IAI

Quality and Innovation

ROBO Cylinder® RCP4 Series

Power CON PCON-CA

www.intelligentactuator.com

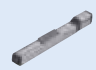
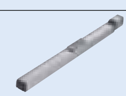
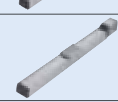
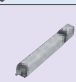
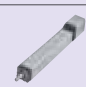
Power CON Realizing

1.5 Times the Speed and Double the Payload

The Power CON 150 series boosts the performance of ROBO Cylinder
IAI is proud to introduce the PCON-CA model combining a Power
developed high-output driver (patent pending).

- Improved dynamic performance (the speed is up to 1.5 times and payload is up to twice
  *Specific values vary depending on the model.
- New functions designed to enhance maintainability enable preventative maintenance, so
- The takt time minimization function lets you set optimal operating conditions with greater

RCP4 Series Variations

Series	Shape	Type	External view	Actuator size (width)	Stroke (100 / 200 / 300)
RCP4	Slider type	SA5		52mm	
		SA6		58mm	
		SA7		73mm	
	Rod type	RA5		52mm	50mm~400mm
		RA6		61mm	50mm~500mm

Controller

Series	Type	Page
PCON	CA	p.21

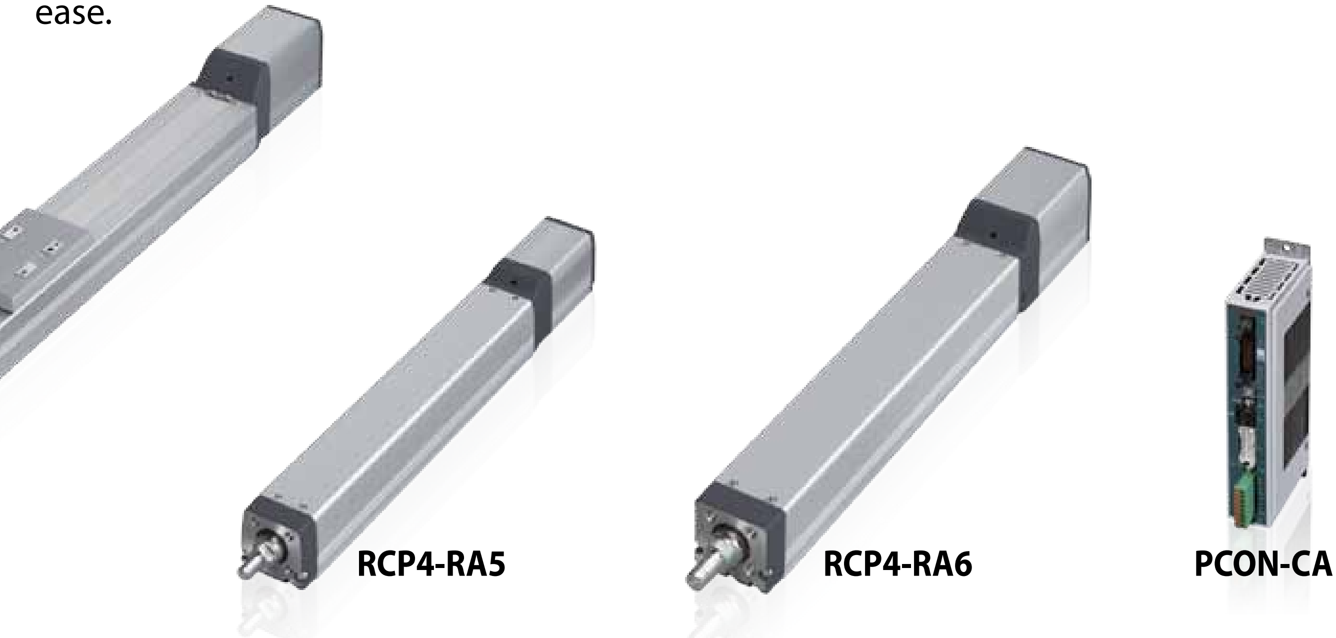
150% the Output,

Achievable with Standard Controllers

standard motorized cylinders to amazing new heights.
CON 150 controller with a RCP4 actuator supporting the newly

IAI's conventional models*) significantly boosts the productivity of your system.

less time is needed for maintenance.
ease.



Stroke (400 / 500 / 600 / 700 / 800)	Ball screw lead (mm)	Maximum speed (mm/s)	Maximum payload (kg) Horizontal	Vertical	Maximum acceleration	Page
50mm~800mm	20	1440	6.5	1	1G	p.9
	12	900	9	2.5		
	6	450	18	6		
	3	225	20	12		
50mm~800mm	20	1440	10	1	1G	p.11
	12	900	15	2.5		
	6	450	25	6		
	3	225	25	12		
50mm~800mm	24	1200	20	3	1G	p.13
	16	980	40	8		
	8	490	45	16		
	4	245	45	25		
	20	800	6	1.5	1G	p.15
	12	700	25	4		
	6	450	40	10		
	3	225	60	20		
	24	800	20	3	1G	p.17
	16	700	50	8		
	8	420	60	18		
	4	210	80	28		

Features

Shorter Takt Time Significantly Boosts

New Functions of **RCP4** Actuator

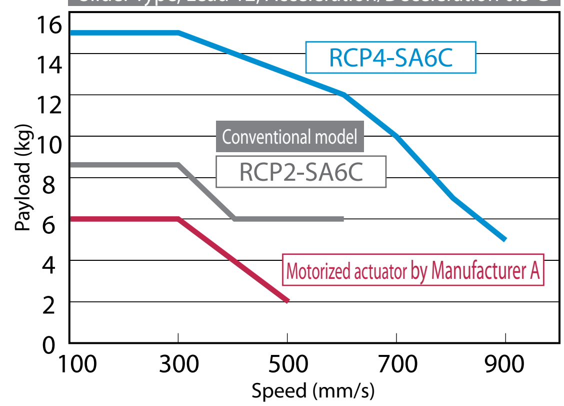
1 1.5 times higher maximum speed and double the payload when combined with a Power CON 150

When the new controller (Power CON 150) equipped with our newly developed high-output driver (patent pending) is used, the maximum speed increases significantly by up to 1.5 times the levels achievable with IAI's conventional models, while the payload is greater by up to twice (*).
In addition to these amazing improvements in specifications, the maximum speed does not drop as much even when the payload increases due to increased torque with the high speed motor, meaning that dynamic performance equivalent to that of a higher-class model can be achieved at lower cost.

(*) The specific rates of improvement vary depending on the model.

