

ELECYLINDER®
Large Slider Type

EC-S13/S13X EC-S15/S15X



Simple & Wireless Operation
2 Position Actuator

2-point positioning

Built-in controller

ELECYLINDER®

EC-S13/S13X/S15/S15X

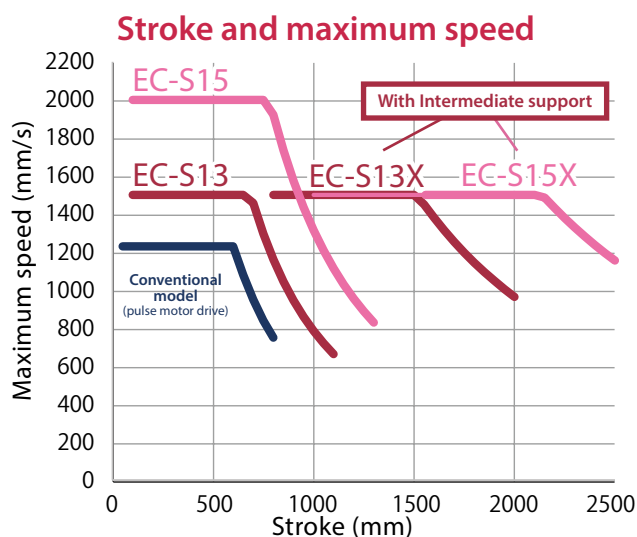
Large Slider Type

NEW

1

Maximum stroke **2500mm**

Maximum speed **2000mm/s**



Equipped with high output 200-VAC servo motors.

A model with intermediate support is also available. Compared to the conventional pulse motor model this large slider type has a longer stroke and operates at higher speeds.

EC-S15X

2500mm Stroke

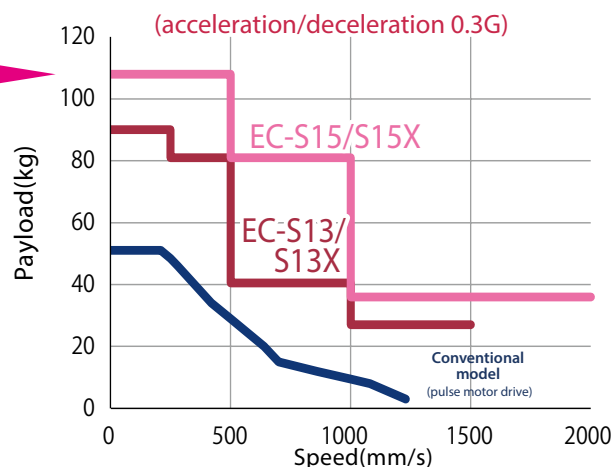
108kg

2

Maximum payload

108kg

Correlation between speed and payload



1

3

Standard-equipped with battery-less absolute encoder

No home return is required, which shortens the startup time with long stroke.

4

New intermediate support

New mechanism is adopted for intermediate support. A long stroke is possible even for vertical installations.

Horizontal flat

Horizontal side

Horizontal ceiling

Vertical

5

Can be installed with bolts from the top face

Installation bolts

Installation bolt size: M8

6

Compatible with wireless teaching

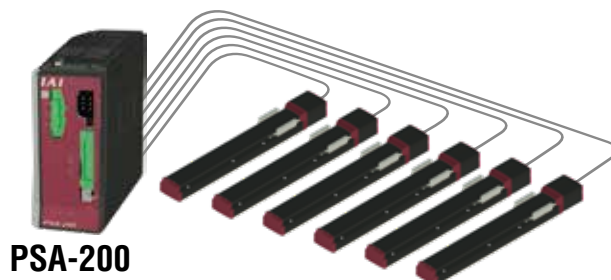
Allowing test runs from a distance



TB-03

7

Motor drive DC power unit can supply power up to 6 axes



PSA-200

Model items

ELECYLINDER®

EC

Series

-

Type

-

Ball screw lead

-

Stroke

-

Power/IO cable length

-

Motor power cable length

-

Option

S13	Slider width 132 mm
S13X	Slider width 132 mm (with intermediate support)
S15	Slider width 156mm
S15X	Slider width 156mm (with intermediate support)

100	100mm
∅	∅
2500	2500mm

(50-mm increments)

0	No Cable Power IO connector supplied (Note)
1	1m
∅	∅
10	10m

(Note) When RCON-EC connection specification (ACR) is selected, power IO connector is not supplied.

<S13/S13X>

S	Lead30mm
H	Lead20mm
M	Lead10mm
L	Lead5mm

<S15/S15X>

H	Lead40mm
M	Lead20mm
L	Lead10mm

0	No Cable
1	1m
∅	∅
10	10m

Not specified	NPN specification, leave blank
ACR	RCON-EC connection specification
B	Brake
G5	Specified grease application specification
NM	Reversed-home specification
PN	PNP specification
TMD2	Double power circuit specification
WL	Wireless communication specification
WL2	Wireless axis operation compatible specification

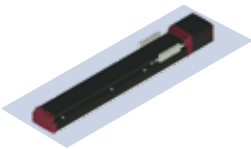
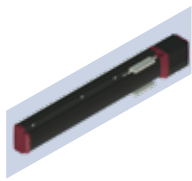
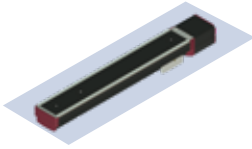

* Depending on the actuator type, stroke selection range varies.
For details, refer to the page for each type.

Notes on Installation

Installation orientation

○ : Installation possible

× : Installation impossible

		Installation orientation			
					
Series	Type	Horizontal flat	Horizontal side	Horizontal ceiling	Vertical
EC	S13	○	○*1	○	○ ^{*2} _{*3}
	S13X				
	S15				
	S15X				

*1 For horizontal side installations may drip oil components that become separated from the grease.
Also parts and other materials can enter the side face of this actuator.
If necessary, use the actuator with protective parts attached.

*2 For vertical installation, it is recommended to mount the motor above the ball screw.
If the motor is mounted below the ball screw; the motor, controller and encoder can become damaged from base oil flowing down into that area.

*3 When the actuator is installed with the motor on the top side, attach a cap on the teaching port.
Foreign matters might get stuck in the teaching port, which may cause a malfunction.

■ The flatness of the main body installation face and work mounting surface shall be within 0.05 mm/m.
If the flatness exceeds the tolerance, slider sliding resistance becomes higher, which may cause an operation failure.

EC-S13



Model items

EC	—	S13		—		—		—		—	
Series	—	Type	Lead	—	Stroke	—	Power/IO cable length	—	Motor power cable length	—	Option
		S	30mm		100	100mm	Please see cable length table below.	0	No cable	Please see options table below.	
		H	20mm		2	2					
		M	10mm		1100	1100mm					
		L	5mm			(50-mm increments)					
								1	1m		
								2	2		
								10	10m		



Stroke

Stroke (mm)	Stroke (mm)
100	650
150	700
200	750
250	800
300	850
350	900
400	950
450	1000
500	1050
550	1100
600	

Option

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

Name	Option code	Reference page
RCON-EC connection specification(Note 1)	ACR	21
Brake	B	21
Specified grease application specification	G5	21
Reversed-home specification	NM	21
PNP specification(Note 1)	PN	21
Double power circuit specification(Note 1)	TMD2	21
Wireless communication specification	WL	21
Wireless axis operation compatible specification	WL2	21

(Note 1) When RCON-EC connection specification (ACR) is selected, PNP specification (PN) or double power circuit specification (TMD2) cannot be selected.

Power/IO cable length

Cable code	Cable length	User wiring specification (discrete wiring)	RCON-EC connection specification (Note 3) (with connectors at both ends)
0	No cable	CB-EC-PWBIO□□□-RBsupplied	CB-REC-PWBIO□□□-RBsupplied
1 ~ 3	1 ~ 3m	○(Note 2)	○
4 ~ 5	4 ~ 5m	○	○
6 ~ 7	6 ~ 7m	○	○
8 ~ 10	8 ~ 10m	○	○

(Note 2) Only terminal block connector is supplied. For details, refer to page 25.

(Note 3) This applies when RCON-EC connection specification (ACR) is selected as an option.

(Note) These are robot cables.



- (1) The payload of "main specification" shows the maximum value. For details, refer to the "table of payload by speed/acceleration."
- (2) For these actuators to operate the motor drive power unit "PSA-200" is necessary. One "PSA-200" can supply power up to 6 axes. For details, refer to page 26.
- (3) Depending on the operation condition (payload, acceleration/deceleration), rough guide for available duty varies. For details, refer to page 22.
- (4) Pay close attention to the installation orientation. Refer to page 4 for details.
- (5) Rough guide for overhang load length is 600 mm or less in Ma/Mb/Mc direction.

Motor power cable length

Cable code	Cable length
0	No cable
1 ~ 3	1 ~ 3m
4 ~ 5	4 ~ 5m
6 ~ 10	6 ~ 10m

(Note) These are robot cables.

Main specifications

Item			Details			
Lead		Ball screw lead (mm)	30	20	10	5
Horizontal	Payload	Maximum payload (kg)	27	40.5	81	90
	Speed/ acceleration/ deceleration	Maximum speed (mm/s)	1500	1000	500	250
		Rated acceleration/ deceleration (G)	0.3	0.3	0.3	0.3
		Maximum acceleration/ deceleration (G)	1	1	0.7	0.5
Vertical	Payload	Maximum payload (kg)	5.4	9	18	30.6
	Speed/ acceleration/ deceleration	Maximum speed (mm/s)	1500	1000	500	250
		Rated acceleration/ deceleration (G)	0.3	0.3	0.3	0.3
		Maximum acceleration/ deceleration (G)	0.7	0.7	0.5	0.3
Thrust		Rated thrust (N)	113.9	170.9	341.8	683.6
Brake	Brake specification		Non-excited operation electromagnetic brake			
	Brake retaining force (kgf)		5.4	9	18	30.6
Stroke	Minimum stroke (mm)		100	100	100	100
	Maximum stroke (mm)		1100	1100	1100	1100
	Stroke pitch (mm)		50	50	50	50

Item	Details
Drive method	Ball screw Ø16 mm rolled C10 equivalent
Positioning repeatability	±0.01mm
Lost motion	—
Base	Dedicated extruded aluminum (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion endlessly circulating type
Static allowable moment	Ma : 518 N · m
	Mb : 518 N · m
	Mc : 1210 N · m
Dynamic allowable moment(Note 4)	Ma : 107 N · m
	Mb : 107 N · m
	Mc : 250 N · m
Ambient operating air temperature, humidity	0 to 40°C, 85%RH max. (no condensation)
Protection class	—
Vibration resistance/shock resistance	4.9m/s ²
Overseas standard compliance	CE Marking, RoHS Directive
Motor type	AC servo motor (200 V)
Rated motor capacity	200W
Encoder type	Battery-less absolute
Encoder pulse count	16384 pulse/rev

(Note 4) Based on the assumption of a standard rated life of 10,000 km. The traveling life varies depending on the operating conditions and installation conditions.

