Linear Motor Actuator

6 Series
65 / 60
NEW
Standard
P.7

8 Series
76 / 82
NEW Standard P.9
NEW Heavy-duty P.11

10 Series
78 / 95
NEW Standard P.13
NEW Heavy-duty P.15

12 Series
78 / 115
NEW Standard P.17
NEW Heavy-duty P.19

14 Series
95 / 145
NEW Standard P.21
NEW Heavy-duty P.23

17 Series
98 / 165
NEW Standard P.25
NEW Heavy-duty P.27

19 Series
102 / 195
NEW Standard P.29
NEW Heavy-duty P.31

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We offer the optimal product value

Speed

High-speed travel acheived by load direct drive

Max. speed **4x** faster ※

	Belt type actuator	Linear Motor Actuator
2m	MISUMI's Linear Motor Actuator	
0.5m	Ball screw type actuator	
	1m/s	2m/s
	Slower	Faster

Stroke: Long / Short. Speed

Stroke

Supports up to 2.2 meters standard (contact us for longer strokes)

Stroke increased **4x** ※

※ Relative to the same-sized ball screw type

Lifespan

Reduced wear due to reduced mechanical contact

Lifespan **2.5x** longer

Ball screw type — Lifespan: 20,000 hours ※
Bearing / Bearing / Ball screw / Motor
Many mechanical contact causing severe wear, requiring regular maintenance as well

Vs

MISUMI's Linear Motor Actuator — Lifespan: 50,000 hours ※
Gap
No maintenance required; slider and magnet track do not come in direct contact

※ These values are for reference only, and actual lifespans will be affected by factors such as operating environment, application requirements, and maintenance.
※ Grease application needed on the rails of Linear Motor Actuators

Cost-effective

Possible cost reduction due to simplified product configuration

Cost reduction Up to **40%**

*Cost reduction ratio varies by country

Module body / Coupling / Motor attachment / Motor

Vs

Product: E-RAM6-S-340-N-N

※ Ball screw type was selected randomly among market products with the same specifications

Efficient

Reduced time from design to assembly and maintenance

Time value increased by **78%**

Design + Assembly = **170**min → Design + Assembly = **36**min

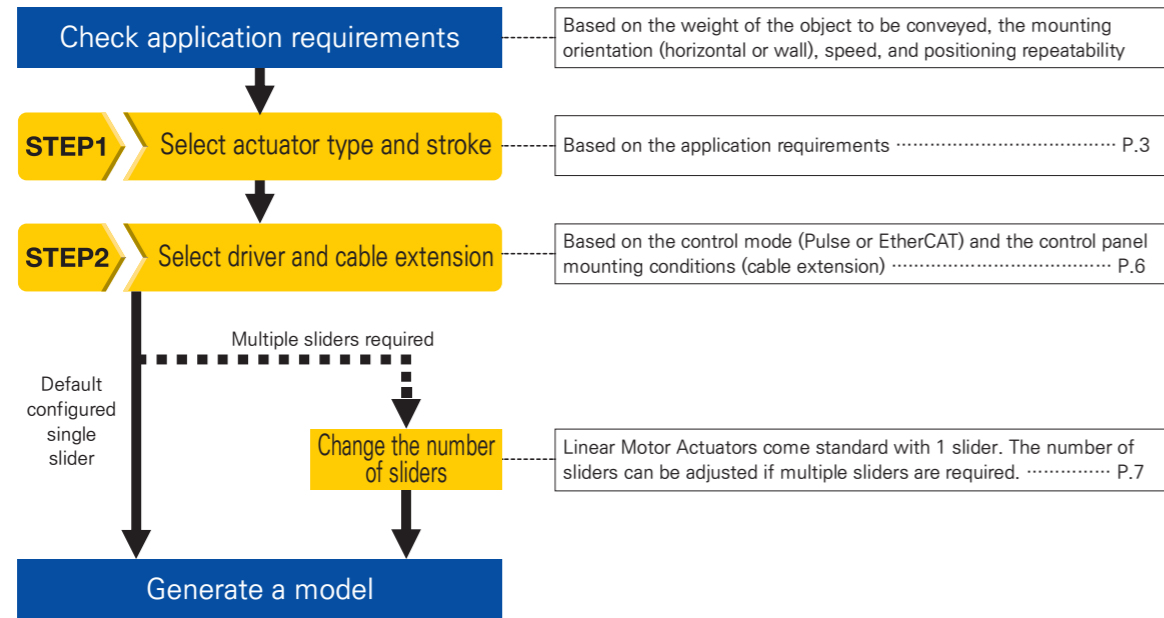| Assembly 50min |
| Mechanical design 60min |
| Electrical design 60min |

Estimated time saved by **78%**

Assembly 35min
Design 1min

Steps to select a Linear Motor Actuator

The basic steps to select a Linear Motor Actuator model are as follows:

Check application requirements	Based on the weight of the object to be conveyed, the mounting orientation (horizontal or wall), speed, and positioning repeatability
STEP1 Select actuator type and stroke	Based on the application requirements ·· P.3
STEP2 Select driver and cable extension	Based on the control mode (Pulse or EtherCAT) and the control panel mounting conditions (cable extension) ······················· P.6

Multiple sliders required

Default configured single slider

Change the number of sliders	Linear Motor Actuators come standard with 1 slider. The number of sliders can be adjusted if multiple sliders are required. ·············· P.7

Generate a model

STEP1 Select Linear Motor Actuator type and stroke

■ Select the actuator type and stroke based on the application requirements (mass of the conveyed object, installation method, speed, etc.).

Type S: Standard; M: Heavy-duty	Product page	Base width (mm)	🌸Maximum payload		Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	Positioning repeatability (μm)	Stroke (specified unit 60 mm)	
			Horizontally mounted (kg)	Wall mounted (kg)							min. (mm)	max. (mm)
E-RAM6-S	P.7	60	15	5	38	152	1.2	1.5			40	1360
E-RAM8-S	P.9	82	20	13	52	208					60	1800
E-RAM8-M	P.11		30	18	98	392					80	1760
E-RAM10-S	P.13	95	25	16	110	442						
E-RAM10-M	P.15		38	23	147	588						
E-RAM12-S	P.17	115	35	21	152	609						
E-RAM12-M	P.19		50	30	203	812	1.5	2.0	1.5	±5		
E-RAM14-S	P.21	145	65	39	225	900					60	2220
E-RAM14-M	P.23		85	50	337	1350						
E-RAM17-S	P.25	165	90	55	299	1196						
E-RAM17-M	P.27		100	65	447	1790						
E-RAM19-S	P.29	195	115	70	392	1568						
E-RAM19-M	P.31		135	80	561	2244						

G=9.8m/s²

🌸The payload of the Linear Motor Actuator varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
🌸This product must never be used for vertical mounting.
🌸When installing the product, use the scale attachment surface as the reference surface.
🌸Remove the PTFE from the stainless steel top cover before use.
🌸For surface treatment or encoder changes, please contact us.
🌸Ensure the flatness of the mounting surface is within ±0.01 mm/300 mm.

Tip.	**A simple way to replace an existing ball screw actuator**
	You can choose the same or a similar series based on the base width of the existing ball screw actuator. If the load does not meet the application requirement, select a larger series. Example: If your existing ball screw actuator has a base width of 86 mm, you can first consider E-RAM8-S. If the load cannot be met, you can choose E-RAM8-M or a larger one.

STEP2 Select driver and cable extension

■ **Select the appropriate driver depending on the control mode.**

● You can either purchase the driver on your own or select one from the options provided by MISUMI.
● To ensure operational stability and safety, it is recommended to select a driver from the table below.
● If you use a driver not listed in the table, make sure to verify compatibility with the manufacturer's driver.
● The basic model of Servotronix does not have an auto-tuning function.
  If you have trouble tuning on your own, we recommend the high-end model of Servotronix with an auto-tuning function or a Panasonic driver.
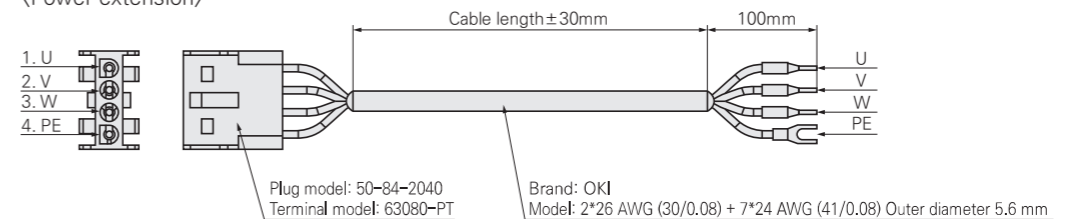
	Servotronix basic model				Servotronix high-end model				Panasonic			
	Pulse		EtherCAT		Pulse		EtherCAT		Pulse		EtherCAT	
Code	EA45	EA100	EE45	EE100	DA30	DA60	DE30	DE60	PA25	PA45	PE25	PE45
MISUMI Linear Motor Actuator	E-RAM6-S E-RAM8-S E-RAM8-M E-RAM10-S E-RAM10-M E-RAM12-S E-RAM12-M	E-RAM14-S E-RAM14-M E-RAM17-S E-RAM17-M E-RAM19-S E-RAM19-M	E-RAM6-S E-RAM8-S E-RAM8-M E-RAM10-S E-RAM10-M E-RAM12-S E-RAM12-M	E-RAM14-S E-RAM14-M E-RAM17-S E-RAM17-M E-RAM19-S E-RAM19-M	E-RAM6-S E-RAM8-S E-RAM8-M E-RAM10-S E-RAM10-M E-RAM12-S E-RAM12-M	E-RAM14-S E-RAM14-M E-RAM17-S E-RAM17-M E-RAM19-S E-RAM19-M	E-RAM6-S E-RAM8-S E-RAM8-M E-RAM10-S E-RAM10-M E-RAM12-S E-RAM12-M	E-RAM14-S E-RAM14-M E-RAM17-S E-RAM17-M E-RAM19-S E-RAM19-M	E-RAM6-S E-RAM8-S E-RAM8-M E-RAM10-S E-RAM10-M E-RAM12-S E-RAM12-M	E-RAM14-S E-RAM14-M E-RAM17-S E-RAM17-M E-RAM19-S E-RAM19-M	E-RAM6-S E-RAM8-S E-RAM8-M E-RAM10-S E-RAM10-M E-RAM12-S E-RAM12-M	E-RAM14-S E-RAM14-M E-RAM17-S E-RAM17-M E-RAM19-S E-RAM19-M
Manufacturer	Servotronix								Panasonic			
Manufacturer model	CDHDE-4D52AAP	CDHDE-0102AAP	CDHDE-4D52AEB	CDHDE-0102AEB	CDHD-0032AAP1	CDHD-0062AAP1	CDHD-0032AEC2	CDHD-0062AEC2	MBDLN25SL	MDDLN45SL	MBDLN25BL	MDDLN45BL
Pulse	○	○			○	○			○	○		
Analog					○	○	○	○				
EtherCAT			○	○							○	○
Hall effect sensor												
PID/ Feedforward					○	○	○	○				
Auto-tuning					○	○	○	○	○	○	○	○

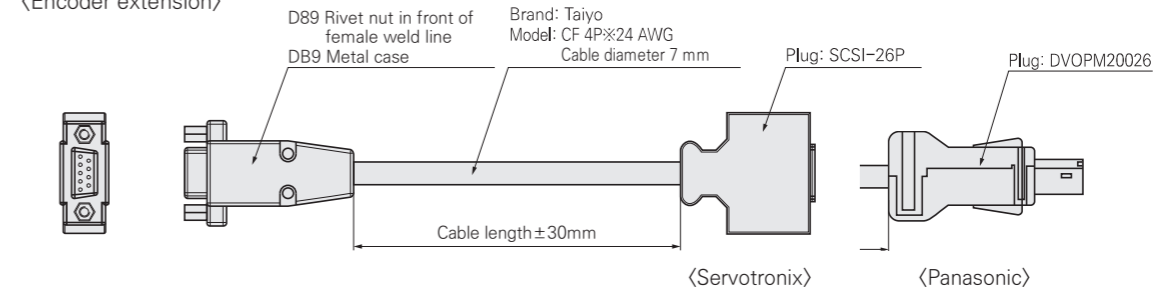■ **Determine the cable extension based on the control panel installation requirements.**

● For ease of installation, power and encoder extensions are available to connect the Linear Motor Actuator to the Servotronix driver.
● The cables extension are in lengths of 1 m, 3 m, and 5 m.

Code	Cable length	Included
N	–	–
C1	1 m	Power extension + encoder extension
C3	3 m	
C5	5 m	

〈Power extension〉

1. U
2. V
3. W
4. PE

Cable length±30mm   100mm

U
V
W
PE

Plug model: 50-84-2040
Terminal model: 63080-PT

Brand: OKI
Model: 2*26 AWG (30/0.08) + 7*24 AWG (41/0.08) Outer diameter 5.6 mm

〈Encoder extension〉

D89 Rivet nut in front of female weld line
DB9 Metal case

Brand: Taiyo
Model: CF 4P※24 AWG
Cable diameter 7 mm

Plug: SCSI-26P

Plug: DVOPM20026

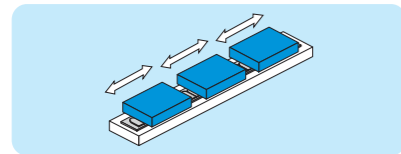Cable length±30mm

〈Servotronix〉   〈Panasonic〉

Option — Change the number of sliders

▌MISUMI Linear Motor Actuators come standard with 1 slider.
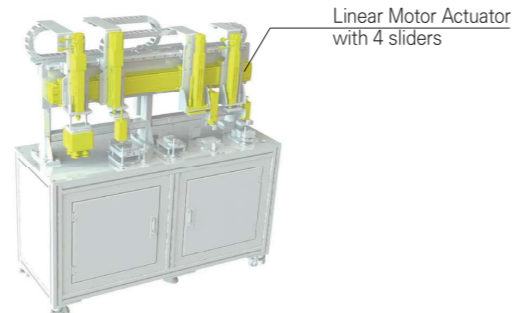The number of sliders can be adjusted according to requirements.

〈Advantages of multiple sliders〉

〈Use cases of multiple sliders〉

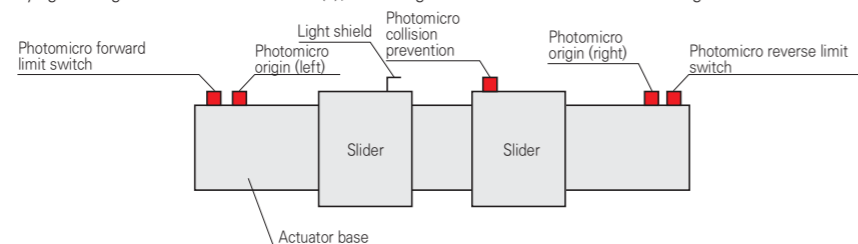4 slider are individually controllable and perform a pickup motion together with the single-axis robot and gripper.

Linear Motor Actuator with 4 sliders

● Simple structure, low cost
● Individual control on the same actuator is possible

〈Can be changed to up to 4 sliders〉

	Number of sliders changed (2)	Number of sliders changed (3)	Number of sliders changed (4)
Alterations	Standard Slider L	Standard Slider L	Standard Slider L
	After change Slider Slider L	After change Slider Slider Slider L	After change Slider Slider Slider Slider L
Code	B2	B3	B4

💡When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
Example: When specifying a change in the number of sliders (2), the change of sensors is as shown in the image below.
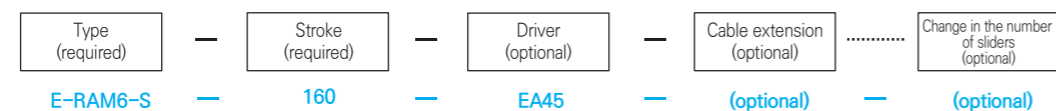
Photomicro forward limit switch
Photomicro origin (left)
Light shield
Photomicro collision prevention
Photomicro origin (right)
Photomicro reverse limit switch
Slider
Slider
Actuator base

Example of how to specify a model

〈Application requirements〉

● Positioning repeatability: ±5 μm
● Mounting orientation: Horizontally mounted
● Processed product mass: 4 kg
● Speed: 0.9 m/s
● Acceleration/deceleration: 0.5 G
● Stroke: 160 mm
● Control method: Pulse
● Length from control panel to actuator: 2 m (default length)
● Number of sliders: 1

〈Model selection result〉

Type (required)		Stroke (required)		Driver (optional)		Cable extension (optional)		Change in the number of sliders (optional)
E-RAM6-S	—	160	—	EA45	—	(optional)	—	(optional)

Accessory Photomicro sensor (3 pcs)
Output mode: NPN
Cable length: 2 m

〈Linear Motor Actuator〉 〈Driver〉 〈Extension〉

Operating Environment

Linear Motor Actuators and drivers can fail in harsh environments and should be used in:

• Place indoors with an ambient temperature of 0–40°C, ambient humidity of 10–80% RH, and no freezing or condensation
• Places away from corrosive and flammable gases
• Places away from splashes of conductive powders such as iron powders, dust, oil mist, cutting fluids, moisture, salts, and organic solvents
• Places away from exposure to direct sunlight and radiant heat
• Places where strong electric and magnetic fields do not occur
• Places where vibration or shock is not applied to the product
• Places easy to access for inspection and cleaning

Safety Precautions

Most models of this product are heavy. When moving the product, use two or more people or moving equipment depending on the weight of the product. Failure to do so may result in injury or product damage.