Power CON 150 PCON-CA

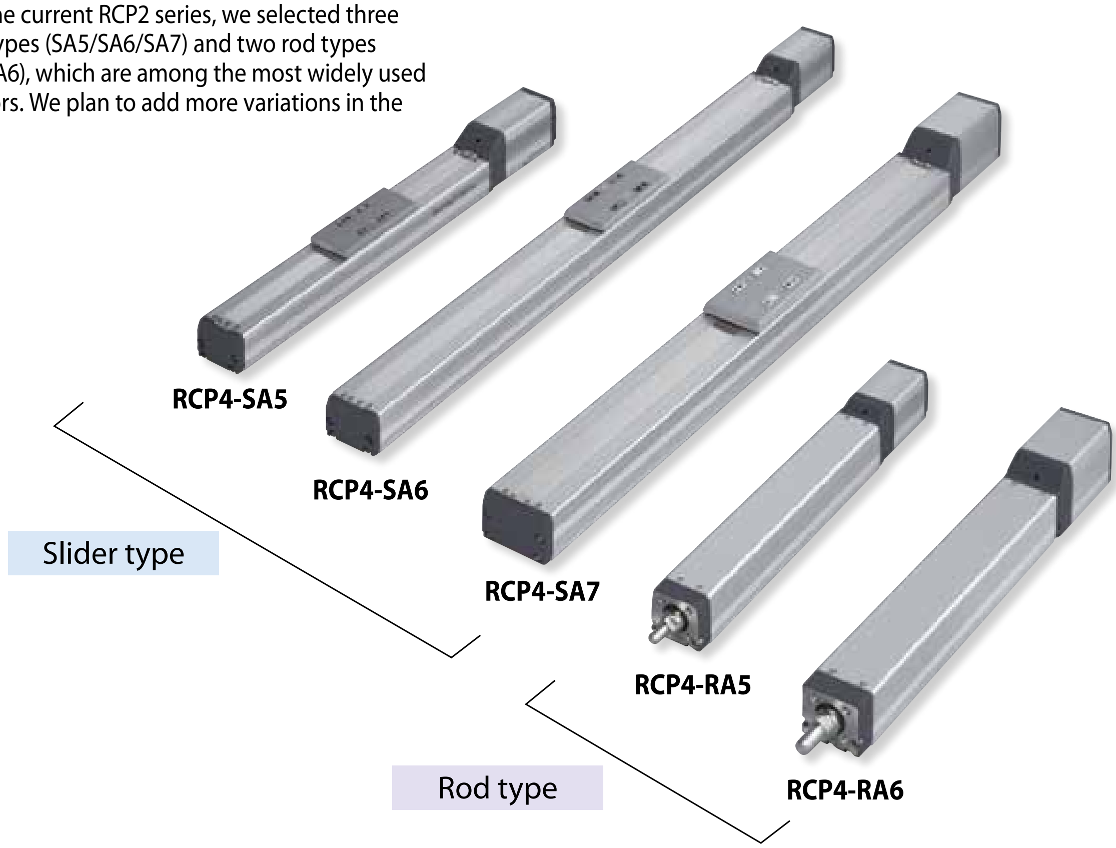
Slider Type, Lead 12, Acceleration/Deceleration 0.3 G



Correlation Diagram of Speed and Payload

2 Many variations to choose from, including three slider types and two rod types

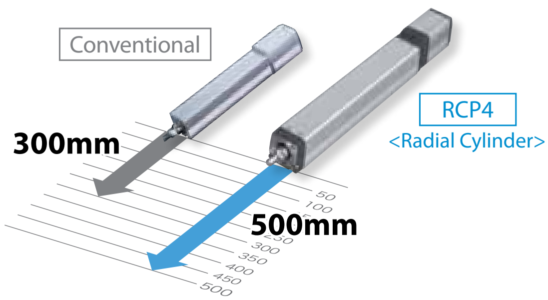
From the current RCP2 series, we selected three slider types (SA5/SA6/SA7) and two rod types (RA5/RA6), which are among the most widely used actuators. We plan to add more variations in the future.

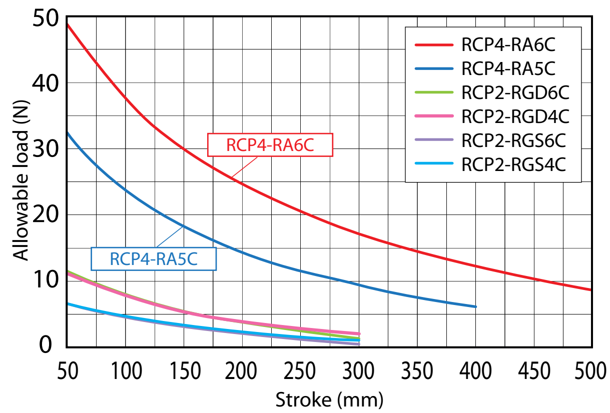


the Productivity of Your System

3 The rod type <Radial Cylinder> with a built-in guide mechanism can carry radial loads over a long stroke (500mm).

The rod type <Radial Cylinder> has a built-in guide mechanism in the actuator to carry radial loads on the rod over a long stroke of up to 500 mm. The guide mechanism also reduces vibration and deflection of the rod significantly.

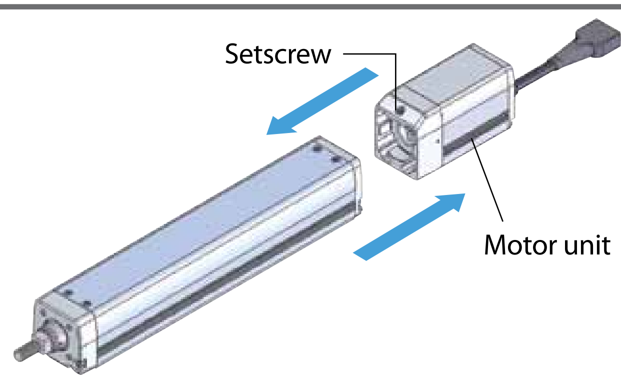




Comparison of Allowable Load at End of Rod
(Assuming 5,000 km of Traveling Life)

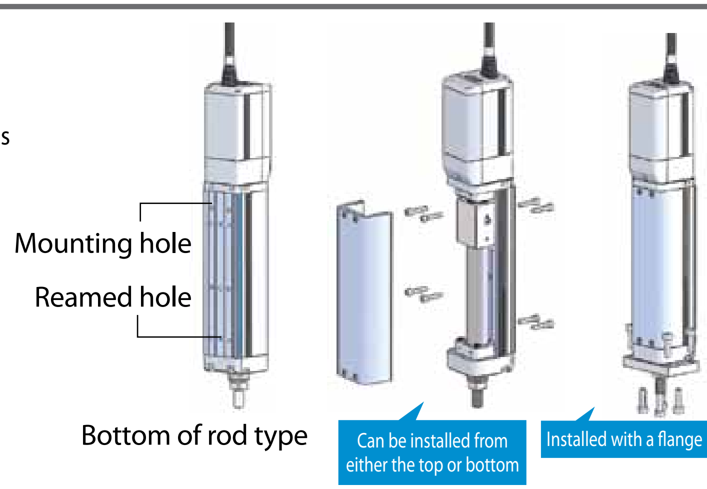
4 Easy replacement of the motor with removal of only one setscrew

The motor has been unitized for easy replacement. The actuator and motor unit can be separated and replaced by removing only one setscrew, so the time required for maintenance becomes significantly shorter.