Slider type moment direction

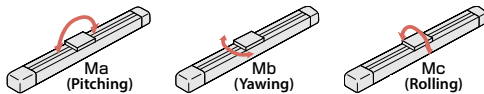


Table of payload by speed/acceleration

Payload shown in units of kg

Lead 30

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	27	21.6	15.3	10.8	5.4	5	4.1
1500	27	21.6	15.3	10.8	5.4	5	4.1

Lead 20

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	40.5	31.5	20.7	13.5	9	7.7	6.3
1000	40.5	31.5	20.7	13.5	9	7.7	6.3

Lead 10

Orientation	Horizontal			Vertical	
Speed (mm/s)	Acceleration (G)				
	0.3	0.5	0.7	0.3	0.5
0	81	59.4	36	18	15.3
500	81	59.4	36	18	15.3

Lead 5

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.5	0.3
0	90	72	30.6
250	90	72	30.6

Stroke and maximum speed

Stroke	100 ~ 650 (50-mm increment)	700 (mm)	750 (mm)	800 (mm)	850 (mm)	900 (mm)	950 (mm)	1000 (mm)	1050 (mm)	1100 (mm)
Lead(mm)										
30	1500	1458	1297	1161	1045	946	860	785	720	663
20	1000	972	865	774	697	630	573	524	480	442
10	500	486	432	387	348	315	287	262	240	221
5	250	243	216	193	174	158	143	131	120	110

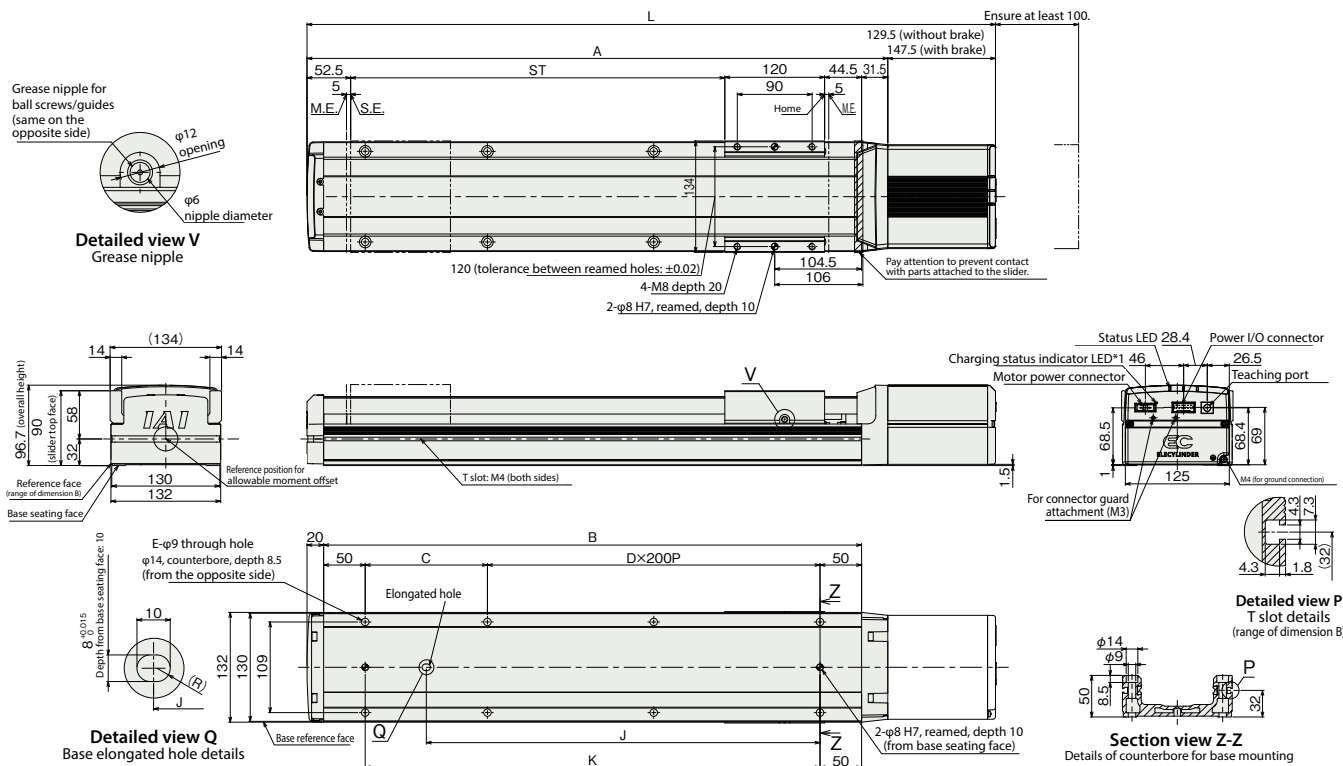
(unit: mm/s)

- *1 While the charging status indicator LED is illuminated, the inside of controller is charged.
Before starting wiring or inspection, make sure that the LED is not illuminated after the power is cut off to avoid an electrical shock.
- (Note) The slider moves to the M.E. during home return. Pay attention to prevent contact between the slider and surrounding parts.

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



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



Dimension by stroke

Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L																					
Without brake	478	528	578	628	678	728	778	828	878	928	978	1028	1078	1128	1178	1228	1278	1328	1378	1428	1478
With brake	496	546	596	646	696	746	796	846	896	946	996	1046	1096	1146	1196	1246	1296	1346	1396	1446	1496
A	348.5	398.5	448.5	498.5	548.5	598.5	648.5	698.5	748.5	798.5	848.5	898.5	948.5	998.5	1048.5	1098.5	1148.5	1198.5	1248.5	1298.5	1348.5
B	297	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197	1247	1297
C	197	247	297	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197
D	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
E	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
J	98.5	123.5	148.5	173.5	198.5	223.5	248.5	273.5	298.5	323.5	348.5	373.5	398.5	423.5	448.5	473.5	498.5	523.5	548.5	573.5	598.5
K	197	247	297	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197

Weight by stroke

Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
Weight (kg)																					
Without brake	7.3	7.8	8.3	8.7	9.2	9.7	10.2	10.7	11.1	11.6	12.1	12.6	13.1	13.6	14.0	14.5	15.0	15.5	16.0	16.4	16.9
With brake	7.8	8.3	8.8	9.3	9.8	10.3	10.7	11.2	11.7	12.2	12.7	13.1	13.6	14.1	14.6	15.1	15.5	16.0	16.5	17.0	17.5

Compatible controller

(Note) EC series has a built-in controller. For details of built-in controller, refer to page 24.
The 200v motor power unit "PSA-200" is required for EC-S13/S13X/S15/S15X models to operate.

EC-S13X



Model items

EC		- S13X			-		-		-		-	
Series	Type	Lead	Stroke		Power/IO cable length		Motor power cable length		Option			
	S	30mm	800	800mm	Please see cable length table below.		0	No cable		Please see options table below.		
	H	20mm	?	?			1	1m				
	M	10mm	2000	2000mm			?	?				
	L	5mm		(50-mm increments)			10	10m				



Stroke

Stroke (mm)	Stroke (mm)
800	1450
850	1500
900	1550
950	1600
1000	1650
1050	1700
1100	1750
1150	1800
1200	1850
1250	1900
1300	1950
1350	2000
1400	

Option

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

Name	Option code	Reference page
RCON-EC connection specification(Note 1)	ACR	21
Brake	B	21
Specified grease application specification	G5	21
Reversed-home specification	NM	21
PNP specification(Note 1)	PN	21
Double power circuit specification(Note 1)	TMD2	21
Wireless communication specification	WL	21
Wireless axis operation compatible specification	WL2	21

(Note 1) When RCON-EC connection specification (ACR) is selected, PNP specification (PN) or double power circuit specification (TMD2) cannot be selected.

Power/IO cable length

Cable code	Cable length	User wiring specification (discrete wiring)	RCON-EC connection specification (Note 3) (with connectors at both ends)
0	No cable	CB-EC-PWBIO□□□-RBsupplied	CB-REC-PWBIO□□□-RBsupplied
1 ~ 3	1 ~ 3m	(Note 2)	
4 ~ 5	4 ~ 5m		
6 ~ 7	6 ~ 7m		
8 ~ 10	8 ~ 10m		

(Note 2) Only terminal block connector is supplied. For details, refer to page 25.

(Note 3) This applies when RCON-EC connection specification (ACR) is selected as an option.

(Note) These are robot cables.



- (1) The payload of "main specification" shows the maximum value. For details, refer to the "table of payload by speed/acceleration."
- (2) For these actuators to operate the motor drive power unit "PSA-200" is necessary. One "PSA-200" can supply power up to 6 axes. For details, refer to page 26.
- (3) Depending on the operation condition (payload, acceleration/deceleration), rough guide for available duty varies. For details, refer to page 22.
- (4) Pay close attention to the installation orientation. Refer to page 4 for details.
- (5) Rough guide for overhang load length is 600 mm or less in Ma/Mb/Mc direction.
- (6) For the intermediate support type, a collision sound occurs during operation due to the structure of support mechanism.

Motor power cable length

Cable code	Cable length
0	No cable
1 ~ 3	1 ~ 3m
4 ~ 5	4 ~ 5m
6 ~ 10	6 ~ 10m

(Note) These are robot cables.

Main specifications

Item			Details			
Lead		Ball screw lead (mm)	30	20	10	5
Horizontal	Payload	Maximum payload (kg)	27	40.5	81	90
		Maximum speed (mm/s)	1500	1000	500	250
	Speed/ acceleration/ deceleration	Rated acceleration/ deceleration (G)	0.3	0.3	0.3	0.3
		Maximum acceleration/ deceleration (G)	1	1	0.7	0.5
Vertical	Payload	Maximum payload (kg)	5.4	9	18	30.6
		Maximum speed (mm/s)	1500	1000	500	250
	Speed/ acceleration/ deceleration	Rated acceleration/ deceleration (G)	0.3	0.3	0.3	0.3
		Maximum acceleration/ deceleration (G)	0.7	0.7	0.5	0.3
Thrust		Rated thrust (N)	113.9	170.9	341.8	683.6
Brake	Brake specification		Non-excited operation electromagnetic brake			
	Brake retaining force (kgf)		5.4	9	18	30.6
Stroke	Minimum stroke (mm)		800	800	800	800
	Maximum stroke (mm)		2000	2000	2000	2000
	Stroke pitch (mm)		50	50	50	50

Item	Details
Drive method	Ball screw $\Phi 16$ mm rolled C10 equivalent
Positioning repeatability	± 0.01 mm
Lost motion	—
Base	Dedicated extruded aluminum (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion endlessly circulating type
Static allowable moment	Ma : 518 N · m
	Mb : 518 N · m
	Mc : 1210 N · m
Dynamic allowable moment (Note 4)	Ma : 107 N · m
	Mb : 107 N · m
	Mc : 250 N · m
Ambient operating air temperature, humidity	0 to 40°C, 85%RH max. (no condensation)
Protection class	—
Vibration resistance/shock resistance	4.9m/s ²
Overseas standard compliance	CE Marking, RoHS Directive
Motor type	AC servo motor (200 V)
Rated motor capacity	200W
Encoder type	Battery-less absolute
Encoder pulse count	16384 pulse/rev

(Note 4) Based on the assumption of a standard rated life of 10,000 km. The traveling life varies depending on the operating conditions and installation conditions.

