IAI
Quality and Innovation

EC-S□D
EC-S□W

ELECYLINDER® Slider Type
Dust-resistant and Dust-proof/Splash-proof Specifications

www.intelligentactuator.com

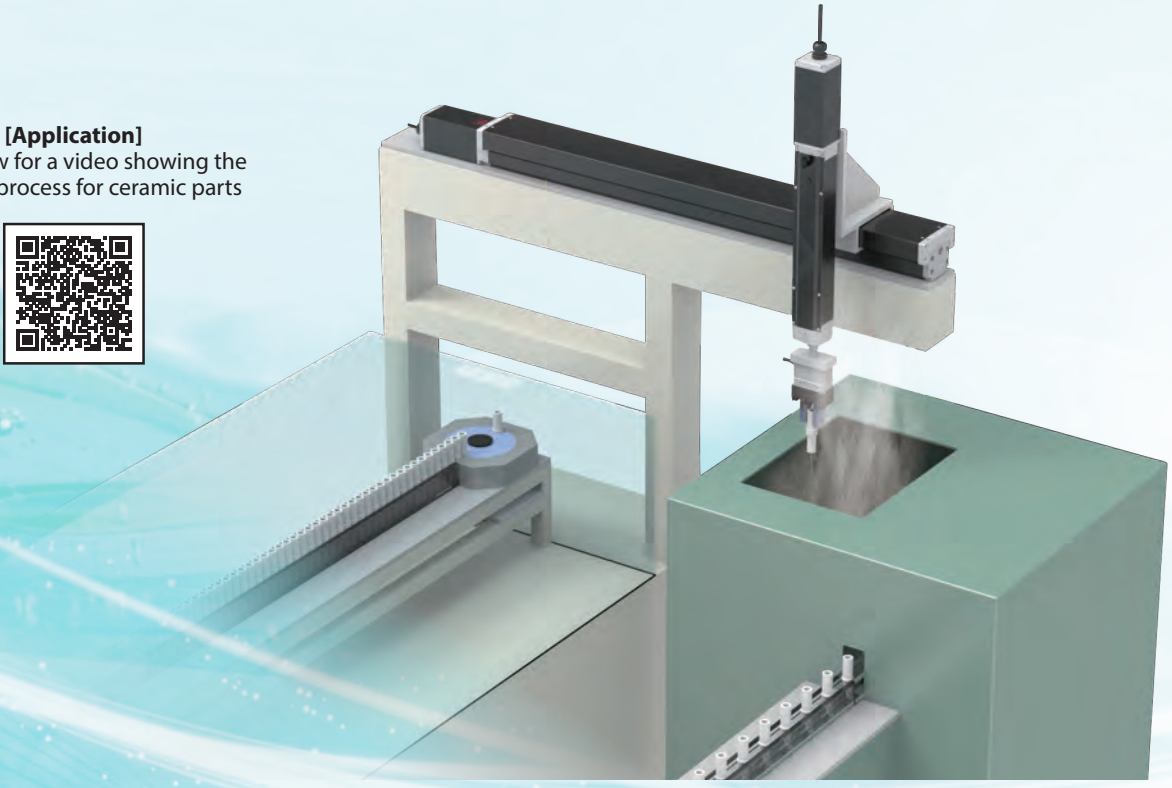
Electric actuators with IP44 protection

ELECYLINDER® Slider Type

Dust-resistant Specification / Dust-proof/Splash-proof Specification

Can be used for machining processes that generate dust, etc.

[Application]
Scan below for a video showing the grinding process for ceramic parts



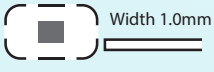
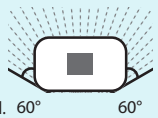
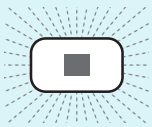
1. Select a type to suit the environment

Ingress protection rating

IP □ □

First digit
Protection against ingress from solid foreign matter

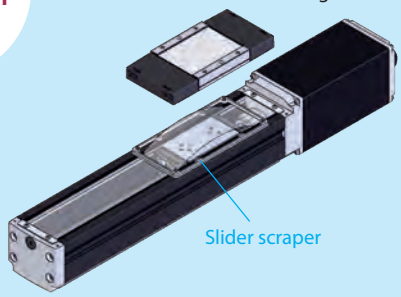
Second digit
Protection against ingress of water

	EC-S□D	EC-S□W	EC-S□W (Wiper seal mounted specification)
Ingress protection	IP40	IP43	IP44
First digit protection rating	Tools exceeding a diameter or width of 1.0mm, wires, and other solid objects cannot be inserted. 		
Second digit protection rating	No protection	Rain-proof No harmful effects from water drops falling within 60° from the vertical. 	Droplet-proof No harmful effects from splashing water from any direction. 

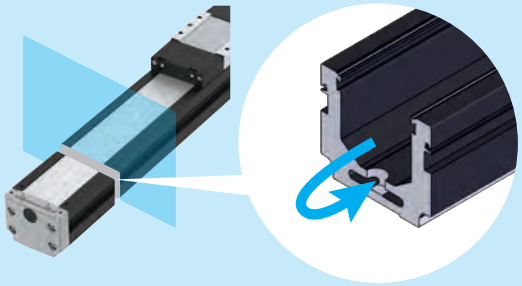
2. Proprietary internal structure for increased dust-proof/ splash-proof performance

Dust-resistant specification (IP40)

The entire circumference of the slider is covered with a slider scraper, preventing dust from entering through the stainless steel sheet, as it bends to accommodate the slider carriage.

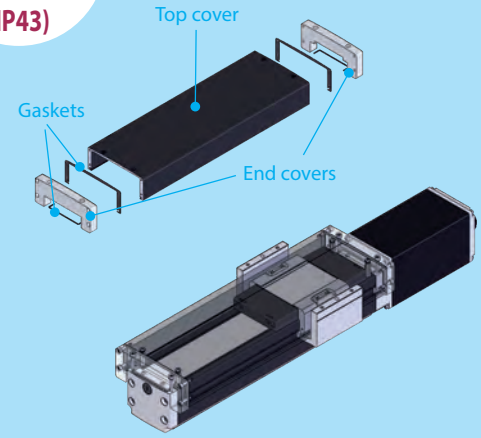


Air is circulated through a hole in the base so that the inside of the body is connected with the base hollow portion, preventing dust from entering.



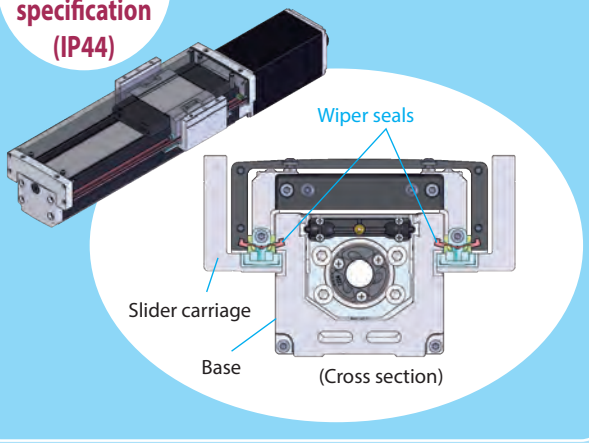
Dust-proof/ splash-proof specification (IP43)

A top cover is mounted to help prevent water from entering inside.



Dust-proof/ splash-proof specification (IP44)

Wiper seals can be mounted to further prevent water and other foreign matter from entering.



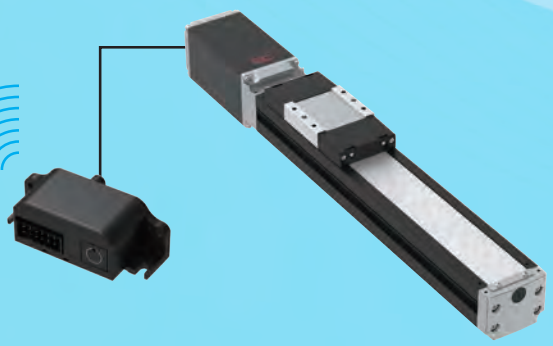
3. Simple wireless operation

No need to connect a communication cable to the actuator.

Touch Panel
Teaching Pendant
TB-03

Wireless

5m (guideline)



Model Specification Items

ELECYLINDER®

Series: EC – Type – Lead – Specifications – Stroke – Cable Length – Options

Type	
S6	Slider type (Base width 63mm)
S7	Slider type (Base width 73mm)

Specifications	
D	Dust-resistant specification
W	Dust-proof/splash-proof specification

Stroke	
0	Without cable (Power I/O connector included (Note))
(S)1	1m
↕	↕
(S)8	8m

(every 1m)
(S): 4-way connector cable
(Note): A power I/O connector is not included if RCON-EC connection specification (ACR) is selected

<S6>

Lead	
L	Lead 3mm
M	Lead 6mm
H	Lead 12mm
S	Lead 20mm

<S7>

Lead	
L	Lead 4mm
M	Lead 8mm
H	Lead 16mm
S	Lead 24mm

Stroke	
50	50mm
↕	↕
800	800mm

Options	
Left blank	Incremental encoder, NPN specification, no options
AC5	Actuator cable (Pigtail cable) length: 5m*1
ACR	RCON-EC connection specification*2
APL	Air purge joint specification (left)
APR	Air purge joint specification (right)
B	Brake
FT	Foot bracket
G5	Designated grease specification
NM	Non-motor end specification
PN	PNP specification*2
TMD2	Split motor and controller power supply specification*2
WA	Battery-less absolute encoder specification
WL	Wireless communication specification
WL2	Wireless axis operation specification
WS	Wiper seal mounted specification*3

*1 If "AC5" is selected, please select a maximum Power · I/O cable length of 5m.
*2 If "ACR" is selected, the "PN" and "TMD2" options cannot be selected (I/O for the "ACR" option is NPN only; compatible with split motor and controller power supply as standard)
*3 Only compatible with the dust-proof/splash-proof specification.

*The stroke selection range varies according to the actuator type.
Please refer to the pages of each type for details.

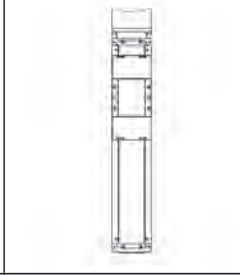
Specification Tables

Type		Lead Model	Lead mm	Stroke (mm) and max speed (mm/s) *Length of band = Stroke; *Numbers in band = Maximum speed by stroke																Max. payload (kg) Horizontal	Max. payload (kg) Vertical
				50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800		
Coupled motor	S6□D S6□W	S-	20	800													790	695	615	15	1
		H-	12	700										665	560	490	425	375	330	26	2.5
		M-	6	450									400	335	285	245	210	180	160	32	6
		L-	3	225										165	140	120	105	90	80	40	12.5
	S7□D S7□W	S-	24	860															840	37	3
		H-	16	700													685	605	535	46	8
		M-	8	420												390	345	305	270	51	16
		L-	4	210												190	170	145	125	51	19

*With power-saver mode disabled and no options.

Mounting Orientation

○: Can be mounted ×: Cannot be mounted

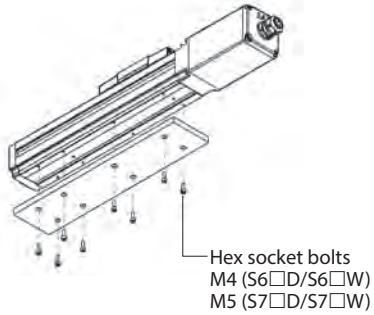
		Mounting orientation			
					
Series	Type	Table mounted	Vertical mounted	Side mounted	Invert mounted
EC	S6□D/S7□D	○	○	○	○
	S6□W/S7□W	○	×	×	×

*1 When mounting vertically, make sure to install the motor on the top.
Mounting the motor on the bottom could cause the grease to separate and base oil to leak into the motor, which could cause the controller, motor, or encoder to fail.

● **Keep the body installation surface and workpiece mounting surface flatness within 0.05mm/m.**
Uneven flatness will increase the resistance of the slider and may cause malfunctions.

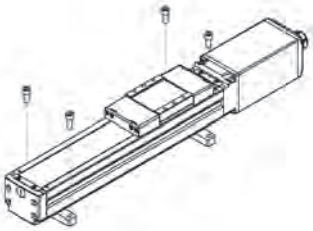
Mounting Method

■ Use the mounting holes on the bottom surface of the body

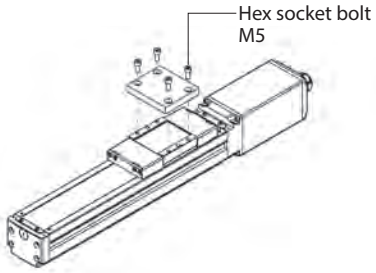


■ Use the foot bracket option (FT)

*Please refer to P. 21 for details on options

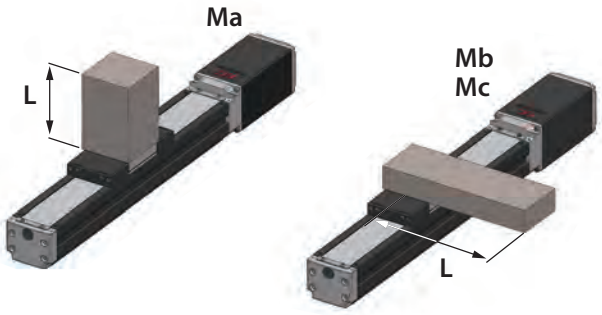


■ Mounting the payload



Overhang Load Length

This is the approximate offset at which the actuator can operate smoothly even when the workpiece or bracket is offset from the slider. Vibration or other factors could cause operation failures if the overhang is exceeded.
The product should therefore be used within the approximate length.



EC-S6□D

Dust-proof | Coupled Motor | Body Width 60 mm | 24V Stepper Motor

Model Specification Items

EC - S6 □ D - □ - □ - □

Series	Type	Lead	Specifications	Stroke	Power · I/O cable length	Options
EC	S6	S: 20mm H: 12mm M: 6mm L: 3mm	D: Dust-resistant	50: 50mm ↕ 800: 800mm (every 50mm)	See power · I/O cable length table below	Refer to Options below

CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	EC-S6□D	Stroke (mm)	EC-S6□D
50	○	**450**	○
100	○	**500**	○
150	○	**550**	○
200	○	**600**	○
250	○	**650**	○
300	○	**700**	○
350	○	**750**	○
400	○	**800**	○

(Note) Interface box is included.

Options * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable (Pigtail cable) length: 5m	**AC5**	21
RCON-EC connection specification (Note 1)	**ACR**	21
Air purge joint specification (left)	**APL**	21
Air purge joint specification (right)	**APR**	21
Brake	**B**	21
Foot bracket	**FT**	21
Designated grease specification	**G5**	22
Non-motor end homing specification	**NM**	22
PNP specification	**PN**	22
Split motor and controller power supply specification	**TMD2**	22
Battery-less absolute encoder specification	**WA**	22
Wireless communication specification	**WL**	22
Wireless axis operation specification	**WL2**	22

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

Selection Notes

(1) Longer strokes may cause the maximum speed to decrease due to the critical resonance speed of the ball screw. Be sure to check the maximum speed of the desired stroke in "Stroke and Max. Speed."