5 Slider types have mounting holes compatible with the RCP2

Slider types have mounting holes that are compatible with RCP2 actuators, meaning that you can replace your current RCP2 actuator with a RCP4 with ease. Also, the mounting holes provided on rod types are the same as those provided on slider types, instead of T-slots found on the RCP2, and reamed holes are also provided to significantly improve installation repeatability.



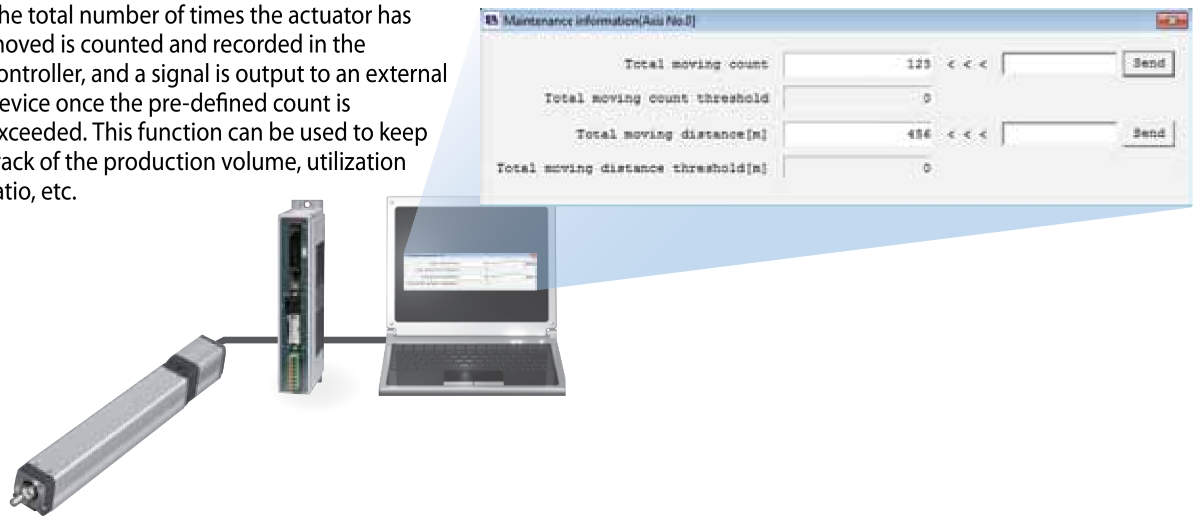
Features

New Functions to Enhance Maintainability

New Functions of Power CON 150 **PCON-CA**

6 Keep track of the production volume and utilization ratio with the total movement counter function

The total number of times the actuator has moved is counted and recorded in the controller, and a signal is output to an external device once the pre-defined count is exceeded. This function can be used to keep track of the production volume, utilization ratio, etc.

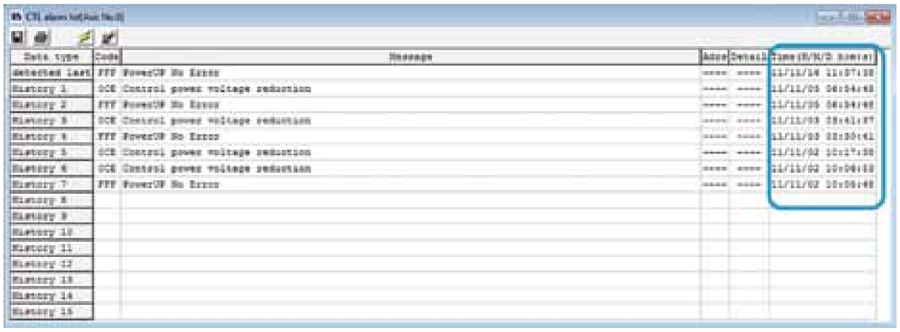


7 Know when to perform maintenance with the total travel counter function

The total distance travelled by the actuator is counted and recorded in the controller, and a signal is output to an external device once the pre-defined count is exceeded. By using this function, you know when to add grease or perform periodic maintenance.

8 Retain alarm generation times with the calendar function

The calendar function (clock function) lets you add timestamps to the history of alarms, etc. This information is useful in troubleshooting, etc.



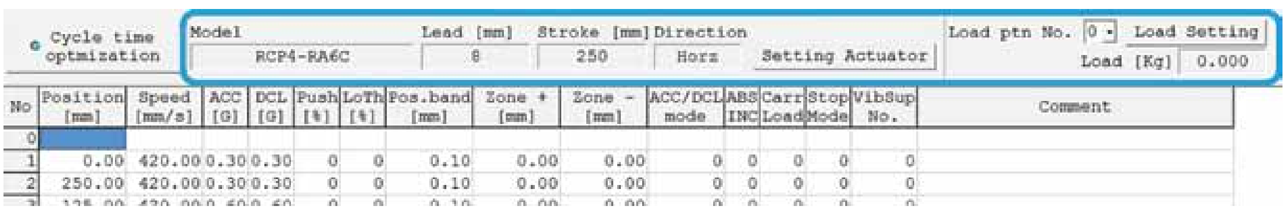
Optimal Operating Conditions Are Set Automatically

Takt time minimization function

9 Setting optimal operating conditions has become easier with the takt time minimization function

The takt time minimization function is a new feature added to the ROBO Cylinder PC software (Ver. 8.03.00.00 or later) and touch-panel teaching (model number CON-PTA). All you need is to connect the actuator to a controller supporting this function and enter the actuator model, load, etc., and optimal acceleration/deceleration and speed according to the load will be set automatically.

The first step to using the takt time minimization function is to set the model number of the actuator used and the load (mass) to be transported.



1. Setting the acceleration/deceleration from the speed

Enter a desired speed in the position data table, and the maximum settable acceleration/deceleration will be set automatically according to the pre-defined load-speed combinations.