• Do not drop or hit this product.
• Do not disassemble this product, as foreign substances may enter or precision may decrease. Also, the residual electricity from a screwdriver may cause electric shock.
• Because the stator is a strong magnet, keep magnetic substances (especially metals) away from the magnet. Otherwise, the attractive force of the magnet may cause body parts such as fingers to get caught between the magnet and the metal piece, resulting in injury.
• People with heart conditions using pacemakers should never approach the Linear Motor Actuator.
• Never touch the moving parts of the Linear Motor Actuator after power has been applied. Also, do not enter the operating range of the Linear Motor Actuator while the product is in operation or operable.

Other Precautions

• The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
• This product must never be used for vertical mounting.
• Ensure the flatness of the mounting surface is within ±0.01 mm/300 mm. Otherwise, its use may be affected.
• Noise level of this product is not guaranteed.
• Because the mechanical parts of this product are machine processed, there may be scratches and differences in color appearance. Please be assured that the slight scratches and color changes that the product may have are normal phenomena as long as they do not affect the use and key features.
• Due to continuous product improvements, the appearance and specifications of non-core parts that do not affect use are subject to change without notice.
• Grease is applied to the guide rail of this product before shipment, but new grease must be applied every 2–3 months or 500 km of travel after receiving the product. Otherwise, its use may be affected.

Vertical

Slope
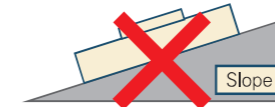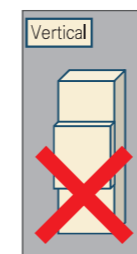
Linear Motor Actuator 6 Series Standard
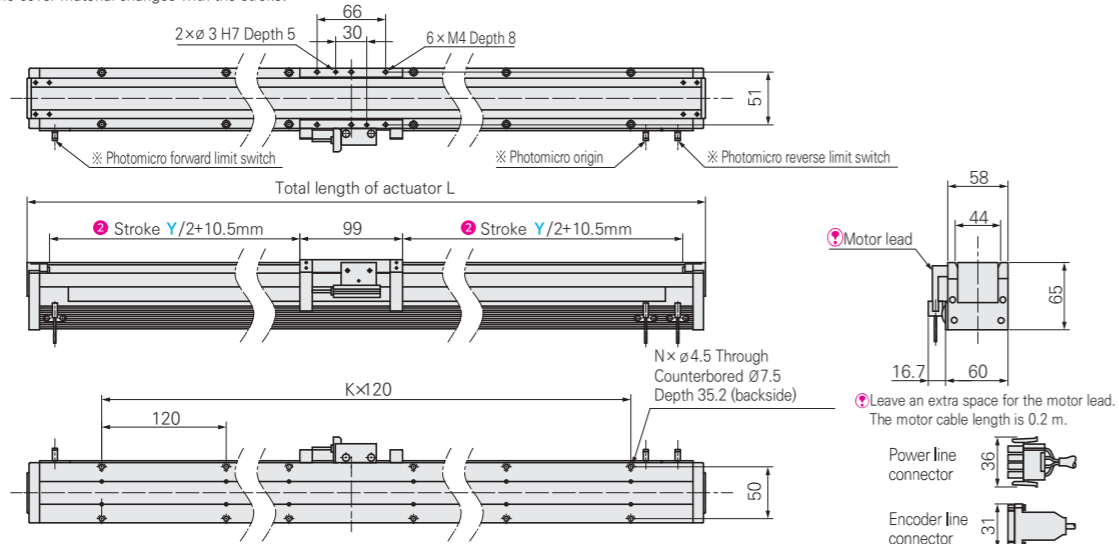
■Representative model: E–RAM6–S–280–N–N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover Stroke Y ≤ 1000	Cover Stroke Y ≥ 1060	Press-fit guide rail
Material	Aluminum alloy				Stainless steel
Surface treatment	Clear anodized				–

⚲The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

2×ø 3 H7 Depth 5
66
30
6 × M4 Depth 8
51

※ Photomicro forward limit switch　※ Photomicro origin　※ Photomicro reverse limit switch

Total length of actuator L

❷ Stroke Y/2+10.5mm　99　❷ Stroke Y/2+10.5mm

N× ø4.5 Through
Counterbored Ø7.5
Depth 35.2 (backside)

K×120
120

58
44
65
16.7　60

⚲Motor lead

⚲Leave an extra space for the motor lead.
The motor cable length is 0.2 m.

Power line connector　36
Encoder line connector　31

50

Order

Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension

E–RAM6–S　–　40　–　N　–　N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver			❹ Cable extension	⚲Maximum payload Horizontally mounted (kg)	Wall mounted (kg)	Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	⚲Positioning repeatability (µm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
E–RAM6–S	40~1360	(no driver required) N (driver required)			(no extension required) N (extension required) 1 m⋯C1 3 m⋯C3 5 m⋯C5	15	5	38	152	1.2	1.5	1.5	±5	1	±0.01
		Servotronix	Basic model	Pulse EA45 / EtherCAT EE45											
			High-end model	DA30 / DE30											
		Panasonic		PA25 / PE25											

⚲The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
⚲This product must never be used for vertical mounting.
⚲The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.
※This product uses an incremental magnetic encoder with a resolution of 1 µm.
⚲Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.

❷Stroke Y (mm)	40	100	160	220	280	340	400	460	520	580	640	700
N	4	4	6	6	8	8	10	10	12	12	14	14
K	1	1	2	2	3	3	4	4	5	5	6	6
L (mm)	204	264	324	384	444	504	564	624	684	744	804	864
Mass (g)	2,000	2,320	2,640	2,960	3,280	3,600	3,920	4,240	4,560	4,880	5,200	5,520

❷Stroke Y (mm)	760	820	880	940	1000	1060	1120	1180	1240	1300	1360
N	16	16	18	18	20	20	22	22	24	24	26
K	7	7	8	8	9	9	10	10	11	11	12
L (mm)	924	984	1044	1104	1164	1224	1284	1344	1404	1464	1524
Mass (g)	5,840	6,160	6,480	6,800	7,120	7,440	7,760	8,080	8,400	8,720	9,040

■ Driver Specification

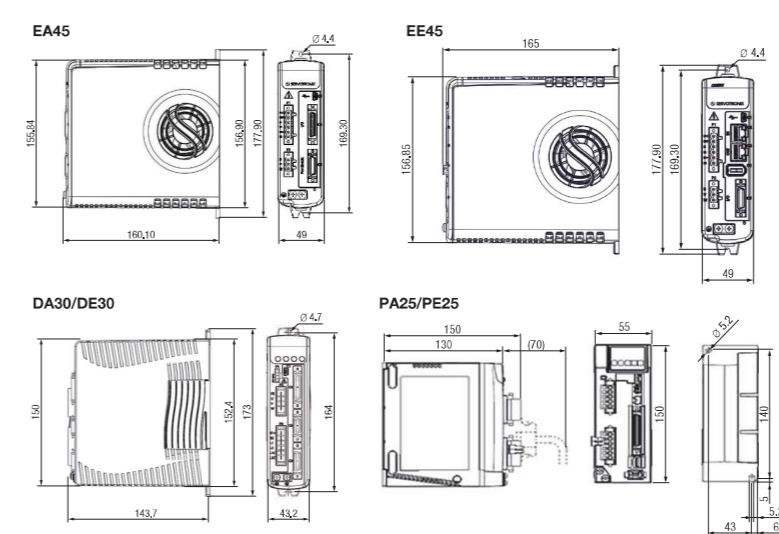| Code	EA45	EE45	DA30	DE30	PA25	PE25
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-4D52AAP	CDHDE-4D52AEB	CDHD-0032AAP1	CDHD-0032AEC2	MBDLN25SL	MBDLN25BL
Input main circuit — Voltage (V)	Single phase AC220					
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	4.5		3		2.4	
Input current — Maximum current (A)	18		9		7.3	
Mass (kg)	1.1		0.75		1	
Pulse single-ended/Differential	○		○	○	○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

⚲The basic model of Servotronix does not have an auto-tuning feature.
⚲Auto-tuning can reduce the difficulty of debugging.
⚲For more information, refer to the driver manufacturer's manual.

Alterations

Order　❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension　(B2·B3·B4)

E–RAM6–S　–　280　–　N　–　N　–　B2

Alterations	Number of sliders changed (2)	Number of sliders changed (3)	Number of sliders changed (4)
	Standard: Slider — Stroke Y — L	Standard: Slider — Stroke Y — L	Standard: Slider — Stroke Y — L
	After change: Slider Slider — Stroke Y–110 — L	After change: Slider Slider Slider — Stroke Y–220 — L	After change: Slider Slider Slider Slider — Stroke Y–330 — L
Code	B2	B3	B4
Spec.	Change to 2 sliders. How to specify B2 ⚲Y≥160 ⚲If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. ⚲If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders. How to specify B3 ⚲Y≥280 ⚲If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. ⚲If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders. How to specify B4 ⚲Y≥340 ⚲If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. ⚲If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

⚲When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
⚲Only one of B2, B3, or B4 can be selected.
⚲When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
⚲If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA45
155.84 / 160.90 / 177.90 / 160.10 / 49 / Ø 4.4 / 169.30

EE45
165 / 160.85 / 177.90 / 169.30 / 49 / Ø 4.4

DA30/DE30
150 / 150.4 / 173 / 143.7 / 43.2 / Ø 4.7

PA25/PE25
150 / 130 / (70) / 55 / 164 / 150 / 140 / 43 / 5.2 / 6 / Ø 5.2

■Motor Parameters

Type		E–RAM6–S
Rated thrust	N	38
Maximum thrust	N	152
Motor constant @Tmax	N(W1/2)	7.0
Maximum rated power loss	W	41.2
Rated current	A	2.5
Maximum current	A	10
Force constant	N/A	17.9
Counter-electromotive force	Vpeak/(m/s)	14.6
Inter-phase impedance	ohms	3.2
Inter-phase inductance	mH	9.4
Electrical time constant	mS	3
Maximum single voltage	VDC	460
Maximum winding temperature	℃	120
Coil mass	kg	0.35
Electrical cycle length	mm	20

Linear Motor Actuator 8 Series Standard

Key parts	Actuator base	Slider	Cover Stroke Y ≤ 960	Cover Stroke Y ≥ 1020	Press-fit guide rail
Material	Aluminum alloy				Stainless steel
Surface treatment	Clear anodized				–

⚠The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

115
66
30
2×ø4 H7 Depth 5
10×M4 Depth 8
71

※Photomicro forward limit switch ※Photomicro origin ※Photomicro reverse limit switch

Total length of actuator L
❷ Stroke Y/2+8mm   140   ❷ Stroke Y/2+8mm

80
62
76
16.7
82

⚠Motor lead

K×120
120

N× ø5.5 Through Counterbored Ø9.5 Depth 26 (backside)
68

⚠Leave an extra space for the motor lead. The motor cable length is 0.2 m.

Power line connector 36
Encoder line connector 31

Order

Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type	–	❷ Stroke Y	–	❸ Driver	–	❹ Cable extension
E – RAM8 – S		300		N		N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver		❹ Cable extension	⚠Maximum payload Horizontally mounted (kg)	Wall mounted (kg)	Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	⚠Positioning repeatability (µm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
E-RAM8-S	60~1800	(no driver required) N (driver required)		(no extension required) N (extension required) 1 m···C1 3 m···C3 5 m···C5	20	13	52	208	1.5	2	1.5	±5	1	±0.01
		Servotronix	Pulse: Basic model EA45 / High-end model DA30 / Panasonic PA25	EtherCAT: EE45 / DE30 / PE25										

⚠The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration. ※This product uses an incremental magnetic encoder with a resolution of 1 µm.
⚠This product must never be used for vertical mounting.
⚠The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G. ⚠Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.

❷Stroke Y (mm)	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900
N	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
K	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
L (mm)	274	334	394	454	514	574	634	694	754	814	874	934	994	1054	1114
Mass (g)	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500	9,000	9,500	10,000	10,500	11,000	11,500	12,000

❷Stroke Y (mm)	960	1020	1080	1140	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800
N	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34
K	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16
L (mm)	1174	1228	1288	1348	1408	1468	1528	1588	1648	1708	1768	1828	1888	1948	2008
Mass (g)	12,500	13,000	13,500	14,000	14,500	15,000	15,500	16,000	16,500	17,000	17,500	18,000	18,500	19,000	19,500

■ Driver Specification

Code	EA45	EE45	DA30	DE30	PA25	PE25
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE – 4D52AAP	CDHDE – 4D52AEB	CDHD – 0032AAP1	CDHD – 0032AEC2	MBDLN25SL	MBDLN25BL
Input main circuit — Voltage (V)	Single phase AC220					
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	4.5		3		2.4	
Input current — Maximum current (A)	18		9		7.3	
Input current — Mass (kg)	1.1		0.75		1	
Pulse single-ended/Differential	○		○		○	○
EtherCAT		○		○		○
Analog			○		○	
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

⚠The basic model of Servotronix does not have an auto–tuning feature.
⚠Auto–tuning can reduce the difficulty of debugging.
⚠For more information, refer to the driver manufacturer's manual.

Alterations

Order
❶ Type	–	❷ Stroke Y	–	❸ Driver	–	❹ Cable extension	(B2·B3·B4)
E-RAM8-S		300		N		N	B2

Alterations	Number of slider changed (2)	Number of slider changed (3)	Number of sliders changed (4)
	Standard Slider / Stroke Y / L	Standard Slider / Stroke Y / L	Standard Slider / Stroke Y / L
	After change Slider Slider / Stroke Y−160	After change Slider Slider Slider / Stroke Y−320	After change Slider Slider Slider Slider / Stroke Y−480 / L
Code	B2	B3	B4
Spec.	Change to 2 sliders How to specify B2 ⚠Y≥180 ⚠If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. ⚠If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders How to specify B3 ⚠Y≥360 ⚠If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. ⚠If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders How to specify B4 ⚠Y≥540 ⚠If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. ⚠If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

⚠When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
⚠Only one of B2, B3, or B4 can be selected.
⚠When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision–resistant photomicro sensor.
⚠If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA45
EE45
DA30/DE30
PA25/PE25

■Motor Parameters

Type		E-RAM8-S
Rated thrust	N	52
Maximum thrust	N	208
Motor constant @Tmax	N(W1/2)	23.4
Maximum rated power loss	W	42.5
Rated current	A	2.5
Maximum current	A	10
Force constant	N/A	20.8
Counter–electromotive force	Vpeak/(m/s)	17.1
Inter–phase impedance	ohms	4
Inter–phase inductance	mH	10
Electrical time constant	mS	0.9
Maximum single voltage	VDC	460
Maximum winding temperature	℃	120
Coil mass	kg	1.3
Electrical cycle length	mm	20

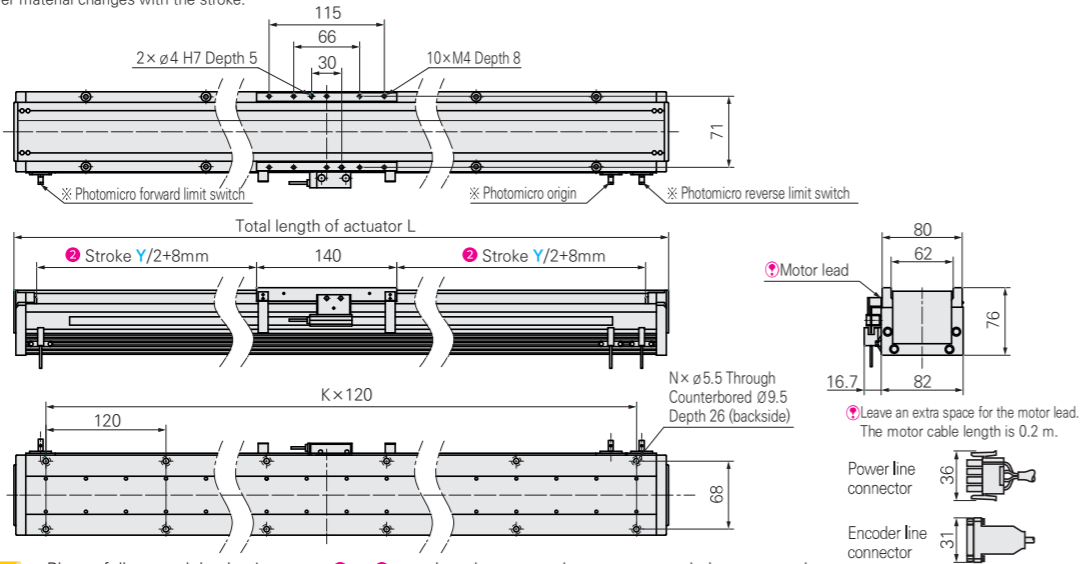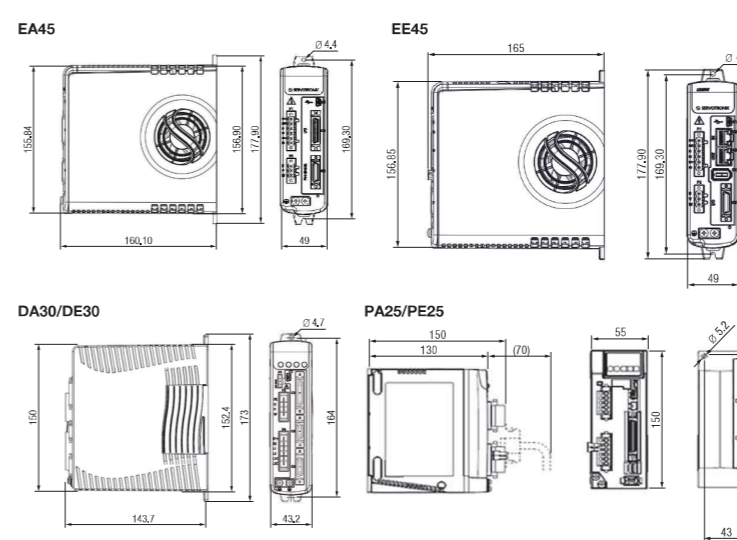# Linear Motor Actuator 8 Series Heavy-duty

