EC-S4

Simple dust-proof | Coupled Motor | Body width 44 mm | 24v Stepper motor

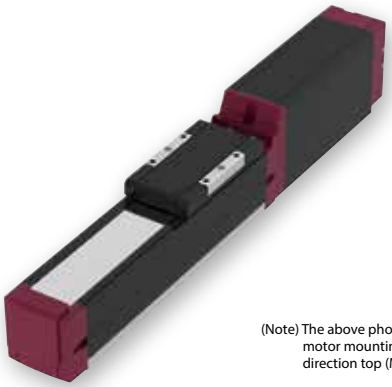
■ Model Specification Items

EC — S4 — [ ] — [ ] — [ ] — [ ]

Series	Type	Lead	Stroke	Cable Length	Options
EC	S4	S 16mm H 10mm M 5mm L 2.5mm	50 (50mm) ~ 300 (300mm) (per 50mm)	0 Terminal type with connector 1 (1m) ~ 10 (10m)	Refer to the option price list below

CE RoHS

Horizontal | Vertical | Side | Ceiling



(Note) The above photo shows motor mounting direction top (MOT).

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.

(2) When performing a push-motion operation, please refer to the "Correlation between push force and current limit value." Push force is only a guide. Please refer to P115 for cautions.

(3) Special attention needs to be paid to the mounting orientation. Please refer to P33 for details.

(4) Reference value of the overhang load length is under 100mm in the Ma, Mb and Mc directions. Please refer to the illustration on P35 for the overhang load length.

(5) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.

Stroke

Stroke (mm)	EC-S4	Stroke (mm)	EC-S4
50	○	**200**	○
100	○	**250**	○
150	○	**300**	○

Price List for cable length

Cable code	Cable length
0	No cable (connector supplied)
1 ~ 3	1 ~ 3m
4 ~ 5	4 ~ 5m
6 ~ 10	6 ~ 10m

(Note) Robot cables.

Stroke and maximum speed

Lead (mm)	Energy-saving	50-200 (per 50mm)	250 (mm)	300 (mm)
16	disabled	800	760	540
	enabled	800 <560>	760 <560>	540
10	disabled	700	470	320
	enabled	525	470	320
5	disabled	350	240	160
	enabled	260	240	160
2.5	disabled	175 <150>	120	85
	enabled	135	120	85

Figures in < > represent vertical operations. (Unit is mm/s)

Options

Name	Option code	Reference page
Brake	**B**	See P.101
Foot bracket	**FT**	See P.103
Motor mounting direction change (bottom) (Note 1)	**MOB**	See P.105
Motor mounting direction change (left) (Note 1)	**MOL**	See P.105
Motor mounting direction change (right) (Note 1)	**MOR**	See P.105
Motor mounting direction change (top) (Note 1)	**MOT**	See P.105
Non-motor end specification	**NM**	See P.108
PNP specification	**PN**	See P.108
Split motor and controller power supply specification	**TMD2**	See P.109
Battery-less absolute encoder	**WA**	See P.109
Wireless communication specification	**WL**	See P.109
Wireless axis-operation specification	**WL2**	See P.109

(Note 1) Please make sure to enter a code in the option column of the model spec item.

Main specifications

Item		Item	Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	7	12	15	18
		Max. payload (kg) (energy-saving enabled)	4	10	12	14
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	800	700	350	175
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2	4.5	6.5
	Speed/ Acceleration/ Deceleration	Max. speed (mm/s)	800	700	350	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push force		Max. thrust force when pushing (N)*	41	66	132	263
		Max. speed when pushing (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

* Speed limitation applies to push motion. See the manual or contact IAI.

Item	Description
Driving system	Ball screw φ8mm, Rolling C10
Positioning repeatability	±0.05mm
Lost motion	—
Base	Dedicated aluminum extruded material (A6063SS-T5 or equivalent) Black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 13N・m
	Mb: 18N・m
	Mc: 25N・m
Dynamic allowable moment (Note 2)	Ma: 5N・m
	Mb: 7N・m
	Mc: 9N・m
Ambient operation temperature/humidity	0 to 40°C, RH 85% or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s² 100Hz or less
Overseas standards	CE Marking, RoHS (Restriction of Hazardous Substances)
Motor type	Stepper motor
Encoder type	Incremental / battery-less absolute
Number of encoder pulses	800 pulse /rev.

(Note 2) Based on the standard rated operation life of 5,000 km. Operation life varies depending on operating and mounting conditions. Confirm the operation life on P36.