Slider type moment direction

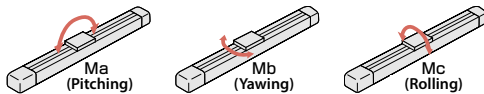


Table of payload by speed/acceleration

Payload shown in units of kg

Lead 30

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	27	21.6	15.3	10.8	5.4	5	4.1
1500	27	21.6	15.3	10.8	5.4	5	4.1

Lead 20

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	40.5	31.5	20.7	13.5	9	7.7	6.3
1000	40.5	31.5	20.7	13.5	9	7.7	6.3

Lead 10

Orientation	Horizontal			Vertical	
Speed (mm/s)	Acceleration (G)				
	0.3	0.5	0.7	0.3	0.5
0	81	59.4	36	18	15.3
500	81	59.4	36	18	15.3

Lead 5

Orientation	Horizontal		Vertical
	Acceleration (G)		
Speed (mm/s)	0.3	0.5	0.3
0	90	72	30.6
250	90	72	30.6

Stroke and maximum speed

Stroke	800~1500 (50-mm increment)	1550 (mm)	1600 (mm)	1650 (mm)	1700 (mm)	1750 (mm)	1800 (mm)	1850 (mm)	1900 (mm)	1950 (mm)	2000 (mm)
Lead (mm)											
30	1500	1450	1380	1314	1254	1197	1144	1095	1049	1005	964
20	1000	966	920	876	836	798	763	730	699	670	643
10	500	483	460	438	418	399	381	365	350	335	321
5	250	242	230	219	209	200	191	182	175	168	161

(unit: mm/s)

Dimensions

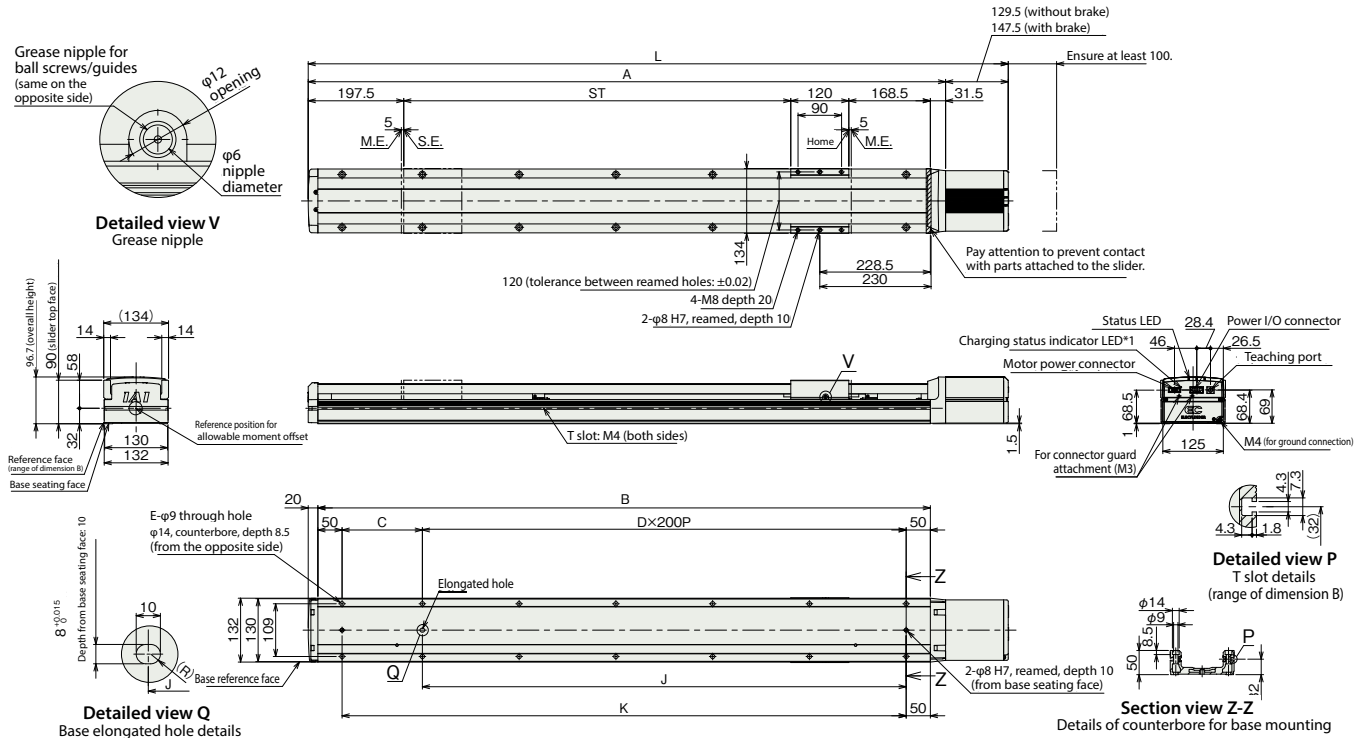
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Before starting wiring or inspection, make sure that the LED is not illuminated after the power is cut off to avoid an electrical shock.
- (Note) The slider moves to the M.E. during home return. Pay attention to prevent contact between the slider and surrounding parts.

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2D
CAD

3D
CAD

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



Dimension by stroke

Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000
L																									
Without brake	1447	1497	1547	1597	1647	1697	1747	1797	1847	1897	1947	1997	2047	2097	2147	2197	2247	2297	2347	2397	2447	2497	2547	2597	2647
With brake	1465	1515	1565	1615	1665	1715	1765	1815	1865	1915	1965	2015	2065	2115	2165	2215	2265	2315	2365	2415	2465	2515	2565	2615	2665
A	1317.5	1367.5	1417.5	1467.5	1517.5	1567.5	1617.5	1667.5	1717.5	1767.5	1817.5	1867.5	1917.5	1967.5	2017.5	2067.5	2117.5	2167.5	2217.5	2267.5	2317.5	2367.5	2417.5	2467.5	2517.5
B	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966	2016	2066	2116	2166	2216	2266	2316	2366	2416	2466
C	166	216	266	316	366	416	466	516	566	616	666	716	766	816	866	916	966	1016	1066	1116	1166	1216	1266	1316	1366
D	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11
E	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26
J	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600	1600	1600	1800	1800	1800	1800	2000	2000	2000	2000	2200
K	1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966	2016	2066	2116	2166	2216	2266	2316	2366

Weight by stroke

Stroke	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000
Weight (kg)																									
Without brake	17.5	18.0	18.5	19.0	19.5	20.6	21.1	21.6	22.1	22.6	23.1	23.6	24.1	24.6	25.1	25.6	26.1	26.6	27.1	27.6	28.1	28.6	29.1	29.6	30.1
With brake	18.1	18.6	19.1	19.5	20.0	21.2	21.7	22.2	22.7	23.2	23.7	24.2	24.7	25.2	25.7	26.2	26.7	27.2	27.7	28.2	28.7	29.2	29.7	30.2	30.7

Compatible controller

- (Note) EC series has a built-in controller. For details of built-in controller, refer to page 24.
The 200v motor power unit "PSA-200" is required for EC-S13/S13X/S15/S15X models to operate.

EC-S15



Model items

EC	S15						
Series	Type	Lead	Stroke	Power/IO cable length	Motor power cable length	Option	
		H 40mm	100	100mm	0	No cable	
		M 20mm	?	?	1	1m	
		L 10mm	1300	1300mm (50-mm increments)	?	?	
					10	10m	
				Please see cable length table below.		Please see options table below.	



Stroke	Stroke (mm)	Stroke (mm)
100	750	
150	800	
200	850	
250	900	
300	950	
350	1000	
400	1050	
450	1100	
500	1150	
550	1200	
600	1250	
650	1300	
700		

Option

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

Name	Option code	Reference page
RCON-EC connection specification(Note 1)	ACR	21
Brake	B	21
Specified grease application specification	G5	21
Reversed-home specification	NM	21
PNP specification(Note 1)	PN	21
Double power circuit specification(Note 1)	TMD2	21
Wireless communication specification	WL	21
Wireless axis operation compatible specification	WL2	21

(Note 1) When RCON-EC connection specification (ACR) is selected, PNP specification (PN) or double power circuit specification (TMD2) cannot be selected.

Power/IO cable length	Cable code	Cable length	User wiring specification (discrete wiring)	RCON-EC connection specification (Note 3) (with connectors at both ends)
	0	No cable	CB-EC-PWBIO□□□-RBsupplied	CB-REC-PWBIO□□□-RBsupplied
	1 ~ 3	1 ~ 3m	○(Note 2)	○
	4 ~ 5	4 ~ 5m	○	○
	6 ~ 7	6 ~ 7m	○	○
	8 ~ 10	8 ~ 10m	○	○

(Note 2) Only terminal block connector is supplied. For details, refer to page 25.

(Note 3) This applies when RCON-EC connection specification (ACR) is selected as an option.

(Note) These are robot cables.



- (1) The payload of "main specification" shows the maximum value. For details, refer to the "table of payload by speed/acceleration."
- (2) For these actuators to operate the motor drive power unit "PSA-200" is necessary. One "PSA-200" can supply power up to 6 axes. For details, refer to page 26.
- (3) Depending on the operation condition (payload, acceleration/deceleration), rough guide for available duty varies. For details, refer to page 22.
- (4) Pay close attention to the installation orientation. Refer to page 4 for details.
- (5) Rough guide for overhang load length is 750 mm or less in Ma/Mb/Mc direction.

Motor power cable length	Cable code	Cable length
	0	No cable
	1 ~ 3	1 ~ 3m
	4 ~ 5	4 ~ 5m
	6 ~ 10	6 ~ 10m

(Note) These are robot cables.

Main specifications

Item		Details			
Lead		Ball screw lead (mm)	40	20	10
Horizontal	Payload	Maximum payload (kg)	36	81	108
	Speed/acceleration/deceleration	Maximum speed (mm/s)	2000	1000	500
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Maximum acceleration/deceleration (G)	1	1	0.7
Vertical	Payload	Maximum payload (kg)	9	18	36
	Speed/acceleration/deceleration	Maximum speed (mm/s)	2000	1000	500
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Maximum acceleration/deceleration (G)	0.7	0.7	0.5
Thrust		Rated thrust (N)	169.6	339.1	678.3
Brake	Brake specification		Non-excited operation electromagnetic brake		
	Brake retaining force (kgf)		9	18	36
Stroke	Minimum stroke (mm)		100	100	100
	Maximum stroke (mm)		1300	1300	1300
	Stroke pitch (mm)		50	50	50

Item	Details
Drive method	Ball screw Ø20 mm rolled C10 equivalent
Positioning repeatability	±0.01mm
Lost motion	—
Base	Dedicated extruded aluminum (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion endlessly circulating type
Static allowable moment	Ma : 852 N · m
	Mb : 852 N · m
Dynamic allowable moment(Note 4)	Mc : 2010 N · m
	Ma : 162 N · m
Ambient operating air temperature, humidity	Mb : 162 N · m
	Mc : 384 N · m
Protection class	0 to 40°C, 85%RH max. (no condensation)
Vibration resistance/shock resistance	—
Overseas standard compliance	4.9m/s ²
Motor type	CE Marking, RoHS Directive
Rated motor capacity	AC servo motor (200 V)
Encoder type	400W
Encoder pulse count	Battery-less absolute
	16384 pulse/rev

(Note 4) Based on the assumption of a standard rated life of 10,000 km. The traveling life varies depending on the operating conditions and installation conditions.