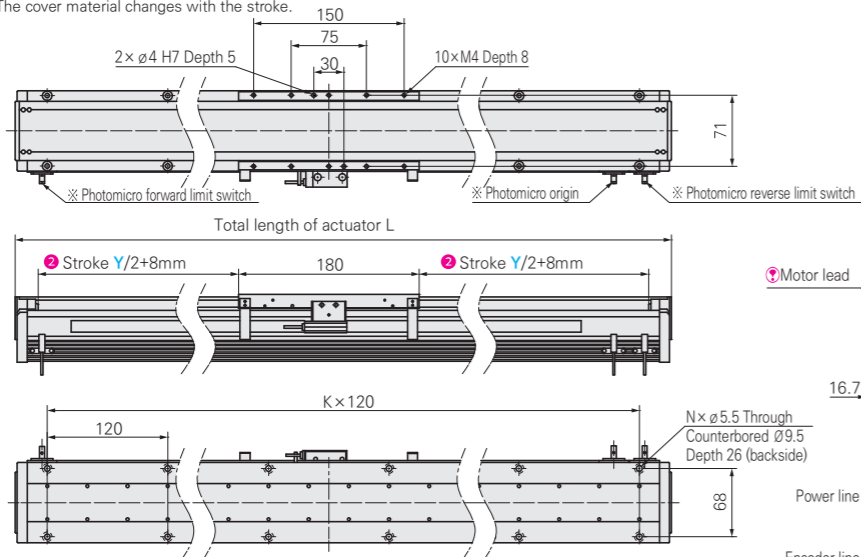■Representative model: E-RAM8-M-320-N-N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover		Press-fit guide rail
			Stroke Y ≤ 920	Stroke Y ≥ 980	
Material	Aluminum alloy				Stainless steel
Surface treatment	Clear anodized				–

💡The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

150
75
30
2× ø4 H7 Depth 5
10×M4 Depth 8
71

※Photomicro forward limit switch
※Photomicro origin
※Photomicro reverse limit switch

Total length of actuator L

❷ Stroke Y/2+8mm
180
❷ Stroke Y/2+8mm

💡Motor lead
80
62
76
16.7
82

K×120
120
N× ø5.5 Through
Counterbored ø9.5
Depth 26 (backside)
68

💡Leave an extra space for the motor lead. The motor cable length is 0.2 m.

Power line connector   36
Encoder line connector   31

Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

Order

❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension
E-RAM8-M – 320 – N – N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver			❹ Cable extension	💡Maximum payload		Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	💡Positioning repeatability (μm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
						Horizontally mounted (kg)	Wall mounted (kg)								
E-RAM8-M	80~1760	(no driver required) N (driver required)		(no extension required) N (extension required) 1 m···C1 3 m···C3 5 m···C5	30	18	98	392	1.5	2	1.5	±5	1	±0.01
		Servotronix	Basic model	EA45 EE45 (Pulse EtherCAT)											
			High-end model	DA30 DE30											
		Panasonic		PA25 PE25											

💡The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.   ※This product uses an incremental magnetic encoder with a resolution of 1 μm.
💡This product must never be used for vertical mounting.
💡The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.   💡Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.

❷Stroke Y (mm)														
	80	140	200	260	320	380	440	500	560	620	680	740	800	860	920
N	6	6	8	8	10	10	12	12	14	14	14	16	16	18	20
K	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
L (mm)	334	394	454	514	574	634	694	754	814	874	934	994	1054	1114	1174
Mass (g)	5,600	6,100	6,600	7,100	7,600	8,100	8,600	9,100	9,600	10,100	10,600	11,100	11,600	12,100	12,600

❷Stroke Y (mm)														
	980	1040	1100	1160	1220	1280	1340	1400	1460	1520	1580	1640	1700	1760
N	20	22	22	24	24	26	26	28	28	30	30	32	32	34
K	9	10	10	11	11	12	12	13	13	14	14	15	15	16
L (mm)	1228	1288	1348	1408	1468	1528	1588	1648	1708	1768	1828	1888	1948	2008
Mass (g)	13,100	13,600	14,100	14,600	15,100	15,600	16,100	16,600	17,100	17,600	18,100	18,600	19,100	19,600

■ Driver Specification

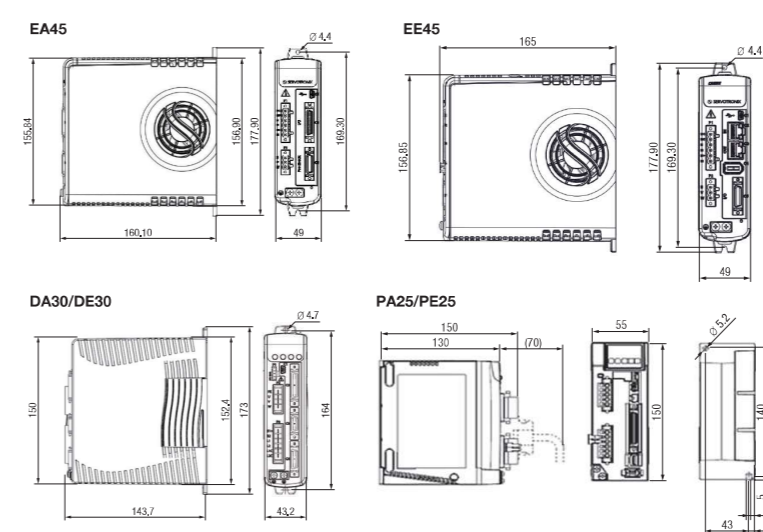| Code	EA45	EE45	DA30	DE30	PA25	PE25
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-4D52AAP	CDHDE-4D52AEB	CDHD-0032AAP1	CDHD-0032AEC2	MBDLN25SL	MBDLN25BL
Input main circuit — Voltage (V)	Single phase AC220					
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	4.5		3		2.4	
Input current — Maximum current (A)	18		9		7.3	
Input current — Mass (kg)	1.1		0.75		1	
Pulse single-ended/Differential	○		○	○	○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

💡The basic model of Servotronix does not have an auto-tuning feature.
💡Auto-tuning can reduce the difficulty of debugging.
💡For more information, refer to the driver manufacturer's manual.

Alterations   **Order**   ❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension   (B2·B3·B4)
E-RAM8-M – 320 – N – N – B2

Alterations	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
	Standard — Slider / Stroke Y / L	Standard — Slider / Stroke Y / L	Standard — Slider / Stroke Y / L
	After change — Slider Slider / Stroke Y−200	After change — Slider Slider Slider / Stroke Y−400	After change — Slider Slider Slider Slider / Stroke Y−600 / L
Code	B2	B3	B4
Spec.	Change to 2 sliders — How to specify B2 — 💡Y≥260 — 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. — 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders — How to specify B3 — 💡Y≥440 — 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. — 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders — How to specify B4 — 💡Y≥620 — 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. — 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

💡When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
💡Only one of B2, B3, or B4 can be selected.
💡When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
💡If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■ Driver Dimensions

EA45
ø4.4
155.64
156.00
177.90
169.30
160.10
49

EE45
165
ø4.4
160.85
177.90
169.30
49

DA30/DE30
ø4.7
150
137.6
173
150
143.7
43.2

PA25/PE25
150
130
(70)
55
ø5.2
164
150
140
43
5.2
6

■ Motor Parameters

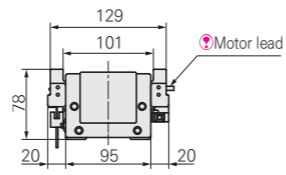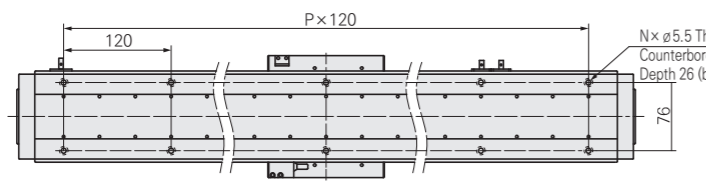| Type		E-RAM8-M
Rated thrust	N	98
Maximum thrust	N	392
Motor constant @Tmax	N(W1/2)	10.5
Maximum rated power loss	W	59.2
Rated current	A	2.5
Maximum current	A	10
Force constant	N/A	39.2
Counter-electromotive force	Vpeak/(m/s)	32.1
Inter-phase impedance	ohms	6.6
Inter-phase inductance	mH	21.4
Electrical time constant	mS	2.8
Maximum single voltage	VDC	460
Maximum winding temperature	℃	120
Coil mass	kg	1.7
Electrical cycle length	mm	20

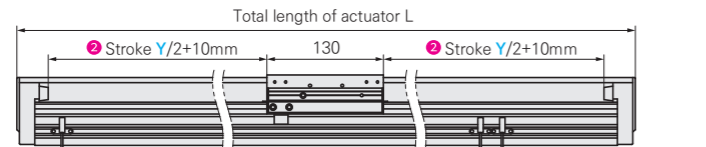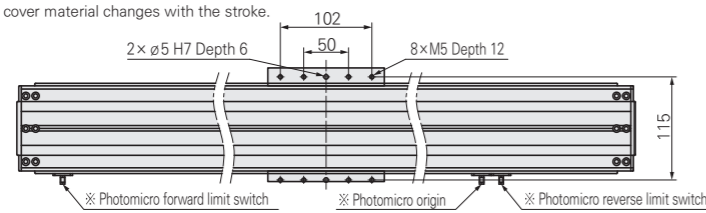# Linear Motor Actuator 10 Series Standard

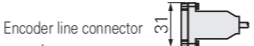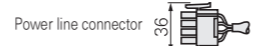■Representative model: E–RAM10–S–600–N–N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover		Press-fit guide rail
			Stroke Y ≤ 960	Stroke Y ≥ 1020	
Material	Aluminum alloy			Stainless steel	
Surface treatment	Clear anodized			–	

💡The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

2× ø5 H7 Depth 6　8×M5 Depth 12
102
50
115

※ Photomicro forward limit switch　※ Photomicro origin　※ Photomicro reverse limit switch

Total length of actuator L
❷ Stroke Y/2+10mm　130　❷ Stroke Y/2+10mm

129
101
78
20　95　20

💡Motor lead
💡Leave an extra space for the motor lead. The motor cable length is 0.2 m.

P×120
120
N× ø5.5 Through Counterbored ø9.5 Depth 26 (backside)
76

Power line connector　36
Encoder line connector　31

Order — Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.
❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension
E–RAM10–S　600　N　N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver				❹ Cable extension	💡Maximum payload		Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration Deceleration (G)	💡Positioning repeatability (μm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
							Horizontally mounted (kg)	Wall mounted (kg)								
E–RAM10–S	60–2220	(no driver required) N (driver required)				(no extension required) N (extension required) 1 m···C1 3 m···C3 5 m···C5	25	16	110	442	1.5	2	1.5	±5	1	±0.01
				Pulse	EtherCAT											
		Servotronix	Basic model	EA45	EE45											
			High–end model	DA30	DE30											
		Panasonic		PA25	PE25											

💡The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.　　※This product uses an incremental magnetic encoder with a resolution of 1 μm.
💡This product must never be used for vertical mounting.
💡The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.　💡Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.

❷Stroke Y (mm)																		
	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140
N	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
K	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
L (mm)	280	340	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1236	1296	1356
Mass (g)	6,400	7,050	7,700	8,350	9,000	9,650	10,300	10,950	11,600	12,250	12,900	13,550	14,200	14,850	15,500	16,150	16,800	17,450	18,100

❷Stroke Y (mm)																		
	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40
K	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19
L (mm)	1416	1476	1536	1596	1656	1716	1776	1836	1896	1956	2016	2076	2136	2196	2256	2316	2376	2436
Mass (g)	18,750	19,400	20,050	20,700	21,350	22,000	22,650	23,300	23,950	24,600	25,250	25,900	26,550	27,200	27,850	28,500	29,150	29,800

■ Driver Specification

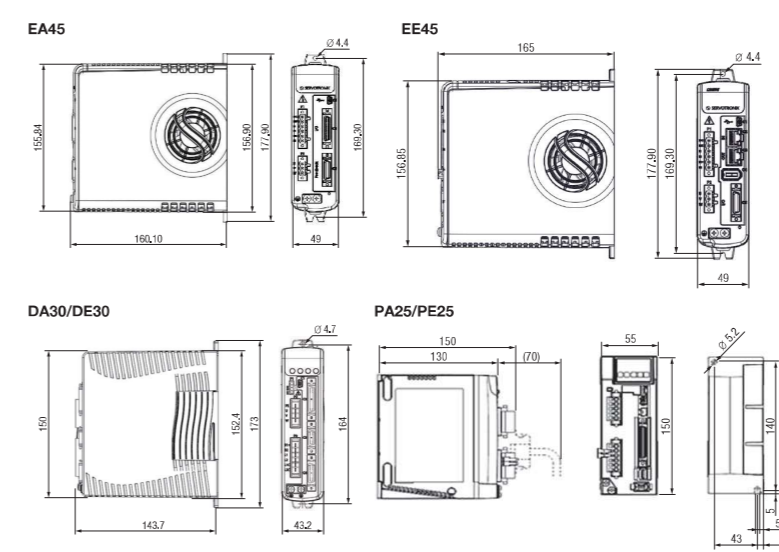| Code	EA45	EE45	DA30	DE30	PA25	PE25
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-4D52AAP	CDHDE-4D52AEB	CDHD-0032AAP1	CDHD-0032AEC2	MBDLN25SL	MBDLN25BL
Input main circuit Voltage (V)	Single phase AC220					
Frequency (Hz)	50/60					
Allowable voltage fluctuation	±10%					
Input control circuit Voltage (V)	Single phase AC220					
Frequency (Hz)	50/60					
Allowable voltage fluctuation	±10%					
Input current Rated current (A)	4.5		3		2.4	
Maximum current (A)	18		9		7.3	
Mass (kg)	1.1		0.75		1	
Pulse single-ended/Differential	○		○	○	○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

💡The basic model of Servotronix does not have an auto–tuning feature.
💡Auto–tuning can reduce the difficulty of debugging.
💡For more information, refer to the driver manufacturer's manual.

Alterations
Order — ❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension — (B2·B3·B4)
E–RAM10–S　600　N　N　B2

	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
Alterations	Standard Slider / Stroke Y / L　After change Slider Slider / Stroke Y–160 / L	Standard Slider / Stroke Y / L　After change Slider Slider Slider / Stroke Y–320 / L	Standard Slider / Stroke Y / L　After change Slider Slider Slider Slider / Stroke Y–480 / L
Code	B2	B3	B4
Spec.	Change to 2 sliders How to specify　B2 💡Y≥180 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders How to specify　B3 💡Y≥360 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders How to specify　B4 💡Y≥540 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

💡When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
💡Only one of B2, B3, or B4 can be selected.
💡When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision–resistant photomicro sensor.
💡If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA45
ø 4.4
155.84
158.00
17.00
149.30

EE45
165
ø 4.4
156.86
17.00
169.30
49

DA30/DE30
ø 4.7
150
152.4
173
164
143.7　43.2

PA25/PE25
150
130　(70)
55
ø 5.2
150
140
43　6　5.2

■Motor Parameters

Type		E–RAM10–S
Rated thrust	N	110
Maximum thrust	N	442
Motor constant @Tmax	N(W1/2)	23.4
Maximum rated power loss	W	259.8
Rated current	A	2.5
Maximum current	A	10
Force constant	N/A	44.2
Counter–electromotive force	Vpeak/(m/s)	36.2
Inter–phase impedance	ohms	7.2
Inter–phase inductance	mH	27.7
Electrical time constant	mS	3.8
Maximum single voltage	VDC	460
Maximum winding temperature	℃	120
Coil mass	kg	1.1
Electrical cycle length	mm	20

Linear Motor Actuator 10 Series Heavy-duty

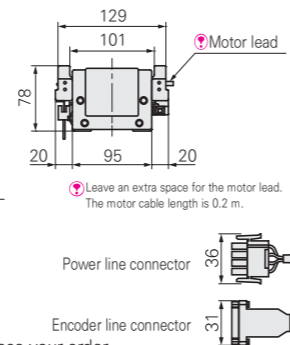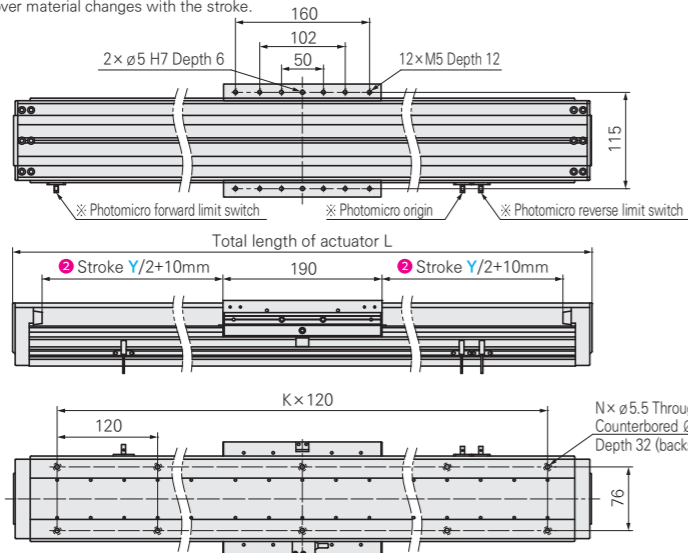■Representative model: E-RAM10-M-600-N-N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover		Press-fit guide rail
			Stroke Y ≤ 900	Stroke Y ≥ 960	
Material	Aluminum alloy				Stainless steel
Surface treatment	Clear anodized				–

☝The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

2× ø5 H7 Depth 6   12×M5 Depth 12
160
102
50
115

※Photomicro forward limit switch   ※Photomicro origin   ※Photomicro reverse limit switch

Total length of actuator L
❷ Stroke Y/2+10mm   190   ❷ Stroke Y/2+10mm

K×120
120
N× ø5.5 Through
Counterbored Ø9.5
Depth 32 (backside)
76

129
101
78
20 95 20

❷Motor lead

☝Leave an extra space for the motor lead.
The motor cable length is 0.2 m.