2. Setting the acceleration/deceleration and speed from the travel

Specify the position data number associated with desired start/end positions of movement and set a desired travel distance, and the combination of acceleration/deceleration and speed that gives the shortest travel time will be set automatically.

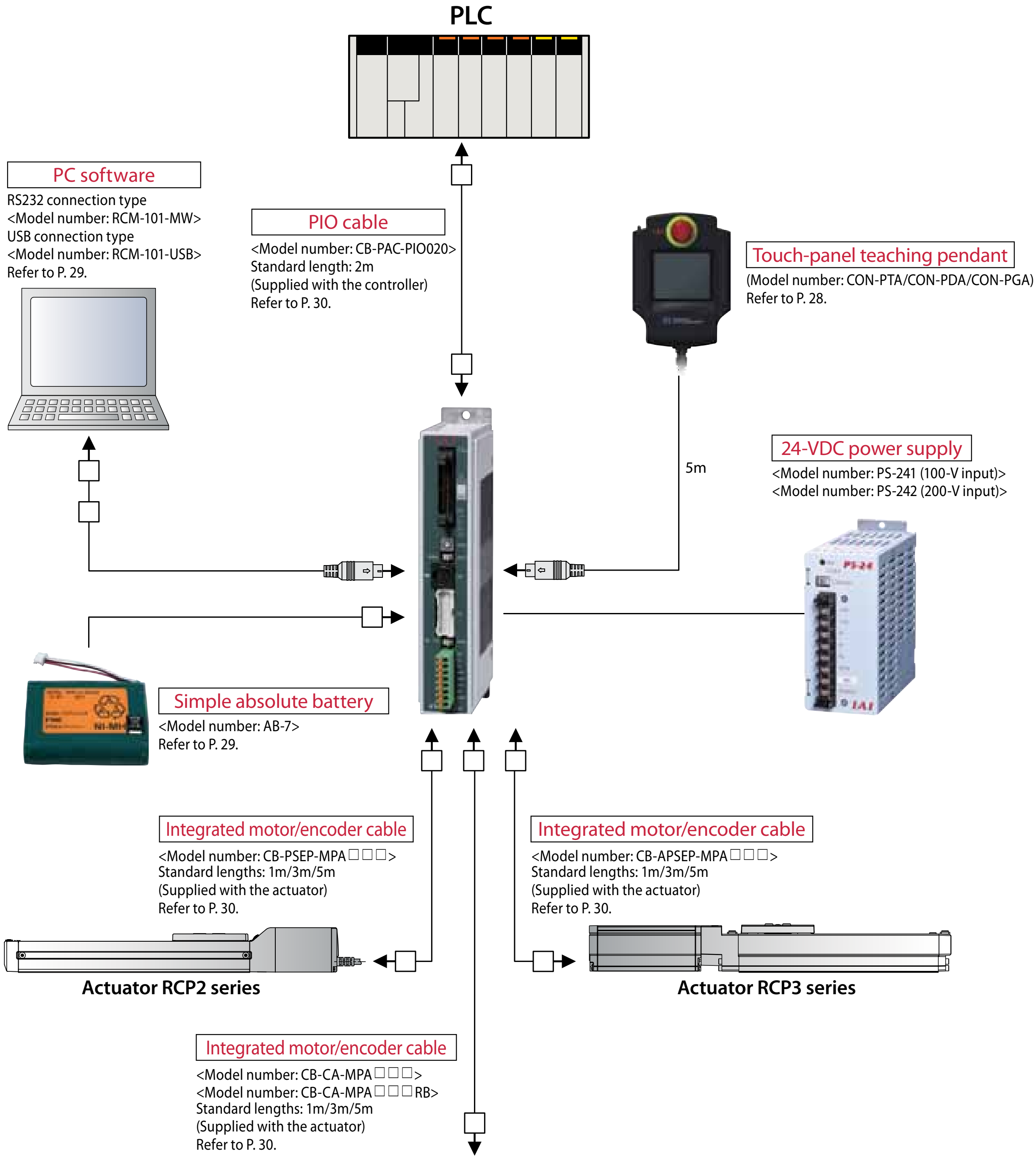
10 PIO control mode and pulse-train control mode to choose from

You can select a controller of one of two types: the positioner type where position numbers are specified by I/Os (input/output signals) from a PLC, etc., and the pulse-train type where the actuator is directly operated by sending pulses from a positioning unit. (Pulse-train controllers also support positioner operation using I/Os.)

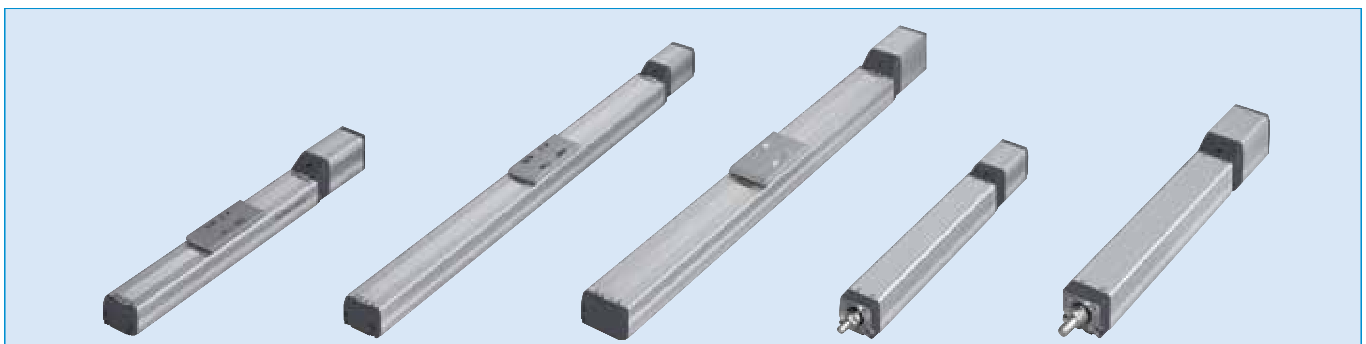
11 Motor silencer function

Typical operating noises of pulse motors are reduced at low speed.