Slider type moment direction

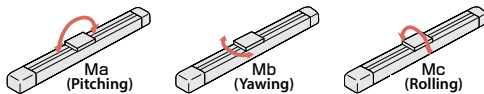


Table of payload by speed/acceleration

Payload shown in units of kg

Lead 40

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	36	28.8	20.7	15.3	9	7.7	6.3
2000	36	28.8	20.7	15.3	9	7.7	6.3

Lead 20

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	81	63	42.3	27	18	15.3	12.6
1000	81	63	42.3	27	18	15.3	12.6

Lead 10

Orientation	Horizontal			Vertical	
Speed (mm/s)	Acceleration (G)				
	0.3	0.5	0.7	0.3	0.5
0	108	82.8	54	36	30.6
500	108	82.8	54	36	30.6

Stroke and maximum speed

Stroke	100~750 (50-mm increment)	800 (mm)	850 (mm)	900 (mm)	950 (mm)	1000 (mm)	1050 (mm)	1100 (mm)	1150 (mm)	1200 (mm)	1250 (mm)	1300 (mm)
Lead(mm)												
40	2000	1922	1736	1575	1436	1315	1208	1114	1030	955	889	829
20	1000	961	868	788	718	657	604	557	515	478	444	414
10	500	481	434	394	359	329	302	278	258	239	222	207

(unit: mm/s)

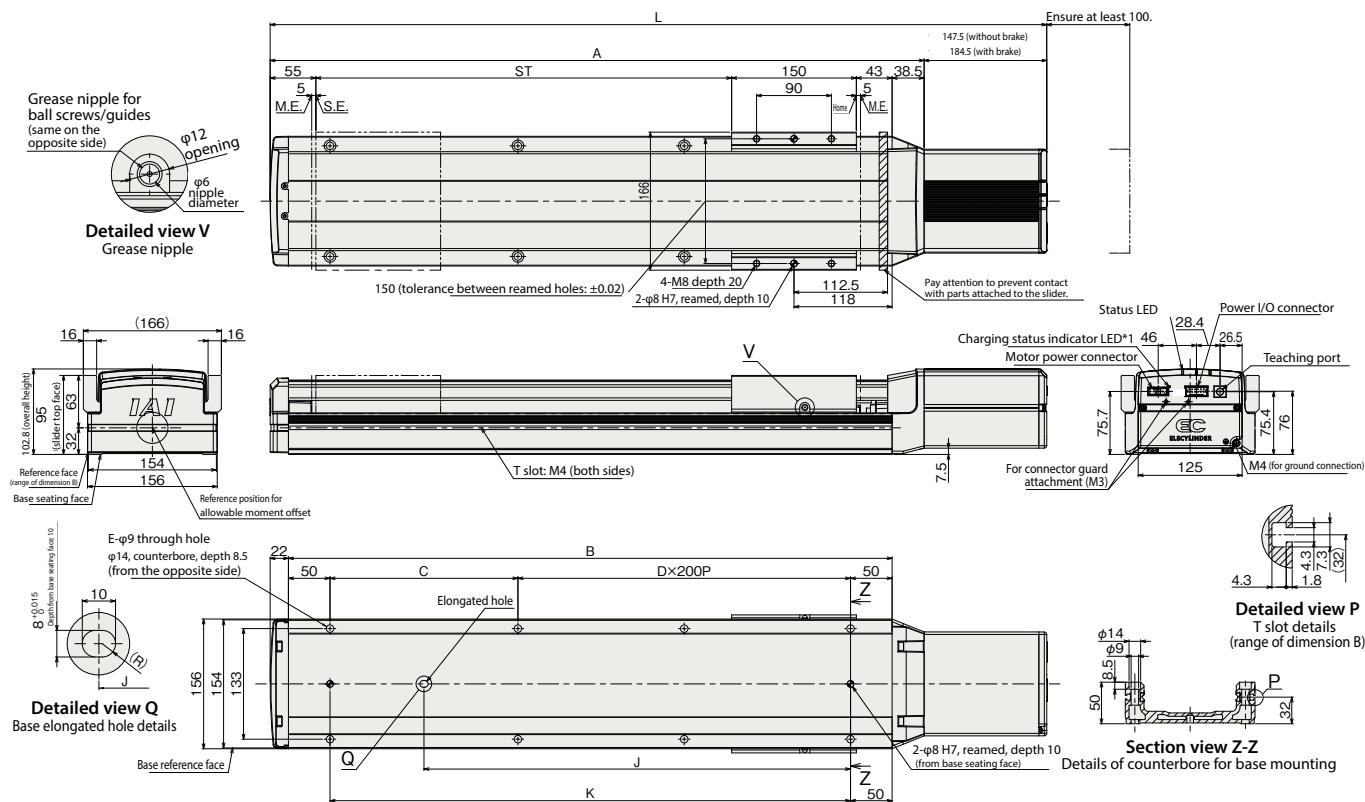
Dimensions

- *1 While the charging status indicator LED is illuminated, the inside of controller is charged. Before starting wiring or inspection, make sure that the LED is not illuminated after the power is cut off to avoid an electrical shock.
- (Note) The slider moves to the M.E. during home return. Pay attention to prevent contact between the slider and surrounding parts.

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



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



■ Dimension by stroke

L	Stroke	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
	Without brake	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384	1434	1484	1534	1584	1634	1684	1734
	With brake	571	621	671	721	771	821	871	921	971	1021	1071	1121	1171	1221	1271	1321	1371	1421	1471	1521	1571	1621	1671	1721	1771
	A	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5	986.5	1036.5	1086.5	1136.5	1186.5	1236.5	1286.5	1336.5	1386.5	1436.5	1486.5	1536.5	1586.5
B	326	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126	1176	1226	1276	1326	1376	1426	1476	1526	
C	226	276	326	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126	1176	1226	1276	1326	1376	1426	1476
D	0	0	1	1	1	1	2	2	2	2	2	3	3	3	4	4	4	4	5	5	5	5	6	6	6	
E	4	4	6	6	6	6	8	8	8	8	8	10	10	10	10	12	12	12	14	14	14	14	16	16	16	
J	113	138	263	288	313	338	463	488	513	538	663	688	713	738	863	888	913	938	1063	1088	1113	1138	1263	1288	1313	
K	226	276	326	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126	1176	1226	1276	1326	1376	1426	

■ Weight by stroke

Stroke		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
Weight (kg)	Without brake	9.9	10.5	11.0	11.6	12.2	12.7	13.3	13.8	14.4	14.9	15.5	16.1	16.6	17.2	17.7	18.3	18.8	19.4	20.0	20.5	21.1	21.6	22.2	22.7	23.3
	With brake	10.5	11.1	11.7	12.2	12.8	13.3	13.9	14.5	15.0	15.6	16.1	16.7	17.2	17.8	18.3	18.9	19.5	20.0	20.6	21.1	21.7	22.2	22.8	23.4	23.9

Compatible controller

(Note) EC series has a built-in controller. For details of built-in controller, refer to page 24.
The 200v motor power unit "PSA-200" is required for EC-S13/S13X/S15/S15X models to operate.

EC-S15X



Model items

EC - S15X							
Series	Type	Lead	Stroke	Power/IO cable length	Motor power cable length	Option	
		H 40mm	1000 1000mm	Please see cable length table below.	0 No cable	Please see options table below.	
		M 20mm	2 2		1 1m		
		L 10mm	2500 2500mm (50-mm increments)		2 2		
					10 10m		



Stroke	
Stroke (mm)	Stroke (mm)
1000	1800
1050	1850
1100	1900
1150	1950
1200	2000
1250	2050
1300	2100
1350	2150
1400	2200
1450	2250
1500	2300
1550	2350
1600	2400
1650	2450
1700	2500
1750	

Option

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

Name	Option code	Reference page
RCON-EC connection specification(Note 1)	ACR	21
Brake	B	21
Specified grease application specification	G5	21
Reversed-home specification	NM	21
PNP specification(Note 1)	PN	21
Double power circuit specification(Note 1)	TMD2	21
Wireless communication specification	WL	21
Wireless axis operation compatible specification	WL2	21

(Note 1) When RCON-EC connection specification (ACR) is selected, PNP specification (PN) or double power circuit specification (TMD2) cannot be selected.

Power/IO cable length			
Cable code	Cable length	User wiring specification (discrete wiring)	RCON-EC connection specification (Note 3) (with connectors at both ends)
0	No cable	CB-EC-PWBIO□□□-RBsupplied	CB-REC-PWBIO□□□-RBsupplied
1 ~ 3	1 ~ 3m	○ (Note 2)	○
4 ~ 5	4 ~ 5m	○	○
6 ~ 7	6 ~ 7m	○	○
8 ~ 10	8 ~ 10m	○	○

(Note 2) Only terminal block connector is supplied. For details, refer to page 25.
 (Note 3) This applies when RCON-EC connection specification (ACR) is selected as an option.
 (Note) These are robot cables.



- (1) The payload of "main specification" shows the maximum value. For details, refer to the "table of payload by speed/acceleration."
- (2) For these actuators to operate the motor drive power unit "PSA-200" is necessary. One "PSA-200" can supply power up to 6 axes. For details, refer to page 26.
- (3) Depending on the operation condition (payload, acceleration/deceleration), rough guide for available duty varies. For details, refer to page 22.
- (4) Pay close attention to the installation orientation. Refer to page 4 for details.
- (5) Rough guide for overhang load length is 750 mm or less in Ma/Mb/Mc direction.
- (6) For the intermediate support type, a collision sound occurs during operation due to the structure of support mechanism.

Motor power cable length	
Cable code	Cable length
0	No cable
1 ~ 3	1 ~ 3m
4 ~ 5	4 ~ 5m
6 ~ 10	6 ~ 10m

(Note) These are robot cables.