Power line connector   36

Encoder line connector   31

Order

Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension
E-RAM10-M   600   –   N   –   N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver			❹ Cable extension	❷Maximum payload		Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	❷Positioning repeatability (µm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
						Horizontally mounted (kg)	Wall mounted (kg)								
E-RAM10-M	60~2220	(no driver required) N (driver required)			(no extension required) N (extension required) 1 m···C1 3 m···C3 5 m···C5	38	23	147	588	1.5	2	1.5	±5	1	±0.01
			Pulse	EtherCAT											
		Servotronix	Basic model EA45	EE45											
			High-end model DA30	DE30											
		Panasonic	PA25	PE25											

☝The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
☝This product must never be used for vertical mounting.
☝The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.
☝Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.
※This product uses an incremental magnetic encoder with a resolution of 1 µm.

❷Stroke Y (mm)																			
	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24
K	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
L (mm)	340	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1236	1296	1356	1416
Mass (g)	7,600	8,250	8,900	9,550	10,200	10,850	11,500	12,150	12,800	13,450	14,100	14,750	15,400	16,050	16,700	17,350	18,000	18,650	19,300

❷Stroke Y (mm)																	
	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42
K	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20
L (mm)	1476	1536	1596	1656	1716	1776	1836	1896	1956	2016	2076	2136	2196	2256	2316	2376	2436	2496
Mass (g)	19,950	20,600	21,250	21,900	22,550	23,200	23,850	24,500	25,150	25,800	26,450	27,100	27,750	28,400	29,050	29,700	30,350	31,000

■ Driver Specification

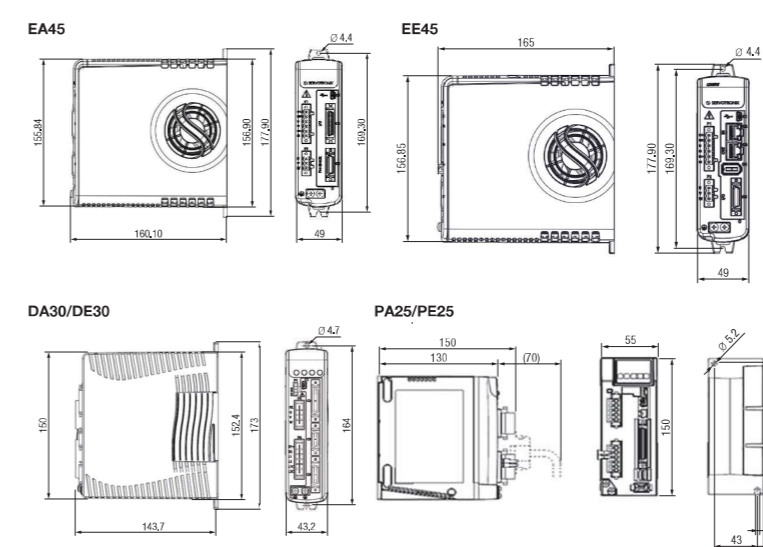| Code	EA45	EE45	DA30	DE30	PA25	PE25
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-4D52AAP	CDHDE-4D52AEB	CDHD-0032AAP1	CDHD-0032AEC2	MBDLN25SL	MBDLN25BL
Input main circuit — Voltage (V)	Single phase AC220					
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	4.5		3		2.4	
Input current — Maximum current (A)	18		9		7.3	
Mass (kg)	1.1		0.75		1	
Pulse single-ended/Differential	○		○	○	○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

☝The basic model of Servotronix does not have an auto-tuning feature.
☝Auto-tuning can reduce the difficulty of debugging.
☝For more information, refer to the driver manufacturer's manual.

Alterations

Order
❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension – (B2·B3·B4)
E-RAM10-M   –   600   –   N   –   N   –   B2

	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
Alterations	Standard [Slider] / Stroke Y / L ; After change [Slider][Slider] / Stroke Y−220	Standard [Slider] / Stroke Y / L ; After change [Slider][Slider][Slider] / Stroke Y−440	Standard [Slider] / Stroke Y / L ; After change [Slider][Slider][Slider][Slider] / Stroke Y−660 / L
Code	B2	B3	B4
Spec.	Change to 2 sliders. How to specify B2 ☝Y≥240 ☝If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. ☝If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders. How to specify B3 ☝Y≥480 ☝If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. ☝If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders. How to specify B4 ☝Y≥720 ☝If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. ☝If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

☝When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
☝Only one of B2, B3, or B4 can be selected.
☝When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
☝If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA45   ø4.4   EE45   165   ø4.4

DA30/DE30   PA25/PE25   150   130   55

■Motor Parameters

Type		E-RAM10-M
Rated thrust	N	147
Maximum thrust	N	588
Motor constant @Tmax	N(W1/2)	15.2
Maximum rated power loss	W	112
Rated current	A	2.5
Maximum current	A	10
Force constant	N/A	58.8
Counter-electromotive force	Vpeak/(m/s)	48.2
Inter-phase impedance	ohms	8.7
Inter-phase inductance	mH	36.5
Electrical time constant	mS	4.2
Maximum single voltage	VDC	460
Maximum winding temperature	℃	120
Coil mass	kg	1.5
Electrical cycle length	mm	20

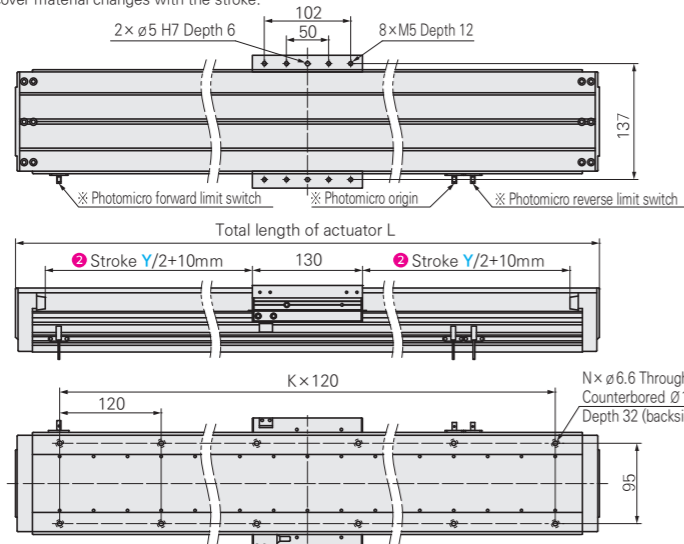# Linear Motor Actuator 12 Series Standard

■Representative model: E–RAM12–S–600–N–N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover		Press-fit guide rail
			Stroke Y ≤ 960	Stroke Y ≥ 1020	
Material	Aluminum alloy			Stainless steel
Surface treatment	Clear anodized			–	–

⚠The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

2× ø5 H7 Depth 6
102
50
8×M5 Depth 12

※ Photomicro forward limit switch　※ Photomicro origin　※ Photomicro reverse limit switch

Total length of actuator L
❷ Stroke Y/2+10mm　130　❷ Stroke Y/2+10mm

120

K×120

N× ø6.6 Through
Counterbored Ø10.8
Depth 32 (backside)

151
123
Motor lead
115
20　20
⚠Leave an extra space for the motor lead.
The motor cable length is 0.2 m.

Power line connector

Encoder line connector

Order Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type	–	❷ Stroke Y	–	❸ Driver	–	❹ Cable extension
E–RAM12–S		600		N		N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver	❹ Cable extension	❷Maximum payload Horizontally mounted (kg)	Wall mounted (kg)	Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	❸Positioning repeatability (µm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
E–RAM12–S	60~2220	(no driver required) N (driver required) Servotronix [Basic model EA45/EE45] [High-end model DA30/DE30] Panasonic [PA25/PE25] Pulse/EtherCAT	(no extension required) N (extension required) 1 m···C1 3 m···C3 5 m···C5	35	21	152	609	1.5	2	1.5	±5	1	±0.01

⚠The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.　※This product uses an incremental magnetic encoder with a resolution of 1 µm.
⚠This product must never be used for vertical mounting.
⚠The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.　⚠Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.

❷Stroke Y (mm)	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140
N	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22
K	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
L (mm)	280	340	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1236	1296	1356
Mass (g)	7,500	8,250	9,000	9,750	10,500	11,250	12,000	12,750	13,500	14,250	15,000	15,750	16,500	17,250	18,000	18,750	19,500	20,250	21,000

❷Stroke Y (mm)	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40
K	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19
L (mm)	1416	1476	1536	1596	1656	1716	1776	1836	1896	1956	2016	2076	2136	2196	2256	2316	2376	2436
Mass (g)	21,750	22,500	23,250	24,000	24,750	25,500	26,250	27,000	27,750	28,500	29,250	30,000	30,750	31,500	32,250	33,000	33,750	34,500

■ Driver Specification

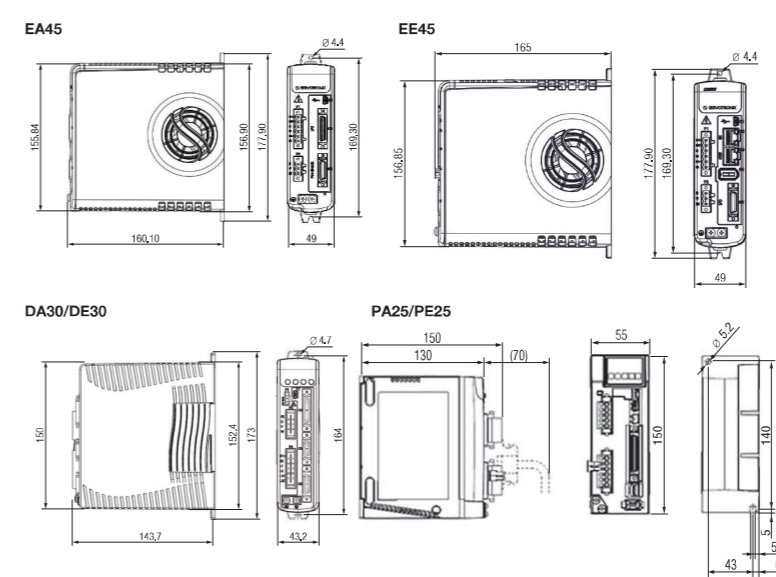| Code	EA45	EE45	DA30	DE30	PA25	PE25
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-4D52AAP	CDHDE-4D52AEB	CDHD-0032AAP1	CDHD-0032AEC2	MBDLN25SL	MBDLN25BL
Input main circuit — Voltage (V)	Single phase AC220					
Frequency (Hz)	50/60					
Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Frequency (Hz)	50/60					
Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	4.5		3		2.4	
Maximum current (A)	18		9		7.3	
Mass (kg)	1.1		0.75		1	
Pulse single-ended/Differential	○		○	○	○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

⚠The basic model of Servotronix does not have an auto-tuning feature.
⚠Auto-tuning can reduce the difficulty of debugging.
⚠For more information, refer to the driver manufacturer's manual.

Alterations **Order** ❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension (B2·B3·B4)
E-RAM12-S – 600 – N – N – B2

	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
Alterations	Standard [Slider] Stroke Y / L	Standard [Slider] Stroke Y / L	Standard [Slider] Stroke Y / L
	After change [Slider][Slider] Stroke Y–160	After change [Slider][Slider][Slider] Stroke Y–320	After change [Slider][Slider][Slider][Slider] Stroke Y–480 / L
Code	B2	B3	B4
Spec.	Change to 2 sliders. How to specify B2. ⚠Y≥180 ⚠If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. ⚠If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders. How to specify B3. ⚠Y≥360 ⚠If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. ⚠If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders. How to specify B4. ⚠Y≥540 ⚠If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. ⚠If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

⚠When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
⚠Only one of B2, B3, or B4 can be selected.
⚠When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
⚠If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA45

EE45

DA30/DE30

PA25/PE25

■Motor Parameters

Type		E-RAM12-S
Rated thrust	N	152
Maximum thrust	N	609
Motor constant @Tmax	N(W1/2)	14.3
Maximum rated power loss	W	113.3
Rated current	A	2.5
Maximum current	A	10
Force constant	N/A	60.9
Counter-electromotive force	Vpeak/(m/s)	49.7
Inter-phase impedance	ohms	8.8
Inter-phase inductance	mH	32.5
Electrical time constant	mS	3.6
Maximum single voltage	VDC	460
Maximum winding temperature	℃	120
Coil mass	kg	1.35
Electrical cycle length	mm	20

Linear Motor Actuator 12 Series Heavy-duty

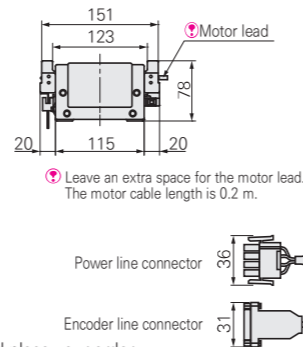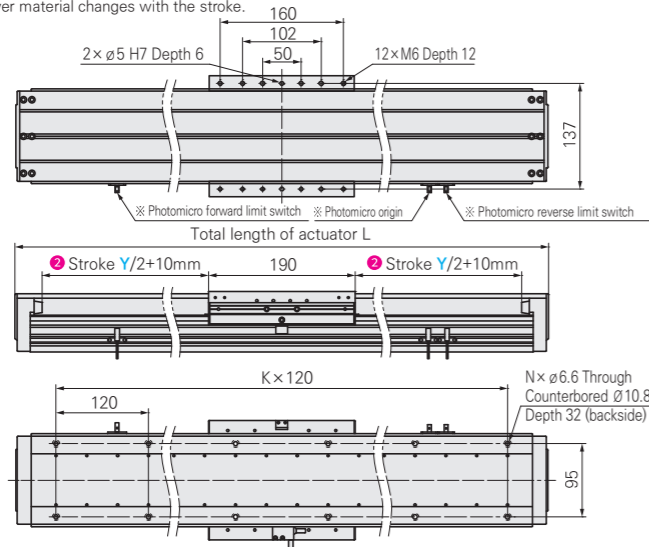■Representative model: E-RAM12-M-600-N-N

Price can be cheked on MISUMI website or WOS

CE RoHS10 CAD 2D 3D

Key parts	Actuator base	Slider	Cover		Press-fit guide rail
			Stroke Y ≤ 900	Stroke Y ≥ 960	
Material	Aluminum alloy				Stainless steel
Surface treatment	Clear anodized				–

🔧The cover material changes with the stroke.

160
102
50
2× ø5 H7 Depth 6
12×M6 Depth 12
137

※ Photomicro forward limit switch ※ Photomicro origin ※ Photomicro reverse limit switch

Total length of actuator L

❷ Stroke Y/2+10mm   190   ❷ Stroke Y/2+10mm

K×120
120
95
N× ø6.6 Through
Counterbored Ø10.8
Depth 32 (backside)

151
123
78
🔧Motor lead
20 115 20

🔧Leave an extra space for the motor lead.
The motor cable length is 0.2 m.

Power line connector 36
Encoder line connector 31

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

Order

Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension
E-RAM12-M   600   N   N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver		❹ Cable extension	❷Maximum payload		Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	⁑Positioning repeatability (μm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
					Horizontally mounted (kg)	Wall mounted (kg)								
E-RAM12-M	60~2220	(no driver required) N		(no extension required) N	50	30	203	812	1.5	2	1.5	±5	1	±0.01
		(driver required)		(extension required)										
			Pulse | EtherCAT	1 m···C1										
		Servotronix	Basic model EA45 | EE45	3 m···C3										
			High-end model DA30 | DE30	5 m···C5										
		Panasonic	PA25 | PE25											

🔧The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.   ※This product uses an incremental magnetic encoder with a resolution of 1 μm.
🔧This product must never be used for vertical mounting.
🔧The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G. 🔧Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.

