A-07T-KSS0 (Number of primary-side modules: 1)	MR-J5-20G/B/A MR-J5W2-22G/B MR-J5W3-222G/B	0.8
		MR-J5-40G/B/A MR-J5W2-44G/B MR-J5W3-444G/B	0.9
	LM-H4MP3B-14T-KSS0 (Number of primary-side modules: 2)	MR-J5-20G/B/A MR-J5W2-22G/B MR-J5W3-222G/B	1.1
		MR-J5-40G/B/A MR-J5W2-44G/B MR-J5W3-444G/B	1.2
	LM-H4MP3C-21T-KSS0 (Number of primary-side modules: 3)	MR-J5-40G/B/A MR-J5W2-44G/B MR-J5W3-444G/B	1.5
		MR-J5-60G/B/A, MR-J5-70G/B/A MR-J5W2-77G/B, MR-J5W2-1010G/B	1.7
	LM-H4MP3D-28T-KSS0 (Number of primary-side modules: 4)	MR-J5-60G/B/A	1.8
		MR-J5-70G/B/A MR-J5W2-77G/B, MR-J5W2-1010G/B	2.1
	LM-H4MP3E-36T-KSS0 (Number of primary-side modules: 5)	MR-J5-70G/B/A, MR-J5-100G/B/A MR-J5W2-77G/B, MR-J5W2-1010G/B	2.6
	LM-H4MP3F-43T-KSS0 (Number of primary-side modules: 6)	MR-J5-70G/B/A MR-J5W2-77G/B, MR-J5W2-1010G/B	2.2
		MR-J5-200G/B/A	3.5
	LM-H4MP3G-50T-KSS0 (Number of primary-side modules: 7)	MR-J5-200G/B/A	3.5
	LM-H4MP3H-57T-KSS0 (Number of primary-side modules: 8)		

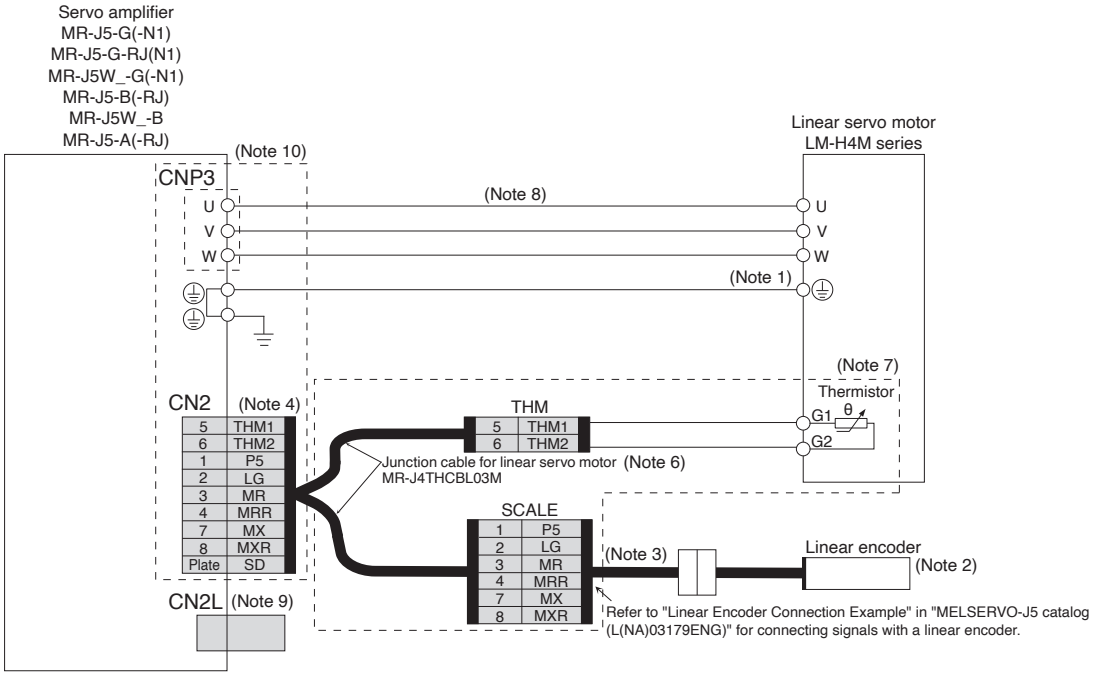
Notes: 1. The power supply capacity varies depending on the power supply impedance.
2. The listed values are the power supply capacity for one servo motor. For the multi-axis servo amplifiers, calculate the power supply capacity with the equation below:
Power supply capacity [kVA] = Sum of power supply capacity [kVA] of the connected servo motors
3. Note that the power supply capacity for servo amplifiers with special specifications is the same as that for standard servo amplifiers. Refer to the servo amplifiers with the same rated output.