(2) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.

(3) If performing push-motion operations, refer to the "Correlation Diagram between Push Force and Current Limit." The push forces listed are only reference values.

(4) Depending on the ambient operating temperature, the duty ratio will need to be limited. Please refer to P. 26 for details.

(5) Reference value of the overhang load length is under 220mm in the Ma, Mb, and Mc directions. Please refer to the explanation on P. 4 for the overhang load length.

(6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.

(7) Pay close attention to the mounting orientation. Please refer to P. 4 for details.

Power · I/O cable Length

(Note) Make sure that the total length of the actuator cable (pigtail cable) and power · I/O cable is 10m or less.

Standard Connector Cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 3) (with connectors on both ends)
		CB-EC-PWBIO□□□-RB	CB-REC-PWBIO□□□-RB
0	Without cable	○(Note 2)	○
1 ~ 3	1 ~ 3m	○	○
4 ~ 5	4 ~ 5m	○	○
6 ~ 7	6 ~ 7m	○	○
8	8m	○	○

(Note 2) Only a terminal block connector is included. Please refer to P. 29 for details.
(Note 3) The RCON-EC connection specification (ACR) must be selected as an option.
(Note) Robot cable.

4-way Connector Cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		CB-EC2-PWBIO□□□-RB	CB-REC2-PWBIO□□□-RB
S1 ~ S3	1 ~ 3m	○	○
S4 ~ S5	4 ~ 5m	○	○
S6 ~ S7	6 ~ 7m	○	○
S8	8m	○	○

(Note 4) The RCON-EC connection specification (ACR) must be selected as an option.
(Note) Robot cable.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	12.5
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

Item		Description
Drive system		Ball screw, ϕ10mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (not available due to 2-point positioning function)
Linear guide		Linear motion infinite circulating type
Allowable static moment		Ma: 11.6N·m
		Mb: 16.6N·m
		Mc: 23.3N·m
Allowable dynamic moment (Note 5)		Ma: 11.6N·m
		Mb: 16.6N·m
		Mc: 23.3N·m
Main component materials	Base	Material: Aluminum, black alumite treatment
	Slider	Material: Aluminum, white alumite treatment
	Actuator cable (Pigtail cable)	Vinyl chloride (PVC)
Ambient operating temperature, humidity		0~40°C, 85% RH or less (no condensation)
Ingress protection		IP40
Vibration & shock resistance		4.9m/s^2
Overseas standards		CE marking, RoHS directive
Motor type		Stepper motor (□42)
Encoder type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 5) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Please refer to General Catalog 2021 P. 1-244 for details on operation life.

Table of Payload by Speed/Acceleration *Energy-saving setting disabled at shipping. Please refer to P. 26 for details.

Energy-Saving Setting Disabled The unit for payload is kg. If blank, operation is not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	8	6	5	1	1
800	10	6.5	4.5	3	1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	10	2.5	2.5
560	20	12	8	7	2.5	2.5
700	15	9	5	4	2	1

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	24	15	6	5.5
340	32	20	18	12	5	4.5
400	22	12	11	8	3.5	3.5
450	15	8	6	4	2	2

Lead 3

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	12.5	12.5
50	40	35	35	35	12.5	12.5
80	40	35	35	30	12.5	12.5
110	40	35	35	30	12.5	12.5
140	40	35	35	28	12.5	12.5
170	40	32	32	24	12.5	12
200	35	28	23	20	10	9
225	28	20	16	12	6	

Energy-Saving Setting Enabled (energy-saving mode) The unit for payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	8	5	0.75
160	8	5	0.75
320	8	5	0.75
480	8	4	0.75
640	6	3	0.75
800	4	1.5	0.75

Lead 12

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	14	10	2
80	14	10	2
200	14	10	2
320	14	10	2
440	11	7	1.5
560	7	2.5	1
680	4	1	0.5

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	20	14	5
40	20	14	5
100	20	14	5
160	20	14	5
220	16	14	4
280	13	7	2.5
340	10	1	1

Lead 3

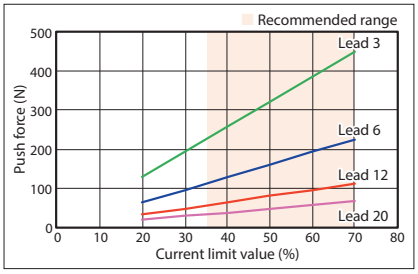
Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	9	2

Stroke and Max. Speed

Lead (mm)	Energy-saving setting	50 to 450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	800					790	695	615
	Enabled	800					790	695	615
12	Disabled	700		665	560	490	425	375	330
	Enabled	680		665	560	490	425	375	330
6	Disabled	450	400	335	285	245	210	180	160
	Enabled	340		335	285	245	210	180	160
3	Disabled	225	200	165	140	120	105	90	80
	Enabled	170		165	140	120	105	90	80

(Unit: mm/s)

Correlation Diagram between Push Force and Current Limit

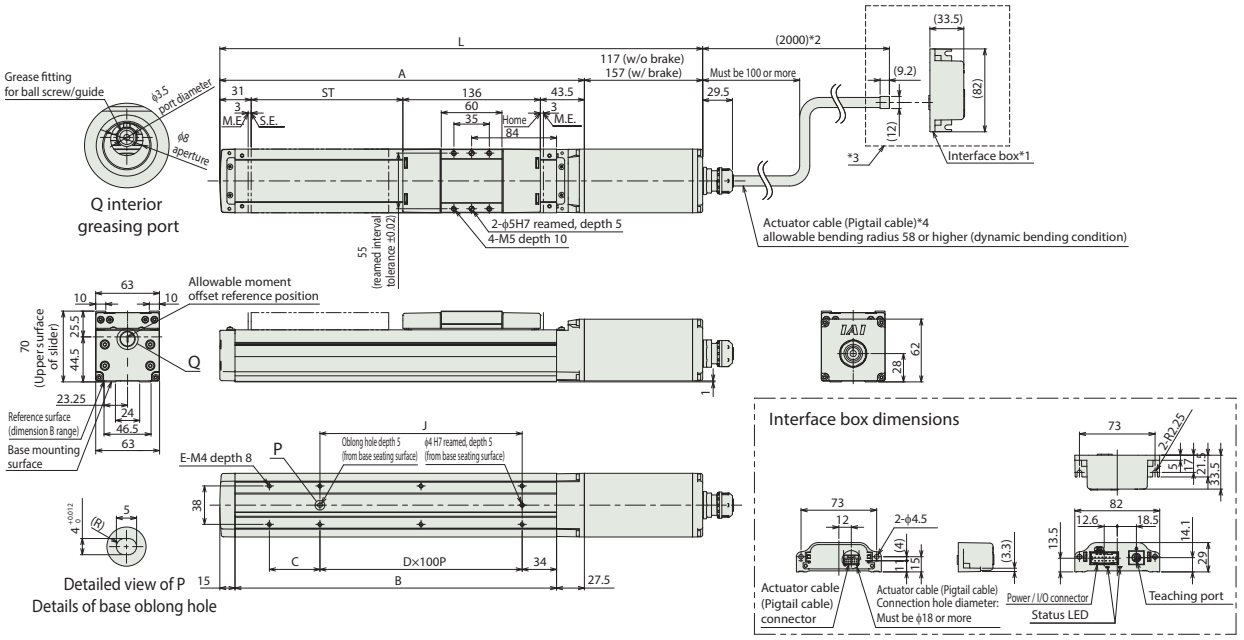


Dimensions

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

*1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
*2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
*3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
*4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power · I/O cable is 10m or less.
(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.

ST: Stroke
M.E: Mechanical end
S.E: Stroke end



Dimensions by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	377.5	427.5	477.5	527.5	577.5	627.5	677.5	727.5	777.5	827.5	877.5	927.5	977.5	1027.5	1077.5	1127.5
	With brake	417.5	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5	917.5	967.5	1017.5	1067.5	1117.5	1167.5
A		260.5	310.5	360.5	410.5	460.5	510.5	560.5	610.5	660.5	710.5	760.5	810.5	860.5	910.5	960.5	1010.5
B		218	268	318	368	418	468	518	568	618	668	718	768	818	868	918	968
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		100	200	200	300	300	400	400	500	500	600	600	700	700	800	800	900

Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	2.7	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6	4.8	5.1	5.3	5.5	5.8	6.0	6.2
	With brake	3.0	3.3	3.5	3.7	4.0	4.2	4.4	4.7	4.9	5.1	5.4	5.6	5.8	6.1	6.3	6.5

Applicable Controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 27 for details on built-in controllers.

EC-S7□D

Dust-proof | Coupled Motor | Body Width 70 mm | 24V Stepper Motor

Model Specification Items

EC	-	S7		D	-		-		-	
Series		Type	Lead	Specifications		Stroke		Power · I/O cable length		Options

Lead	
S	24mm
H	16mm
M	8mm
L	4mm

Specifications	
D	Dust-resistant

Stroke	
50	50mm
↕	↕
800	800mm (every 50mm)

Power · I/O cable length: See power · I/O cable length table below

Options: Refer to Options below

CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	EC-S7□D	Stroke (mm)	EC-S7□D
50	○	**450**	○
100	○	**500**	○
150	○	**550**	○
200	○	**600**	○
250	○	**650**	○
300	○	**700**	○
350	○	**750**	○
400	○	**800**	○

(Note) Interface box is included.

Options * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable (Pigtail cable) length: 5m	**AC5**	21
RCON-EC connection specification (Note 1)	**ACR**	21
Air purge joint specification (left)	**APL**	21
Air purge joint specification (right)	**APR**	21
Brake	**B**	21
Foot bracket	**FT**	21
Designated grease specification	**G5**	22
Non-motor end homing specification	**NM**	22
PNP specification	**PN**	22
Split motor and controller power supply specification	**TMD2**	22
Battery-less absolute encoder specification	**WA**	22
Wireless communication specification	**WL**	22
Wireless axis operation specification	**WL2**	22

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

Selection Notes

(1) Longer strokes may cause the maximum speed to decrease due to the critical resonance speed of the ball screw. Be sure to check the maximum speed of the desired stroke in "Stroke and Max. Speed."

(2) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.

(3) If performing push-motion operations, refer to the "Correlation Diagram between Push Force and Current Limit." The push forces listed are only reference values.

(4) Depending on the ambient operating temperature, the duty ratio will need to be limited. Please refer to P. 26 for details.

(5) Reference value of the overhang load length is under 280mm in the Ma, Mb, and Mc directions. Please refer to the explanation on P. 4 for the overhang load length.

(6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.

(7) Pay close attention to the mounting orientation. Please refer to P. 4 for details.

Power · I/O cable Length

(Note) Make sure that the total length of the actuator cable (pigtail cable) and power · I/O cable is 10m or less.

Standard Connector Cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 3) (with connectors on both ends)
		CB-EC-PWBIO□□□-RB	CB-REC-PWBIO□□□-RB
0	Without cable	○(Note 2)	○
1 ~ 3	1 ~ 3m	○	○
4 ~ 5	4 ~ 5m	○	○
6 ~ 7	6 ~ 7m	○	○
8	8m	○	○

(Note 2) Only a terminal block connector is included. Please refer to P. 29 for details.
(Note 3) The RCON-EC connection specification (ACR) must be selected as an option.
(Note) Robot cable.

4-way Connector Cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		CB-EC2-PWBIO□□□-RB	CB-REC2-PWBIO□□□-RB
S1 ~ S3	1 ~ 3m	○	○
S4 ~ S5	4 ~ 5m	○	○
S6 ~ S7	6 ~ 7m	○	○
S8	8m	○	○

(Note 4) The RCON-EC connection specification (ACR) must be selected as an option.
(Note) Robot cable.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	19
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	420	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

Item		Description
Drive system		Ball screw, ϕ12mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (not available due to 2-point positioning function)
Linear guide		Linear motion infinite circulating type
Allowable static moment		Ma: 17.7N·m
		Mb: 25.3N·m
		Mc: 34.9N·m
Allowable dynamic moment (Note 5)		Ma: 17.7N·m
		Mb: 25.3N·m
		Mc: 34.9N·m
Main component materials	Base	Material: Aluminum, black alumite treatment
	Slider	Material: Aluminum, white alumite treatment
	Actuator cable (Pigtail cable)	Vinyl chloride (PVC)
Ambient operating temperature, humidity		0~40°C, 85% RH or less (no condensation)
Ingress protection		IP40
Vibration & shock resistance		4.9m/s^2
Overseas standards		CE marking, RoHS directive
Motor type		Stepper motor (□56)
Encoder type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 5) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Please refer to General Catalog 2021 P. 1-244 for details on operation life.

Table of Payload by Speed/Acceleration *Energy-saving setting disabled at shipping. Please refer to P. 26 for details.

Energy-Saving Setting Disabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	20	15	10	9	3	3
860	12	10	7	4	3	2.5

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	15	10	6	4	3
700	15	10	5	3	3	2

Lead 8

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	10	9.5
280	40	28	20	15	8	7
350	30	9	4		5	4
420	7				2	

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	19	19
35	51	45	40	40	19	19
70	51	45	40	40	19	19
105	51	45	40	35	19	19
140	45	35	30	25	14	12
175	30	18			9	7.5
210	6					

Energy-Saving Setting Enabled (energy-saving mode) The unit for payload is kg.

