

LM-PA-X SERIES

Linear Motion Technology

LM-PA-X Coil Assembly Model

Coil Assembly Model	LM-PA-X1		LM-PA-X2		LM-PA-X3		LM-PA-X4			LM-PA-X5	
Winding code	W1		W1	W2	W1	W2	W1	W2	W3	W1	W2
Performance⁽¹⁾											
Peak force(N) ⁽¹⁾⁽²⁾	65.4	123.8	175.4	220.2	258						
Continuous force with heat sink(N) ⁽¹⁾⁽²⁾	16.3	31	43.9	55	64.5						
Continuous force without heat sink(N) ⁽²⁾⁽³⁾	11.2	20.6	28.4	37.8	47.3						
Peak power(W) ⁽¹⁾⁽²⁾	491	881.3	1179.1	1392.6	1537.2						
Continuous power(W) ⁽¹⁾⁽²⁾	30.7	55.1	73.7	87	96.1						
Mechanical											
Coil assembly length(mm)	50	80	110	140	170						
Coil assembly weight(kg) ⁽²⁾	0.08	0.13	0.18	0.23	0.28						
Magnetic way weight(kg/m) ⁽²⁾	4.4	4.4	4.4	4.4	4.4						
Pole pitch(mm)	30	30	30	30	30						
Electrical⁽⁴⁾											
Continuous current with heat sink(A _{pk}) ⁽¹⁾⁽²⁾	1.9	1.8	3.6	1.7	3.4	1.6	3.2	6.4	1.5	3	
Continuous current without heat sink(A _{pk}) ⁽²⁾⁽³⁾	1.3	1.2	2.4	1.1	2.2	1.1	2.2	4.4	1.1	2.2	
Peak current ⁽¹⁾⁽²⁾	7.6	7.2	14.4	6.8	13.6	6.4	12.8	25.6	6	12	
Force constant(N/A _{pk}) ⁽²⁾	8.6	17.2	8.6	25.8	12.9	34.4	17.2	8.6	43	21.5	
Back EMF constant(V _{pk(Hz)}} / m/s) ⁽²⁾	10	20	10	30	15	40	20	10	50	25	
Resistance(Ohms) ⁽²⁾	8.5	17	4.3	25.5	6.4	34	8.5	2.1	42.7	10.7	
Inductance(mH) ⁽²⁾	1.65	3.3	0.83	4.95	1.24	6.6	1.65	0.41	8.27	2.07	
Time constant(ms) ⁽²⁾	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Thermal resistance with heat sink(°C/W) ⁽¹⁾⁽²⁾	2.8	1.5		1.1		0.9			0.9		
Thermal resistance without heat sink(°C/W) ⁽²⁾⁽³⁾	6	3.5		2.8		2.1			1.6		
Heat sink(mm)	250x250x25	250x250x25	250x250x25	250x250x25	250x250x25						
Motor constant(N/√W) ⁽²⁾	2.9	4.2		5.1		5.9			6.6		
Ph-PE dielectric strength ⁽²⁾	≥ 5KV(AC)	≥ 5KV(AC)	≥ 5KV(AC)	≥ 5KV(AC)	≥ 5KV(AC)						
Ph-PE insulation resistance ⁽²⁾	≥ 1KV(DC)	≥ 1KV(DC)	≥ 1KV(DC)	≥ 1KV(DC)	≥ 1KV(DC)						

- (1) Value applies to the static sinusoidal drive, under specific heat sink and temperatures from 25°C to 110°C. Actual performance depends on heat sink configuration, system cooling conditions and the ambient temperature.
- (2) The tolerance of all performance and electrical specification is ±10%.
- (3) The value applies to the static sinusoidal drive at temperatures from 25°C up to 110°C, without heat sink.
- (4) The above "without heat sink" figure assumes a working condition of 1atm at a 25°C ambient temperature, with the stationary linear motor not in contact with any other objects, relying only on air convection for cooling. As all heat conductive objects in direct contact with the linear motor, including the sliding plate, linear guide, and base, can be considered a type of heat sink, the "with heat sink" figure should be taken as the primary reference for actual application design.