Main specifications

Item			Details		
Lead		Ball screw lead (mm)	40	20	10
Horizontal	Payload	Maximum payload (kg)	36	81	108
	Speed/ acceleration/ deceleration	Maximum speed (mm/s)	1500	1000	500
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Maximum acceleration/deceleration (G)	1	1	0.7
Vertical	Payload	Maximum payload (kg)	9	18	36
	Speed/ acceleration/ deceleration	Maximum speed (mm/s)	1500	1000	500
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Maximum acceleration/deceleration (G)	0.7	0.7	0.5
Thrust		Rated thrust (N)	169.6	339.1	678.3
Brake		Brake specification	Non-excited operation electromagnetic brake		
		Brake retaining force (kgf)	9	18	36
Stroke		Minimum stroke (mm)	1000	1000	1000
		Maximum stroke (mm)	2500	2500	2500
		Stroke pitch (mm)	50	50	50

Item	Details
Drive method	Ball screw $\Phi 20$ mm rolled C10 equivalent
Positioning repeatability	± 0.01 mm
Lost motion	—
Base	Dedicated extruded aluminum (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion endlessly circulating type
Static allowable moment	Ma : 852 N · m
	Mb : 852 N · m
	Mc : 2010 N · m
Dynamic allowable moment (Note 4)	Ma : 162 N · m
	Mb : 162 N · m
	Mc : 384 N · m
Ambient operating air temperature, humidity	0 to 40°C, 85%RH max. (no condensation)
Protection class	—
Vibration resistance/shock resistance	4.9m/s ²
Overseas standard compliance	CE Marking, RoHS Directive
Motor type	AC servo motor (200 V)
Rated motor capacity	400W
Encoder type	Battery-less absolute
Encoder pulse count	16384 pulse/rev

(Note 4) Based on the assumption of a standard rated life of 10,000 km. The traveling life varies depending on the operating conditions and installation conditions.

Slider type moment direction

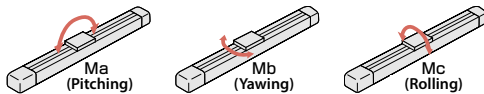


Table of payload by speed/acceleration

Payload shown in units of kg

Lead 40

Orientation	Horizontal				Vertical		
Speed (mm/s)	Acceleration (G)						
	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	36	28.8	20.7	15.3	9	7.7	6.3
1500	36	28.8	20.7	15.3	9	7.7	6.3

Lead 20

Speed (mm/s)	Horizontal				Vertical		
	Acceleration (G)						
	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	81	63	42.3	27	18	15.3	12.6
1000	81	63	42.3	27	18	15.3	12.6

Lead 10

Orientation	Horizontal			Vertical	
Speed (mm/s)	Acceleration (G)				
	0.3	0.5	0.7	0.3	0.5
0	108	82.8	54	36	30.6
500	108	82.8	54	36	30.6

Stroke and maximum speed

Stroke Lead (mm)	1000~1750 (50-mm increment)	1800 (mm)	1850 (mm)	1900 (mm)	1950 (mm)	2000 (mm)	2050 (mm)	2100 (mm)	2150 (mm)	2200 (mm)	2250 (mm)	2300 (mm)	2350 (mm)	2400 (mm)	2450 (mm)	2500 (mm)
40				1500					1486	1431	1378	1329	1282	1237	1195	1155
20	1000	991	948	909	871	836	803	772	743	715	689	664	641	619	598	578
10	500	495	474	454	436	418	402	386	371	358	345	332	320	309	299	289

(unit: mm/s)

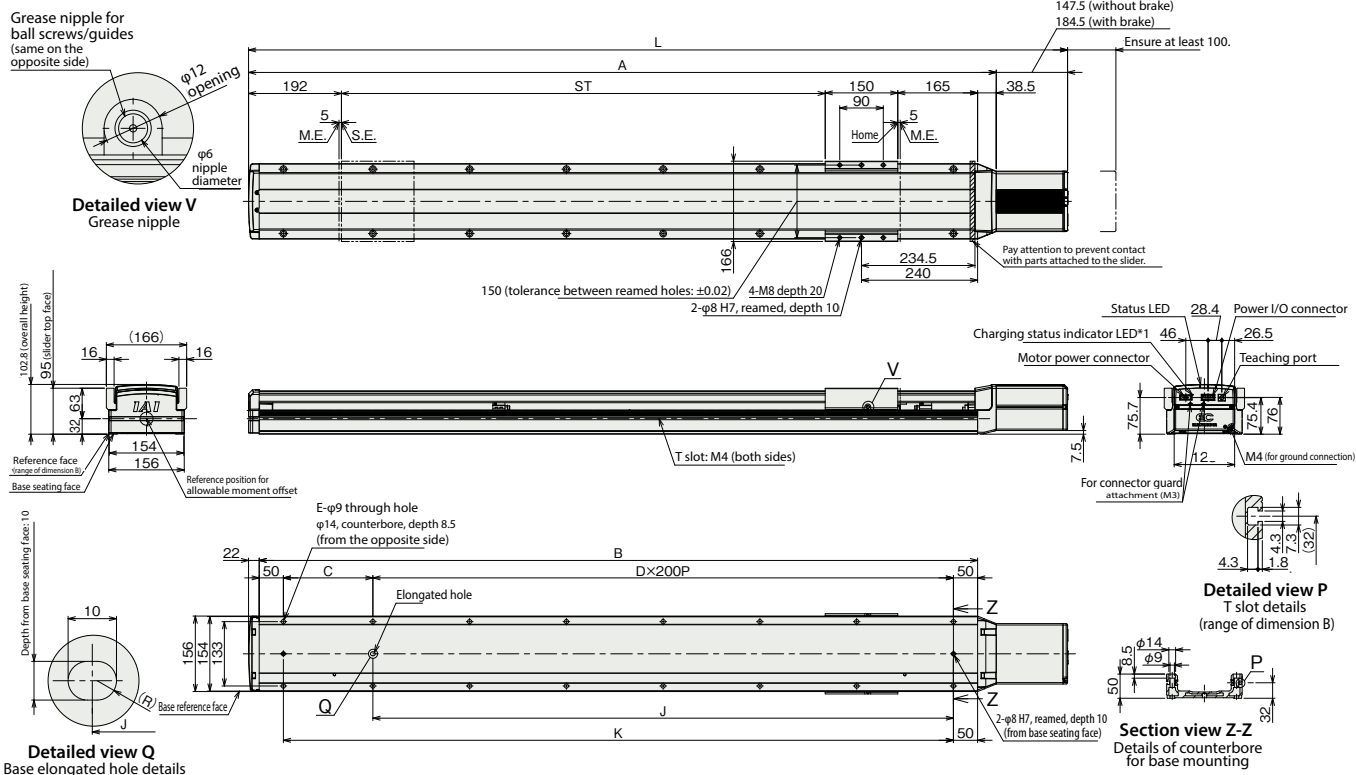
Dimensions

- *1 While the charging status indicator LED is illuminated, the inside of controller is charged.
Before starting wiring or inspection, make sure that the LED is not illuminated after the power is cut off to avoid an electrical shock.
- (Note) The slider moves to the M.E. during home return. Pay attention to prevent contact between the slider and surrounding parts.

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



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



■ Dimension by stroke

L	Stroke	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500
	Without brake	1693	1743	1793	1843	1893	1943	1993	2043	2093	2143	2193	2243	2293	2343	2393	2443	2493	2543	2593	2643	2693	2743	2793	2843	2893	2943	2993	3043	3093	3143	3193
	With brake	1730	1780	1830	1880	1930	1980	2030	2080	2130	2180	2230	2280	2330	2380	2430	2480	2530	2580	2630	2680	2730	2780	2830	2880	2930	2980	3030	3080	3130	3180	3230
A		1545	1595	1645	1695	1745	1795	1845	1895	1945	1995	2045	2095	2145	2195	2245	2295	2345	2395	2445	2495	2545	2595	2645	2695	2745	2795	2845	2895	2945	2995	3045
B		1485	1535	1585	1635	1685	1735	1785	1835	1885	1935	1985	2035	2085	2135	2185	2235	2285	2335	2385	2435	2485	2535	2585	2635	2685	2735	2785	2835	2885	2935	2985
C		185	235	285	335	185	235	285	335	185	235	285	335	185	235	285	335	185	235	285	335	185	235	285	335	185	235	285	335	185	235	285
D		6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13
E		16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30
F		1200	1200	1200	1200	1400	1400	1400	1600	1600	1600	1600	1800	1800	1800	1800	2000	2000	2000	2000	2200	2200	2200	2200	2400	2400	2400	2600	2600	2600	2600	2600
G		1385	1435	1485	1535	1585	1635	1685	1735	1785	1835	1885	1935	1985	2035	2085	2135	2185	2235	2285	2335	2385	2435	2485	2535	2585	2635	2685	2735	2785	2835	2885

■ Weight by stroke

Stroke		1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500
Weight (kg)	Without brake	23.8	24.4	24.9	25.5	26.1	27.4	28.0	28.6	29.2	29.7	30.3	30.9	31.5	32.1	32.6	33.2	33.8	34.4	34.9	35.5	36.1	36.7	37.3	37.8	38.4	39.0	39.6	40.1	40.7	41.3	41.9
	With brake	24.4	25.0	25.6	26.1	26.7	28.0	28.6	29.2	29.8	30.4	30.9	31.5	32.1	32.7	33.2	33.8	34.4	35.0	35.6	36.1	36.7	37.3	37.9	38.5	39.0	39.6	40.2	40.8	41.3	41.9	42.5

Compatible controller

(Note) EC series has a built-in controller. For details of built-in controller, refer to page 24.
The 200v motor power unit "PSA-200" is required for EC-S13/S13X/S15/S15X models to operate.

ELECYLINDER Series **Option**

RCON-EC connection specification * Cannot be selected together with TMD2 or PN option. (ACR option includes double power circuit specification.)

Model	ACR
Description	This option is selected when connecting to the field network via RCON-EC for R-unit (RCON/REC).

Brake

Model	B
Description	This is a mechanism to keep the slider from moving during power OFF or servo OFF.

Specified grease application specification

Model	G5
Description	The grease applied on the ball screws, linear guide and intermediate support area of actuator is changed to grease for food-related machines(White Alcom Grease).

Reversed-home specification

Model	NM
Description	Normally the home position is set on the motor side. However, the home position can be set on the reverse side if so required by the layout of the equipment, etc.

PNP specification * Cannot be selected together with ACR option since ACR option has NPN specification.

Model	PN
Description	All models in the EC series are of the NPN specification, meaning that input/output specification for connecting external equipment is standard. By specifying this option, the models can support the PNP input/output specification.

Double power circuit specification * Cannot be selected together with ACR option. (RCON-EC connection specification comes with double power circuit.)

Model	TMD2
Description	This is an option with actuator operation stop input. To cut off only ELECYLINDER drive source, select this option. For details of wiring, refer to page 25.

Wireless communication specification

Model	WL
Description	This is an option for compatibility with wireless communication. By selecting this option, wireless communication between teaching box and TB-03 becomes available. Start point, end point and AVD can be adjusted via wireless communication.

Wireless axis operation compatible specification

Model	WL2
Description	By selecting WL2, operation tests of axis movement (movement to the front end/rear end, jog and inching) can be performed in addition to the operation (adjustment of start point, end point and AVD) that can be performed with WL wireless communication. However, this is not a function for automatic operation. (Note) The modification from WL to WL2, or from WL2 to WL, cannot be done by a customer. Please contact us.