❷Stroke Y (mm)	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24
K	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
L (mm)	340	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1236	1296	1356	1416
Mass (g)	9,000	9,750	10,500	11,250	12,000	12,750	13,500	14,250	15,000	15,750	16,500	17,250	18,000	18,750	19,500	20,250	21,000	21,750	22,500

❷Stroke Y (mm)	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42
K	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20
L (mm)	1476	1536	1596	1656	1716	1776	1836	1896	1956	2016	2076	2136	2196	2256	2316	2376	2436	2496
Mass (g)	23,250	24,000	24,750	25,500	26,250	27,000	27,750	28,500	29,250	30,000	30,750	31,500	32,250	33,000	33,750	34,500	35,250	36,000

■ Driver Specification

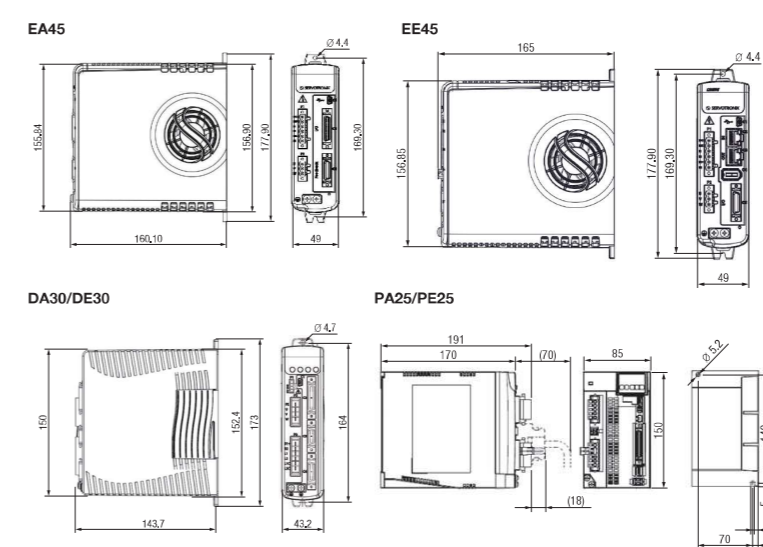| Code	EA45	EE45	DA30	DE30	PA25	PE25
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-4D52AAP	CDHDE-4D52AEB	CDHD-0032AAP1	CDHD-0032AEC2	MBDLN25SL	MBDLN25BL
Input main circuit — Voltage (V)	Single phase AC220					
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	4.5		3		2.4	
Input current — Maximum current (A)	18		9		7.3	
Input current — Mass (kg)	1.1		0.75		1	
Pulse single-ended/Differential	○		○	○	○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

🔧The basic model of Servotronix does not have an auto-tuning feature.
🔧Auto-tuning can reduce the difficulty of debugging.
🔧For more information, refer to the driver manufacturer's manual.

Alterations

Order   ❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension   (B2·B3·B4)
E-RAM12-M   600   N   N   B2

	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
Alterations	Standard: Slider — Stroke Y — L	Standard: Slider — Stroke Y — L	Standard: Slider — Stroke Y — L
	After change: Slider Slider — Stroke Y-220	After change: Slider Slider Slider — Stroke Y-440 — L	After change: Slider Slider Slider Slider — Stroke Y-660 — L
Code	B2	B3	B4
Spec.	Change to 2 sliders. How to specify B2	Change to 3 sliders. How to specify B3	Change to 4 sliders. How to specify B4
	🔧Y≥240	🔧Y≥480	🔧Y≥720
	🔧If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs.	🔧If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs.	🔧If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs.
	🔧If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	🔧If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	🔧If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

🔧When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
🔧Only one of B2, B3, or B4 can be selected.
🔧When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
🔧If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA45
EE45
DA30/DE30
PA25/PE25

■Motor Parameters

Type		E-RAM12-M
Rated thrust	N	203
Maximum thrust	N	812
Motor constant @Tmax	N(W1/2)	12.2
Maximum rated power loss	W	149.3
Rated current	A	2.5
Maximum current	A	10
Force constant	N/A	81.2
Counter-electromotive force	Vpeak/(m/s)	66.3
Inter-phase impedance	ohms	11.6
Inter-phase inductance	mH	46
Electrical time constant	mS	4.2
Maximum single voltage	VDC	460
Maximum winding temperature	℃	120
Coil mass	kg	1.8
Electrical cycle length	mm	20

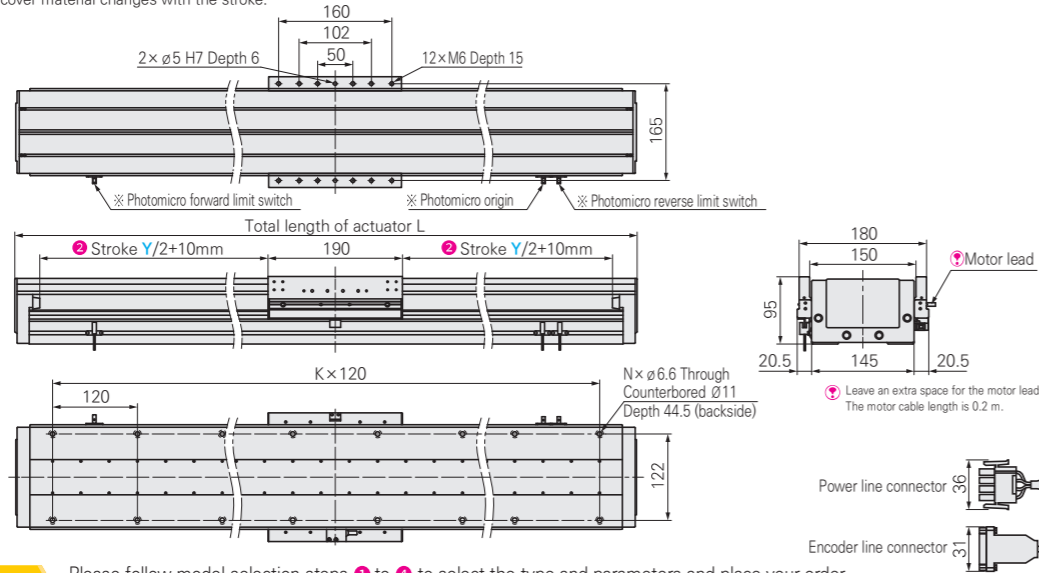# Linear Motor Actuator 14 Series Standard

■Representative model: E-RAM14–S–600–N–N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover		Press-fit guide rail
			Stroke Y ≤ 1380	Stroke Y ≥ 1440	
Material	Aluminum alloy			Stainless steel	
Surface treatment	Clear anodized			–	

💡The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

160
102
50
2×ø5 H7 Depth 6   12×M6 Depth 15
165

※Photomicro forward limit switch   ※Photomicro origin   ※Photomicro reverse limit switch

Total length of actuator L
❷ Stroke Y/2+10mm   190   ❷ Stroke Y/2+10mm

120
K×120
N×ø6.6 Through Counterbored Ø11 Depth 44.5 (backside)
122

180
150
95
20.5 145 20.5
💡Motor lead
💡Leave an extra space for the motor lead. The motor cable length is 0.2 m.

Power line connector 36
Encoder line connector 31

Order Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension
E–RAM14–S   600   N   N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver	❹ Cable extension	❷Maximum payload		Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	❷Positioning repeatability (µm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
				Horizontally mounted (kg)	Wall mounted (kg)								
E–RAM14–S	60~2220	(no driver required) N (driver required) Pulse/EtherCAT Servotronix Basic model EA100/EE100 High-end model DA60/DE60 Panasonic PA45/PE45	(no extension required) N (extension required) 1 m···C1 3 m···C3 5 m···C5	65	39	225	900	1.5	2	1.5	±5	1	±0.01

💡The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
💡This product must never be used for vertical mounting.
💡The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.
※This product uses an incremental magnetic encoder with a resolution of 1 µm.
💡Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.

❷Stroke Y (mm)	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24
K	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
L (mm)	340	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1240	1300	1360	1420
Mass (g)	11,000	11,800	12,600	13,400	14,200	15,000	15,800	16,600	17,400	18,200	19,000	19,800	20,600	21,400	22,200	23,000	23,800	24,600	25,400

❷Stroke Y (mm)	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42
K	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20
L (mm)	1480	1540	1600	1660	1716	1776	1836	1896	1956	2016	2076	2136	2196	2256	2316	2376	2436	2496
Mass (g)	26,200	27,000	27,800	28,600	29,400	30,200	31,000	31,800	32,600	33,400	34,200	35,000	35,800	36,600	37,400	38,200	39,000	39,800

■ Driver Specification

Code	EA100	EE100	DA60	DE60	PA45	PE45
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-0102AAP	CDHDE-0102AEB	CDHD-0062AAP1	CDHD-0062AEC2	MDDLN45SL	MDDLN45BL
Input main circuit — Voltage (V)	3-phase AC220		Single phase / 3-phase AC220			
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	10		6		5.2	
Input current — Maximum current (A)	30		18		15.5	
Mass (kg)	1.15		0.97		2.1	
Pulse single-ended/Differential	○		○		○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

💡The basic model of Servotronix does not have an auto-tuning feature.
💡Auto-tuning can reduce the difficulty of debugging.
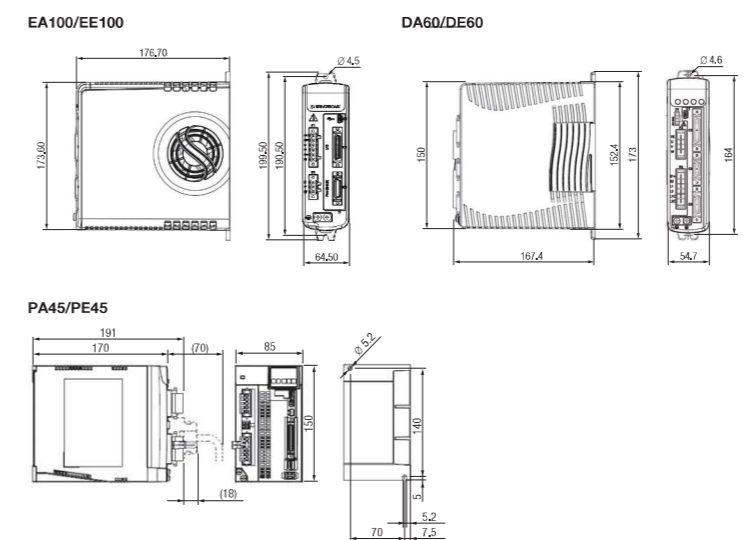💡For more information, refer to the driver manufacturer's manual.

Alterations Order ❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension – (B2·B3·B4)
E–RAM14–S   600   N   N   B2

Alterations	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
	Standard: Slider / Stroke Y / L	Standard: Slider / Stroke Y / L	Standard: Slider / Stroke Y / L
	After change: Slider Slider / Stroke Y–220 / L	After change: Slider Slider Slider / Stroke Y–440 / L	After change: Slider Slider Slider Slider / Stroke Y–660 / L
Code	B2	B3	B4
Spec.	Change to 2 sliders. How to specify B2. 💡Y≥240. 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders. How to specify B3. 💡Y≥480. 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders. How to specify B4. 💡Y≥720. 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

💡When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
💡Only one of B2, B3, or B4 can be selected.
💡When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
💡If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA100/EE100   176,70   173,90   64,50
DA60/DE60   Ø 4,6   190   152,4   173   164   167,4   54,7
PA45/PE45   191   170   (70)   85   Ø 5,2   140   150   (18)   5,2   70   7,5

Type		E-RAM14-S
Rated thrust	N	225
Maximum thrust	N	900
Motor constant @Tmax	N(W1/2)	17.8
Maximum rated power loss	W	159.6
Rated current	A	5
Maximum current	A	20
Force constant	N/A	45.2
Counter-electromotive force	Vpeak/(m/s)	36.8
Inter-phase impedance	ohms	3.1
Inter-phase inductance	mH	23
Electrical time constant	mS	7.4
Maximum single voltage	VDC	540
Maximum winding temperature	℃	120
Coil mass	kg	2.3
Electrical cycle length	mm	20

Linear Motor Actuator 14 Series Heavy-duty

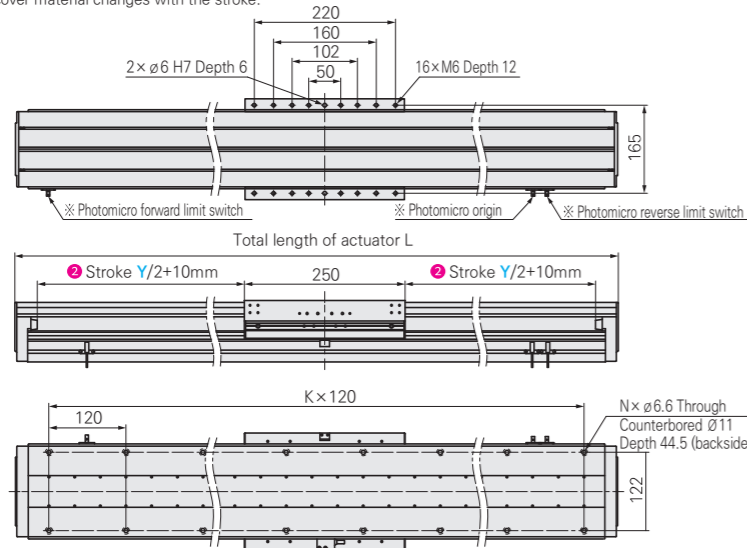■Representative model: E-RAM14-M-600-N-N

Price can be cheked on MISUMI website or WOS

CE RoHS10 CAD 2D 3D

Key parts	Actuator base	Slider	Cover Stroke Y ≤ 1320	Cover Stroke Y ≥ 1380	Press-fit guide rail
Material	Aluminum alloy				Stainless steel
Surface treatment	Clear anodized				–

⚑The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

220
160
102
50

2× ø6 H7 Depth 6
16×M6 Depth 12
165

※ Photomicro forward limit switch　※ Photomicro origin　※ Photomicro reverse limit switch

Total length of actuator L

❷ Stroke Y/2+10mm　250　❷ Stroke Y/2+10mm

180
150
95
20.5　145　20.5

⚑Motor lead

K×120
120
122

N× ø6.6 Through
Counterbored Ø11
Depth 44.5 (backside)

⚑Leave an extra space for the motor lead.
The motor cable length is 0.2 m.

Power line connector 36
Encoder line connector 31

Order　Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type　－　❷ Stroke Y　－　❸ Driver　－　❹ Cable extension
E-RAM14-M　　600　　N　　N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver	❹ Cable extension	⚑Maximum payload Horizontally mounted (kg)	⚑Maximum payload Wall mounted (kg)	Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	⚑Positioning repeatability (μm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
E-RAM14-M	60~2220	(no driver required) N (driver required) — Servotronix: Basic model EA100/EE100, High-end model DA60/DE60; Panasonic PA45/PE45 (Pulse/EtherCAT)	(no extension required) N (extension required) 1 m···C1 3 m···C3 5 m···C5	85	50	337	1350	1.5	2	1.5	±5	1	±0.01

⚑The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
⚑This product must never be used for vertical mounting.
⚑The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.　⚑Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.
※This product uses an incremental magnetic encoder with a resolution of 1 μm.

❷Stroke Y (mm)	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140
N	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24
K	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
L (mm)	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1240	1300	1360	1420	1480
Mass (g)	13,000	13,800	14,600	15,400	16,200	17,000	17,800	18,600	19,400	20,200	21,000	21,800	22,600	23,400	24,200	25,000	25,800	26,600	27,400

❷Stroke Y (mm)	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42
K	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20
L (mm)	1540	1600	1660	1716	1776	1836	1896	1956	2016	2076	2136	2196	2256	2316	2376	2436	2496	2556
Mass (g)	28,200	29,000	29,800	30,600	31,400	32,200	33,000	33,800	34,600	35,400	36,200	37,000	37,800	38,600	39,400	40,200	41,000	41,800

■ Driver Specification

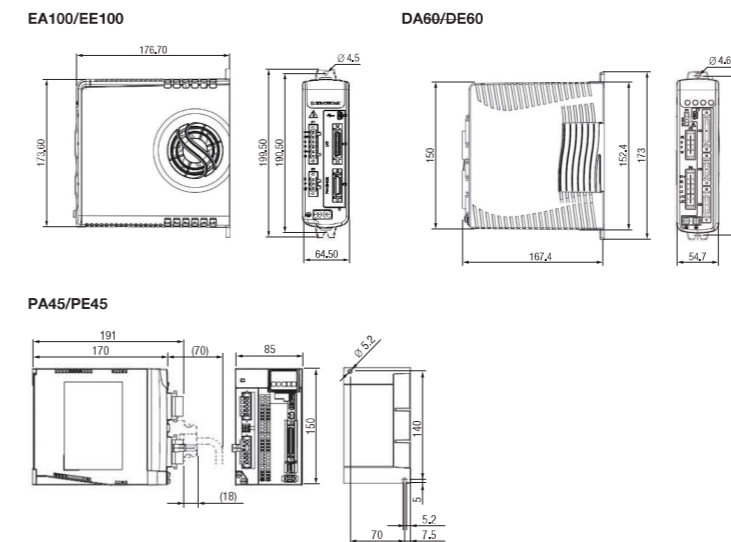| Code	EA100	EE100	DA60	DE60	PA45	PE45
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-0102AAP	CDHDE-0102AEB	CDHD-0062AAP1	CDHD-0062AEC2	MDDLN45SL	MDDLN45BL
Input main circuit — Voltage (V)	3-phase AC220		Single phase / 3-phase AC220			
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	10		6		5.2	
Input current — Maximum current (A)	30		18		15.5	
Mass (kg)	1.15		0.97		2.1	
Pulse single-ended/Differential	○		○	○	○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

⚑The basic model of Servotronix does not have an auto-tuning feature.
⚑Auto-tuning can reduce the difficulty of debugging.
⚑For more information, refer to the driver manufacturer's manual.