Table of Payload by Speed and Acceleration/Deceleration

■ Energy-saving disabled

The unit for payload is kg. Operations in the blank locations are not possible

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	7	6	6	5	1.5	1.25
140	7	6	6	5	1.5	1.25
280	7	6	6	5	1.5	1.25
420	7	6	6	5	1.5	1.25
560	7	6	5.5	5	1.5	1.25
700	6	5	4.5	4	1.5	1.25
800		4	3.5	3		1

Lead 10

Orientation	Horizontal						Vertical	
Speed	Acceleration (G)							
(mm/s)	0.3	0.5	0.7	1	0.3	0.5		
0	12	11	10	10	2.5	2		
175	12	11	10	10	2.5	2		
350	12	11	10	9	2.5	2		
435	12	11	9	8	2.5	2		
525	11	9	7	6	2	2		
600	10	7	5	4.5	2	1.5		
700		4	2.5	2.5		1		

Lead 5

Orientation	Horizontal		Vertical	
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.3	0.5
0	15	14	5	4.5
85	15	14	5	4.5
130	15	14	5	4.5
215	15	14	5	4.5
260	15	14	5	4.5
300	15	14	4.5	4
350	13	12	4	3.5

Lead 2.5

Posture	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	18	6.5
40	18	6.5
85	18	6.5
105	18	6.5
135	18	6.5
150	18	6
175	18	

■ Energy-saving enabled

The unit for payload is kg. Operations in the blank locations are not possible

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	4	3.5	1
140	4	3.5	1
280	4	3.5	1
420	4	3.5	1
560	4	3	1
700	3	2	
800		1	

Lead 10

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	10	8	2
175	10	8	2
350	9	6	2
435	7	5	1.5
525	5	2.5	1

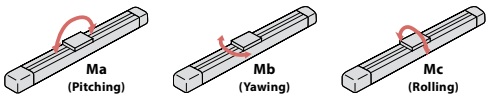
Lead 5

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	12	4.5
85	12	4.5
130	12	4
215	10	4
260	9	2.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	14	6.5
40	14	6.5
85	14	6.5
105	14	6.5
135	14	5

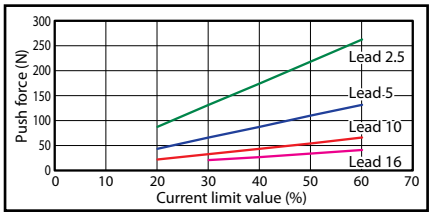
Direction of slider type moment



Mass by Stroke

Stroke		50	100	150	200	250	300
Weight (kg)	without brake	1.2	1.3	1.5	1.6	1.8	1.9
	with brake	1.3	1.5	1.6	1.8	1.9	2.1