System Configuration



<RCP4 series>



Slider type RCP4-SA5C | Slider type RCP4-SA6C | Slider type RCP4-SA7C | Rod type RCP4-RA5C | Rod type RCP4-RA6C

Model Specification Items

Actuator

RCP4 — [ ] — I — [ ] — [ ] — [ ] — P3 — [ ] — [ ]

Series — Type — Encoder type — Motor type — Ball screw lead — Stroke — Applicable controller — Cable length — Options

Type

SA5C	Slider width 52mm Coupling type
SA6C	Slider width 58mm Coupling type
SA7C	Slider width 73mm Coupling type
RA5C	Rod width 52mm Coupling type
RA6C	Rod width 61mm Coupling type

Encoder type

I	Incremental

Motor type

42P	42 frame pulse motor
56P	56 frame pulse motor

Ball screw lead

3	Lead 3mm
4	Lead 4mm
6	Lead 6mm
8	Lead 8mm
12	Lead 12mm
16	Lead 16mm
20	Lead 20mm
24	Lead 24mm

Stroke

50	50mm
∫	∫
800	800mm

(Can be set in 50mm increments)

Applicable controller

P3	PCON-CA

Cable length

N	None
P	1m
S	3m
M	5m
X□□	Specified Length
R□□	Robot cable

Options

B	Brake
NM	Non-motor end specification
FL	Flange
SC	Scraper

Actuator Options

Brake
Option code: B

Applicable models: RCP4-SA5C/SA6C/SA7C/RA5C/RA6C

Description: A mechanism to hold the slider in place when the actuator is used vertically, so that it will not drop and damage the work part, etc., when the power or servo is turned off.

Non-motor end specification
Option code: NM

Applicable models: RCP4-SA5C/SA6C/SA7C/RA5C/RA6C

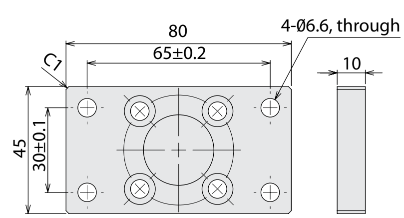
Description: Select this option if you want to change the home position of the actuator slider or rod from the normal position (motor end) to the front end.

Flange
Option code: FL

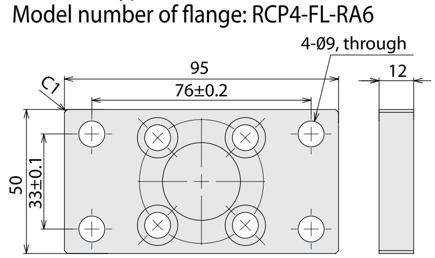
Applicable models: RCP4-SA5C/SA6C

Description: A bracket used to secure a rod actuator from the actuator side. The flange can be purchased separately later on.

RCP4-RA5 type
Model number of flange: RCP4-FL-RA5



RCP4-RA6 type
Model number of flange: RCP4-FL-RA6



Scraper
Option code: SC

Applicable models: RCP4-RA5C/RA6C

Description: When a rod actuator is used, select this option if you want to prevent dust attached to the rod from entering the actuator.

RCP4-SA5C

ROBO Cylinder, Slider Type, Motor Unit Coupled, Actuator Width 52mm, 24-V Pulse Motor

Model Specification Items

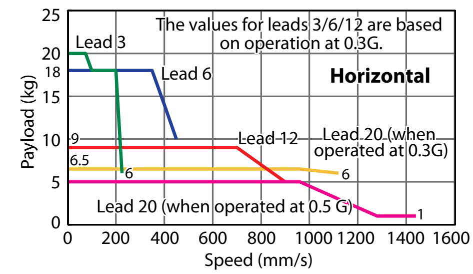
RCP4	SA5C	I	42P	☐	☐	P3	☐	☐
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
		I: Incremental specification	42P: Pulse motor, size 42☐	20: 20mm 12: 12mm 6: 6mm 3: 3mm	50: 50mm ~ 800: 800mm (every 50mm)	P3: PCON-CA	N: None P: 1m S: 3m M: 5m X☐☐: Specified length R☐☐: Robot cable	Refer to the options table below.

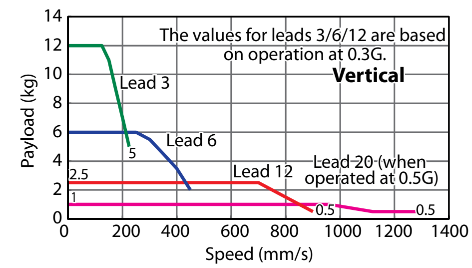
POINT Notes on selection

(1) The payload is the value when operated at 0.3 G acceleration. The upper limit of acceleration is 1 G (or 0.5 G in a vertical installation). Note that raising the acceleration causes the payload to drop. (Refer to P. 20.)

■ Correlation Diagrams of Speed and Payload

With the RCP4 series, due to the characteristics of the pulse motor, payload decreases as the speed increases. Use the chart below to confirm that the desired speed and payload requirements are met.





Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Maximum payload		Positioning repeatability (mm)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)		
RCP4-SA5C-I-42P-20-①-P3-②-③	20	6.5	1	±0.03	50~800 (every 50mm)
RCP4-SA5C-I-42P-12-①-P3-②-③	12	9	2.5	±0.02	
RCP4-SA5C-I-42P-6-①-P3-②-③	6	18	6		
RCP4-SA5C-I-42P-3-①-P3-②-③	3	20	12		

Code explanation ① Stroke ② Cable length ③ Options

■ Stroke and Maximum Speed (See P20)

Lead \ Stroke	50~450 (50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	1440 <1280>	1440 <1280>	1225	1045	900	785	690	610
12	900	795	665	570	490	425	375	330
6	450	395	335	285	245	215	185	165
3	225	195	165	140	120	105	90	80

The values in < > apply when the actuator is used vertically. (unit: mm/s)

① Stroke

Stroke (mm)	Standard price
50	—
100	—
150	—
200	—
250	—
300	—
350	—
400	—
450	—
500	—
550	—
600	—
650	—
700	—
750	—
800	—

③ Options

Name	Option code	See page	Standard price
Brake	B	—	—
Non-motor end specification	NM	—	—

② Cable Length

Type	Cable symbol	Standard price
Standard type	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~X10 (10m)	—
	X11 (11m) ~X15 (15m)	—
	X16 (16m) ~X20 (20m)	—
Robot cable	R01 (1m) ~R03 (3m)	—
	R04 (4m) ~R05 (5m)	—
	R06 (6m) ~R10 (10m)	—
	R11 (11m) ~R15 (15m)	—
	R16 (16m) ~R20 (20m)	—

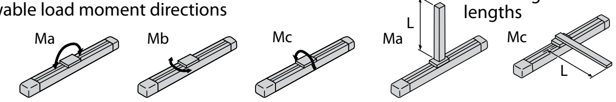
Actuator Specifications

Item	Description
Drive system	Ball screw Ø10mm, rolled C10
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*)	Ma: 4.9 N·m, Mb: 6.8 N·m, Mc: 11.7 N·m
Allowable overhang	150mm or less in Ma, Mb and Mc directions
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*) Based on 5,000km of traveling life