List of Linear Encoders

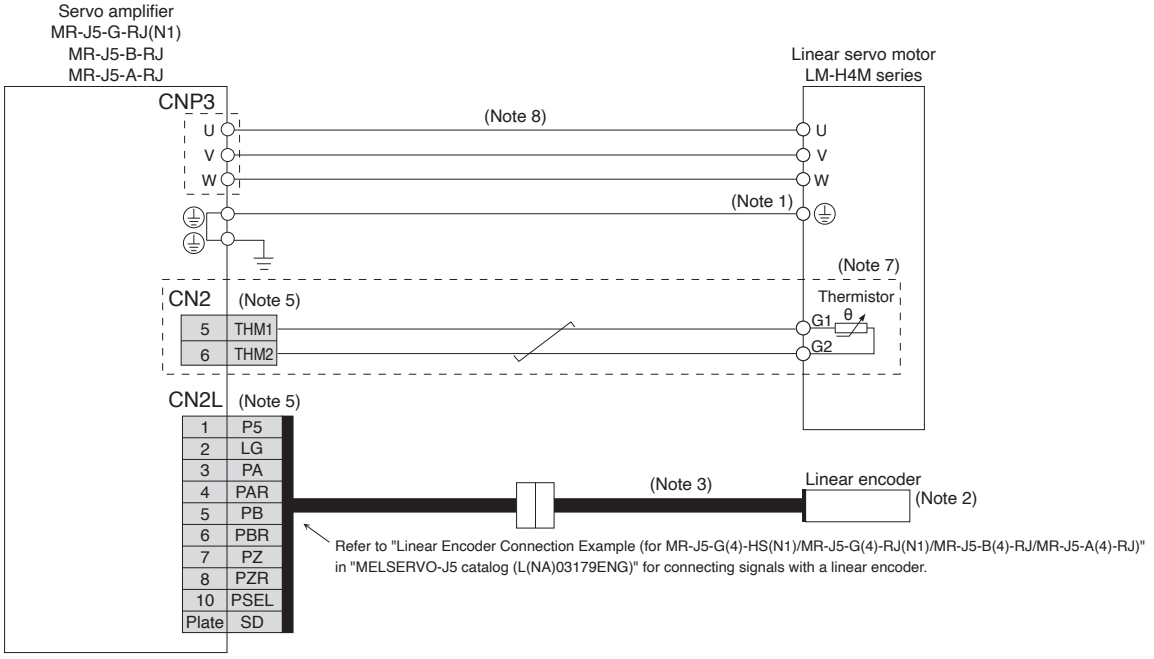
For compatible linear encoders, refer to "List of Linear Encoders" in "MELSERVO-J5 catalog (L(NA)03179ENG)".