Lead 24

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	18	10	2
200	18	10	2
420	18	10	2
640	10	2	1
800	5	0.5	0.5

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
560	7	0.5	0.5

Lead 8

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	1	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	10	1	1.5

Lead 4

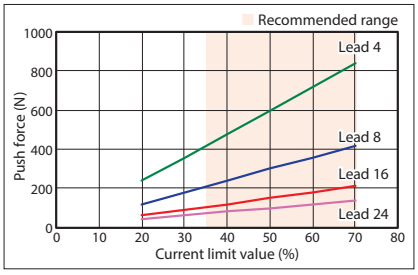
Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
140	15	6	2

Stroke and Max. Speed

Lead (mm)	Energy-saving setting	50 to 600 (every 50mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	860				840
	Enabled	800				
16	Disabled	700		685	605	535
	Enabled	560				535
8	Disabled	420	390	345	305	270
	Enabled	280				270
4	Disabled	210	190	170	145	125
	Enabled	140				125

(Unit: mm/s)

Correlation Diagram between Push Force and Current Limit

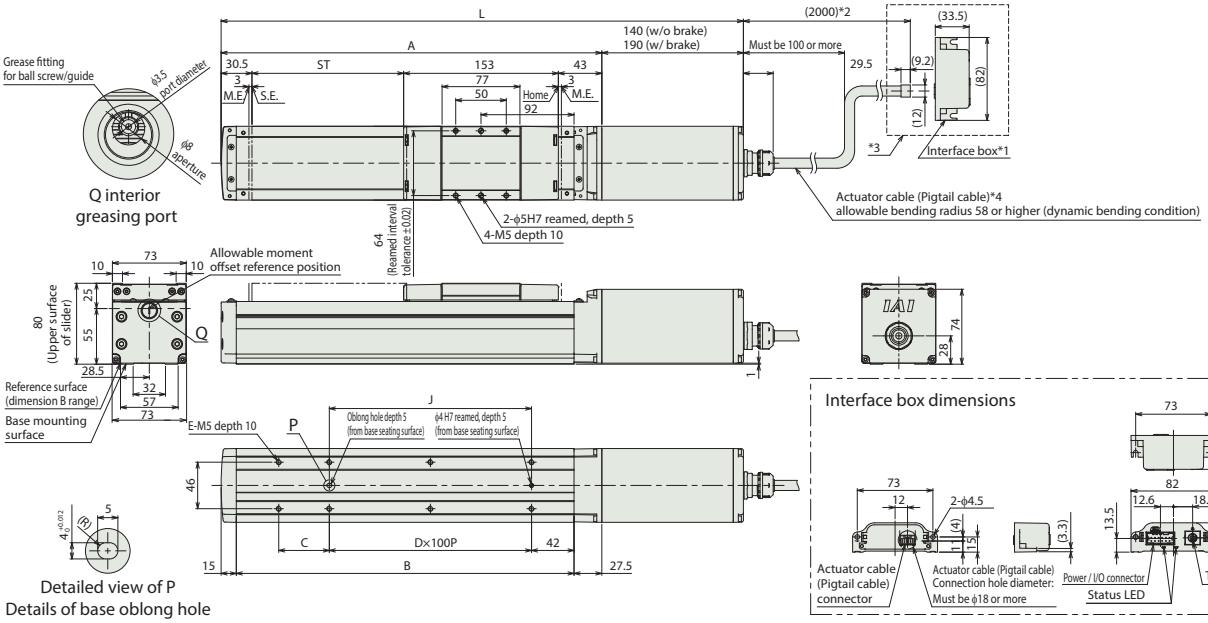


Dimensions

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

*1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
*2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
*3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
*4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power · I/O cable is 10m or less.
(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.

ST: Stroke
M.E: Mechanical end
S.E: Stroke end



Dimensions by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	416.5	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5
	With brake	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5	1216.5
A		276.5	326.5	376.5	426.5	476.5	526.5	576.5	626.5	676.5	726.5	776.5	826.5	876.5	926.5	976.5	1026.5
B		234	284	334	384	434	484	534	584	634	684	734	784	834	884	934	984
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		100	200	200	300	300	400	400	500	500	600	600	700	700	800	800	900

Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	4.4	4.8	5.1	5.4	5.7	6.1	6.4	6.7	7.0	7.4	7.7	8.0	8.3	8.7	9.0	9.3
	With brake	5.0	5.4	5.7	6.0	6.3	6.7	7.0	7.3	7.6	8.0	8.3	8.6	8.9	9.3	9.6	9.9

Applicable Controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 27 for details on built-in controllers.

EC-S6□W

Dust/Splash-proof Spec | Coupled Motor | Body Width 60 mm | 24V Stepper Motor

Model Specification Items

EC - S6 [ ] W - [ ] - [ ] - [ ]

Series	Type	Lead		Specifications		Stroke		Power · I/O cable length	Options
EC	S6	S	20mm	W	Dust-proof/splash-proof	50 ~ 800	50mm ~ 800mm (every 50mm)	See power · I/O cable length table below	Refer to Options below
		H	12mm						
		M	6mm						
		L	3mm						

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	EC-S6□W	Stroke (mm)	EC-S6□W
50	○	**450**	○
100	○	**500**	○
150	○	**550**	○
200	○	**600**	○
250	○	**650**	○
300	○	**700**	○
350	○	**750**	○
400	○	**800**	○

(Note) Interface box is included.

Options * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable (Pigtail cable) length: 5m	**AC5**	21
RCON-EC connection specification (Note 1)	**ACR**	21
Air purge joint specification (left)	**APL**	21
Air purge joint specification (right)	**APR**	21
Brake	**B**	21
Foot bracket	**FT**	21
Designated grease specification	**G5**	22
Non-motor end homing specification	**NM**	22
PNP specification	**PN**	22
Split motor and controller power supply specification	**TMD2**	22
Battery-less absolute encoder specification	**WA**	22
Wireless communication specification	**WL**	22
Wireless axis operation specification	**WL2**	22
Wiper seal mounted specification (Note 2)	**WS**	22

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) If the wiper seal specification (WS) is selected, the "Payload by Speed/Acceleration," "Stroke and Max Speed," and "Correlation Diagram between Push Force and Current Limit" will differ. Please refer to P. 15 for details.

Selection Notes

(1) Longer strokes may cause the maximum speed to decrease due to the critical resonance speed of the ball screw. Be sure to check the maximum speed of the desired stroke in "Stroke and Max. Speed."
(2) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.
(3) If performing push-motion operations, refer to the "Correlation Diagram between Push Force and Current Limit." The push forces listed are only reference values.
(4) Depending on the ambient operating temperature, the duty ratio will need to be limited. Please refer to P. 26 for details.
(5) Reference value of the overhang load length is under 220mm in the Ma, Mb, and Mc directions. Please refer to the explanation on P. 4 for the overhang load length.
(6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.

Power · I/O cable Length

(Note) Make sure that the total length of the actuator cable (pigtail cable) and power · I/O cable is 10m or less.

Standard Connector Cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		CB-EC-PWBIO□□□-RB	CB-REC-PWBIO□□□-RB
0	Without cable	○(Note 3)	○
1 ~ 3	1 ~ 3m	○	○
4 ~ 5	4 ~ 5m	○	○
6 ~ 7	6 ~ 7m	○	○
8	8m	○	○

(Note 3) Only a terminal block connector is included. Please refer to P. 29 for details.
(Note 4) The RCON-EC connection specification (ACR) must be selected as an option.
(Note) Robot cable.

4-way Connector Cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		CB-EC2-PWBIO□□□-RB	CB-REC2-PWBIO□□□-RB
S1 ~ S3	1 ~ 3m	○	○
S4 ~ S5	4 ~ 5m	○	○
S6 ~ S7	6 ~ 7m	○	○
S8	8m	○	○

(Note 5) The RCON-EC connection specification (ACR) must be selected as an option.
(Note) Robot cable.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed / acceleration/ deceleration	Max. speed (mm/s) (Note 6)	800 [640]	700 [560]	450 [400]	225 [200]
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

(Note 6) Values in brackets [ ] are for the wiper seal mounted specification (WS) option.

Item		Description
Drive system		Ball screw, ϕ10mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (not available due to 2-point positioning function)
Linear guide		Linear motion infinite circulating type
Allowable static moment		Ma: 11.6N·m
		Mb: 16.6N·m
		Mc: 23.3N·m
Allowable dynamic moment (Note 7)		Ma: 11.6N·m
		Mb: 16.6N·m
		Mc: 23.3N·m
Main component materials	Base	Material: Aluminum, black alumite treatment
	Slider	Material: Aluminum, white alumite treatment
	Top cover	Material: Aluminum, black alumite treatment
	Actuator cable (Pigtail cable)	Vinyl chloride (PVC)
Ambient operating temperature, humidity		0~40°C, 85% RH or less (no condensation)
Ingress protection (Note 8)		IP43 [IP44]
Vibration & shock resistance		4.9m/s^2
Overseas standards		CE marking, RoHS directive
Motor type		Stepper motor (□42)
Encoder type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 7) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Please refer to General Catalog 2021 P. 1-244 for details on operation life.
(Note 8) Values in brackets [ ] are for the wiper seal mounted specification (WS) option.

Table of Payload by Speed/Acceleration *Energy-saving setting disabled at shipping. Please refer to P. 26 for details.

Energy-Saving Setting Disabled The unit for payload is kg.

Lead 20

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	15	10	8	7
160	15	10	8	7
320	12	10	8	6
480	12	9	8	6
640	12	8	6	5
800	10	6.5	4.5	3

Lead 12

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	26	18	16	14
80	26	18	16	14
200	26	18	16	14
320	26	18	14	12
440	26	18	12	10
560	20	12	8	7
700	15	9	5	4

Lead 6

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	32	26	24	20
40	32	26	24	20
100	32	26	24	20
160	32	26	24	20
220	32	26	24	20
280	32	26	24	15
340	32	20	18	12
400	22	12	11	8
450	15	8	6	4

Lead 3

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	40	35	35	35
50	40	35	35	35
80	40	35	35	30
110	40	35	35	30
140	40	35	35	28
170	40	32	32	24
200	35	28	23	20
225	28	20	16	12

Energy-Saving Setting Enabled (energy-saving mode) The unit for payload is kg.

Lead 20

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	8	5
160	8	5
320	8	5
480	8	4
640	6	3
800	4	1.5

Lead 12

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	14	10
80	14	10
200	14	10
320	14	10
440	11	7
560	7	2.5
680	4	1

Lead 6

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	20	14
40	20	14
100	20	14
160	20	14
220	16	14
280	13	7
340	10	1

Lead 3

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	25	22
20	25	22
50	25	22
80	25	22
110	20	14
140	15	11
170	11	9

Stroke and Max. Speed

Lead (mm)	Energy-saving setting	50 to 450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	800					790	695	615
	Enabled	800					790	695	615
12	Disabled	700		665	560	490	425	375	330
	Enabled	680		665	560	490	425	375	330
6	Disabled	450	400	335	285	245	210	180	160
	Enabled	340		335	285	245	210	180	160
3	Disabled	225	200	165	140	120	105	90	80
	Enabled	170		165	140	120	105	90	80

(Unit: mm/s)

Correlation Diagram between Push Force and Current Limit

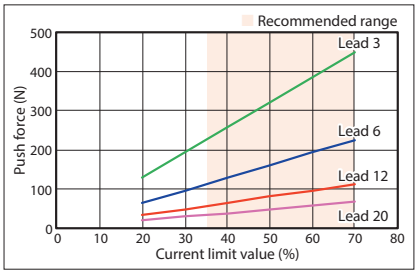


Table of Payload by Speed/Acceleration (Wiper Seal Mounted Specification) *Energy-saving setting disabled at shipping. Please refer to P. 26 for details.

Energy-Saving Setting Disabled The unit for payload is kg.

Lead 20

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	15	9.5	8	7
160	15	9.5	8	7
320	12	9	8	6
480	12	6.5	5	5
640	10	5	4.5	2.5

Lead 12

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	26	18	16	14
80	26	18	16	14
200	26	18	16	14
320	26	18	14	12
440	26	18	12	10
560	20	12	8	7

Lead 6

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	32	26	24	20
40	32	26	24	20
100	32	26	24	20
160	32	26	24	20
220	32	26	24	20
280	32	26	24	15
340	32	20	18	12
400	22	12	9.5	8

Lead 3

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	40	35	35	35
50	40	35	35	35
80	40	35	35	30
110	40	35	35	30
140	40	35	35	28
170	40	32	32	24
200	35	28	23	20

Energy-Saving Setting Enabled (energy-saving mode) The unit for payload is kg.

Lead 20

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	8	5
160	8	5
320	8	5
480	8	4
640	6	3

Lead 12

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	14	10
80	14	10
200	14	10
320	14	10
440	11	7

Lead 6

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	20	14
40	20	14
100	20	14
160	20	14
220	16	14
280	13	7

Lead 3

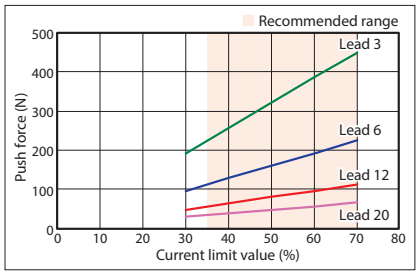
Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	25	22
20	25	22
50	25	22
80	25	22
110	20	14
140	15	11

Stroke and Max Speed (Wiper Seal Mounted Specification)

Lead (mm)	Energy-saving setting	50 to 450 (every 50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	640							615
	Enabled	640							615
12	Disabled	560				490	425	375	330
	Enabled	440					425	375	330
6	Disabled	400		335	285	245	210	180	160
	Enabled	280				245	210	180	160
3	Disabled	200		165	140	120	105	90	80
	Enabled	140				120	105	90	80

(Unit: mm/s)

Correlation Diagram between Push Force and Current Limit (Wiper Seal Mounted Specification)