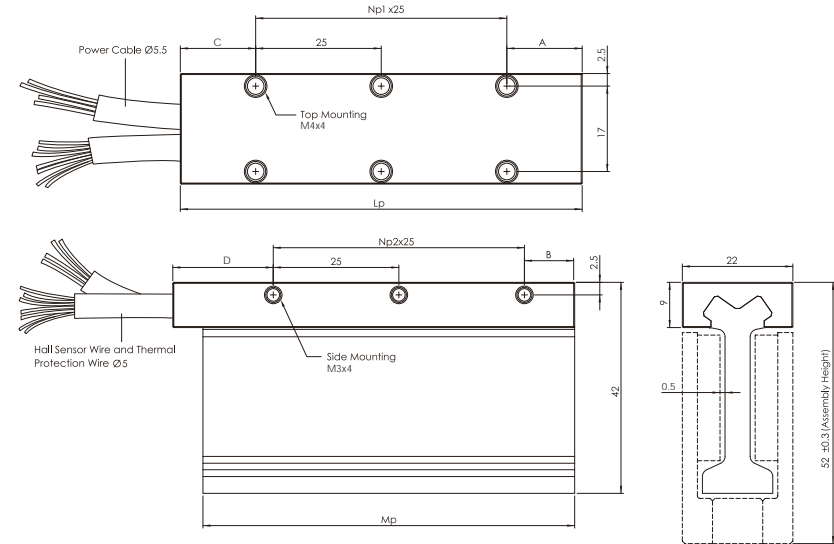
LM-PA-X Coil Assembly

	Np1	Np2	Lp	Mp	A	B	C	D
LM-PA-X1	1	1	50	44	10	5	15	20
LM-PA-X2	2	2	80	74	15	10	15	20
LM-PA-X3	3	3	110	104	20	15	15	20
LM-PA-X4	4	4	140	134	25	20	15	20
LM-PA-X5	6	5	170	164	5	25	15	20

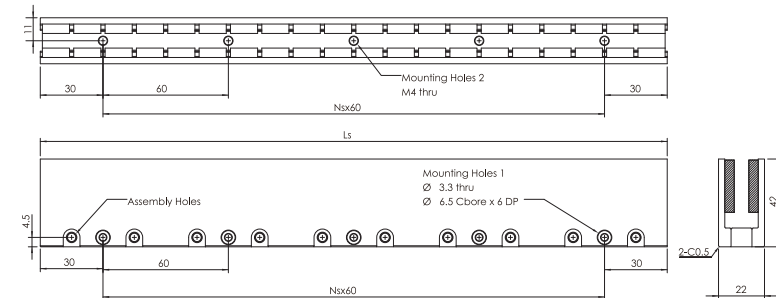
LM-SA-X Magnetic Way

	Ns	Ls
LM-SA-X0	1	120
LM-SA-X1	4	300
LM-SA-X2	7	480

LM-PA-X Coil Assembly



LM-SA-X Magnetic Way



OUTPUT CABLE (All cable standard length is 400 mm)

Motor Wire Table				Hall Sensor Wire Table and Thermal Protection Wire Table				
Pin Number	Function	Cross section	Color	Function	Cable Dia.	Color	Function	Cable Dia.
White	U phase	0.25 mm ²	Pink	Hall A U phase	0.14 mm ²	Brown	Thermal sensor	0.14 mm ²
Yellow	V phase	0.25 mm ²	Yellow	Hall B V phase	0.14 mm ²	Blue		
Brown	W phase	0.25 mm ²	Green	Hall C W phase	0.14 mm ²		Shielding	
Green	PE + shielding	0.25 mm ²	Grey	Hall IC + 5V	0.14 mm ²			
			White	GND	0.14 mm ²			