Servo Motor Connection Example (Linear Servo Motor)

●Connecting a serial linear encoder



●Connecting an A/B/Z-phase differential output linear encoder

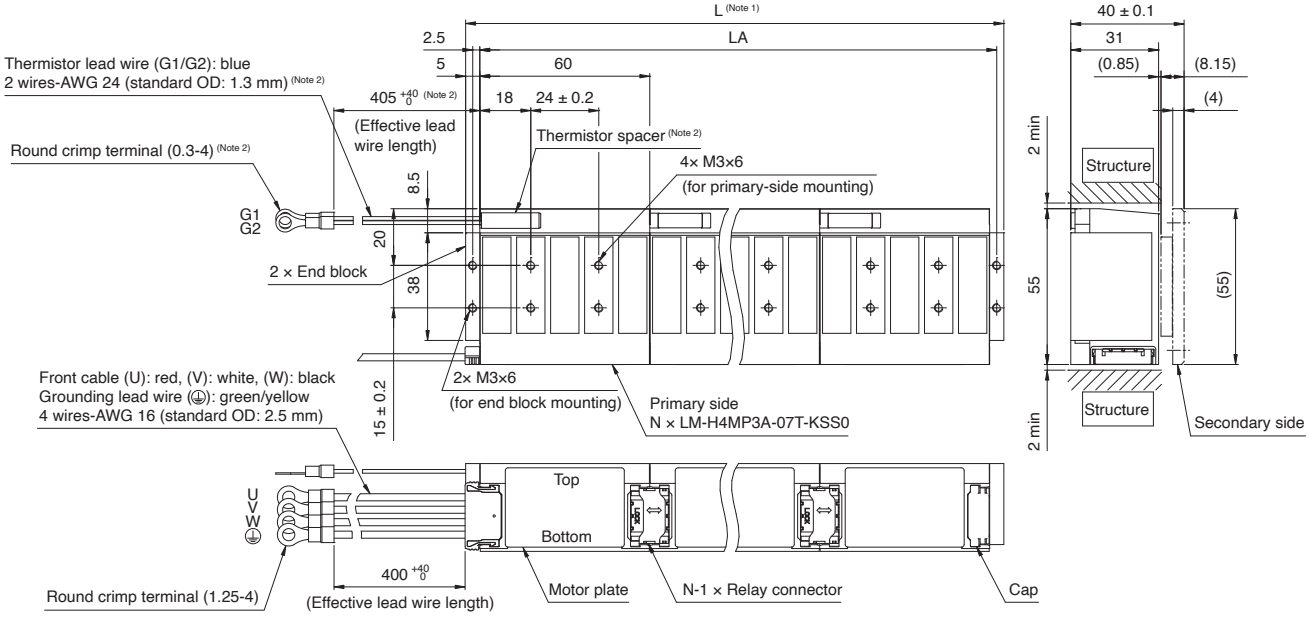


Notes:
1. Connect the grounding wire to the cabinet protective earth (PE) terminal via the servo amplifier for grounding the servo motor.
2. For linear encoders, refer to "List of Linear Encoders" in "MELSERVO-J5 catalog (L(NA)03179ENG)".
3. Necessary cables vary depending on the linear encoder. Refer to "MR-J5 Partner's Encoder User's Manual" for details.
4. When configuring a linear servo system with MR-J5-G-RJ(N1)/MR-J5-B-RJ/MR-J5-A-RJ and a serial linear encoder, connect MR-J4THCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set to CN2 connector.
5. When configuring a linear servo system with MR-J5-G-RJ(N1)/MR-J5-B-RJ/MR-J5-A-RJ and an A/B/Z-phase differential output type linear encoder, connect a thermistor to CN2 connector and the linear encoder to CN2L connector. Do not use MR-J4THCBL03M junction cable or a junction cable fabricated using MR-J3THMCN2 connector set.
6. MR-J4THCBL03M junction cable for linear servo motor is compatible with both two-wire and four-wire type linear encoders.
7. The connection is for the linear servo motor with a thermistor.
8. The length of the front cable included in the front set and front set with thermistor is 400 mm. When the required length of the front cable exceeds 400 mm, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
9. CN2L connector is not available for MR-J5-G(-N1), MR-J5-B, and MR-J5-A servo amplifiers.
10. For the connection with MR-J5W_-G and MR-J5W_-B servo amplifiers, refer to "Servo Motor Connection Example (Linear Servo Motor)" in "MELSERVO-J5 catalog (L(NA)03179ENG)".