Alterations
Order　❶ Type　－　❷ Stroke Y　－　❸ Driver　－　❹ Cable extension　－　(B2·B3·B4)
E-RAM14-M　　600　　N　　N　　B2

Alterations	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
	Standard: Slider + Stroke Y, L	Standard: Slider + Stroke Y, L	Standard: Slider + Stroke Y, L
	After change: Slider+Slider, Stroke Y−280, L	After change: Slider+Slider+Slider, Stroke Y−560, L	After change: Slider×4, Stroke Y−840, L
Code	B2	B3	B4
Spec.	Change to 2 sliders How to specify B2 ⚑Y≥300 ⚑If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. ⚑If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders How to specify B3 ⚑Y≥600 ⚑If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. ⚑If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders How to specify B4 ⚑Y≥900 ⚑If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. ⚑If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

⚑When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
⚑Only one of B2, B3, or B4 can be selected.
⚑When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
⚑If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA100/EE100
176.70
172.60

DA60/DE60
150
167.4　54.7

PA45/PE45
191
170
(70)　85
150
140

■Motor Parameters

Type		E-RAM14-M
Rated thrust	N	337
Maximum thrust	N	1350
Motor constant @Tmax	N(W1/2)	21.9
Maximum rated power loss	W	236.8
Rated current	A	5
Maximum current	A	20
Force constant	N/A	67.5
Counter-electromotive force	Vpeak/(m/s)	54.9
Inter-phase impedance	ohms	4.6
Inter-phase inductance	mH	37
Electrical time constant	mS	8
Maximum single voltage	VDC	540
Maximum winding temperature	℃	120
Coil mass	kg	3.5
Electrical cycle length	mm	20

Linear Motor Actuator 17 Series Standard

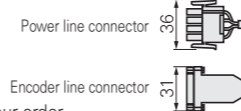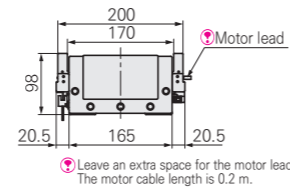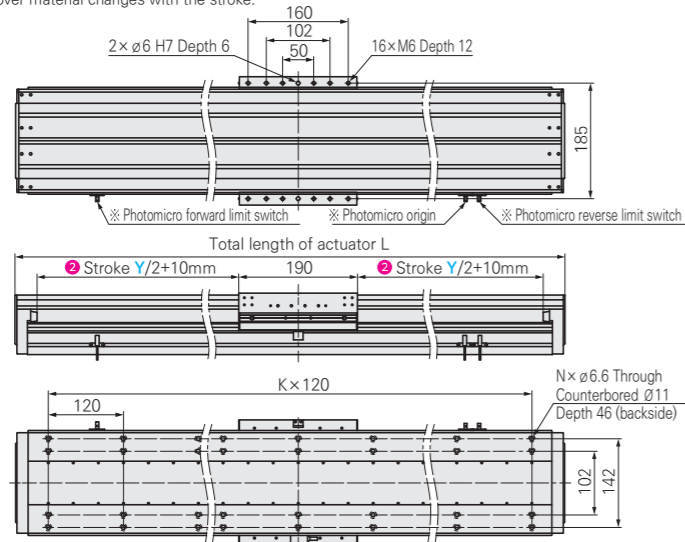■Representative model: E-RAM17-S-600-N-N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover		Press-fit guide rail
			Stroke Y ≤ 1380	Stroke Y ≥ 1440	
Material	Aluminum alloy				Stainless steel
Surface treatment	Clear anodized				–

💡The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

2×ø6 H7 Depth 6   16×M6 Depth 12

160 / 102 / 50

185

※Photomicro forward limit switch   ※Photomicro origin   ※Photomicro reverse limit switch

Total length of actuator L

❷ Stroke Y/2+10mm   190   ❷ Stroke Y/2+10mm

K×120

120

102 / 142

N×ø6.6 Through
Counterbored Ø11
Depth 46 (backside)

200 / 170

98

20.5 / 165 / 20.5

💡Motor lead

💡Leave an extra space for the motor lead.
The motor cable length is 0.2 m.

Power line connector   36

Encoder line connector   31

Order Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension
E-RAM17-S   600   N   N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver			❹ Cable extension	Maximum payload		Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	Positioning repeatability (μm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
						Horizontally mounted (kg)	Wall mounted (kg)								
E-RAM17-S	60~2220	(no driver required) **N** (driver required)		Pulse / EtherCAT	(no extension required) **N** (extension required) 1 m···C1 3 m···C3 5 m···C5	75	45	299	1196	1.5	2	1.5	±5	1	±0.01
		Servotronix	Basic model	EA100 / EE100											
			High-end model	DA60 / DE60											
		Panasonic		PA45 / PE45											

💡The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
💡This product must never be used for vertical mounting.
💡The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.
※This product uses an incremental magnetic encoder with a resolution of 1 μm.
💡Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.

❷Stroke Y (mm)																	
	12	12	16	16	20	20	24	24	28	28	32	32	36	36	40	40	44	44	48
N	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
K	340	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1240	1300	1360	1420
L (mm)	16,000	17,100	18,200	19,300	20,400	21,500	22,600	23,700	24,800	25,900	27,000	28,100	29,200	30,300	31,400	32,500	33,600	34,700	35,800
Mass (g)	00	8,250	8,900	9,550	10,200	10,850	11,500	12,150	12,800	13,450	14,100	14,750	15,400	16,050	16,700	17,350	18,000	18,650	19,300

❷Stroke Y (mm)																		
	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	48	52	52	56	56	60	60	64	64	68	72	72	76	76	80	80	84
K	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20
L (mm)	1480	1540	1600	1660	1720	1780	1840	1900	1960	2020	2080	2140	2200	2260	2320	2380	2440	2500
Mass (g)	36,900	38,000	39,100	40,200	41,300	42,400	43,500	44,600	45,700	46,800	47,900	49,000	50,100	51,200	52,300	53,400	54,500	55,600

■ Driver Specification

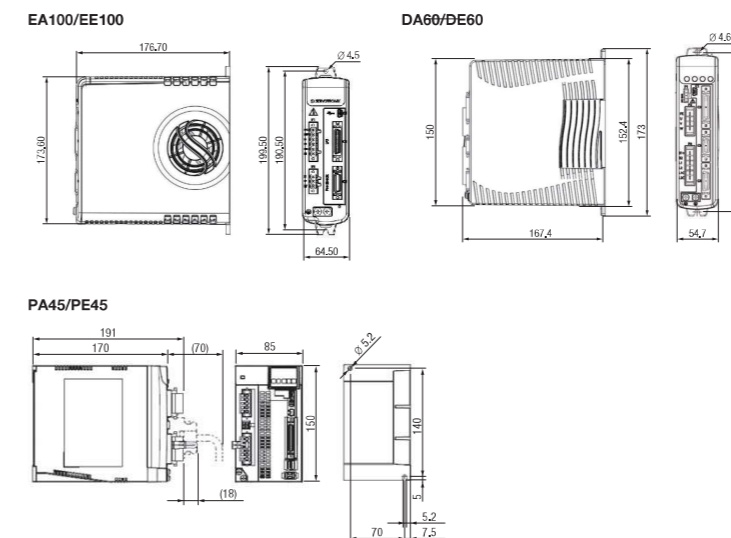| Code	EA100	EE100	DA60	DE60	PA45	PE45
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-0102AAP	CDHDE-0102AEB	CDHD-0062AAP1	CDHD-0062AEC2	MDDLN45SL	MDDLN45BL
Input main circuit — Voltage (V)	3-phase AC220		Single phase / 3-phase AC220			
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	10		6		5.2	
Input current — Maximum current (A)	30		18		15.5	
Input current — Mass (kg)	1.15		0.97		2.1	
Pulse single-ended/Differential	○		○		○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

💡The basic model of Servotronix does not have an auto-tuning feature.
💡Auto-tuning can reduce the difficulty of debugging.
💡For more information, refer to the driver manufacturer's manual.

Alterations **Order** ❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension – (B2·B3·B4)
E-RAM17-S   600   N   N   B2

	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
Alterations	Standard: Slider / Stroke Y / L — After change: Slider Slider / Stroke Y-220 / L	Standard: Slider / Stroke Y / L — After change: Slider Slider Slider / Stroke Y-440 / L	Standard: Slider / Stroke Y / L — After change: Slider Slider Slider Slider / Stroke Y-660 / L
Code	B2	B3	B4
Spec.	Change to 2 sliders. How to specify B2. 💡Y≥240. 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders. How to specify B3. 💡Y≥480. 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders. How to specify B4. 💡Y≥720. 💡If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. 💡If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

💡When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
💡Only one of B2, B3, or B4 can be selected.
💡When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
💡If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■ Driver Dimensions

EA100/EE100

176.70 / 172.60 / 198.50 / 190.50 / 64.50

DA60/DE60

ø4.5 / 190 / 152.4 / 173 / 16/4 / 54.7 / ø4.6 / 164

PA45/PE45

191 / 170 / (70) / 85 / ø5.2 / 150 / 140 / (18) / 70 / 7.5 / 5.2

■ Motor Parameters

Type		E-RAM17-S
Rated thrust	N	299
Maximum thrust	N	1196
Motor constant @Tmax	N(W1/2)	20.8
Maximum rated power loss	W	206
Rated current	A	5
Maximum current	A	20
Force constant	N/A	59.8
Counter-electromotive force	Vpeak/(m/s)	48.6
Inter-phase impedance	ohms	4
Inter-phase inductance	mH	32
Electrical time constant	mS	8
Maximum single voltage	VDC	540
Maximum winding temperature	℃	120
Coil mass	kg	2.4
Electrical cycle length	mm	20

Linear Motor Actuator 17 Series Heavy-duty

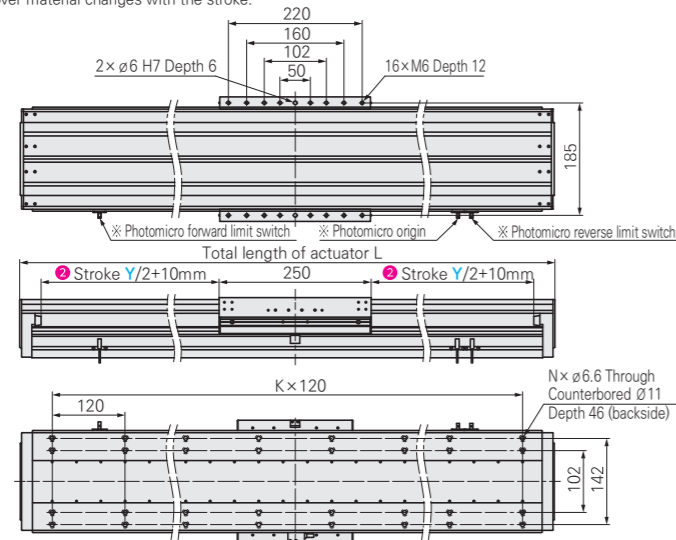■Representative model: E-RAM17-M-600-N-N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover Stroke Y ≤ 1320	Cover Stroke Y ≥ 1380	Press-fit guide rail
Material	Aluminum alloy			Stainless steel	
Surface treatment	Clear anodized			–	

The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

2×ø6 H7 Depth 6
16×M6 Depth 12
220 / 160 / 102 / 50
185

※ Photomicro forward limit switch　※ Photomicro origin　※ Photomicro reverse limit switch

Total length of actuator L
❷ Stroke Y/2+10mm　250　❷ Stroke Y/2+10mm

200 / 170
98
20.5　165　20.5

●Motor lead

Leave an extra space for the motor lead. The motor cable length is 0.2 m.

K×120
120
N× ø6.6 Through Counterbored Ø11 Depth 46 (backside)
102 / 142

Power line connector　36
Encoder line connector　31

Order Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.
❶ Type － ❷ Stroke Y － ❸ Driver － ❹ Cable extension
E-RAM17-M　600　N　N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver	❹ Cable extension	❺Maximum payload Horizontally mounted (kg)	❺Maximum payload Wall mounted (kg)	Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	❻Positioning repeatability (µm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
E-RAM17-M	60~2220	(no driver required) N (driver required) Servotronix Basic model EA100 EE100 / High-end model DA60 DE60 / Panasonic PA45 PE45 Pulse EtherCAT	(no extension required) N (extension required) 1 m···C1 / 3 m···C3 / 5 m···C5	95	60	447	1790	1.5	2	1.5	±5	1	±0.01

The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
This product must never be used for vertical mounting.
The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.　Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.
※This product uses an incremental magnetic encoder with a resolution of 1 µm.

❷Stroke Y (mm)	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140
N	12	16	16	20	20	24	24	28	28	32	32	36	36	40	40	44	44	48	48
K	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
L (mm)	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1240	1300	1360	1420	1480
Mass (g)	19,000	20,100	21,200	22,300	23,400	24,500	25,600	26,700	27,800	28,900	30,000	31,100	32,200	33,300	34,400	35,500	36,600	37,700	38,800

❷Stroke Y (mm)	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	52	52	56	56	60	60	64	64	68	68	72	72	76	76	80	80	84	84
K	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20
L (mm)	1540	1600	1660	1720	1780	1840	1900	1960	2020	2080	2140	2200	2260	2320	2380	2440	2500	2560
Mass (g)	39,900	41,000	42,100	43,200	44,300	45,400	46,500	47,600	48,700	49,800	50,900	52,000	53,100	54,200	55,300	56,400	57,500	58,600

■ Driver Specification

Code		EA100	EE100	DA60	DE60	PA45	PE45
Manufacturer		Servotronix				Panasonic	
Manufacturer model		CDHDE-0102AAP	CDHDE-0102AEB	CDHD-0062AAP1	CDHD-0062AEC2	MDDLN45SL	MDDLN45BL
Input main circuit	Voltage (V)	3-phase AC220		Single phase / 3-phase AC220			
	Frequency (Hz)	50/60					
	Allowable voltage fluctuation	±10%					
Input control circuit	Voltage (V)	Single phase AC220					
	Frequency (Hz)	50/60					
	Allowable voltage fluctuation	±10%					
Input current	Rated current (A)	10		6		5.2	
	Maximum current (A)	30		18		15.5	
	Mass (kg)	1.15		0.97		2.1	
Pulse single-ended/Differential		○		○	○	○	
EtherCAT			○		○		○
Analog							
Auto-tuning				○	○	○	○
Hall effect sensor							
PID/Feedforward							

The basic model of Servotronix does not have an auto-tuning feature.
Auto-tuning can reduce the difficulty of debugging.
For more information, refer to the driver manufacturer's manual.

Alterations **Order** ❶ Type － ❷ Stroke Y － ❸ Driver － ❹ Cable extension － (B2·B3·B4)
E-RAM17-M　600　N　N　B2

Alterations	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
	Standard: Slider / Stroke Y / L After change: Slider Slider / Stroke Y−280 / L	Standard: Slider / Stroke Y / L After change: Slider Slider Slider / Stroke Y−560 / L	Standard: Slider / Stroke Y / L After change: Slider Slider Slider Slider / Stroke Y−840 / L
Code	B2	B3	B4

Spec.	Change to 2 sliders
	How to specify B2
	Y≥300
	If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs.
	If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.
		Change to 3 sliders
		How to specify B3
		Y≥600
		If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs.
		If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.
			Change to 4 sliders
			How to specify B4
			Y≥900
			If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs.
			If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
Only one of B2, B3, or B4 can be selected.
When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA100/EE100
176.70
173.60
64.50
Ø 4.5
189.50 / 196.50

DA60/DE60
Ø 4.6
150
152.4 / 172
167.4
54.7
164

PA45/PE45
191 / 170
(70)　85
(18)
150
70　5.2
7.5
Ø 5.2
160

■Motor Parameters

Type		E-RAM17-M
Rated thrust	N	447
Maximum thrust	N	1790
Motor constant @Tmax	N(W1/2)	25.6
Maximum rated power loss	W	303.8
Rated current	A	5
Maximum current	A	20
Force constant	N/A	89.5
Counter-electromotive force	Vpeak/(m/s)	72.9
Inter-phase impedance	ohms	5.9
Inter-phase inductance	mH	51
Electrical time constant	mS	8.6
Maximum single voltage	VDC	540
Maximum winding temperature	℃	120
Coil mass	kg	3.6
Electrical cycle length	mm	20

Linear Motor Actuator 19 Series Standard

■Representative model: E–RAM19–S–600–N–N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover Stroke Y ≤ 1380	Cover Stroke Y ≥ 1440	Press-fit guide rail
Material	Aluminum alloy				Stainless steel
Surface treatment	Clear anodized				–

ⓘThe cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

ⓘLeave an extra space for the motor lead. The motor cable length is 0.2 m.