Duty

Operate with duty ratio of allowable value or less.

Duty ratio is a utilization ratio represented in % to show the time of actuator operation in one cycle.

Caution: When overload error occurs, lower duty by extending stopping time or lower acceleration/deceleration.

Duty Calculation Method

Calculate load factor and acceleration/deceleration time ratio to read the duty ratio from the graph.

When load factor is 50% or less, operation with 100% duty ratio (continuous operation) is possible.

1 Load factor LF

For maximum payload at rated acceleration and rated acceleration/deceleration, refer to the specification page of the product.

When command acceleration/deceleration is lower than or equal to the rated acceleration/deceleration

$$\text{Load factor : LF} = \frac{M \times \alpha}{M_r \times \alpha_r} [\%]$$

Maximum payload at rated acceleration : M_r [kg]

Rated acceleration/deceleration : α_r [G]

Transferring mass during operation : M_r [kg]

Acceleration/deceleration during operation : α [G]

When command acceleration/deceleration is higher than or equal to the rated acceleration/deceleration

$$\text{Load factor : LF} = \frac{M \times \alpha}{M_d \times \alpha} = \frac{M}{M_d} [\%]$$

Payload at command acceleration : M_d [kg]

Transferring mass during operation : M_r [kg]

Transferring mass during operation : α [G]

2 Acceleration/deceleration time ratio t_{od}

$$\text{Acceleration/deceleration time ratio } t_{od} = \frac{\text{Acceleration time during operation} + \text{deceleration time during operation}}{\text{Operating time}} [\%]$$

$$\text{Acceleration time} = \frac{\text{Speed during operation [mm/s]}}{\text{Acceleration during operation [mm/s}^2\text{]}} [\text{sec}]$$

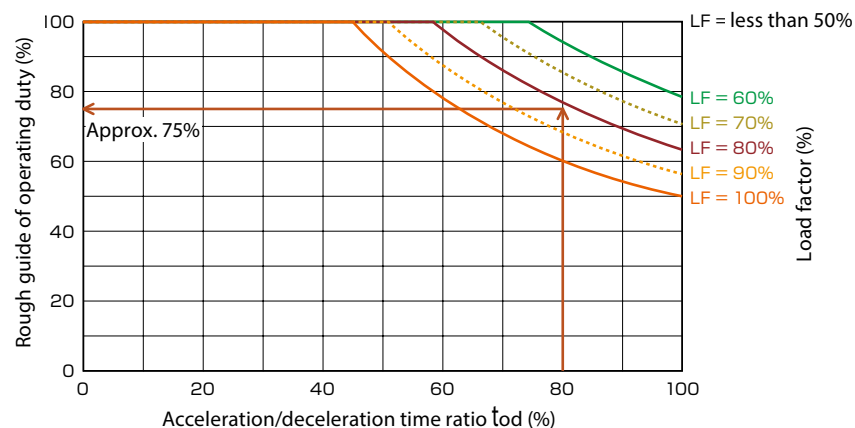
$$\text{Deceleration time} = \frac{\text{Speed during operation [mm/s]}}{\text{Deceleration during operation [mm/s}^2\text{]}} [\text{sec}]$$

$$\text{Acceleration [mm/s}^2\text{]} = \text{Acceleration[G]} \times 9,800\text{mm/s}^2$$

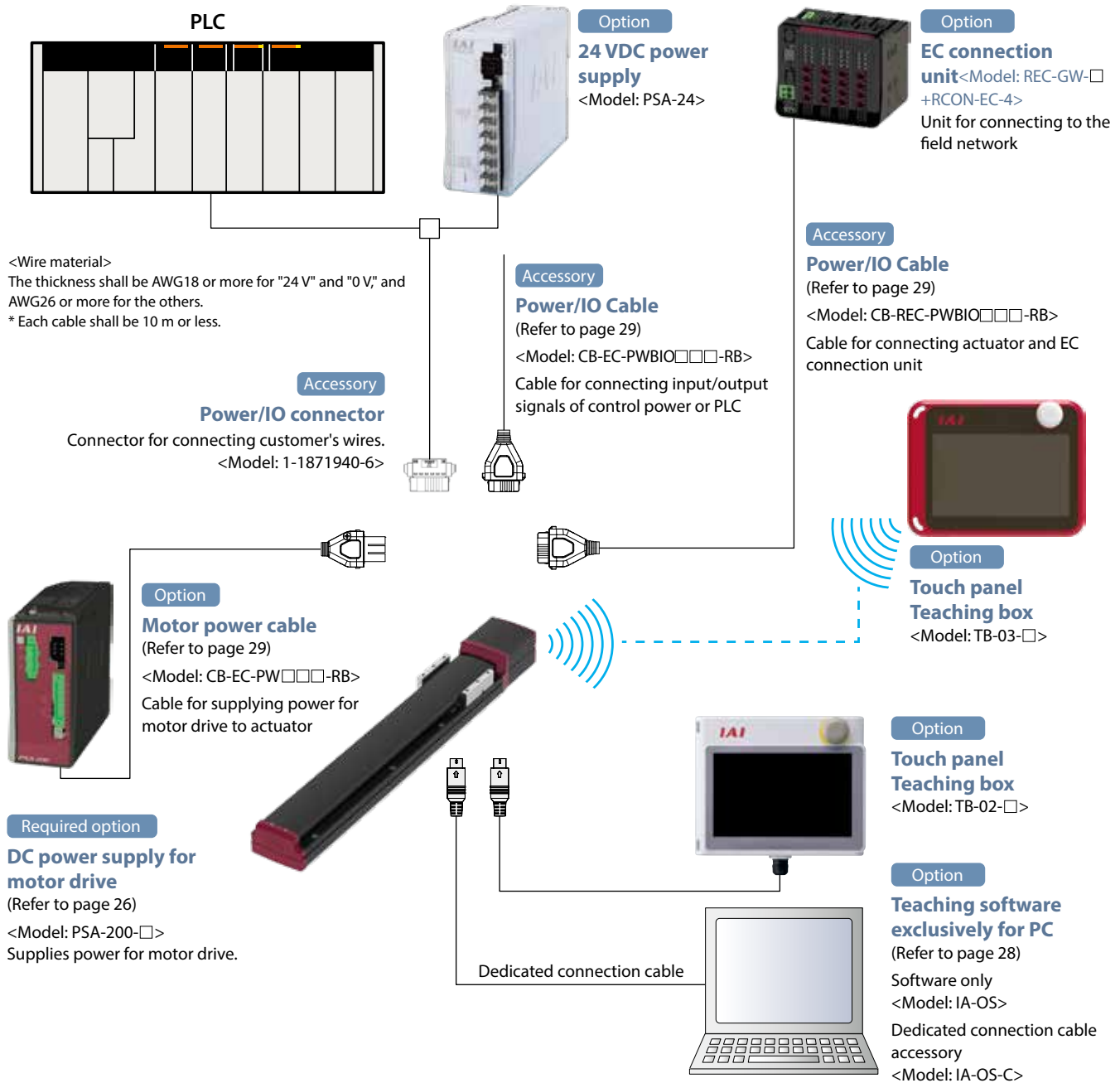
$$\text{Deceleration [mm/s}^2\text{]} = \text{Deceleration[G]} \times 9,800\text{mm/s}^2$$

3 Duty ratio: Read duty ratio from the calculated load factor LF and acceleration/deceleration time ratio t_{od} .

Example) When the load factor LF is 80% and acceleration/deceleration time ratio t_{od} is 80%, the rough guide of duty ratio is approx. 75%.



System configuration chart



Accessory list

■ Power/IO cable

Product classification		Accessory
Power/IO cable length (selected with actuator model)	Selection of ECON-EC connection specification (ACR)	
0	No	Power/IO connector (1-1871940-6)
	Yes	-
1 to 10	No	Power/IO cable (CB-EC-PWBIO□□□-RB)
	Yes	Power/IO cable (CB-REC-PWBIO□□□-RB)

■ Motor power cable

Product classification		Accessory
Motor power cable length (selected with actuator model)	Selection of ECON-EC connection specification (ACR)	
0	No	-
	Yes	-
1 to 10	No	-
	Yes	Motor power cable (CB-EC-PW□□□-RB)

Controller base specification

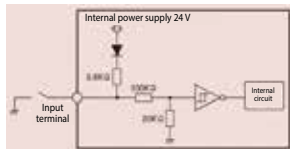
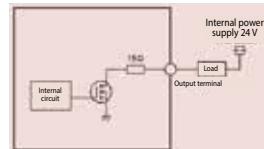
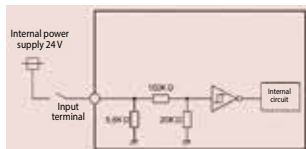
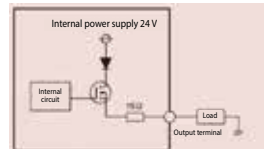
Specification item			Specification details
Number of control axes			1 axis
Motor power input voltage			Supplied from PSA-200 (DC280V typ)
Control power input voltage			DC24V ±10%
Control power current	Control		320mA
	Teaching (Note 1)		150mA
	Brake (Note 2)		Overexcitation: 875 mA, normal: 85 mA
Control power capacity	Control		7.6W
	Teaching (Note 1)		3.6W
	Brake (Note 2)		Overexcitation: 21.0 W, normal: 2.0 W
Rush current			-
Momentary power failure resistance			max 500μs
Compatible motor wattage			200W/400W
Motor control method			Sine wave PWM vector current control
Compatible encoder			Battery-less absolute encoder (16384pulse/rev)
SIO			RS485 1ch (Modbus protocol compliant)
PIO	Input specification	Number of input points	3 points (forward, backward, alarm reset)
		Input voltage	DC24V ±10%
		Input current	5 mA/circuit
		Leak current	Maximum 1 mA/point
		Isolation method	Non-isolation
	Output specification	Number of output points	3 points (forward movement completion, backward movement completion, alarm)
		Output voltage	DC24V ±10%
		Output current	50 mA/point
		Residual voltage	2 V or less
		Isolation method	Non-isolation
Data setting, input method			Teaching software exclusively for PC, touch panel teaching box
Data retention memory			Storing position and parameters in non-volatile memory (no limitation on the number of writing)
LED indicator	Controller status indicator (right)		Servo ON (green light ON) / alarm (red light ON) / during initialization after power ON (orange light ON) / minor failure alarm (green light flickering) / operation from teaching: stop from teaching (red light ON) / servo OFF (illumination OFF)
	Motor power status indicator (middle)		Motor power ON (green light ON) / motor power OFF (green light flickering)
	Wireless mode indicator (left)		During wireless hardware initialization, no wireless connection, or during connection from TP port (illumination OFF) during wireless connection (green light flickering) / wireless hardware malfunction (red light flickering) / during initialization after power ON (orange light ON)
	Charging status indicator (next to IO connector)		Internal circuit charging state (red light ON) / internal circuit non-charging state (illumination OFF) (Note 3)
Predictive/preventative maintenance			When the number of movements or travelling distance exceeds the set value or overload warning is issued, LED (right side) flickers in green. * Only when the setting is done in advance
Ambient operating temperature			0 to 40 °C
Ambient operating humidity			85%RH max. (no condensation or freezing)
Operating environment			Free from corrosive gasses, in particular not exposed to heavy dust
Isolation resistance			500 VDC 10 MΩ
Protection against electrical shock			Class I basic isolation
Cooling method			Natural air cooling

(Note 1) Add this when connecting teaching box.