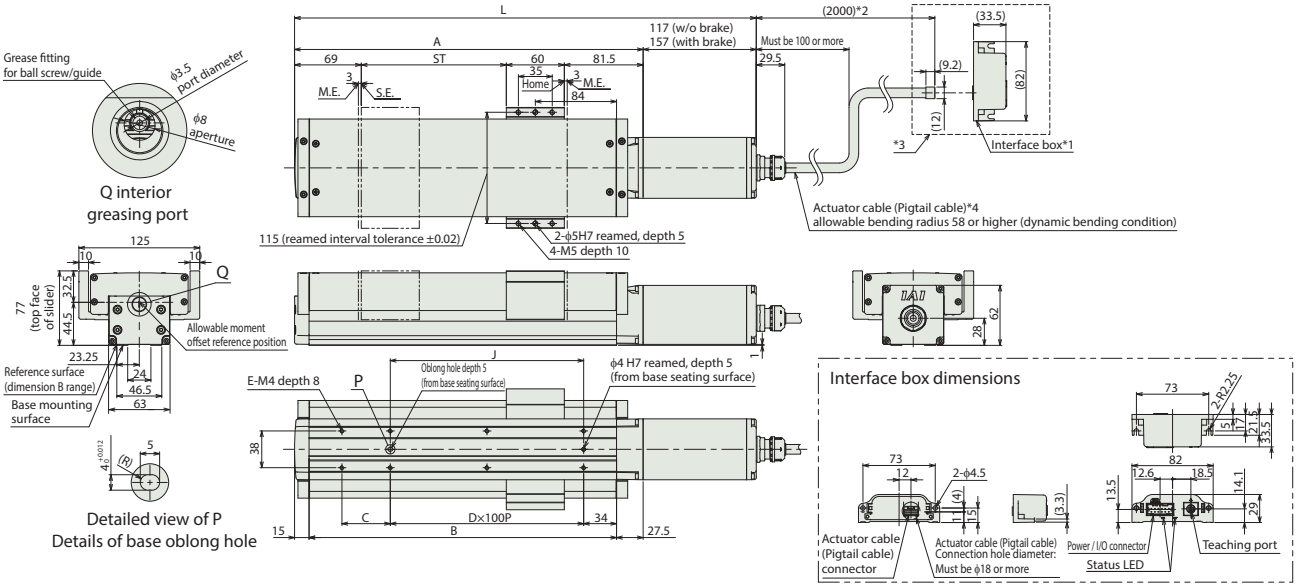
Dimensions

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

ST: Stroke
M.E: Mechanical end
S.E: Stroke end

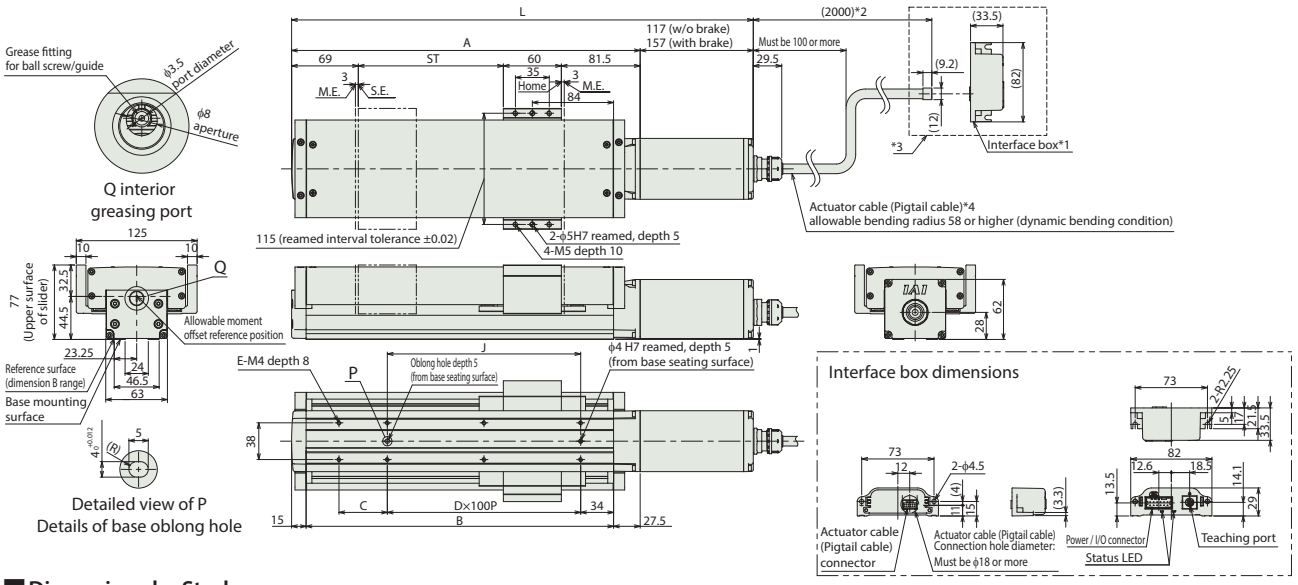
■EC-S6□W

*1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
*2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
*3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
*4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power · I/O cable is 10m or less.
(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.



■EC-S6□W (wiper seal mounted specification)

*1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
*2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
*3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
*4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power · I/O cable connector is 10m or less.
(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.



■Dimensions by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	377.5	427.5	477.5	527.5	577.5	627.5	677.5	727.5	777.5	827.5	877.5	927.5	977.5	1027.5	1077.5	1127.5
	With brake	417.5	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5	917.5	967.5	1017.5	1067.5	1117.5	1167.5
A		260.5	310.5	360.5	410.5	460.5	510.5	560.5	610.5	660.5	710.5	760.5	810.5	860.5	910.5	960.5	1010.5
B		218	268	318	368	418	468	518	568	618	668	718	768	818	868	918	968
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		100	200	200	300	300	400	400	500	500	600	600	700	700	800	800	900

■Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	3.7	4.1	4.4	4.8	5.1	5.5	5.8	6.2	6.5	6.9	7.2	7.5	7.9	8.2	8.6	8.9
	With brake	4.0	4.4	4.7	5.1	5.4	5.8	6.1	6.5	6.8	7.2	7.5	7.8	8.2	8.5	8.9	9.2

Applicable Controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 27 for details on built-in controllers.

EC-S7□W

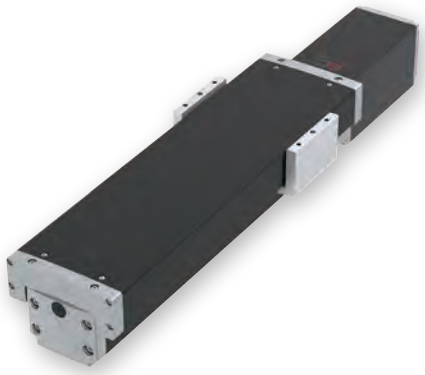
Dust/Splash-proof Spec | Coupled Motor | Body Width 70 mm | 24V Stepper Motor

Model Specification Items

EC	-	S7		W	-		-		-	
Series	-	Type	Lead	Specifications	-	Stroke	-	Power · I/O cable length	-	Options
			S 24mm	W Dust-proof/splash-proof		50 ~ 800: 50mm ~ 800mm (every 50mm)		See power · I/O cable length table below		Refer to Options below
			H 16mm							
			M 8mm							
			L 4mm							

CE RoHS 10

Horizontal | Vertical | Side | Ceiling



Stroke

Stroke (mm)	EC-S7□W	Stroke (mm)	EC-S7□W
50	○	**450**	○
100	○	**500**	○
150	○	**550**	○
200	○	**600**	○
250	○	**650**	○
300	○	**700**	○
350	○	**750**	○
400	○	**800**	○

(Note) Interface box is included.

Options * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable (Pigtail cable) length: 5m	**AC5**	21
RCON-EC connection specification (Note 1)	**ACR**	21
Air purge joint specification (left)	**APL**	21
Air purge joint specification (right)	**APR**	21
Brake	**B**	21
Foot bracket	**FT**	21
Designated grease specification	**G5**	22
Non-motor end homing specification	**NM**	22
PNP specification	**PN**	22
Split motor and controller power supply specification	**TMD2**	22
Battery-less absolute encoder specification	**WA**	22
Wireless communication specification	**WL**	22
Wireless axis operation specification	**WL2**	22
Wiper seal mounted specification (Note 2)	**WS**	22

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) If the wiper seal specification (WS) is selected, the "Payload by Speed/Acceleration," "Stroke and Max Speed," and "Correlation Diagram between Push Force and Current Limit" will differ. Please refer to P. 19 for details.

Selection Notes

(1) Longer strokes may cause the maximum speed to decrease due to the critical resonance speed of the ball screw. Be sure to check the maximum speed of the desired stroke in "Stroke and Max. Speed."
(2) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.
(3) If performing push-motion operations, refer to the "Correlation Diagram between Push Force and Current Limit." The push forces listed are only reference values.
(4) Depending on the ambient operating temperature, the duty ratio will need to be limited. Please refer to P. 26 for details.
(5) Reference value of the overhang load length is under 280mm in the Ma, Mb, and Mc directions. Please refer to the explanation on P. 4 for the overhang load length.
(6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.

Power · I/O cable Length

(Note) Make sure that the total length of the actuator cable (pigtail cable) and power · I/O cable is 10m or less.

Standard Connector Cable

Cable code	Cable length	User wiring specification (flying leads) CB-EC-PWBIO□□□-RB	RCON-EC connection specification (Note 4) (with connectors on both ends) CB-REC-PWBIO□□□-RB
0	Without cable	○(Note 3)	○
1 ~ 3	1 ~ 3m	○	○
4 ~ 5	4 ~ 5m	○	○
6 ~ 7	6 ~ 7m	○	○
8	8m	○	○

(Note 3) Only a terminal block connector is included. Please refer to P. 29 for details.
(Note 4) The RCON-EC connection specification (ACR) must be selected as an option.
(Note) Robot cable.

4-way Connector Cable

Cable code	Cable length	User wiring specification (flying leads) CB-EC2-PWBIO□□□-RB	RCON-EC connection specification (Note 5) (with connectors on both ends) CB-REC2-PWBIO□□□-RB
S1 ~ S3	1 ~ 3m	○	○
S4 ~ S5	4 ~ 5m	○	○
S6 ~ S7	6 ~ 7m	○	○
S8	8m	○	○

(Note 5) The RCON-EC connection specification (ACR) must be selected as an option.
(Note) Robot cable.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s) (Note 6)	860 [640]	700 [560]	420 [350]	210 [175]
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

(Note 6) Values in brackets [ ] are for the wiper seal mounted specification (WS) option.

Item		Description
Drive system		Ball screw, ϕ12mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (not available due to 2-point positioning function)
Linear guide		Linear motion infinite circulating type
Allowable static moment		Ma: 17.7N·m
		Mb: 25.3N·m
		Mc: 34.9N·m
Allowable dynamic moment (Note 7)		Ma: 17.7N·m
		Mb: 25.3N·m
		Mc: 34.9N·m
Main component materials	Base	Material: Aluminum, black alumite treatment
	Slider	Material: Aluminum, white alumite treatment
	Top cover	Material: Aluminum, black alumite treatment
	Actuator cable (Pigtail cable)	Vinyl chloride (PVC)
Ambient operating temperature, humidity		0~40°C, 85% RH or less (no condensation)
Ingress protection (Note 8)		IP43 [IP44]
Vibration & shock resistance		4.9m/s^2
Overseas standards		CE marking, RoHS directive
Motor type		Stepper motor (□56)
Encoder type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 7) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Please refer to General Catalog 2021 P. 1-244 for details on operation life.
(Note 8) Values in brackets [ ] are for the wiper seal mounted specification (WS) option.

Table of Payload by Speed/Acceleration *Energy-saving setting disabled at shipping. Please refer to P. 26 for details.

Energy-Saving Setting Disabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	37	22	16	14
200	37	22	16	14
420	34	20	16	14
640	20	15	10	9
860	12	10	7	4

Lead 16

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	46	35	28	27
140	46	35	28	27
280	46	35	25	24
420	34	25	15	10
560	20	15	10	6
700	15	10	5	3

Lead 8

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	51	45	40	40
70	51	45	40	40
140	51	40	38	35
210	51	35	30	24
280	40	28	20	15
350	30	9	4	
420	7			

Lead 4

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	51	45	40	40
35	51	45	40	40
70	51	45	40	40
105	51	45	40	35
140	45	35	30	25
175	30	18		
210	6			

Energy-Saving Setting Enabled (energy-saving mode) The unit for payload is kg.

Lead 24

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	18	10
200	18	10
420	18	10
640	10	2
800	5	0.5

Lead 16

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	35	20
140	35	20
280	25	12
420	15	6
560	7	0.5

Lead 8

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	1
0	40	25
70	40	25
140	40	25
210	25	14
280	10	1

Lead 4

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	40	30
35	40	30
70	40	30
105	40	30
140	15	6

Stroke and Max. Speed

Lead (mm)	Energy-saving setting	50 to 600 (every 50mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	860				840
	Enabled	800				
16	Disabled	700		685	605	535
	Enabled	560				535
8	Disabled	420	390	345	305	270
	Enabled	280				270
4	Disabled	210	190	170	145	125
	Enabled	140				125

(Unit: mm/s)

Correlation Diagram between Push Force and Current Limit

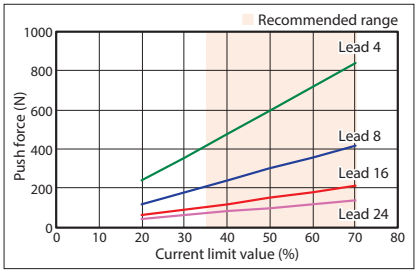


Table of Payload by Speed/Acceleration (Wiper Seal Mounted Specification) *Energy-saving setting disabled at shipping. Please refer to P. 26 for details.

Energy-Saving Setting Disabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	37	22	16	14
200	37	22	16	14
420	34	20	16	14
640	20	15	10	9

Lead 16

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	46	35	28	27
140	46	35	28	27
280	46	35	25	24
420	34	25	15	10
560	20	15	10	6

Lead 8

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	51	45	40	40
70	51	45	40	40
140	51	40	38	35
210	51	35	30	24
280	40	28	20	15
350	30	9	4	

Lead 4

Orientation	Horizontal			
Speed	Acceleration (G)			
(mm/s)	0.3	0.5	0.7	1
0	51	45	40	40
35	51	45	40	40
70	51	45	40	40
105	51	45	40	35
140	45	35	30	25
175	30	18		

Energy-Saving Setting Enabled (energy-saving mode) The unit for payload is kg.

Lead 24

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	18	10
200	18	10
420	18	10
640	10	2

Lead 16

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	35	20
140	35	20
280	25	12
420	15	6

Lead 8

Orientation	Horizontal	
Speed	Acceleration (G)	
(mm/s)	0.3	1
0	40	25
70	40	25
140	40	25
210	25	14

Lead 4

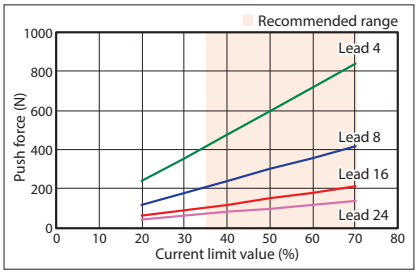
Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	40	30
35	40	30
70	40	30
105	40	30

Stroke and Max Speed (Wiper Seal Mounted Specification)

Lead (mm)	Energy-saving setting	50 to 600 (every 50mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	640				
	Enabled	640				
16	Disabled	560				535
	Enabled	420				
8	Disabled	350		345	305	270
	Enabled	210				
4	Disabled	175		170	145	125
	Enabled	105				

(Unit: mm/s)

Correlation Diagram between Push Force and Current Limit (Wiper Seal Mounted Specification)