Allowable load moment directions

Overhang load lengths



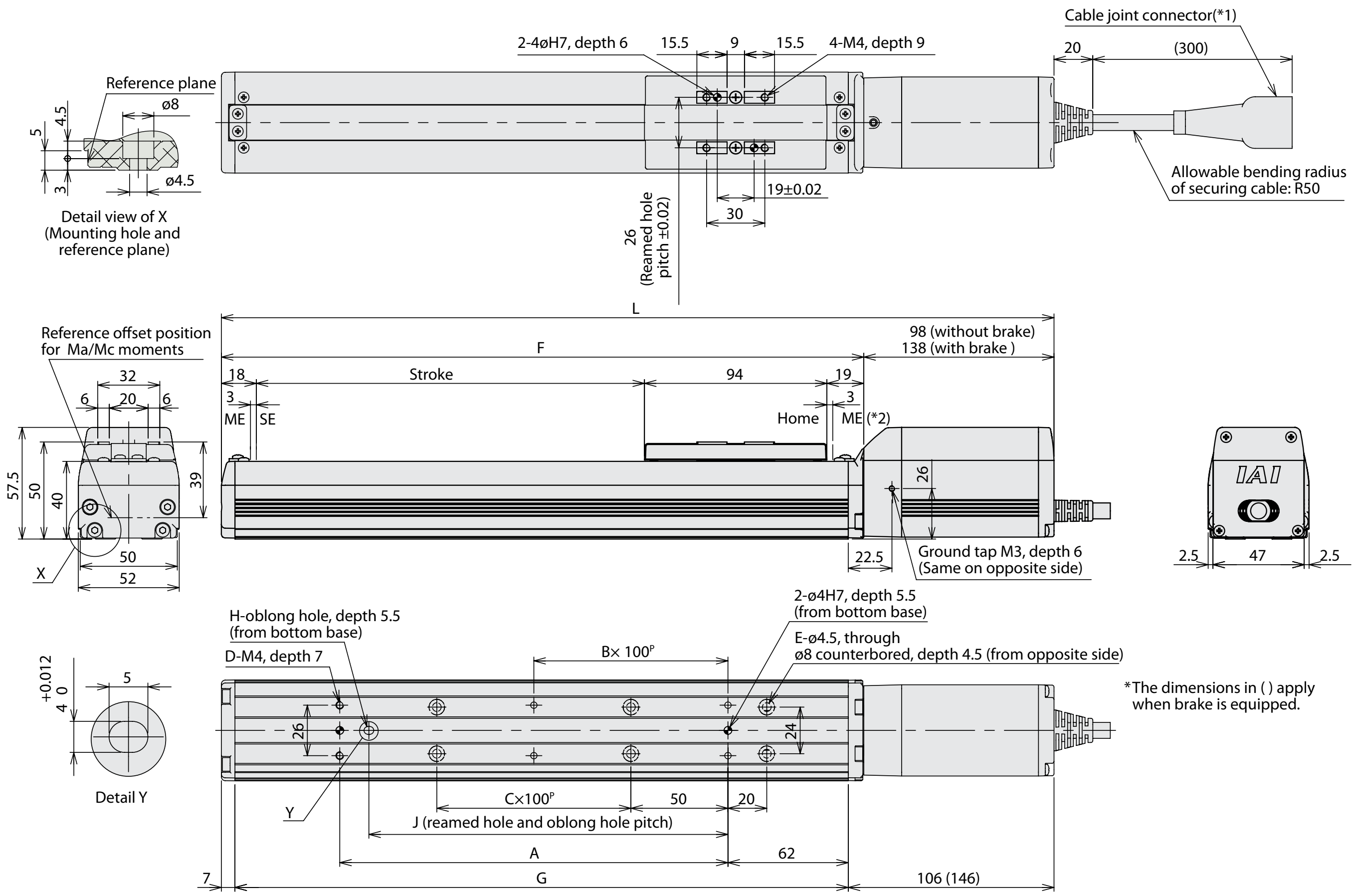
Dimensional Drawings

CAD drawings can be downloaded from the website. **www.intelligentaktuator.com**

2D CAD

*If the non-motor end specification is selected, reverse the dimension on motor end (distance to the home) and that on front end.

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.



■ Dimensions and Mass by Stroke

	Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	279	329	379	429	479	529	579	629	679	729	779	829	879	929	979	1029
	With brake	319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069
	A	73	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
	B	0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
	C	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7
	D	4	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18
	E	4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
	F	181	231	281	331	381	431	481	531	581	631	681	731	781	831	881	931
	G	166	216	266	316	366	416	466	516	566	616	666	716	766	816	866	916
	H	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	J	0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
Mass (kg)	Without brake	1.5	1.6	1.8	1.9	2.1	2.2	2.4	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.7
	With brake	1.7	1.9	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.6	3.7	3.9

Applicable Controller

RCP4 series actuators can be operated with the controller indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power supply capacity	Standard price	Reference page
Positioner type (NPN specification)		PCON-CA-42PI-NP-□-0-□	Register positions to move the actuator into the controller beforehand, and specify the number corresponding to each desired position to operate the actuator.	512 points	DC24V	Refer to P. 27	—	P. 21
Positioner type (PNP specification)		PCON-CA-42PI-PN-□-0-□						
Pulse-train type (NPN specification)		PCON-CA-42PI-PLN-□-0-□	The actuator can be operated freely via pulse-train controller from an external output device.	—			—	
Pulse-train type (PNP specification)		PCON-CA-42PI-PLP-□-0-□						

* Refer to P. 22 for the details of the aforementioned model numbers.

RCP4-SA6C

ROBO Cylinder, Slider Type, Motor Unit Coupled, Actuator Width 58 mm, 24-V Pulse Motor

Model Specification Items

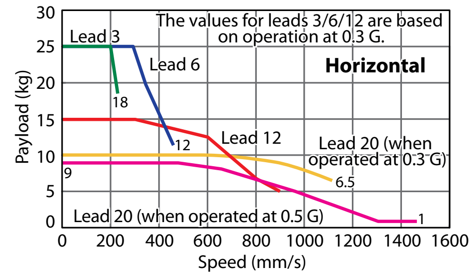
RCP4	—	SA6C	—	I	—	42P	—	☐	—	☐	—	P3	—	☐	—	☐
Series	—	Type	—	Encoder type	—	Motor type	—	Lead	—	Stroke	—	Applicable controller	—	Cable length	—	Options
				I: Incremental specification		42P: Pulse motor, size 42☐		20: 20mm 12: 12mm 6: 6mm 3: 3mm		50: 50mm ~ 800: 800mm (every 50mm)		P3: PCON-CA		N: None P: 1 m S: 3 m M: 5 m X☐☐: Specified length R☐☐: Robot cable		Refer to the options table below.