(Note 2) Add this when using actuator with brake.



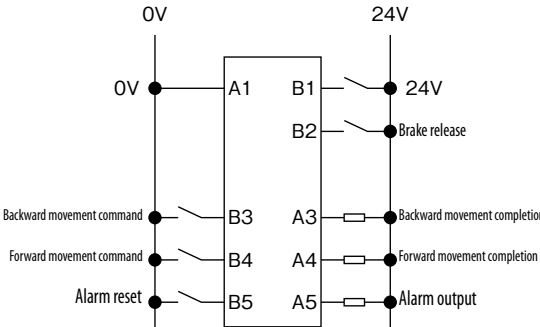
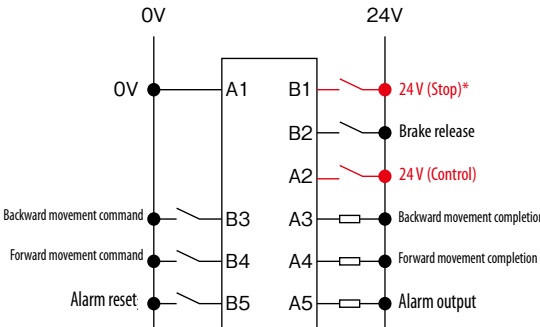
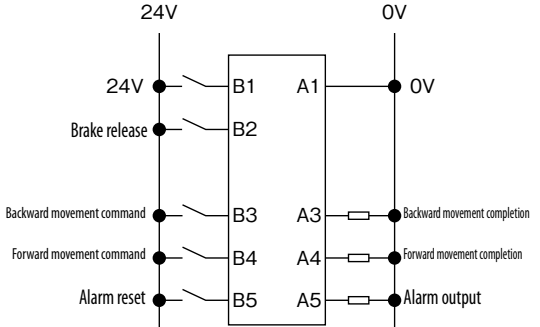
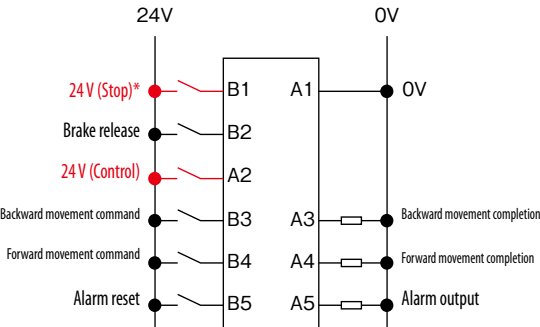
(Note 3) While the charging status indicator LED is illuminated, the inside of controller is charged. Before starting wiring or inspection, make sure that the LED is not illuminated after the power is cut off to avoid an electrical shock.

IO specification (input/output specification)

I/O		Input part		Output part	
Specifications		Input voltage	24 VDC±10%	Load voltage	24 VDC±10%
		Input current	5 mA/circuit	Maximum load current	50 mA/point
		ON/OFF voltage	ON voltage minimum 18 VDC OFF voltage maximum 6 VDC	Residual voltage	2 V or less
		Leak current	Maximum 1 mA/point	Leak current	Maximum 0.1 mA/point
Isolation method		Non-isolation from external circuit		Non-isolation from external circuit	
I/O logic	NPN				
	PNP				

(Note) Isolation method is non-isolation. Grounding of external device (PLC, etc.) connected to ELECYLINDER shall be common with grounding of ELECYLINDER.

IO signal wiring chart

I/O		Standard specification	Double power circuit specification (option model: TMD2)
Power/IO connector		<p>0V A1 (Reserve) A2 Backward movement completion A3 Forward movement completion A4 Alarm output A5 (Reserve) A6</p>  <p>B1 24V B2 Brake release B3 Backward movement command B4 Forward movement command B5 Alarm reset B6 (Reserve)</p>	<p>In TMD2 specification, actuator operation stop input is included, but drive source is not cut off. To cut off drive source, AC power supply (L1, L2) of separate PSA-200 needs to be cut off.</p> <p>0V A1 24V (Control) A2 Backward movement completion A3 Forward movement completion A4 Alarm output A5 (Reserve) A6</p>  <p>B1 24V (Stop)* B2 Brake release B3 Backward movement command B4 Forward movement command B5 Alarm reset B6 (Reserve)</p>
I/O logic	NPN		
	PNP		

* When 24-V supply to "Stop" stops, axis operation stops. (Drive source is not cut off.)

IO signal chart

Assignment of power/IO connector pins			
Pin No.	Name on connector name plate	Signal abbreviation	Function overview
B3	Backward	ST0	Backward movement command
B4	Forward	ST1	Forward movement command
B5	Alarm reset	RES	Alarm reset
A3	Backward movement completion	LS0	Backward movement completion
A4	Forward movement completion	LS1	Forward movement completion
A5	Alarm	*ALM	Alarm detection (contact b)
B2	Brake release	BKRLS	Forced brake release(for specifications with a brake)
B1 (Note)	24V	24V	24V input
A1	0V	0V	0V input
A2 (Note)	(24V)	(24V)	24V input

(Note) For double power circuit specification (TMD2), B1 is 24 V (Stop), and A2 is 24 V (Control).

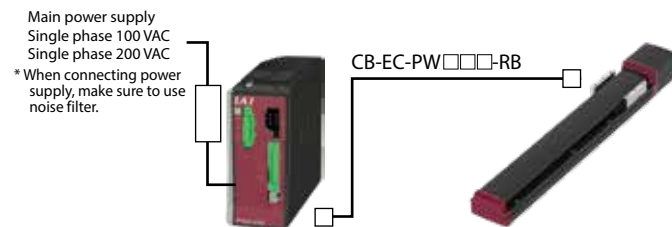
Required option

DC power supply for motor drive

- **Features** Unit to supply DC power for drive to motor of actuator.
One unit can supply power to axes up to 6.
(not exceeding the maximum wattage with axes connected)

- **Model** **PSA-200-1**
(Input voltage: single phase 100 VAC. Axes up to 800 W can be connected.)
- PSA-200-2**
(Input voltage: single phase 200 VAC. Axes up to 1600W can be connected.)

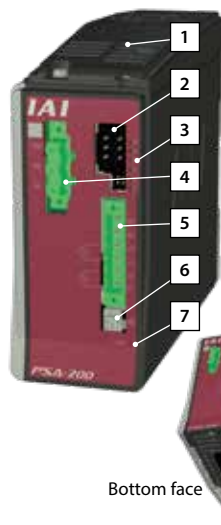
- **Configuration** Connected with motor power cable



<Recommended model>
NF2010A-UP (Manufacturer: Soshin Electric)
NAC-10-472 (Manufacturer: COSEL)

Wattage of motor equipped in actuator	
EC-S13/S13X	200W
EC-S15/S15X	400W

- **Name of each part**



- 1 Fan unit
- 2 Status output connector
- 3 Status indicator LED
- 4 Regenerative unit connection connector
- 5 Power connector
- 6 Ground terminal
- 7 Charging status indicator LED *1
- 8 Motor power connector

*1 While the charging status indicator LED is illuminated, the inside of PSA-200 is charged. Before starting wiring or inspection, make sure that the LED is not illuminated after the power is cut off to avoid an electrical shock.

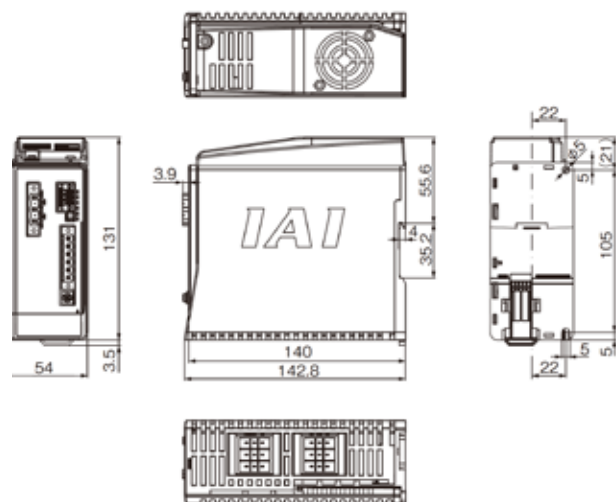
Bottom face

- **Specification**

Power input voltage range	Single phase 100 VAC specification: 100 to 115 VAC $\pm 10\%$ Single phase 200 VAC specification: 200 to 230 VAC $\pm 10\%$
Input frequency range	50/60Hz $\pm 5\%$
Rush current (Note 1)	55°C Control power: 60A Motor power: 70 A
Output voltage	DC280V typ
Maximum wattage with motors connected	Single phase 100 VAC specification: 800W Single phase 200 VAC specification: 1600W
Maximum number of drivable axes	6 axes
Momentary power failure resistance	50Hz: 20 ms, 60Hz: 16 ms
Isolation withstand voltage	Between primary and FG 1500 VAC for 1 min
Isolation resistance	Between secondary and FG 500 VDC 10 MΩ or more
Leak current	Total 3.1 mA (When the recommended noise filter is used and 6 axes are connected)
Protection against electrical shock	Class I basic isolation

(Note 1) Rush current flows for approx. 20 ms after power ON.
Take note that the rush current value varies depending on impedance of power line and internal element temperature (thermistor).

- **External dimensions**



Option

Regenerative resistor unit

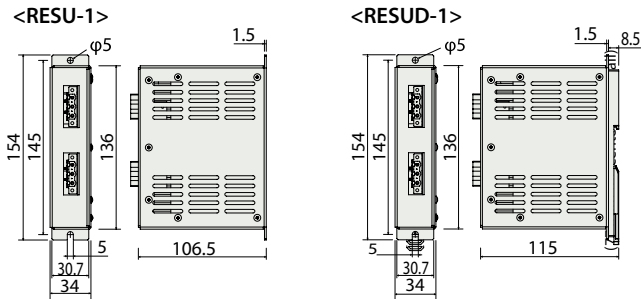
Features Unit to convert regenerative current generated when the motor decelerates into heat.
Calculate total wattage of operating actuators, and refer to "rough guide of required regenerative resistor units" on the right. If required, purchase regenerative resistor units.