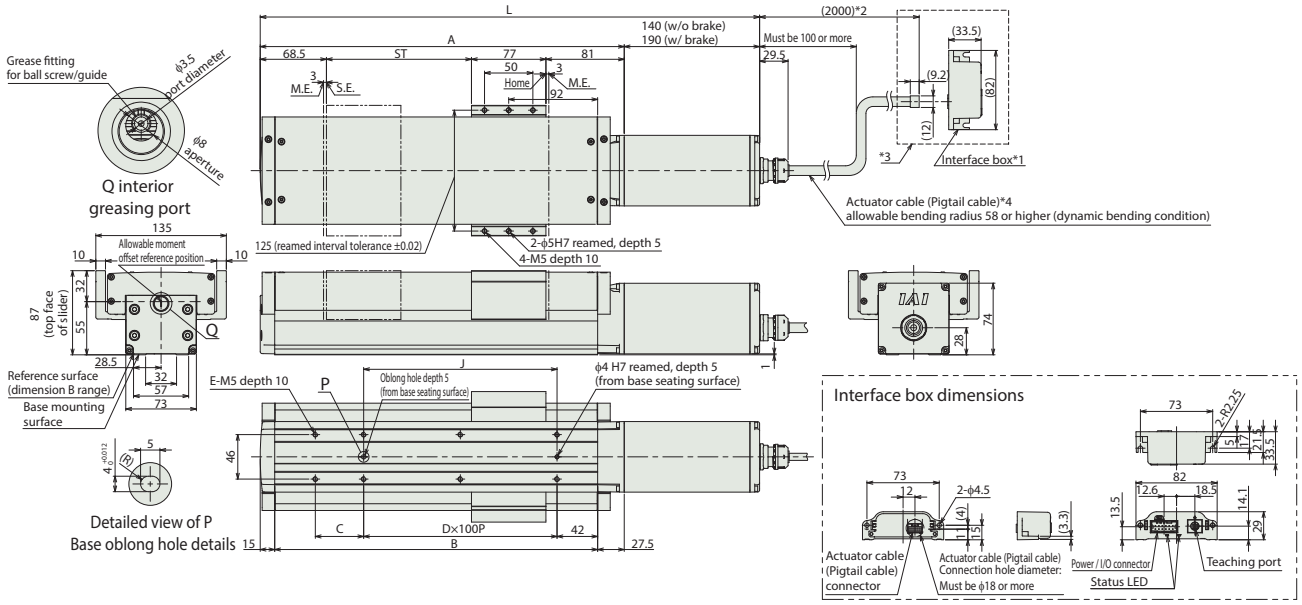
Dimensions

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

EC-S7□W

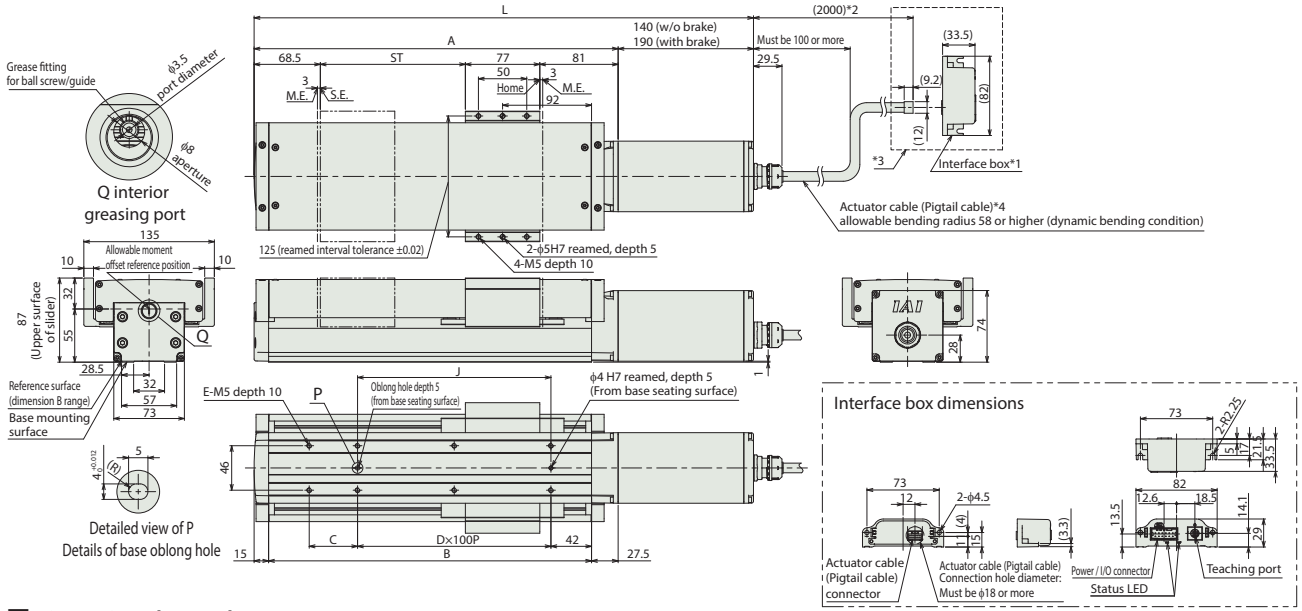
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

*1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
*2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
*3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
*4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power · I/O cable is 10m or less.
(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.



EC-S7□W (wiper seal mounted specification)

*1 Please refer to "Interface box dimensions" for detailed interface box dimensions.
*2 The length of the actuator cable (pigtail cable) can be set to 5m as an option.
*3 The interface box and connector (shown within the dashed lines) are not dust-proof or splash-proof.
*4 Make sure that the total length of the actuator's actuator cable (pigtail cable) and power · I/O cable is 10m or less.
(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.



Dimensions by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	416.5	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5
	With brake	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5	1216.5
A		276.5	326.5	376.5	426.5	476.5	526.5	576.5	626.5	676.5	726.5	776.5	826.5	876.5	926.5	976.5	1026.5
B		234	284	334	384	434	484	534	584	634	684	734	784	834	884	934	984
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		100	200	200	300	300	400	400	500	500	600	600	700	700	800	800	900

Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	5.5	6.0	6.4	6.8	7.3	7.7	8.2	8.6	9.0	9.5	9.9	10.4	10.8	11.3	11.7	12.1
	With brake	6.1	6.6	7.0	7.4	7.9	8.3	8.8	9.2	9.6	10.1	10.5	11.0	11.4	11.9	12.3	12.7

Applicable Controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 27 for details on built-in controllers.

Options

Actuator cable (Pigtail cable) length: 5m

Model **AC5** **Applicable models** **All models**

Description Although the standard length of the actuator cable (pigtail cable) is 2m, it can be changed to 5m as an option.
*Make sure that the total length of the actuator cable (pigtail cable) and power · I/O cable is 10m or less.
(If the 5m actuator cable (pigtail cable) option (AC5) is selected, the length of the power · I/O cable cannot exceed 5m.)

RCON-EC connection specification

*Cannot be selected with the TMD2 and PN options (the ACR option includes the split motor and controller power supply specification)

Model **ACR** **Applicable models** **All models**

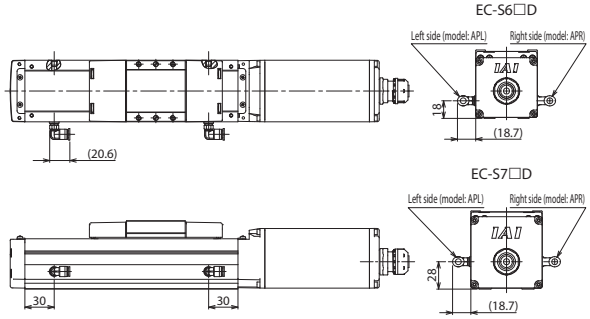
Description This option should be selected to connect over an R-unit to a field network.
*If this option is selected, the power supply must be a split motor and controller power supply and the input/output specification must be NPN.
Therefore, it cannot be selected with the TMD2 or PN options.

Air purge joint specification

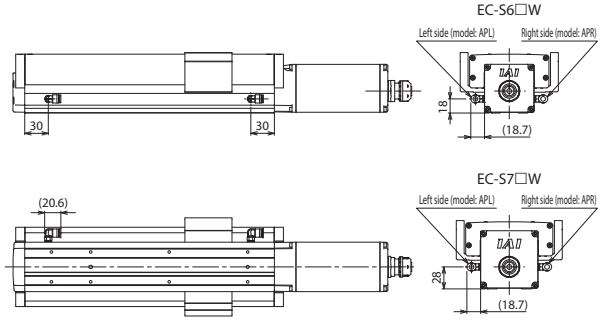
Model **APL (left)/APR (right)** **Applicable models** **All models**

Description The air purge joint is mounted to the side of the base.
Purging air increases the internal pressure inside the actuator, which can help prevent foreign matter from entering.
However, the IP rating will be the same.

EC-S6□D / S7□D



EC-S6□W / S7□W



Brake

Model **B** **Applicable models** **All models**

Description This mechanism stops the slider from moving when the power or servo is turned off. This option is required when using the actuator vertically.

Foot bracket

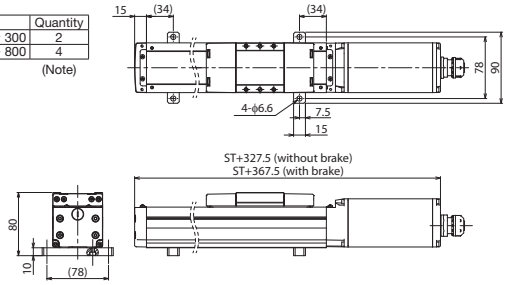
Model **FT** **Applicable models** **All models**

Description This bracket is used for mounting the actuator body from the top with bolts.
*Not assembled before shipment. Refer to the drawings for mounting instructions.

EC-S6□D/S6□W
Individual model number: ECW-FT-RR6 (material: Aluminum)

ST	Quantity
50 ~ 300	2
350 ~ 800	4

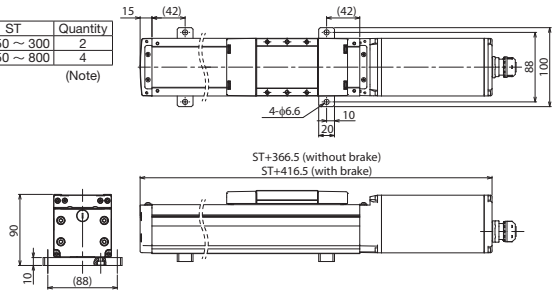
(Note)



EC-S7□D/S7□W
Individual model number: ECW-FT-RR7 (material: Aluminum)

ST	Quantity
50 ~ 300	2
350 ~ 800	4

(Note)



(Note) When mounting 4 items, be sure to mount them at intervals that are as equal as possible.

Designated grease specification

Model **G5** Applicable models **All models**

Description Replaces the standard grease applied to the actuator ball screw and linear guide with food grade grease (White Alcom Grease).

Non-motor end specification

Model **NM** Applicable models **All models**

Description The home position is normally set to the motor side. This option is for setting the home position on the opposite side in order to accommodate variations in equipment layout, etc.

PNP specification *Cannot be ordered with the ACR option, which is NPN specification.

Model **PN** Applicable models **All models**

Description EC Series products provide NPN specification input/output for connecting external devices as standard.
Specifying this option changes input/output to the PNP specification.

Split motor and controller power supply specification

* Cannot be selected with the ACR option (the RCON-EC connection specification is a split motor and controller power supply specification)

Model **TMD2** Applicable models **All models**

Description This option includes an actuator operation stop input.
Select this option to allow shutting down the actuator drive power only.
Please refer to P. 29 for more information on wiring.

Battery-less absolute encoder specification

Model **WA** Applicable models **All models**

Description The EC series offers incremental encoder specification as standard.
Specifying this option installs a built-in battery-less absolute encoder.

Wireless communication specification

Model **WL** Applicable models **All models**

Description This option enables support for wireless communication. Specifying this option enables wireless communication with the TB-03 teaching pendant. The start point, end point, and AVD can be adjusted via wireless communication.

Wireless axis operation specification

Model **WL2** Applicable models **All models**

Description Specifying WL2 allows the product to operate wirelessly as with WL (start point, end point, and AVD adjustment), and also to perform axis travel operation tests (forward end/backward end movement, jog, and inching). However, this function is not meant to perform automatic operation. Refer to P. 2-436 of the IAI General Catalog 2021 for precautions on axis operations using a wireless connection.
(Note) Customers cannot change WL to WL2, or WL2 to WL. Please contact IAI for more details.

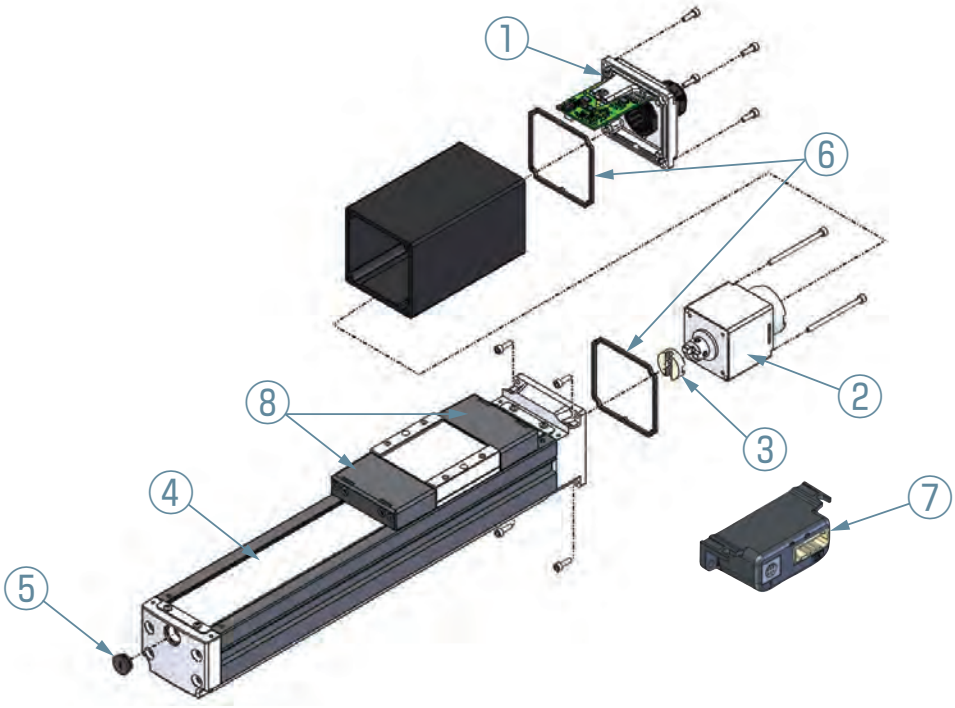
Wiper seal mounted specification

Model **WS** Applicable models **EC-S6□W/S7□W**

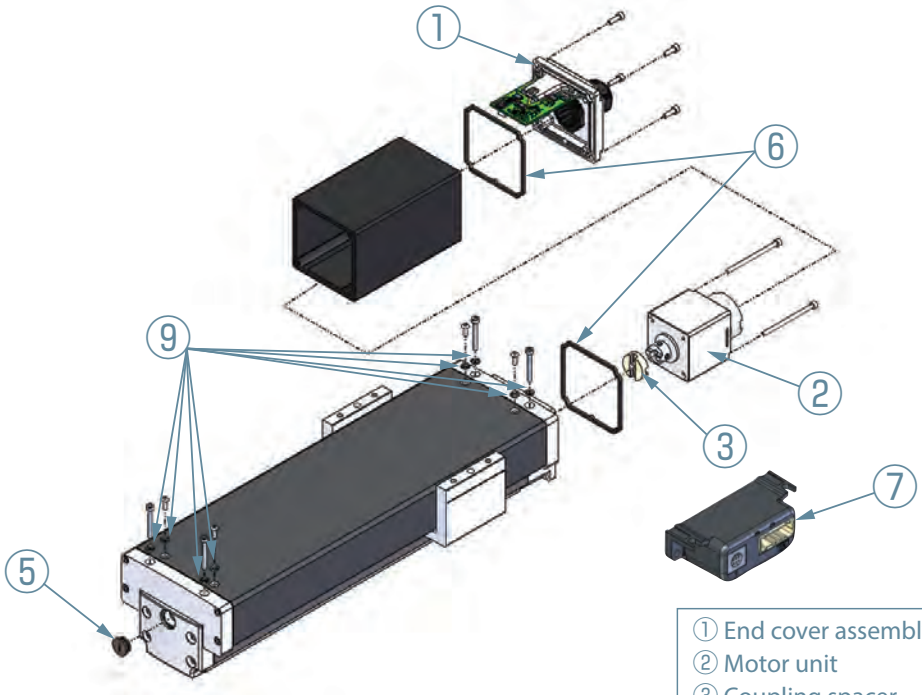
Description Wiper seals are mounted between the base and top cover.
Wiper seals increase dust-proof and splash-proof performance, and can help prevent foreign matter from entering.
Ingress protection will be IP44.