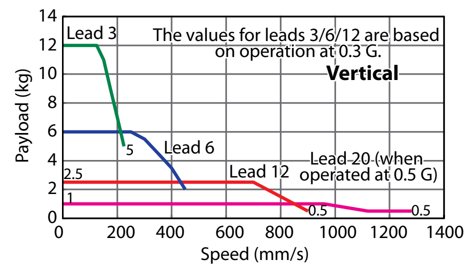
POINT Notes on selection

(1) The payload is the value when operated at 0.3 G acceleration. The upper limit of acceleration is 1 G (or 0.5 G in a vertical installation). Note that raising the acceleration causes the payload to drop. (Refer to P. 20.)

■ Correlation Diagrams of Speed and Payload

With the RCP4 series, due to the characteristics of the pulse motor, payload decreases as the speed increases. Use the chart below to confirm that the desired speed and payload requirements are met.





Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Positioning repeatability (mm)	Stroke (mm)
RCP4-SA6C-I-42P-20-①-P3-②-③	20	10	1	±0.03	50~800 (every 50mm)
RCP4-SA6C-I-42P-12-①-P3-②-③	12	15	2.5	±0.02	
RCP4-SA6C-I-42P-6-①-P3-②-③	6	25	6		
RCP4-SA6C-I-42P-3-①-P3-②-③	3	25	12		

Code explanation ① Stroke ② Cable length ③ Options

■ Stroke and Maximum Speed (See P20)

Lead \ Stroke	50~450 (50mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	1440 <1280>	1440 <1280>	1230	1045	905	785	690	615
12	900	795	670	570	490	430	375	335
6	450	395	335	285	245	215	185	165
3	225	195	165	140	120	105	90	80

The values in < > apply when the actuator is used vertically. (unit: mm/s)

① Stroke

Stroke (mm)	Standard price
50	—
100	—
150	—
200	—
250	—
300	—
350	—
400	—
450	—
500	—
550	—
600	—
650	—
700	—
750	—
800	—

② Cable Length

Type	Cable symbol	Standard price
Standard type	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~X10 (10m)	—
	X11 (11m) ~X15 (15m)	—
	X16 (16m) ~X20 (20m)	—
Robot cable	R01 (1m) ~R03 (3m)	—
	R04 (4m) ~R05 (5m)	—
	R06 (6m) ~R10 (10m)	—
	R11 (11m) ~R15 (15m)	—
	R16 (16m) ~R20 (20m)	—

③ Options

Title	Option code	See page	Standard price
Brake	B	—	—
Non-motor end specification	NM	—	—

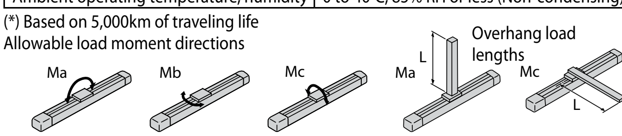
Actuator Specifications

Item	Description
Drive system	Ball screw Ø10mm, rolled C10
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*)	Ma: 8.9 N·m, Mb: 12.7 N·m, Mc: 18.6 N·m
Allowable overhang	220mm or less in Ma, Mb and Mc directions
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

(*) Based on 5,000km of traveling life

Allowable load moment directions

Overhang load lengths



Dimensional Drawings

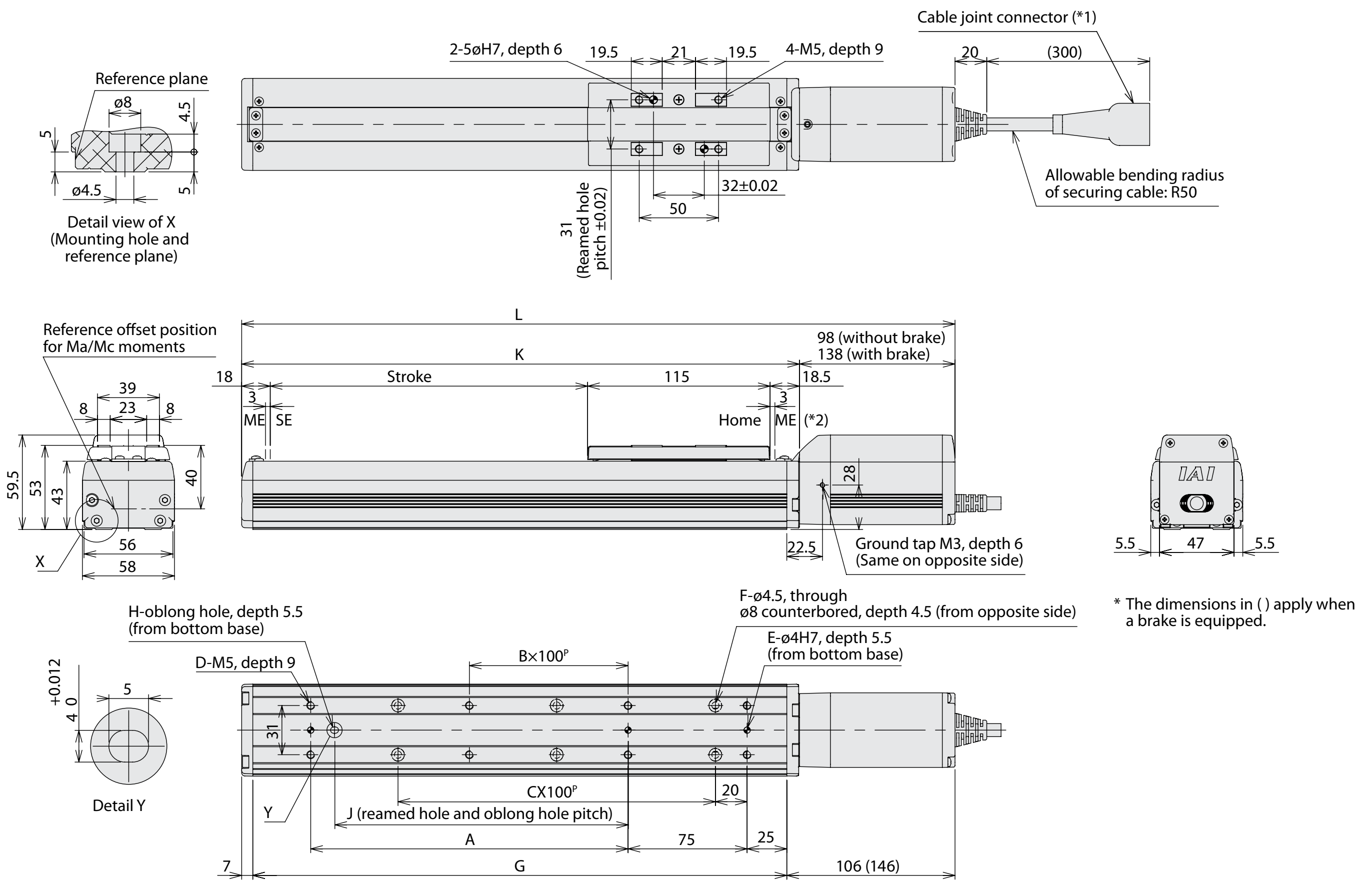
CAD drawings can be downloaded from the website. **www.intelligentaktuator.com**

2D CAD

*If the non-motor end specification is selected, reverse the dimension on motor end (distance to the home) and that on front end.