Order Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type	–	❷ Stroke Y	–	❸ Driver	–	❹ Cable extension
E–RAM19–S	–	600	–	N	–	N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver	❹ Cable extension	Maximum payload Horizontally mounted (kg)	Maximum payload Wall mounted (kg)	Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	Positioning repeatability (μm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
E–RAM19–S	60~2220	(no driver required) N (driver required) — Pulse/EtherCAT — Servotronix Basic model EA100/EE100 High-end model DA60/DE60 — Panasonic PA45/PE45	(no extension required) N (extension required) 1 m···C1 3 m···C3 5 m···C5	90	55	392	1568	1.5	2	1.5	±5	1	±0.01

ⓘThe payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
ⓘThis product must never be used for vertical mounting.
ⓘThe maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G. ⓘEnsure the flatness of the mounting surface is within 0.01 mm/300 mm.
※This product uses an incremental magnetic encoder with a resolution of 1 μm.

❷ Stroke Y (mm)	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140
N	12	12	16	16	20	20	24	24	28	28	32	32	36	36	40	40	44	44	48
K	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
L (mm)	340	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1240	1300	1360	1420
Mass (g)	16,500	17,600	18,700	19,800	20,900	22,000	23,100	24,200	25,300	26,400	27,500	28,600	29,700	30,800	31,900	33,000	34,100	35,200	36,300

❷ Stroke Y (mm)	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	48	52	52	56	56	60	60	64	64	68	68	72	72	76	76	80	80	84
K	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20
L (mm)	1480	1540	1600	1660	1720	1780	1840	1900	1960	2020	2080	2140	2200	2260	2320	2380	2440	2500
Mass (g)	37,400	38,500	39,600	40,700	41,800	42,900	44,000	45,100	46,200	47,300	48,400	49,500	50,600	51,700	52,800	53,900	55,000	56,100

■ Driver Specification

Code	EA100	EE100	DA60	DE60	PA45	PE45
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-0102AAP	CDHDE-0102AEB	CDHD-0062AAP1	CDHD-0062AEC2	MDDLN45SL	MDDLN45BL
Input main circuit — Voltage (V)	3-phase AC220		Single phase / 3-phase AC220			
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	10		6		5.2	
Input current — Maximum current (A)	30		18		15.5	
	Mass (kg)	1.15		0.97		2.1
Pulse single-ended/Differential	○		○		○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

ⓘThe basic model of Servotronix does not have an auto-tuning feature.
ⓘAuto-tuning can reduce the difficulty of debugging.
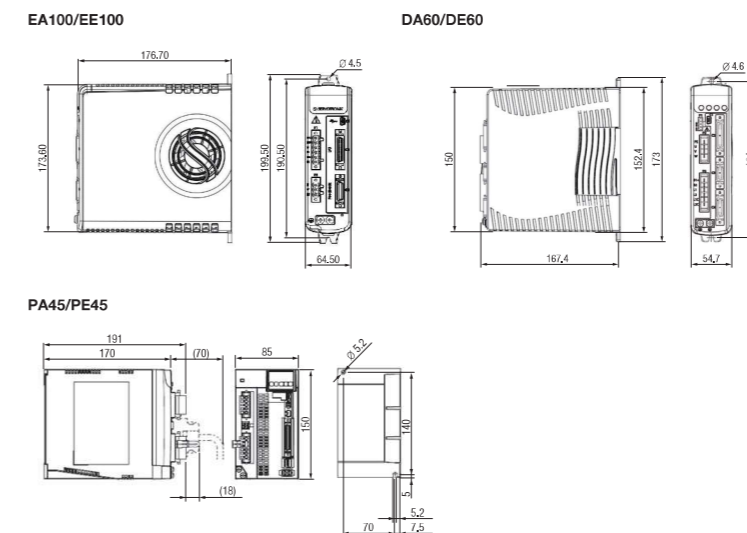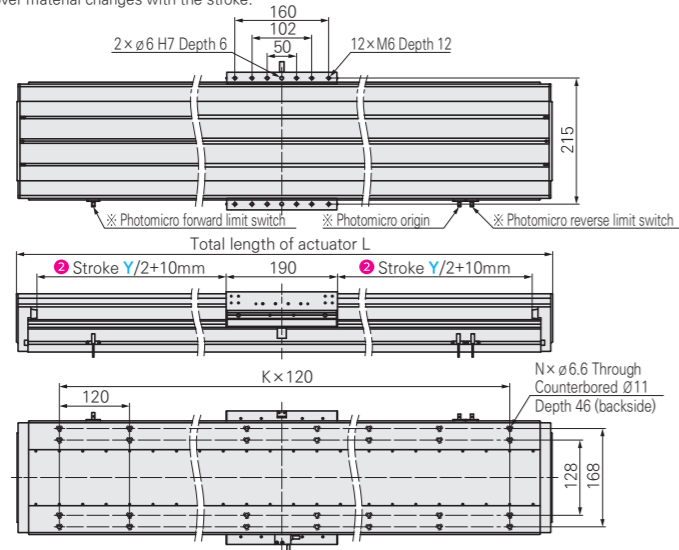ⓘFor more information, refer to the driver manufacturer's manual.

Alterations | **Order** | ❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension – (B2·B3·B4)
E–RAM19–S – 600 – N – N – B2

	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
Alterations	Standard: Slider / Stroke Y / L — After change: Slider Slider / Stroke Y−220 / L	Standard: Slider / Stroke Y / L — After change: Slider Slider Slider / Stroke Y−440 / L	Standard: Slider / Stroke Y / L — After change: Slider Slider Slider Slider / Stroke Y−660 / L
Code	B2	B3	B4
Spec.	Change to 2 sliders. How to specify B2. ⓘY≥240. ⓘIf (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. ⓘIf (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders. How to specify B3. ⓘY≥480. ⓘIf (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. ⓘIf (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders. How to specify B4. ⓘY≥720. ⓘIf (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. ⓘIf (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

ⓘWhen a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
ⓘOnly one of B2, B3, or B4 can be selected.
ⓘWhen a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
ⓘIf the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA100/EE100

DA60/DE60

PA45/PE45

■Motor Parameters

Type		E–RAM19–S
Rated thrust	N	392
Maximum thrust	N	1568
Motor constant @Tmax	N(W1/2)	25.3
Maximum rated power loss	W	252.3
Rated current	A	5
Maximum current	A	20
Force constant	N/A	78.4
Counter-electromotive force	Vpeak/(m/s)	64.2
Inter-phase impedance	ohms	5.3
Inter-phase inductance	mH	43.1
Electrical time constant	mS	9.3
Maximum single voltage	VDC	540
Maximum winding temperature	℃	120
Coil mass	kg	3.6
Electrical cycle length	mm	20

Linear Motor Actuator 19 Series Heavy-duty

■Representative model: E-RAM19-M-600-N-N

Price can be cheked on MISUMI website or WOS

Key parts	Actuator base	Slider	Cover Stroke Y ≤ 1320	Cover Stroke Y ≥ 1380	Press-fit guide rail
Material	Aluminum alloy				Stainless steel
Surface treatment	Clear anodized				–

🔔The cover material changes with the stroke.

■Accessories

Name	Quantity	Output mode	Cable length
Photomicro sensor	3	NPN	2 m

220
160
102
50
2× ø6 H7 Depth 8
16×M6 Depth 12
215

※Photomicro forward limit switch　※Photomicro origin　※Photomicro reverse limit switch

Total length of actuator L
❷ Stroke Y/2+10mm　250　❷ Stroke Y/2+10mm

K×120
120
128
168

N× ø6.6 Through
Counterbored Ø11
Depth 46 (backside)

230
200
102
20.5　195　20.5

※Motor lead

🔔Leave an extra space for the motor lead.
The motor cable length is 0.2 m.

Power line connector　36
Encoder line connector　31

Order Please follow model selection steps ❶ to ❹ to select the type and parameters and place your order.

❶ Type　–　❷ Stroke Y　–　❸ Driver　–　❹ Cable extension
E-RAM19-M　600　–　N　N

❶ Type	❷ Stroke (specified unit 60 mm)	❸ Driver		❹ Cable extension	Maximum payload Horizontally mounted (kg)	Maximum payload Wall mounted (kg)	Rated thrust (N)	Maximum thrust (N)	Rated speed (m/s)	Maximum speed (m/s)	Maximum Acceleration/ Deceleration (G)	Positioning repeatability (μm)	Number of sliders (pcs)	Straightness (mm/ 300 mm)
E-RAM19-M	60~2220	(no driver required) N (driver required)		(no extension required) N (extension required) 1 m···C1 3 m···C3 5 m···C5	115	75	561	2244	1.5	2	1.5	±5	1	±0.01
		Servotronix	Pulse / EtherCAT Basic model EA100 EE100 High-end model DA60 DE60											
		Panasonic	PA45 PE45											

🔔The payload varies depending on the mounting orientation (horizontal or wall), speed, and acceleration/deceleration.
🔔This product must never be used for vertical mounting.
🔔The maximum payload above is at a speed of 0.5 m/s and an acceleration of 0.5 G.　🔔Ensure the flatness of the mounting surface is within 0.01 mm/300 mm.
※This product uses an incremental magnetic encoder with a resolution of 1 μm.

❷Stroke Y (mm)	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140
N	12	16	16	20	20	24	24	28	28	32	32	36	36	36	40	40	44	44	48
K	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
L (mm)	400	460	520	580	640	700	760	820	880	940	1000	1060	1120	1180	1240	1300	1360	1420	1480
Mass (g)	20,000	21,500	23,000	24,500	26,000	27,500	29,000	30,500	32,000	33,500	35,000	36,500	38,000	39,500	41,000	42,500	44,000	45,500	47,000

❷Stroke Y (mm)	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	2040	2100	2160	2220
N	52	52	56	56	60	60	64	64	68	68	72	72	76	76	80	80	84	84
K	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20
L (mm)	1540	1600	1660	1720	1780	1840	1900	1960	2020	2080	2140	2200	2260	2320	2380	2440	2500	2560
Mass (g)	48,500	50,000	51,500	53,000	54,500	56,000	57,500	59,000	60,500	62,000	63,500	65,000	66,500	68,000	69,500	71,000	72,500	74,000

■ Driver Specification

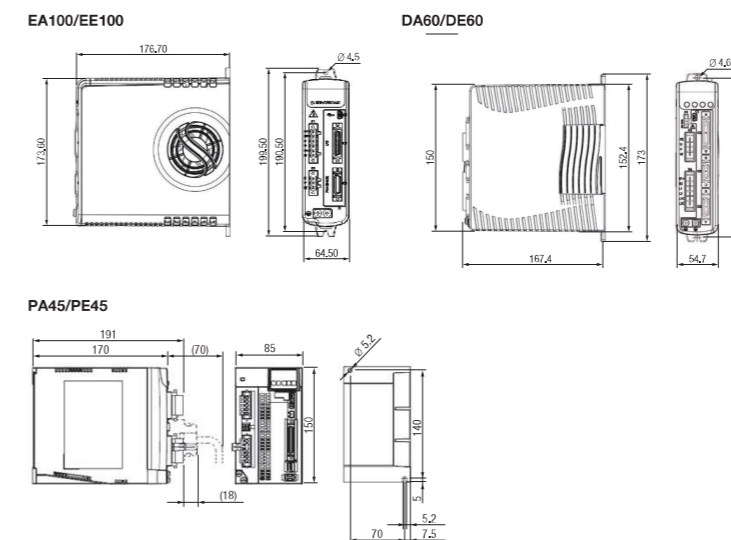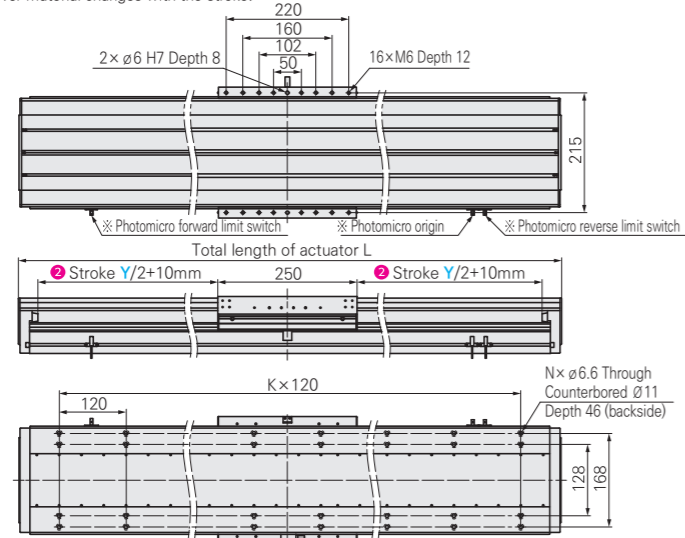| Code	EA100	EE100	DA60	DE60	PA45	PE45
Manufacturer	Servotronix				Panasonic	
Manufacturer model	CDHDE-0102AAP	CDHDE-0102AEB	CDHD-0062AAP1	CDHD-0062AEC2	MDDLN45SL	MDDLN45BL
Input main circuit — Voltage (V)	3-phase AC220		Single phase / 3-phase AC220			
Input main circuit — Frequency (Hz)	50/60					
Input main circuit — Allowable voltage fluctuation	±10%					
Input control circuit — Voltage (V)	Single phase AC220					
Input control circuit — Frequency (Hz)	50/60					
Input control circuit — Allowable voltage fluctuation	±10%					
Input current — Rated current (A)	10		6		5.2	
Input current — Maximum current (A)	30		18		15.5	
Mass (kg)	1.15		0.97		2.1	
Pulse single-ended/Differential	○		○		○	
EtherCAT		○		○		○
Analog			○	○		
Auto-tuning			○	○	○	○
Hall effect sensor						
PID/Feedforward						

🔔The basic model of Servotronix does not have an auto-tuning feature.
🔔Auto-tuning can reduce the difficulty of debugging.
🔔For more information, refer to the driver manufacturer's manual.

Alterations Order ❶ Type – ❷ Stroke Y – ❸ Driver – ❹ Cable extension – (B2·B3·B4)
E-RAM19-M　–　600　N　N　B2

Alterations	Number of slider changed (2)	Number of slider changed (3)	Number of slider changed (4)
	Standard: Slider / Stroke Y / L	Standard: Slider / Stroke Y / L	Standard: Slider / Stroke Y / L
	After change: Slider Slider / Stroke Y−280 / L	After change: Slider Slider Slider / Stroke Y−560 / L	After change: Slider Slider Slider Slider / Stroke Y−840 / L
Code	B2	B3	B4
Spec.	Change to 2 sliders. How to specify　B2 🔔Y≥300 🔔If (Driver required) is specified, the specified number of drivers is simultaneously changed to 2 pcs. 🔔If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 2 pcs.	Change to 3 sliders. How to specify　B3 🔔Y≥600 🔔If (Driver required) is specified, the specified number of drivers is simultaneously changed to 3 pcs. 🔔If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 3 pcs.	Change to 4 sliders. How to specify　B4 🔔Y≥900 🔔If (Driver required) is specified, the specified number of drivers is simultaneously changed to 4 pcs. 🔔If (Extension required) is specified, the specified number of cable extensions is simultaneously changed to 4 pcs.

🔔When a change in the number of sliders is specified, the stroke Y dimension becomes shorter.
🔔Only one of B2, B3, or B4 can be selected.
🔔When a change in the number of sliders is specified, the photomicro sensors on the actuator base are changed from 3 to 4, and the added sliders are equipped with one collision-resistant photomicro sensor.
🔔If the number of sliders changes, it will come with the same number of drivers as the number of sliders.

■Driver Dimensions

EA100/EE100
176.70 / 172.60 / 198.50 / 190.50 / 64.50 / Ø 4.5

DA60/DE60
Ø 4.6 / 150 / 152.4 / 173 / 164 / 167.4 / 54.7

PA45/PE45
191 / 170 / (70) / 85 / Ø 5.2 / 150 / 140 / (18) / 5.2 / 7.5 / 70

■Motor Parameters

Type		E-RAM19-M
Rated thrust	N	561
Maximum thrust	N	2244
Motor constant @Tmax	N(W1/2)	31.5
Maximum rated power loss	W	375.8
Rated current	A	5
Maximum current	A	20
Force constant	N/A	112.2
Counter-electromotive force	Vpeak/(m/s)	91.8
Inter-phase impedance	ohms	7.8
Inter-phase inductance	mH	64.3
Electrical time constant	mS	9.2
Maximum single voltage	VDC	540
Maximum winding temperature	℃	120
Coil mass	kg	5.4
Electrical cycle length	mm	20

■Wiring diagram for each driver

The I/O wiring diagram is for reference only. Please adjust according to actual applications.
For details on the power and encoder extensions, please refer to P.35.