Be sure to read through User's Manual for the actual wiring and use. Use the equipment after you have a full knowledge of the equipment, safety information and instructions.

LM-H4M Series Primary Side (Coil) Dimensions (Note 3, 4)

●LM-H4MP3A-07T-KSS0 ●LM-H4MP3B-14T-KSS0 ●LM-H4MP3C-21T-KSS0
●LM-H4MP3D-28T-KSS0 ●LM-H4MP3E-36T-KSS0 ●LM-H4MP3F-43T-KSS0
●LM-H4MP3G-50T-KSS0 ●LM-H4MP3H-57T-KSS0



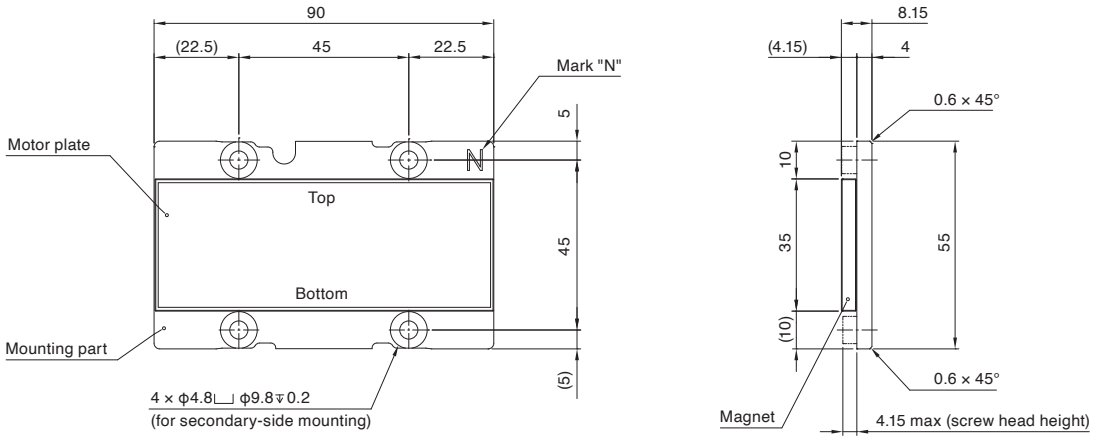
Model	Variable dimensions		
	N	L (Note 1)	LA
LM-H4MP3A-07T-KSS0	1	70	62.5
LM-H4MP3B-14T-KSS0	2	130	122.5
LM-H4MP3C-21T-KSS0	3	190	182.5
LM-H4MP3D-28T-KSS0	4	250	242.5

Model	Variable dimensions		
	N	L (Note 1)	LA
LM-H4MP3E-36T-KSS0	5	310	302.5
LM-H4MP3F-43T-KSS0	6	370	362.5
LM-H4MP3G-50T-KSS0	7	430	422.5
LM-H4MP3H-57T-KSS0	8	490	482.5

[Unit: mm]

LM-H4M Series Secondary Side (Magnet) Dimensions

●LM-H4MS30-090-KSS0



[Unit: mm]