Correlation between push force and current limit value



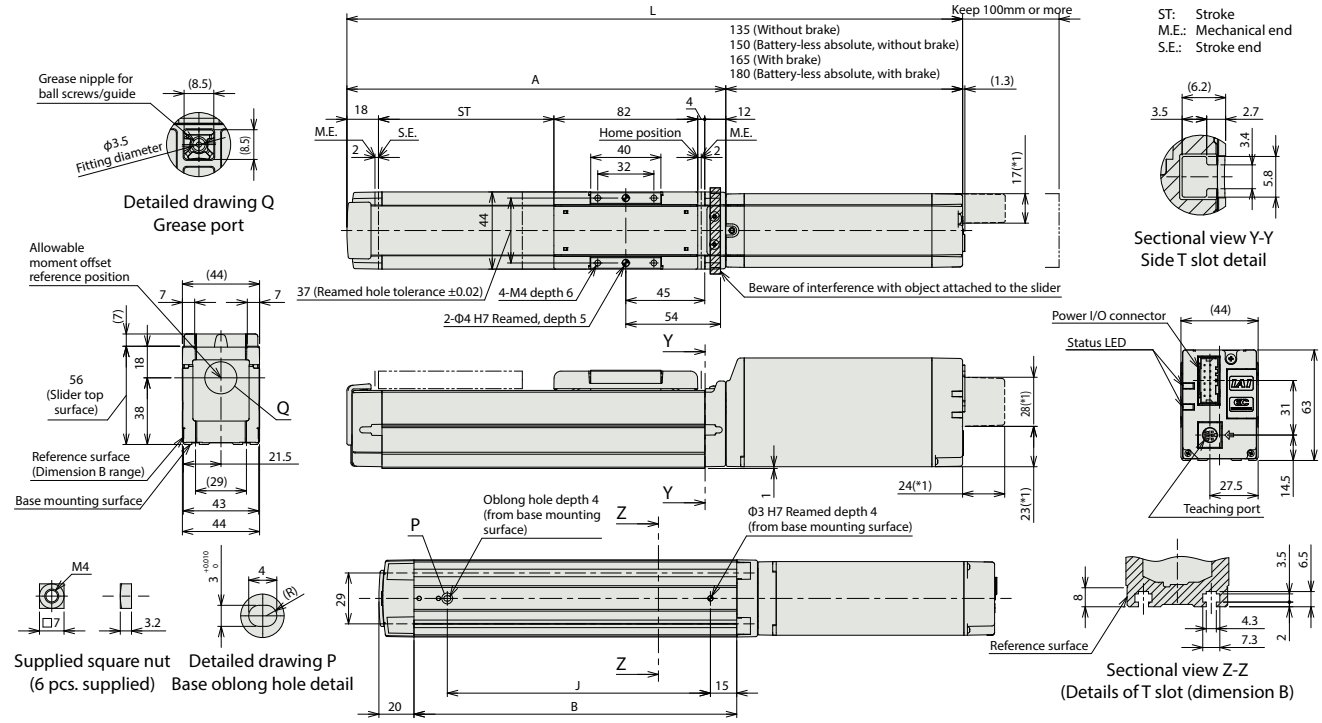
Dimensions by Stroke

Stroke			50	100	150	200	250	300
L	Incremental	without brake	301	351	401	451	501	551
		with brake	331	381	431	481	531	581
	Battery-less absolute	without brake	316	366	416	466	516	566
		with brake	346	396	446	496	546	596
A			166	216	266	316	366	416
B			134	184	234	284	334	384
J			100	150	200	250	300	350

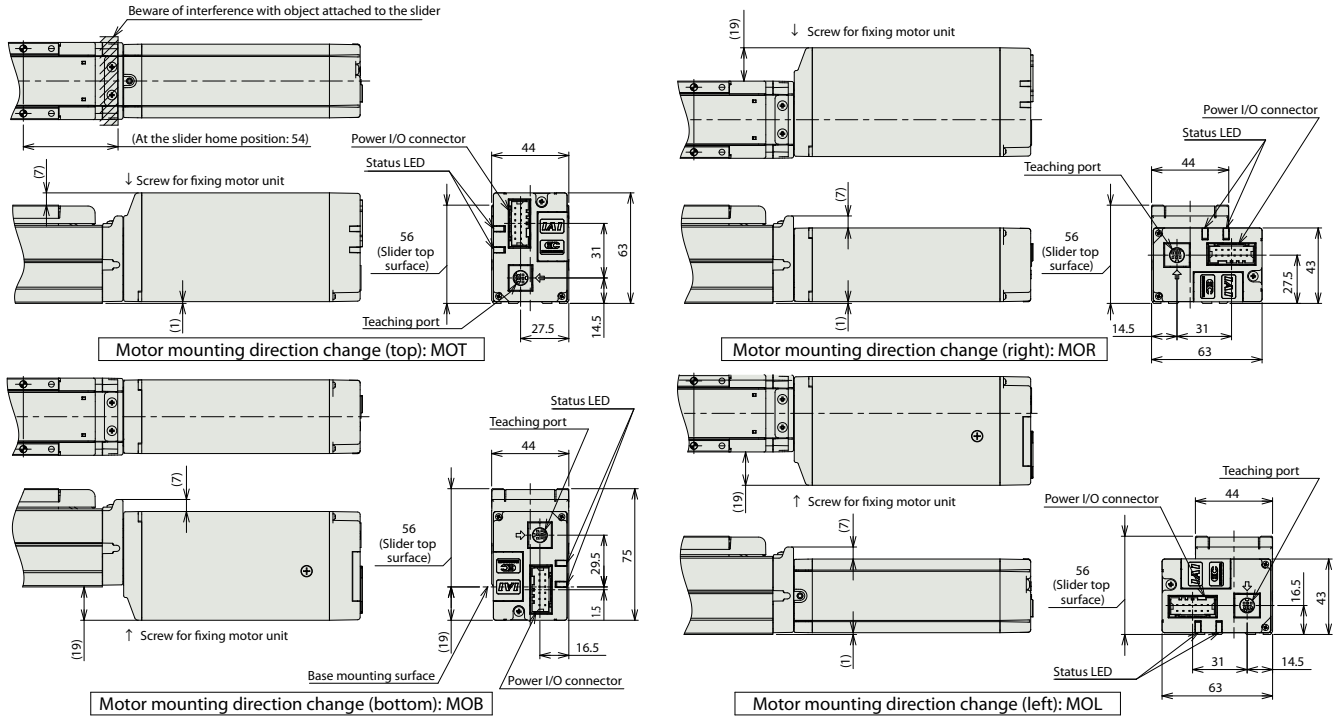
Dimensions

*1 These dimensions are for the wireless communication or wireless axis-operation optional specifications..
(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The drawing below represents motor mounting direction top (MOT).

CAD drawings can be downloaded from our website.
www.intelligentactuator.com
2D CAD 3D CAD



Motor mounting direction change (optional)



Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P116 for details.