Maintenance Part Schematics

S6□D/S7□D



S6□W/S7□W



① End cover assembly
② Motor unit
③ Coupling spacer
④ Stainless steel sheet
⑤ Cap
⑥ Gasket (1 set of 2)
⑦ Interface box
⑧ Slider cover assembly (1 set of 2)
⑨ Seal washer

The numbers in the table correspond to the numbers in the schematics.
(Note) Mounting screws are not included with maintenance parts. Please contact our sales department for modification purposes.

① -1 End cover assembly (Same for WL specification*)

Type	Actuator cable (Pigtail cable) length	Model
S6□D S6□W	2m (standard)	EWB-ECW-R6
	5m (AC5 option)	EWB-ECW-R6-AC5
S7□D S7□W	2m (standard)	EWB-ECW-R7
	5m (AC5 option)	EWB-ECW-R7-AC5

① -2 End cover assembly (Wireless axis operation specification WL2*)

Type	Actuator cable (Pigtail cable) length	Model
S6□D S6□W	2m (standard)	EWB-ECW-R6-WL2
	5m (AC5 option)	EWB-ECW-R6-AC5-WL2
S7□D S7□W	2m (standard)	EWB-ECW-R7-WL2
	5m (AC5 option)	EWB-ECW-R7-AC5-WL2

① -3 Split motor and controller power supply end cover assembly (Same for WL specification*)

Type	Actuator cable (Pigtail cable) length	Model
S6□D S6□W	2m (standard)	EWB-ECW-R6-TMD2
	5m (AC5 option)	EWB-ECW-R6-AC5-TMD2
S7□D S7□W	2m (standard)	EWB-ECW-R7-TMD2
	5m (AC5 option)	EWB-ECW-R7-AC5-TMD2

① -4 Split motor and controller power supply end cover assembly (Wireless axis operation specification WL2*)

Type	Actuator cable (Pigtail cable) length	Model
S6□D S6□W	2m (standard)	EWB-ECW-R6-TMD2-WL2
	5m (AC5 option)	EWB-ECW-R6-AC5-TMD2-WL2
S7□D S7□W	2m (standard)	EWB-ECW-R7-TMD2-WL2
	5m (AC5 option)	EWB-ECW-R7-AC5-TMD2-WL2

*Wireless communication circuit board is not included.

⑦ -1 Interface box

Type	Wireless	I/O	Model
S6□D S6□W	No	NPN	ECW-CVN-CB
		PNP	ECW-CVP-CB
S7□D S7□W	WL	NPN	ECW-CVNWL-CB
	WL2	PNP	ECW-CVPWL-CB

⑦ -2 Split motor and controller power supply interface box

Type	Wireless	I/O	Model
S6□D S6□W	No	NPN	ECW-CVN-CB-TMD2
		PNP	ECW-CVP-CB-TMD2
S7□D S7□W	WL	NPN	ECW-CVNWL-CB-TMD2
	WL2	PNP	ECW-CVPWL-CB-TMD2

⑦ -3 Split motor and controller power supply interface box

Type	Wireless	I/O	Model
S6□D S6□W	No	NPN_ REC	ECW-CVN-CB-ACR
S7□D S7□W	WL		ECW-CVNWL-CB-ACR
	WL2		

② Motor unit

Type	Encoder	Brake	Model
S6□D S6□W	Incremental	No	EC-MUSR6
		Yes	EC-MUSR6-B
	Battery-less absolute	No	EC-MUSR6-WA
		Yes	EC-MUSR6-WA-B
S7□D S7□W	Incremental	No	EC-MUS7
		Yes	EC-MUS7-B
	Battery-less absolute	No	EC-MUS7-WA
		Yes	EC-MUS7-WA-B

③ Coupling spacer

Type	Model
S6□D S6□W	CPG-EC-SR6
S7□D S7□W	CPG-EC-SR7

④ Stainless steel sheet

Type	Model
S6□D	ST-EC-S6□W-○○○
S7□D	ST-EC-S7□W-○○○

*○○○ indicates the stroke

⑤ Cap

Type	Model
S6□D S6□W S7□D S7□W	RCP5W-CS-RA

⑥ Gasket (1 set of 2)

Type	Model
S6□D S6□W	ECW-GK-R6
S7□D S7□W	ECW-GK-R7

⑧ Slider cover assembly (1 set of 2)

Type	Model
S6□D	SC-ECW-S6
S7□D	SC-ECW-S7

⑨ Seal washer

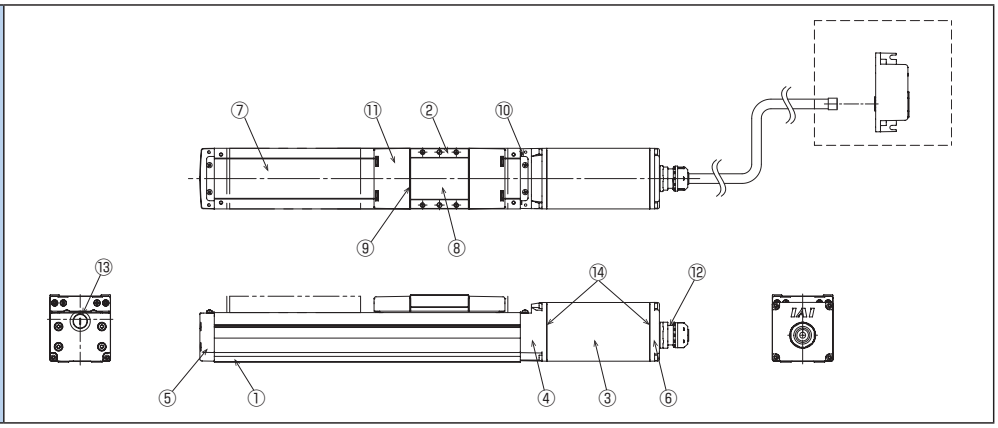
Type	Model
S6□W S7□W	RCP6W-SLW-RA4

Exterior Component Materials

■ EC-S6□D/S7□D

Exterior components	Item	Material	Treatment
	① Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	② Slider	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	White alumite
	③ Motor cover	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	④ Bare housing	Aluminum die cast (ADC12)	
	⑤ Front bracket	Aluminum die cast (ADC12)	
	⑥ Motor end cover	Aluminum die cast (ADC12)	
	⑦ Stainless steel sheet	Special stainless steel	
	⑧ Sheet cover	Stainless steel (SUS304)	
	⑨ Gasket	NBR	
	⑩ Sheet retainer	Stainless steel (SUS304)	
	⑪ Slider cover	Resin (POM)	
	⑫ Cable clamp	Body: Resin (PA66), Seal: NBR	
	⑬ Cap	NBR	
	⑭ Gasket	NBR	

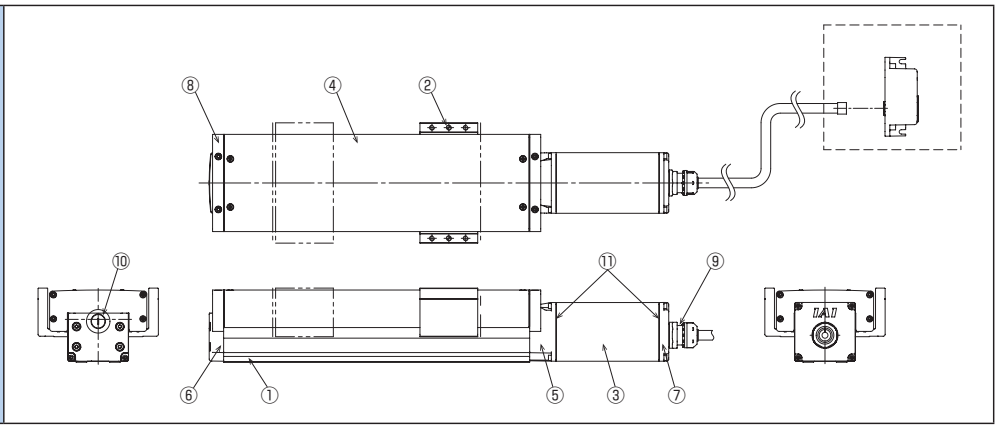
S□D



■ EC-S6□W/S7□W

Exterior components	Item	Description	Treatment
	① Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	② Slider	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	White alumite
	③ Motor cover	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	④ Top cover	Dedicated aluminum extruded material (A6063SS-T5 equivalent)	Black alumite
	⑤ Bare housing	Aluminum die cast (ADC12)	
	⑥ Front bracket	Aluminum die cast (ADC12)	
	⑦ Motor end cover	Aluminum die cast (ADC12)	
	⑧ End cover	Aluminum (A5052)	White alumite
	⑨ Cable clamp	Body: Resin (PA66), Seal: NBR	
	⑩ Cap	NBR	
	⑪ Gasket	NBR	

S□W

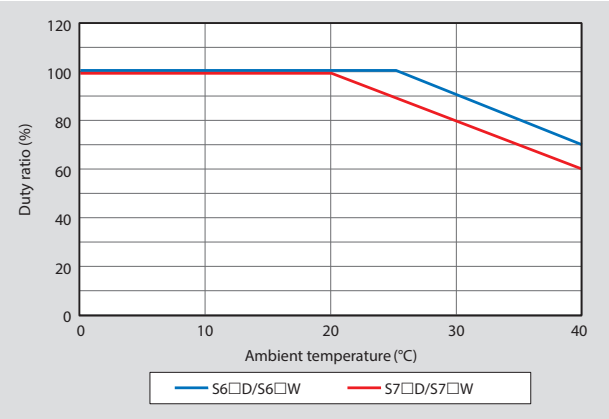


Duty Ratio

The duty cycle will be limited depending on operating conditions.

·EC-S6□D/S6□W: Duty ratio restricted to 70% in 40°C environments
·EC-S7□D/S7□W: Duty ratio restricted to 60% in 40°C environments

■ Ambient temperature and duty ratio

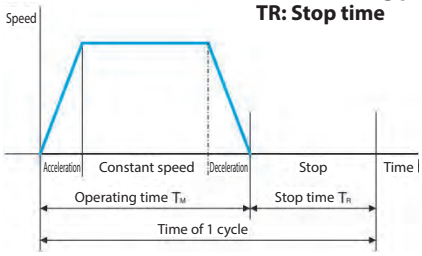


[Duty ratio]

The duty ratio is the operating rate shown as the operating time of ELECYLINDER during one cycle, expressed as a percentage (%).

$$D = \frac{TM}{TM + TR} \times 100\ (\%)$$

D: Duty ratio
TM: Operating time (including push-motion operation)
TR: Stop time



Push-motion Operation

Push-motion operation is a function that keeps the slider pressed up against a workpiece, as with an air cylinder.
Please check the usage instructions and precautions below prior to use.

[Push force adjustment]
·The push force during a push-motion operation can be adjusted by changing the "push force (%)" on ELECYLINDER.

·Check the push force for the applicable model in the "Correlation Diagrams between Push Force and Current Limit" on the product specification page, and select a model that matches your conditions.

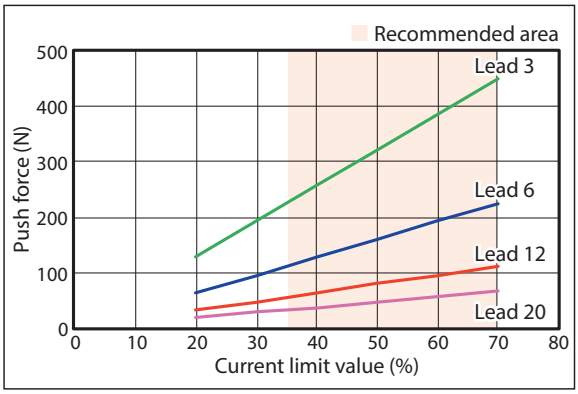
[Lead selection method]
Select a lead with the desired push force in the recommended current limit value range (the colored area in the graph).

The 6mm lead would be appropriate for the EC-S6□D type shown in the figure to the right if a push force of 150N is desired. Selecting the 3mm lead would limit the adjustment range.

[Precautions]
If pushing with a slider type, the allowable dynamic moment of the guide will need to be taken into consideration. Be sure to limit the push current so that the reactive moment caused by the push force does not exceed the allowable dynamic moment (Ma, Mb) listed in the catalog.