Model **RESU-1**
(standard specification)
RESUD-1
(DIN rail installation specification)

Configuration

Model	RESU-1	RESUD-1
Main body weight	Approx. 0.4 kg	
Built-in regenerative resistor value	235Ω 80W	
Method of installation to main body	Screw fixed	DIN rail fixed
Supplied cable	CB-SC-REU010	

External dimensions



Rough guide of required regenerative resistor units

Wattage of motor equipped in actuator

EC-S13/S13X	200W
EC-S15/S15X	400W

Wattage		Horizontal								
		0	200	400	600	800	1000	1200	1400	1600
Vertical	0	0	0	0	0	0	0	1	1	1
	200	0	1	1	1	1	1	1	1	-
	400	1	1	1	1	2	2	2	-	-
	600	1	1	2	2	2	2	-	-	-
	800	1	2	2	2	2	-	-	-	-
	1000	2	2	2	2	-	-	-	-	-
	1200	2	2	3	-	-	-	-	-	-
	1400	2	3	-	-	-	-	-	-	-
	1600	3	-	-	-	-	-	-	-	-

<Note>

- The table above shows rough guide for back-and-forth operation at rated acceleration/deceleration with rated load, 1000 mm of stroke and 50% of operating duty ratio.
- Regenerative energy is also absorbed inside the controller. However, when regenerative energy exceeds the allowable level, excessive estimated regenerative power discharge alarm is set off. In such a case, externally connect additional regenerative resistor units.
When the operating duty is higher than 50 % or load is higher due to vertical installation, more regenerative resistor units than those shown in the table above are required.
Note that the maximum number of regenerative resistor units that can be connected is five.
Never connect regenerative resistor units more than five as this may cause malfunction.
- Use calculation software to know the optimum number of units for the operating condition.

Touch panel teaching box

Features Teaching device equipped with functions such as position input, test run and monitoring.

Model **TB-02**-□
For compatible versions, refer to our website.

Configuration Wired connection



Touch panel teaching box

Features Teaching device compatible with wireless connection.
Input of start point, end point and AVD or axis operation can be performed via wireless connection.

Model **TB-03**-□
For compatible versions, refer to our website.

Configuration Wireless or wired connection



Specification

Rated voltage	24V DC
Power consumption	33.6 W or less (150 mA or less)
Ambient operating temperature	0 to 40 °C
Ambient operating humidity	20 to 85% RH (no condensation)
Environmental resistance	IP20
Weight	470 g (TB-02 main body only)

Specification

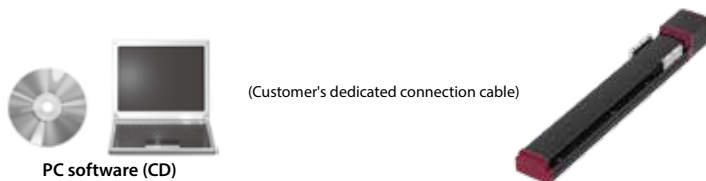
Rated voltage	24V DC
Power consumption	3.6 W or less (150 mA or less)
Ambient operating temperature	0 to 40 °C
Ambient operating humidity	20 to 85% RH (no condensation)
Environmental resistance	IPX0
Weight	Approx. 485 g (main body) + approx. 175 g (battery)
Charging method	Dedicated adapter / wired connection to controller
Wireless connection	Bluetooth4.2 class2

Teaching software exclusively for PC (exclusively for Windows)

- **Features** Startup support software with functions such as position input, test run and monitoring.
With enhanced functions necessary for adjustment, startup time can be saved.

- **Model** **RC/EC Software only**
(Software only, for customers who already have PC cables CB-SEL-USB030, RCB-CV-USB, CB-RCA-SIO050)
For compatible versions, refer to our website.

- **Configuration**

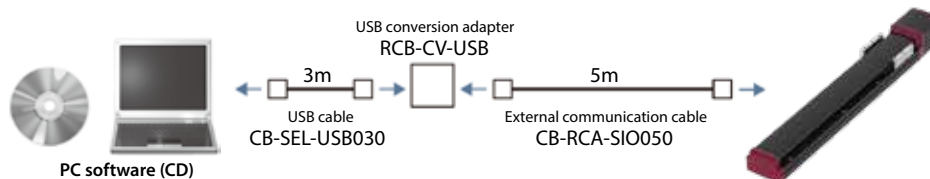


Compatible Windows: 7/10



- **Model** **RCM-101-USB**
(With external device communication cable + USB conversion adapter + USB cable)
For compatible versions, refer to our website.

- **Configuration**



Service parts

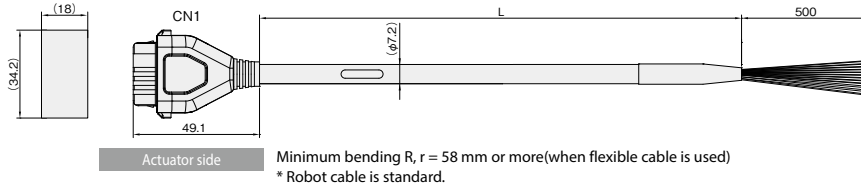
When service parts need to be ordered due to cable replacement, etc., after purchasing the product, refer to the cable models below.

Table of compatible cable

Cable type	Cable model
Power/IO Cable(User wiring specification)	CB-EC-PWBIO□□□-RB
Power/IO Cable(RCON-EC connection specification)	CB-REC-PWBIO□□□-RB
Motor power cable	CB-EC-PW□□□-RB

Model CB-EC-PWBIO□□□-RB

* Enter cable length (L) in □□□.
Example) 030: 3 m

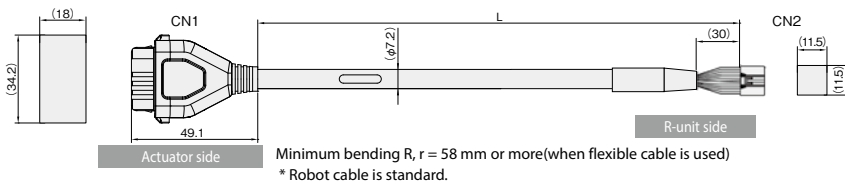


Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22)	(Reserve)(Note 1)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	(Reserve)	B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26)	(Reserve)	A6
Brown (AWG26)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

(Note 1) When double power circuit specification (TMD2) is selected, this becomes 24 V (Control).

Model CB-REC-PWBIO□□□-RB

* Enter cable length (L) in □□□.
Example) 030: 3 m

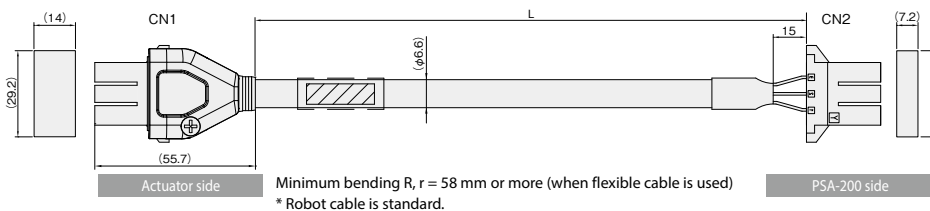


Color	Signal name	Pin No.	Pin No.	Signal name	Color
Black (AWG18)	0V	A1	2	0V	Black (AWG18)
Red (AWG18)	24V(MP)	B1	1	24V(MP)	Red (AWG18)
Light blue (AWG22)	24V(ICP)	A2	12	24V(ICP)	Light blue (AWG22)
Orange (AWG26)	IN0	B3	7	OUT0	Orange (AWG26)
Yellow (AWG26)	IN1	B4	8	OUT1	Yellow (AWG26)
Green (AWG26)	IN2	B5	9	OUT2	Green (AWG26)
Pink (AWG26)	SD+	B6	6	SD+	Pink (AWG26)
White (AWG26)	SD-	A6	10	SD-	White (AWG26)
Blue (AWG26)	OUT0	A3	3	INO	Blue (AWG26)
Purple (AWG26)	OUT1	A4	4	IN1	Purple (AWG26)
Gray (AWG26)	OUT2	A5	5	IN2	Gray (AWG26)
Brown (AWG26)	BKRLS	B2	11	BKRLS	Brown (AWG26)
			13	FG	Green (AWG26)

(Note 1) When double power circuit specification (TMD2) is selected, this becomes 24 V (Control).

Model CB-EC-PW□□□-RB

* Enter cable length (L) in □□□.
Example) 030: 3 m



Color	Signal name	Pin No.	Pin No.	Signal name	Color
Red (AWG18)	MP	1	1	MP	Red (AWG18)
Black (AWG18)	MN	2	2	MN	Black (AWG18)
Green/yellow (AWG18)	PE	3	3	PE	Green/yellow (AWG18)

Introduction of *REC*

Connecting ELECYLINDER to field network (*)

Field network connection unit exclusively for ELECYLINDER.

ELECYLINDERs up to 16 can be connected.

Ideal option for reducing wiring or saving space of control panel.

* By selecting RCON-EC connection specification (ACR) option, ELECYLINDER can be connected to field network.

Compatible network



REC

(EC connection unit)
4-axis configuration × 4 units =
Max. 16 axes

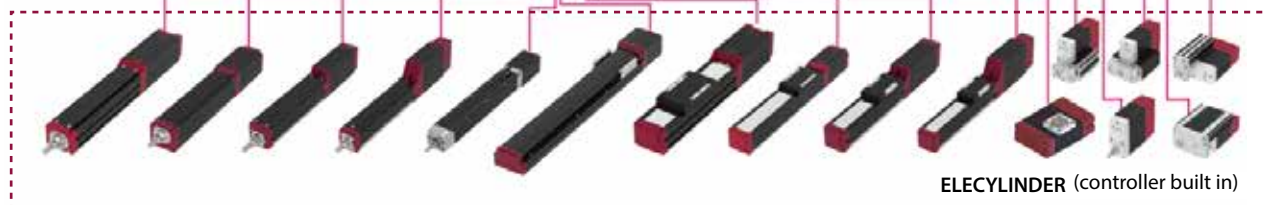
Up to
16-axis



Field network
Communication cable



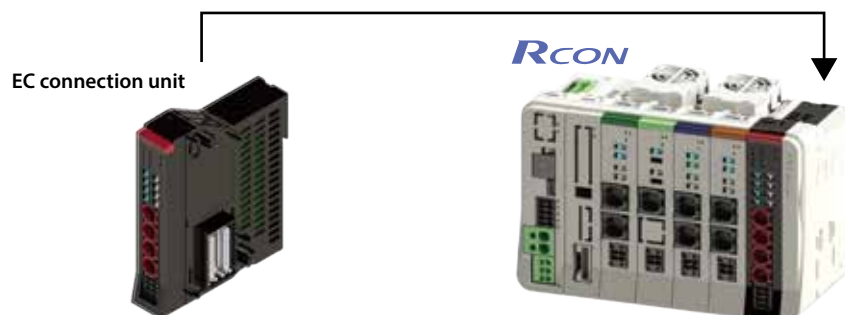
RCON-EC power/IO cable



ELECYLINDER (controller built in)

EC connection unit can be connected together with a driver unit connected to RCON.

By connecting to RCON, ELECYLINDER can be connected together with ROBO Cylinders or single axis robots.



➡ For details, refer to *R-unit* catalog.

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