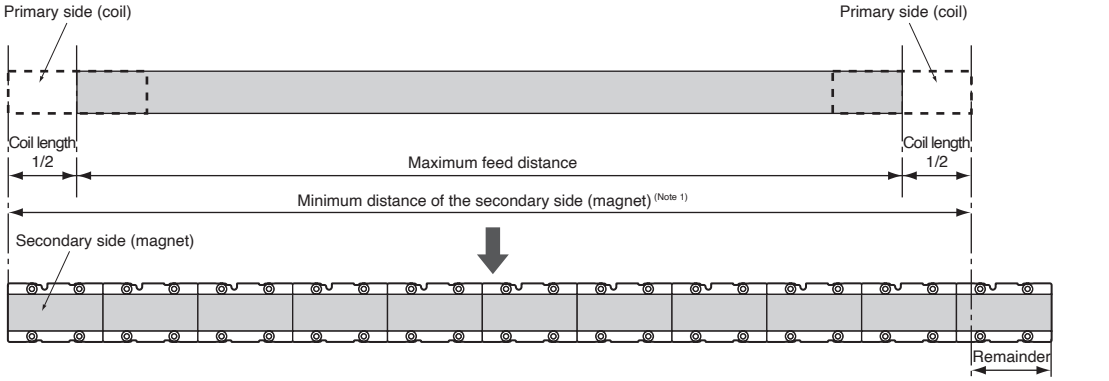
Notes: 1. The length includes the end blocks.
2. Only for the models with a thermistor.
3. Power and thermistor cables do not have a long bending life. Fix the cables led from the primary side (coil) to a moving part to prevent the cables from repetitive bending.
4. Minimum bending radius of the cable equals to six times the standard overall diameter of the cable.

AC Servo System MELSERVO-J5
Linear Servo Motor LM-H4M Series

Determining the Number of the Secondary-Side (Magnet) Blocks

The number of the secondary-side (magnet) blocks is determined according to the total distance calculated from the following equation:

(Total length of aligned secondary side (magnet)) ≥ (Maximum feed distance) + (Length of the primary side (coil))



Notes: 1. Pitch tolerance between any two holes must be within ±0.2 mm. When two or more secondary sides (magnets) are mounted lined up, there may be a gap between each block, depending on the mounting method and the number of the blocks.

Selection Example in HIV Wires for Linear Servo Motors

The following are examples of wire sizes when 600 V grade heat-resistant polyvinyl chloride insulated wires (HIV wires) with a length of 30 m are used.

Connection model		Wire size [mm²]	
Primary side		For power and grounding (U/V/W/⏚)	For thermistor (G1/G2)
LM-H4MP3A-07T-KSS0		1.25 (AWG 16) (Note 1)	0.2 (AWG 24)
LM-H4MP3B-14T-KSS0 (Note 2)			
LM-H4MP3C-21T-KSS0 (Note 2)			
LM-H4MP3D-28T-KSS0 (Note 2)			
LM-H4MP3E-36T-KSS0 (Note 2)			
LM-H4MP3F-43T-KSS0	Standard combination		
	Thrust/speed increased combination	2 (AWG 14)	
LM-H4MP3G-50T-KSS0			
LM-H4MP3H-57T-KSS0			

Notes: 1. The National Electrical Code recommends that the wire size should be a minimum of AWG 14 (2 mm²). Refer to "Linear Servo Motor User's Manual" for details.
2. The same wire size is applicable when the thrust or speed is increased.

Product List

●Linear servo motors

Item		Purchase model
LM-H4M series primary side (coil)	Front set	LM-H4MP3A-07T-HS-KSS0
	Front set with thermistor	LM-H4MP3A-07T-HST-KSS0
	Relay set	LM-H4MP3A-07T-RS0-KSS0
LM-H4M series secondary side (magnet)		LM-H4MS30-090-KSS0

e-F@ctory

Mitsubishi Electric's e-F@ctory concept utilizes both FA and IT technologies, to reduce the total cost of development, production and maintenance, with the aim of achieving manufacturing that is a "step ahead of the times". It is supported by the e-F@ctory Alliance Partners covering software, devices, and system integration, creating the optimal e-F@ctory architecture to meet the end users needs and investment plans.

e-F@ctory Alliance

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS: 1-14, YADA-MINAMI 5-CHOME, HIGASHI-KU, NAGOYA 461-8670, JAPAN

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