(Example)

EC-S6□D



<Correlation Diagrams between Push Force and Current Limit>

Caution

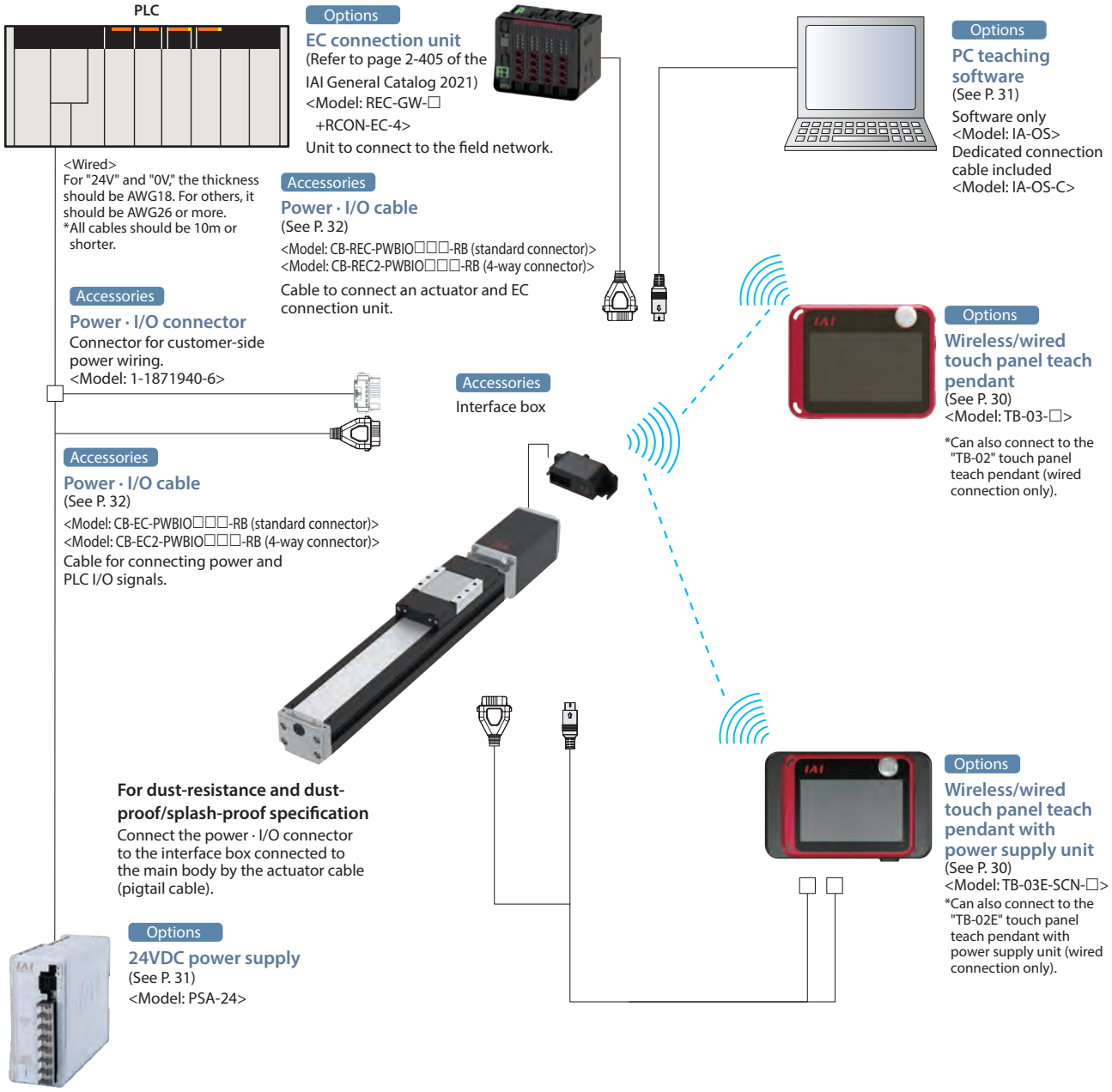
·The "Correlation Diagrams between Push Force and Current Limit" shows lower guidelines for push force for each current limit value.
·Individual differences in the motor and variations in machine operation may cause the push force lower limit to be exceeded by around 40%, even if the current limit value is the same. This is especially true when the current limit value is 30% or lower.

Energy-saving Setting

The "Energy-saving setting" of ELECYLINDER can be enabled/disabled using Parameter No. 8.
When enabled, the power consumption can be reduced by around 40% compared with normal operation.
However, the maximum speed, maximum acceleration/deceleration, and payload will be lower compared to standard operation.

	Mode	Parameter status	Features
Setting when shipped	Standard mode	Energy-saving setting disabled	Higher performance
	Energy-saving mode	Energy-saving setting enabled	Higher energy-saving

System Configuration



List of Accessories

■ Power · I/O Cables, Connectors

[Standard connector]

Product category		Accessories
Power · I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
0	None	power · I/O connector (1-1871940-6)
	Yes	—
1 to 8	None	Power · I/O cable (CB-EC-PWBIO□□□-RB)
	Yes	Power · I/O cable (CB-REC-PWBIO□□□-RB)

[Four-way connector]

Product category		Accessories
Power · I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
S1 ~ S8	None	Power · I/O cable (CB-EC2-PWBIO□□□-RB)
	Yes	Power · I/O cable (CB-REC2-PWBIO□□□-RB)

Basic Controller Specifications

Specification item			Specification content
Number of controlled axes			1 axis
Power supply voltage			24VDC ±10%
Power capacity (includes 0.3A controller power)			With energy-saving setting disabled: Rated 3.5A, max. 4.2A With energy-saving setting enabled: Max. 2.2A
Brake release power supply			24VDC ±10%, 200mA (only for external brake release)
Generated heat (at a 100% duty ratio)			8W
Inrush current (Note 1)			8.3A (with inrush current limit circuit)
Momentary power failure resistance			Max 500μs
Motor size			□42, □56
Motor rated current			1.2A
Motor control system			Weak field-magnet vector control
Supported encoders			Incremental (800 pulse/rev), battery-less absolute encoder (800 pulse/rev)
SIO			RS485 1ch (Modbus protocol compliant)
PIO	Input specification	No. of inputs	3 points (forward, backward, alarm clear)
		Input voltage	24VDC ±10%
		Input current	5mA per circuit
		Leakage current	Max. 1mA/1 point
		Isolation method	Non-isolated
	Output specification	No. of outputs	3 points (forward complete, backward complete, alarm)
		Output voltage	24VDC ±10%
		Output current	50mA/1 point
		Residual voltage	2V or less
		Isolation method	Non-isolated
Data setting, input method			PC teaching software, touch panel teaching pendant
Data retention memory			Position and parameters are saved in non-volatile memory (no limit to number of rewrites)
LED display	Controller status display		Servo ON (green light ON) / Alarm (red light ON) / Initializing when power comes ON (orange light ON) / Minor failure alarm (green/red alternately blinking) / Operation from teaching: Stop from teaching (red light ON) / Servo OFF (light OFF)
	Wireless status display		Initializing wireless hardware, without wireless connection, or connecting from TP board (light OFF) Connecting through wireless (green blinking) / Wireless hardware error (red blinking) / Initializing when power comes ON (orange light ON)
Predictive maintenance/preventative maintenance			When the number of movements or operation distance has exceeded the set value or an overload warning occurs, the LED (right side) blinks alternately green and red. *Only when configured in advance
Ambient operating temperature			0 ~ 40°C
Ambient operating humidity			85% RH or less (no condensation or freezing)
Operating atmosphere			Free from corrosive gases
Insulation resistance			500VDC 10MΩ
Electric shock protection mechanism			Class 1 basic insulation
Cooling method			Natural air cooling

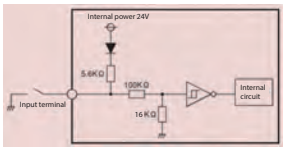
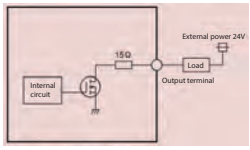
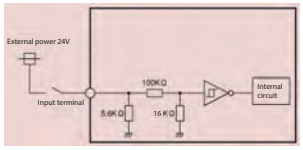
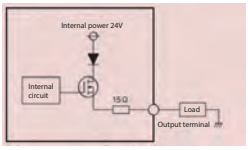
(Note 1) Inrush current flows for approximately 5ms after the power is input. (At 40°C) Inrush current value differs depending on the resistance of the power line.

Solenoid Logic

ELECYLINDER products normally use double solenoid programming logic.
Change parameter No. 9 ("solenoid valve type selection") to use single solenoid programming logic.

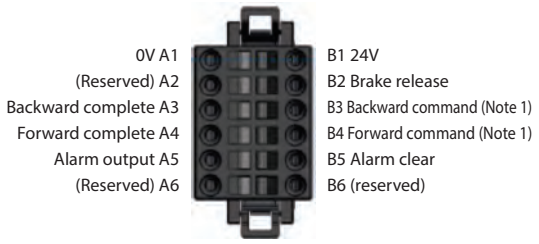
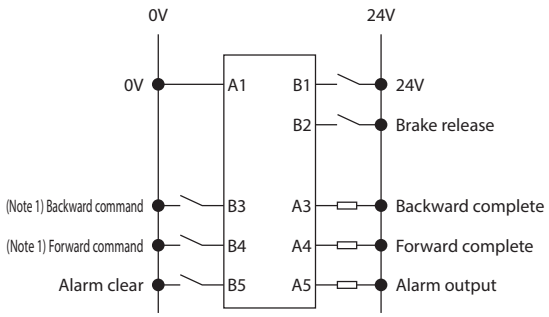
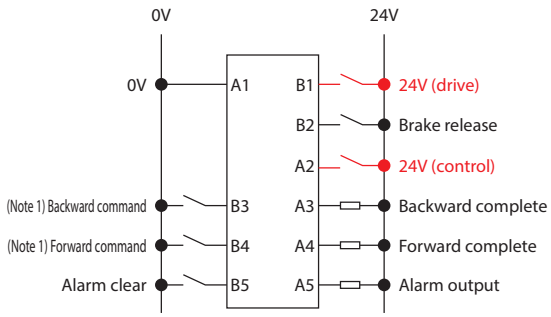
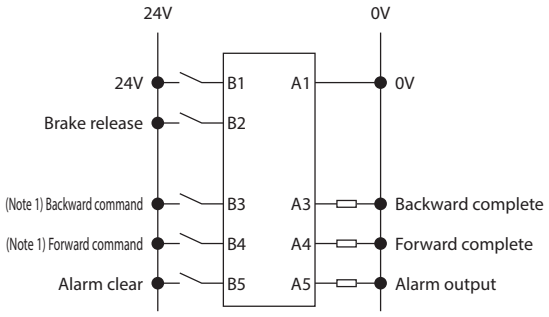
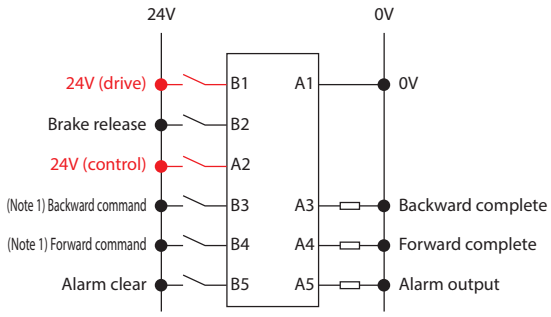
<Caution>
Single solenoid logic cannot be used when connecting to the RCON-EC.

I/O (Input/Output) Specifications

I/O		Input		Output	
Specifications		Input voltage	24VDC ±10%	Load voltage	24VDC ±10%
		Input current	5mA per circuit	Maximum load current	50mA/point
		ON/OFF voltage	ON voltage: MIN. 18VDC OFF voltage: MAX. 6VDC	Residual voltage	2V or less
		Leakage current	MAX. 1mA/point	Leakage current	Max. 0.1mA/point
Isolation method		Non-isolated from external circuit		Non-isolated from external circuit	
I/O logic	NPN				
	PNP				

(Note) Isolation method is non-isolated. When grounding an external device (such as a PLC) connected to ELECYLINDER, use the same ground as the ELECYLINDER.

I/O Signal Wiring Diagram

I/O		Standard specification	Split motor and controller power supply specification (option model: TMD2)
Power · I/O connector			Drive power and control power are separate for the TMD2 specification. 
I/O logic	NPN		
	PNP		

(Note 1) Switching to single solenoid logic will change B3 to "forward/backward command" and B4 to "unused."

I/O Signal Table

Power · I/O connector pin assignment			
Pin No.	Connector nameplate name	Signal abbreviation	Function overview
B3 (Note 1)	Backward	ST0	Backward command
B4 (Note 1)	Forward	ST1	Forward command
B5	Alarm clear	RES	Clears the alarm
A3	Backward complete	LS0/PE0	Backward complete/pull complete
A4	Forward complete	LS1/PE1	Forward complete/push complete
A5	Alarm	*ALM	Alarm detection (b-contact)
B2	Brake release	BKRLS	Brake forced release (for brake equipped specification)
B1 (Note 2)	24V	24V	24V input
A1	0V	0V	0V input
A2 (Note 2)	(24V)	(24V)	24V input

(Note 1) Switching to single solenoid logic will change B3 to "forward/backward" and B4 to "unused." However, the power · I/O connector display will still read "B3: Backward" and "B4: Forward."
(Note 2) B1 is 24V drive power, and A2 is 24V controller power for the split motor and controller power supply specification (TMD2).

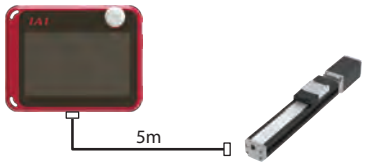
Options

Wireless/wired touch panel teach pendant

■ **Features** This teaching device supports wireless connection. Start point/end point/AVD input and axis operation can be performed wirelessly.

■ **Model** **TB-03-☐** Please contact IAI for the current supported versions.

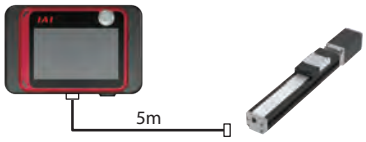
■ **Configuration** Wireless or wired connection



Wireless/wired touch panel teach pendant with power supply unit

■ **Model** **TB-03E-☐** Please contact IAI for the current supported versions.

■ **Configuration** Wireless or wired connection



TB-03 Specifications

Power input voltage range	24VDC ±10% [supplied from controller]
	5.9VDC (5.7 ~ 6.3V) [supplied from AC adapter]
Power consumption	3.6W or less
Consumption current	150mA (supplied from controller)
Ambient operating temperature	0 ~ 40°C (no condensation or freezing)
Ambient operating humidity	5%RH ~ 85%RH (no condensation or freezing)
Ambient storage temperature	-20 ~ 40°C
Ingress protection	IPX0 (Not waterproof)
Mass	670g (body) + approx. 285g (dedicated cable)
Charging method	Wired connection with dedicated AC adapter/controller

Power Supply Unit Specifications

Rated input voltage	Single-phase 100 ~ 230VAC±10%
Input current (Under rated I/O conditions in ambient temperature of 25°C)	1.4A typ. (100VAC) 0.6A typ. (230VAC)
Frequency range	50/60Hz ±5%
Power capacity (Under rated I/O conditions in ambient temperature of 25°C)	141VA (100VAC) 145VA (230VAC)
Output voltage	24VDC ±10%
Load current	With energy-saving setting disabled: Rated 3.5A, max. 4.2A With energy-saving setting enabled: Rated 2.2A
Output capacity	With energy-saving setting disabled: Rated 84W, max. 98.4W With energy-saving setting enabled: Rated 52.8W
Ambient operating temperature	0 ~ 40°C (no condensation or freezing)
Ambient operating humidity	5%RH ~ 85%RH (no condensation or freezing)
Ambient storage temperature	-20 ~ 70°C
Operating atmosphere	No corrosive gas or excessive dust
Altitude	1000m or less above sea level
Vibration resistance	Frequency: 10 ~ 57Hz / Amplitude: 0.075mm Frequency: 57 ~ 150Hz / Acceleration: 9.8m/s^2 [XYZ directions] Sweep time: 10 minutes, Number of sweeps: 10
Ingress protection	IP30
Mass	Approx. 740g
Cooling method	Natural air cooling

PC teaching software (Windows only)

■ **Features** This software provides functions such as position teaching, trial operation, and monitoring.
It provides a complete range of functions required to make adjustments, to help reduce start-up time.