〈EA45,EA100〉

Driver wiring diagram

PC (Customers make their own purchases)　USB

Mini−B Female　C1

Power Single−phase AC220V 50/60Hz (Customers make their own purchases)　LC / NC / L / N

L1C / L2C / L1 / L2 / B1+ / B2　P1

C2

Braking resistors (Customers make their own purchases, as needed)

Actuator slider

Power extension

U / V / W / PE　P2

Encoder extension

Encoder interface　C3

Driver (EA45)

Pulse	FAST−IN1	33
Orientation	FAST−IN2	15
Digital grounding	GND	
Encoder output	OA+	11
	OA−	9
	OB+	5
	OB−	7
	OZ+	2
	OZ−	4
	GND	10
Enable	IN1	28
Alarm removal	IN2	27
Alarm	OUT1	34
Motor positioning complete	OUT2	32
IO power input	COM+	19
IO power grounding	COM−	1

PE

〈DA30,DA60〉

Driver wiring diagram

PC (Customers make their own purchases)　USB

Mini−B Female　C1

Power Three−phase AC220V 50/60Hz　R / S / T
Single−phase AC220V 50/60Hz　LC / NC

L1 / L2 / L3 / L1C / L2C / B1+ / B2　P4 / P3

C2

Braking resistors (Customers make their own purchases, as needed)

Actuator slider

Power extension

U / V / W / PE　P2

Encoder extension

Encoder interface　C4

Driver (DA60)

Pulse	IN5	32
Orientation	IN6	15
Digital grounding	GND	
Encoder output	OA+	22
	OA−	4
	OB+	23
	OB−	5
	OZ+	24
	OZ−	6
	GND	26
Enable	IN1	3
Alarm removal	IN2	20
Alarm	OUT1	2
Motor positioning complete	OUT2	33
IO power input	COM+	19
IO power grounding	COM−	1

PE

〈PA24,PA45〉

Driver wiring diagram

Driver (PE25, PE45)

| X1 | Mini−USB | |
| X2A | RS−232,RS485 | |

PC (Customers make their own purchases) PANATERM

Power (Customers make their own purchases) Single−phase/ three−phase 220V　L1 / L2 / L3 / L1C / L2C　XA

Braking resistors (Customers make their own purchases, as needed)　P / N / B / U / V / W　XB

Actuator slider

Power extension

Encoder extension

X4 (four-directional control connection port)

	FG	50
Command pulse input 2	PULS1	3
Command pulse input 2	PULS2	4
Command code input 2	SIGN1	5
Command code input 2	SIGN2	6
Z-phase output	OZ +	23
Z-phase output	OZ −	24
Digital grounding	GND	13,25
IO power input	COM +	7
Count clear	CL	30
Motor servo on signal input	SRV-ON	29
Gain switch input	GAIN	27
Alarm clear input	A-CLR	31
Forward travel prohibition input	POT	9
Reverse travel prohibition input	NOT	8
Servo ready output	S-RDY +	35
Servo ready output	S-RDY −	34
Servo alarm output	ALM +	37
Servo alarm output	ALM −	36
Positioning complete output	INP +	39
Positioning complete output	INP −	38
IO power input	COM −	41

| X5 | Feedback scale |
| X6 | Motor encoder |

〈EE45,EE100〉

Driver wiring diagram

PC (Customers make their own purchases)　USB

Mini−B Female　C1

Power Single−phase AC220V 50/60Hz (Customers make their own purchases)　LC / NC / L

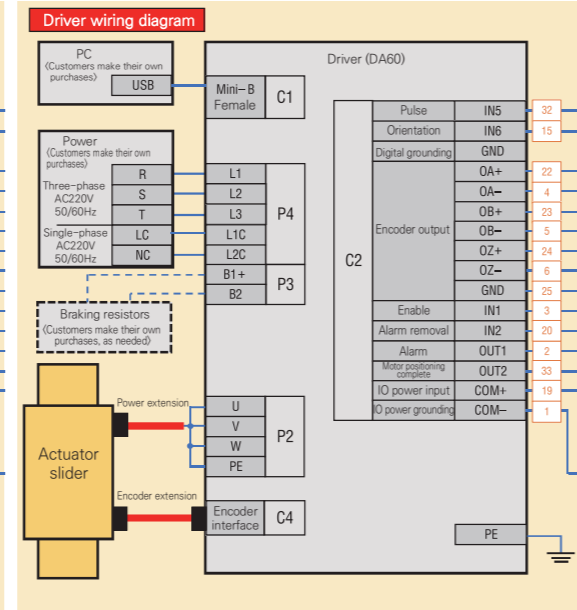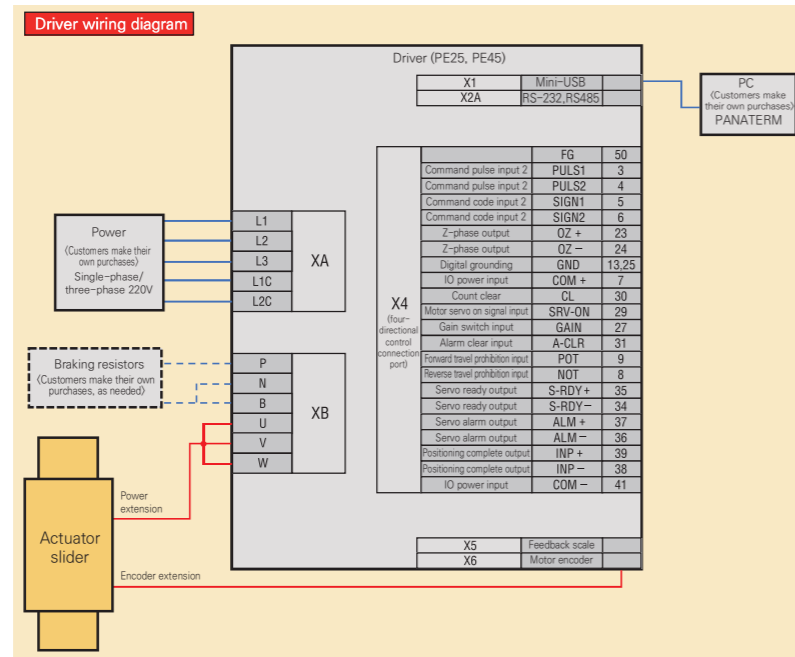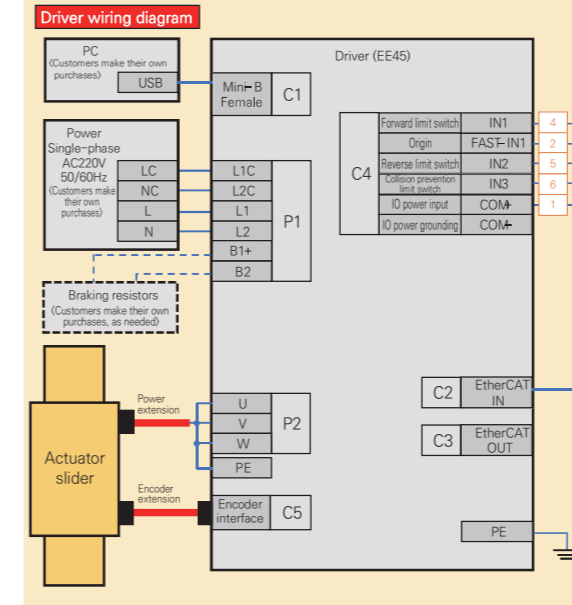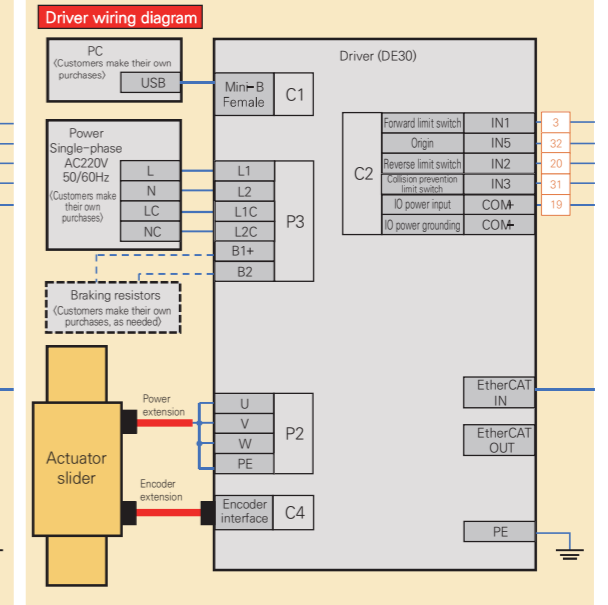L1C / L2C / L1 / L2 / B1+ / B2　P1

C4

Driver (EE45)

Forward limit switch	IN1	4
Origin	FAST−IN1	2
Reverse limit switch	IN2	5
Collision prevention limit switch	IN3	6
IO power input	COM+	1
IO power grounding	COM+	

Braking resistors (Customers make their own purchases, as needed)

Actuator slider

Power extension

U / V / W / PE　P2

Encoder extension

Encoder interface　C5

C2　EtherCAT IN

C3　EtherCAT OUT

PE

〈DE30,DE60〉

Driver wiring diagram

PC (Customers make their own purchases)　USB

Mini−B Female　C1

Power Single−phase AC220V 50/60Hz (Customers make their own purchases)　L / N / LC / NC

L1 / L2 / L1C / L2C / B1+ / B2　P3

C2

Driver (DE30)

Forward limit switch	IN1	3
Origin	IN5	32
Reverse limit switch	IN2	20
Collision prevention limit switch	IN3	31
IO power input	COM+	19
IO power grounding	COM−	

Braking resistors (Customers make their own purchases, as needed)

Actuator slider

Power extension

U / V / W / PE　P2

Encoder extension

Encoder interface　C4

EtherCAT IN

EtherCAT OUT

PE

〈PE25,PE45〉

Driver wiring diagram

Driver (PE25, PE45)

X1	Mini−USB	
X2A	EtherCAT IN	
X2B	EtherCAT OUT	

PC (Customers make their own purchases) PANATERM

Power (Customers make their own purchases) Single−phase/ three−phase 220V　L1 / L2 / L3 / L1C / L2C　XA

Braking resistors (Customers make their own purchases, as needed)　P / N / B / U / V / W　XB

Actuator slider

Power extension

Encoder extension

X4 〈I/O〉

	FG	
Power input	SI−COM	6
A-phase output Position comparison output 1	OA+/OCMP	17
A-phase output Position comparison output 1	OA+/OCMP	IN6
B-phase output Position comparison output 2	OB+/OCMP	24 IN6
B-phase output Position comparison output 2	OB+/OCMP	IN6
Position comparison output 3	IN6	IN6
Position comparison output 3	IN6	IN6
Digital grounding	IN6	IN6

| X5 | Feedback scale |
| X6 | Motor encoder |

■Driver Dimensions

〈Wiring diagram〉

Linear motor AC
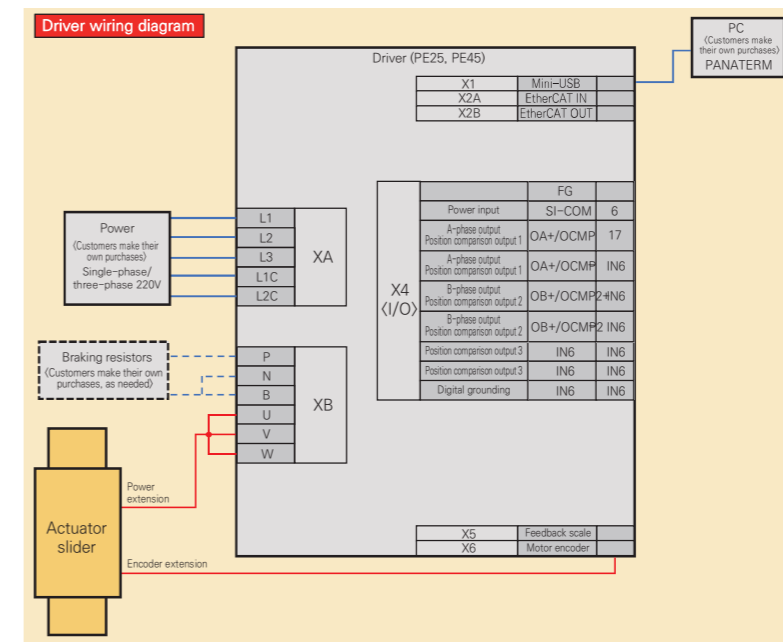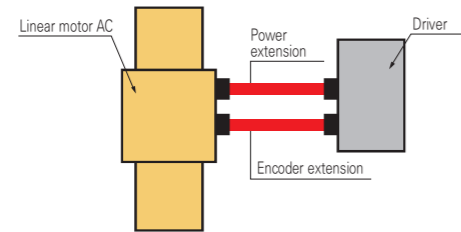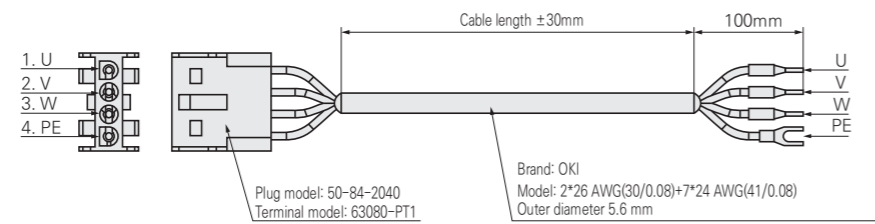Power extension
Driver
Encoder extension

🔎 For the driver wiring method, please refer to the official documentation of the driver manufacturer.
🔎 For the specifications of the extension, please refer to the details below.
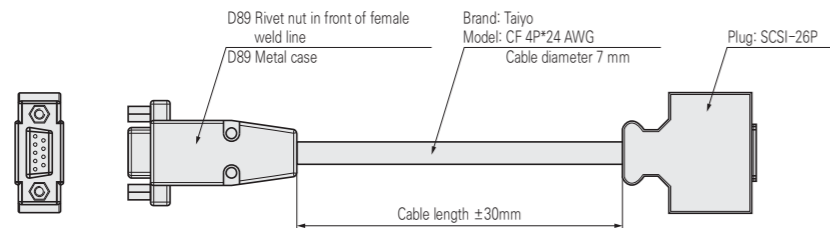
〈Power cable extension〉

Applicable drivers: General purpose (Servotronix and Panasonic only)

Cable length ±30mm   100mm

1. U
2. V
3. W
4. PE

U
V
W
PE

Plug model: 50-84-2040
Terminal model: 63080-PT1

Brand: OKI
Model: 2*26 AWG(30/0.08)+7*24 AWG(41/0.08)
Outer diameter 5.6 mm

🔎 If you intend to purchase only the cable, please contact us

〈Encoder cable extension for Servotronix〉

Applicable drivers: EA/EE/DA/DE

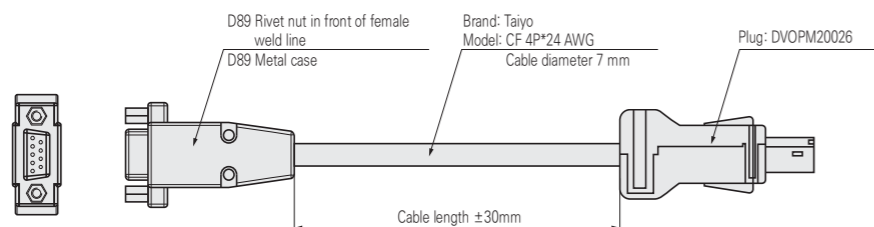D89 Rivet nut in front of female weld line
D89 Metal case

Brand: Taiyo
Model: CF 4P*24 AWG
Cable diameter 7 mm

Plug: SCSI-26P

Cable length ±30mm

Linear motor side		Driver side	
Feature	Pin	Feature	Pin
A+	4	A+	1
A−	8	A−	14
B+	3	B+	2
B−	7	B−	15
Z+	2	Z+	3
Z−	6	Z−	16
5V	5	5V	13
GND	9	GND	24
Shielding	shell	Shielding	shell

🔎 If you intend to purchase only the cable, please contact us

〈Encoder cable extension for Panasonic〉

Applicable drivers: PA/PE

D89 Rivet nut in front of female weld line
D89 Metal case

Brand: Taiyo
Model: CF 4P*24 AWG
Cable diameter 7 mm

Plug: DVOPM20026

Cable length ±30mm

Linear motor side		Driver side	
Feature	Pin	Feature	Pin
A+	4	A+	5
A−	8	A−	6
B+	3	B+	7
B−	7	B−	8
Z+	2	Z+	9
Z−	6	Z−	10
5V	5	5V	1
GND	9	GND	2
Shielding	shell	Shielding	shell

■Diagram

E-RAM	Linear motor AC

Motor types

E-RAM6-S
E-RAM8-S
E-RAM8-M
E-RAM10-S
E-RAM10-M
E-RAM12-S
E-RAM12-M
E-RAM14-S
E-RAM14-M
E-RAM17-S
E-RAM17-M
E-RAM19-S
E-RAM19-M

Sensor

Power cable default 0.2 m (optional cable extension)

Encoder cable default 0.2 m (optional cable extension)

Servo drive (Servotronix EA/EE/DA/DE) (Panasonic PA/PE)

What customers need to prepare

Power

Motion controller

PLC