Supported Windows versions: 7/10

■ **Model** **IA-OS** (software only, for customers who already own a dedicated connection cable)
* Please purchase through your distributor and a download link will be sent to your valid email address.

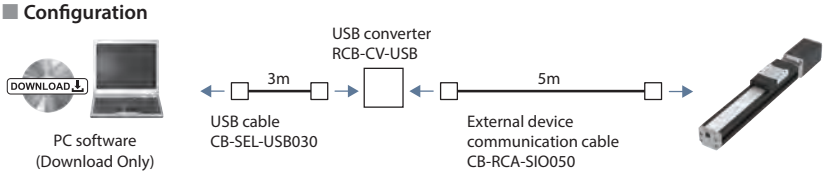
Please contact IAI for the current supported versions.

■ **Configuration**

■ **Model** **IA-OS-C** (with an external device communication cable + USB conversion adapter + USB cable)
* Please purchase through your distributor and a download link will be sent to your valid email address.

Please contact IAI for the current supported versions.

■ **Configuration**



24V power supply

■ **Model** **PSA-24** (without fan)

■ **Model** **PSA-24L** (with fan)

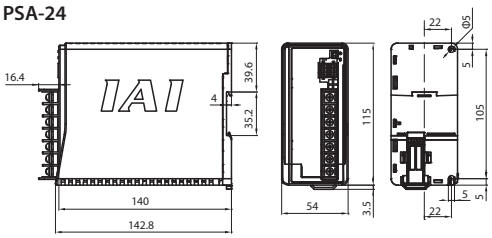
■ **Specifications Table**

Item	Specifications	
	100VAC input	200VAC input
Power input voltage range	100VAC ~ 230VAC ±10%	
Input power supply current	3.9A or less	1.9A or less
Power capacity	Without fan: 250VA With fan: 390VA	Without fan: 280VA With fan: 380VA
Inrush current*1	Without fan: 17A (typ.) With fan: 27.4A (typ.)	Without fan: 34A (typ.) With fan: 54.8A (typ.)
Generated heat	23W (204W continuous rated) 37W (300W continuous rated)	33W (204W continuous rated) 54W (330W continuous rated)
Output voltage range*2	24V ±10%	
Continuous rated output	Without fan: 8.5A (204W) With fan: 13.8A (330W)	
Peak output	17A (408W)	
Efficiency	86% or more	90% or more
Parallel connection*3	Up to 5 units	

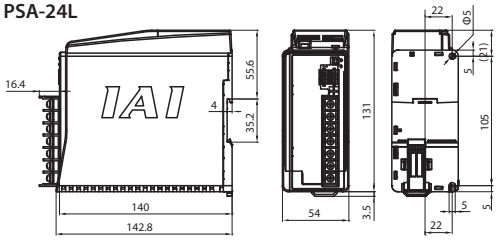
*1 The pulse width of flowing inrush current is less than 5ms.
*2 In order to enable parallel operation, this power supply can vary the output voltage according to the load. The power supply unit is therefore for use with IAI controllers only.
*3 Parallel connection cannot be used under the following conditions.
- Parallel connection of PSA-24 (specification without fan) and PSA-24L (specification with fan)
- Parallel connection with a power supply unit other than this power supply
- Parallel connection with PS-24

■ **External Dimensions**

PSA-24



PSA-24L



Maintenance Parts

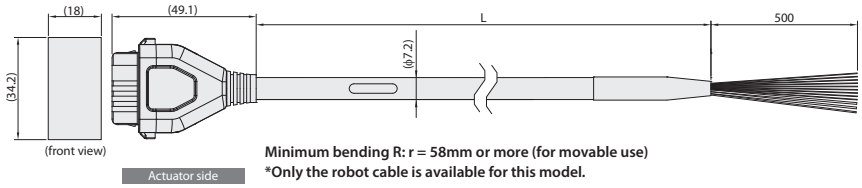
Please refer to the model numbers below when preparing a separate cable or replacing an existing cable.

■ **Table of Compatible Cables**

Cable type	Cable model
Power · I/O cable (user-wired specification)	CB-EC-PWBIO□□□-RB
Power · I/O cable (user-wired specification, four-way connector)	CB-EC2-PWBIO□□□-RB
Power · I/O cable (RCON-EC connection specification)	CB-REC-PWBIO□□□-RB
Power · I/O cable (RCON-EC connection specification, four-way connector)	CB-REC2-PWBIO□□□-RB

Model CB-EC-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□, maximum 8m (for example, 030 = 3m)



Minimum bending R: r = 58mm or more (for movable use)
***Only the robot cable is available for this model.**

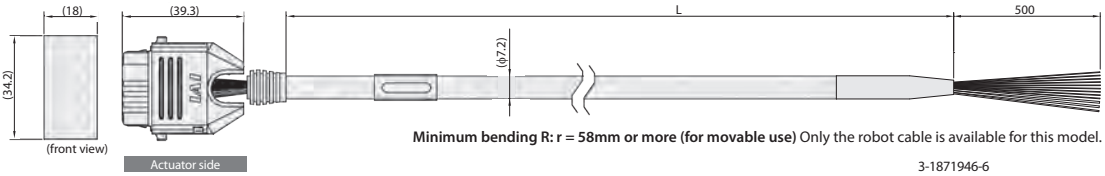
3-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22)	(Reserved) (Note 1)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	(Reserved)	B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26)	(Reserved)	A6
Brown (AWG26)	BKRLS	B2

(Note 1) 24V (controller) when split motor and controller power supply specification (TMD2) is selected.

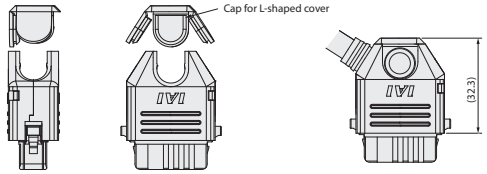
Model CB-EC2-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□, maximum 8m (for example, 030 = 3m)



Minimum bending R: r = 58mm or more (for movable use) Only the robot cable is available for this model.

Connector assembly diagram



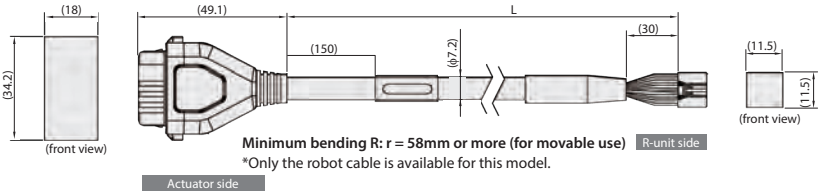
3-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22)	(Reserved) (Note 1)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	(Reserved)	B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26)	(Reserved)	A6
Brown (AWG26)	BKRLS	B2

(Note 1) 24V (controller) when split motor and controller power supply specification (TMD2) is selected.

Model CB-REC-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□, maximum 8m (for example, 030 = 3m)



Minimum bending R: r = 58mm or more (for movable use) R-unit side
*Only the robot cable is available for this model.

3-1871946-6

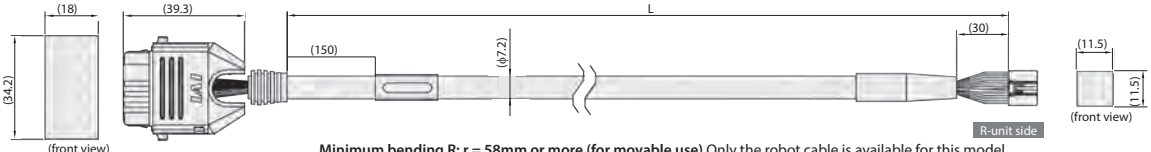
Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V (MP)	B1
Light blue (AWG22)	24V (CP)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Yellow (AWG26)	SD+	B6
Light gray (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

DF62C-13S-2.2C (18)

Pin No.	Signal name	Color
2	0V	Black (AWG18)
1	24V (MP)	Red (AWG18)
12	24V (CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Yellow (AWG26)
10	SD-	Light gray (AWG26)
3	IN0	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

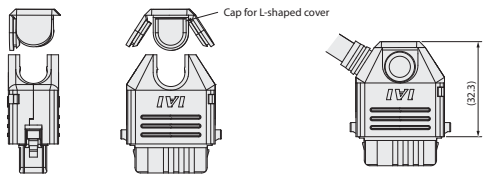
Model CB-REC2-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□, maximum 8m (for example, 030 = 3m)



Minimum bending R: r = 58mm or more (for movable use) Only the robot cable is available for this model.

Connector assembly diagram



1-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V (MP)	B1
Light blue (AWG22)	24V (CP)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Yellow (AWG26)	SD+	B6
Light gray (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

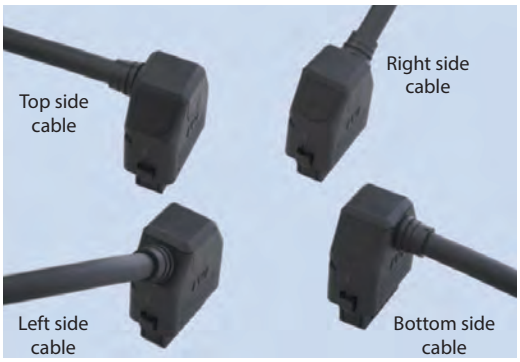
DF62C-13S-2C(18)

Pin No.	Signal name	Color
2	0V	Black (AWG22)
1	24V (MP)	Red (AWG22)
12	24V (CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Yellow (AWG26)
10	SD-	Light gray (AWG26)
3	IN0	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

■ Four-way Connector Cable

This cable allows the cable exit direction from the connector to be set to any of 4 directions.
The cable management for the connector is the same as that of power · I/O cable CB-EC-PWBIO□□□-RB/CB-REC-PWBIO□□□-RB.

Model number: CB-EC2-PWBIO□□□-RB
CB-REC2-PWBIO□□□-RB (RCON-EC connection specification)



Cable exit direction

- The wiring on the side opposite the connector is left unprepared (CB-EC2-PWBIO□□□-RB).
- The cable length may be from 1m to 8m long.
  The length can be specified in 1m units.
- Example models are listed below.

  Cable length **1**m → CB-EC2-PWBIO**010**-RB
  Cable length **3**m → CB-EC2-PWBIO**030**-RB
  Cable length **8**m → CB-EC2-PWBIO**080**-RB

Follow the procedure below to assemble the connector in the desired direction.

(1) Insert while sliding along the groove in the desired direction from the semi-cylindrical curved portion.

(2) Confirm that the cable has been firmly inserted, and then insert the 2 sides of the lid along the groove.

(3) Finally, press the remaining side of the lid.

Connect ELECYLINDER to a field network(*)

This field network connection unit is specifically for use with ELECYLINDER.

It allows up to 16 axes of ELECYLINDER to be connected.

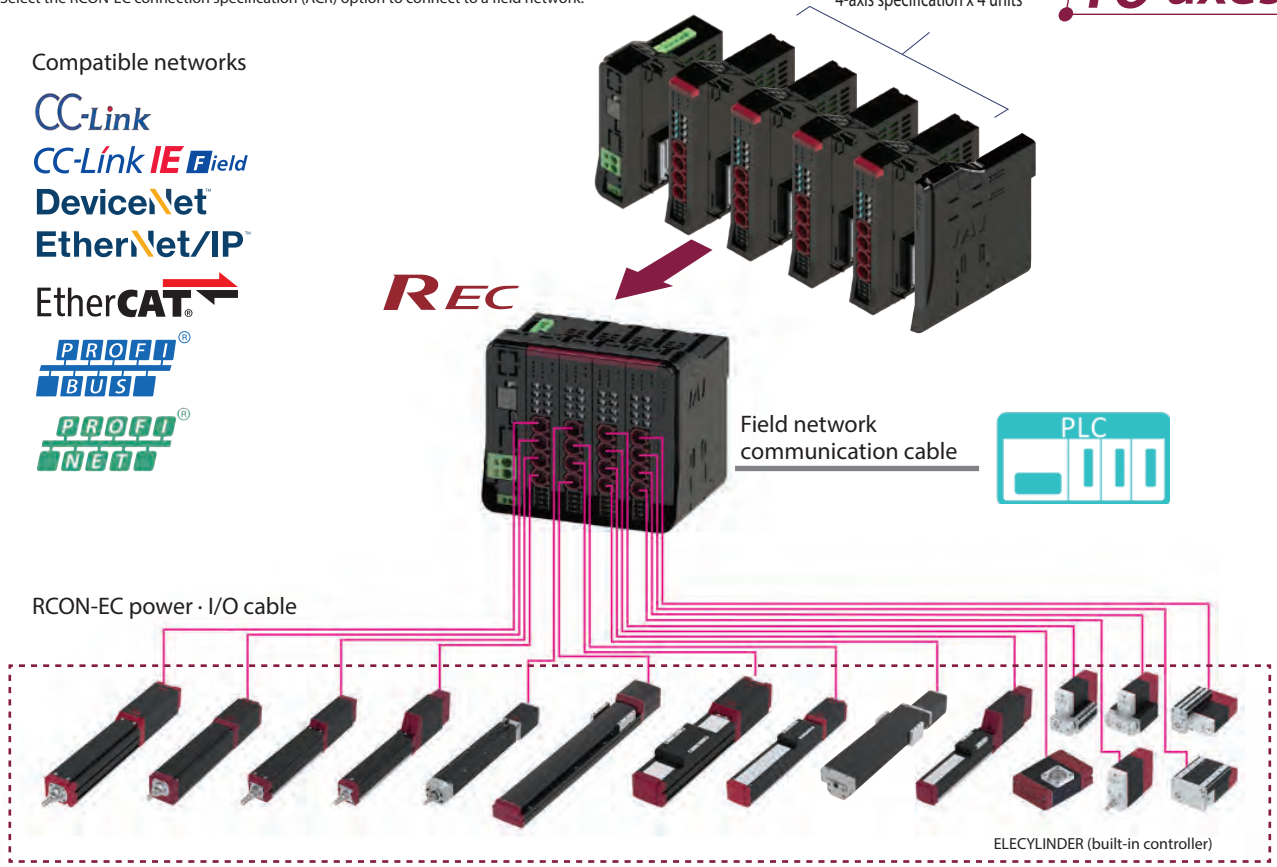
It is ideal for saving wiring and space inside the control panel.

*Select the RCON-EC connection specification (ACR) option to connect to a field network.

RCON-EC
(EC connection unit)
4-axis specification x 4 units
= Max. 16 axes

Compatible networks

CC-Link
CC-Link IE Field
DeviceNet
EtherNet/IP
EtherCAT
PROFIBUS
PROFINET



The EC connection unit can also be connected to the RCON gateway.

Connecting to the RCON allows the Elecylinders to be run alongside ROBO Cylinders and single axis robots.

Please refer to the R-unit Catalog for details

Catalog No. CE0296-1A (2022SEP)

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