*1 Connect the motor and encoder cables.

*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.



■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	299.5	349.5	399.5	449.5	499.5	549.5	599.5	649.5	699.5	749.5	799.5	849.5	899.5	949.5	999.5	1049.5
	With brake	339.5	389.5	439.5	489.5	539.5	589.5	639.5	689.5	739.5	789.5	839.5	889.5	939.5	989.5	1039.5	1089.5
A		0	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
D		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
E		2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		201.5	251.5	301.5	351.5	401.5	451.5	501.5	551.5	601.5	651.5	701.5	751.5	801.5	851.5	901.5	951.5
Mass (kg)	Without brake	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.3
	With brake	2.2	2.3	2.5	2.6	2.8	3.0	3.1	3.3	3.4	3.6	3.7	3.9	4.1	4.2	4.4	4.5

Applicable Controller

RCP4 series actuators can be operated with the controller indicated below. Select the type according to your intended application.

Title	External view	Model number	Features	Maximum number of positioning points	Input power	Power supply capacity	Standard price	Reference page
Positioner type (NPN specification)		PCON-CA-42PI-NP-□-0-□	Register positions to move the actuator into the controller beforehand, and specify the number corresponding to each desired position to operate the actuator.	512 points	DC24V	Refer to P. 27	—	P. 21
Positioner type (PNP specification)		PCON-CA-42PI-PN-□-0-□						
Pulse-train type (NPN specification)		PCON-CA-42PI-PLN-□-0-□	The actuator can be operated freely via pulse-train controller from an external output device.	—			—	
Pulse-train type (PNP specification)		PCON-CA-42PI-PLP-□-0-□						

* Refer to P. 22 for the details of the aforementioned model numbers.

RCP4-SA7C

ROBO Cylinder, Slider Type, Motor Unit Coupled, Actuator Width 73mm, 24-V Pulse Motor

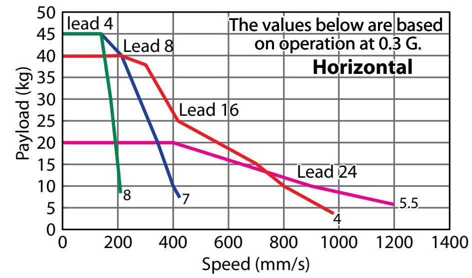
Model Specification Items	RCP4	SA7C	I	56P			P3		
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	56P: Pulse motor, size 56□	24: 24mm 16: 16mm 8: 8mm 4: 4mm	50: 50mm ≀ 800: 800mm (every 50mm)	P3: PCON-CA	N: None P: 1m S: 3m M: 5m X□□: Specified length R□□: Robot cable	Refer to the options table below.

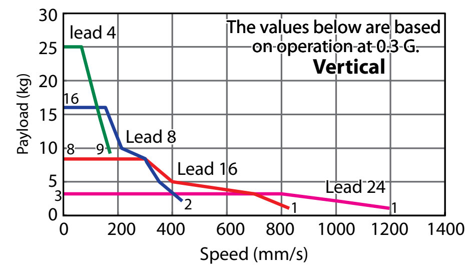
POINT Notes on selection

(1) The payload is the value when operated at 0.3 G acceleration. The upper limit of acceleration is 1 G (or 0.5 G in a vertical installation). Note that raising the acceleration causes the payload to drop. (Refer to P. 20.)

■ Correlation Diagrams of Speed and Payload

With the RCP4 series, due to the characteristics of the pulse motor, payload decreases as the speed increases. Use the chart below to confirm that the desired speed and payload requirements are met.





Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Maximum payload		Positioning repeatability (mm)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)		
RCP4-SA7C-I-56P-24-①-P3-②-③	24	20	3	±0.03	50~800 (every 50mm)
RCP4-SA7C-I-56P-16-①-P3-②-③	16	40	8	±0.02	
RCP4-SA7C-I-56P-8-①-P3-②-③	8	45	16		
RCP4-SA7C-I-56P-4-①-P3-②-③	4	45	25		

Code explanation ① Stroke ② Cable length ③ Options

■ Stroke and Maximum Speed (See P20)

Lead \ Stroke	50~550 (50mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	1200	1200	1155	1010	890	790
16	980 <840>	865 <840>	750	655	580	515
8	490	430	375	325	290	255
4	245 <210>	215 <210>	185	160	145	125

The values in < > apply when the actuator is used vertically. (Unit: mm/s)

① Stroke

Stroke (mm)	Standard price
50	—
100	—
150	—
200	—
250	—
300	—
350	—
400	—
450	—
500	—
550	—
600	—
650	—
700	—
750	—
800	—

③ Options

Name	Option code	See page	Standard price
Brake	B	—	—
Non-motor end specification	NM	—	—

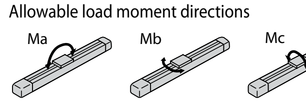
② Cable Length

Type	Cable symbol	Standard price
Standard type	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~X10 (10m)	—
	X11 (11m) ~X15 (15m)	—
	X16 (16m) ~X20 (20m)	—
Robot cable	R01 (1m) ~R03 (3m)	—
	R04 (4m) ~R05 (5m)	—
	R06 (6m) ~R10 (10m)	—
	R11 (11m) ~R15 (15m)	—
	R16 (16m) ~R20 (20m)	—

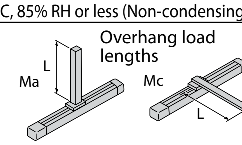
Actuator Specifications

Item	Description
Drive system	Ball screw Ø12mm, rolled C10
Lost motion	0.1mm or less
Base	Material: Aluminum with white alumite treatment
Guide	Linear guide
Dynamic allowable moment (*)	Ma: 13.9 N·m, Mb: 19.9 N·m, Mc: 38.3 N·m
Allowable overhang	230mm or less in Ma, Mb and Mc directions
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

Allowable load moment directions



Overhang load lengths



Dimensional Drawings

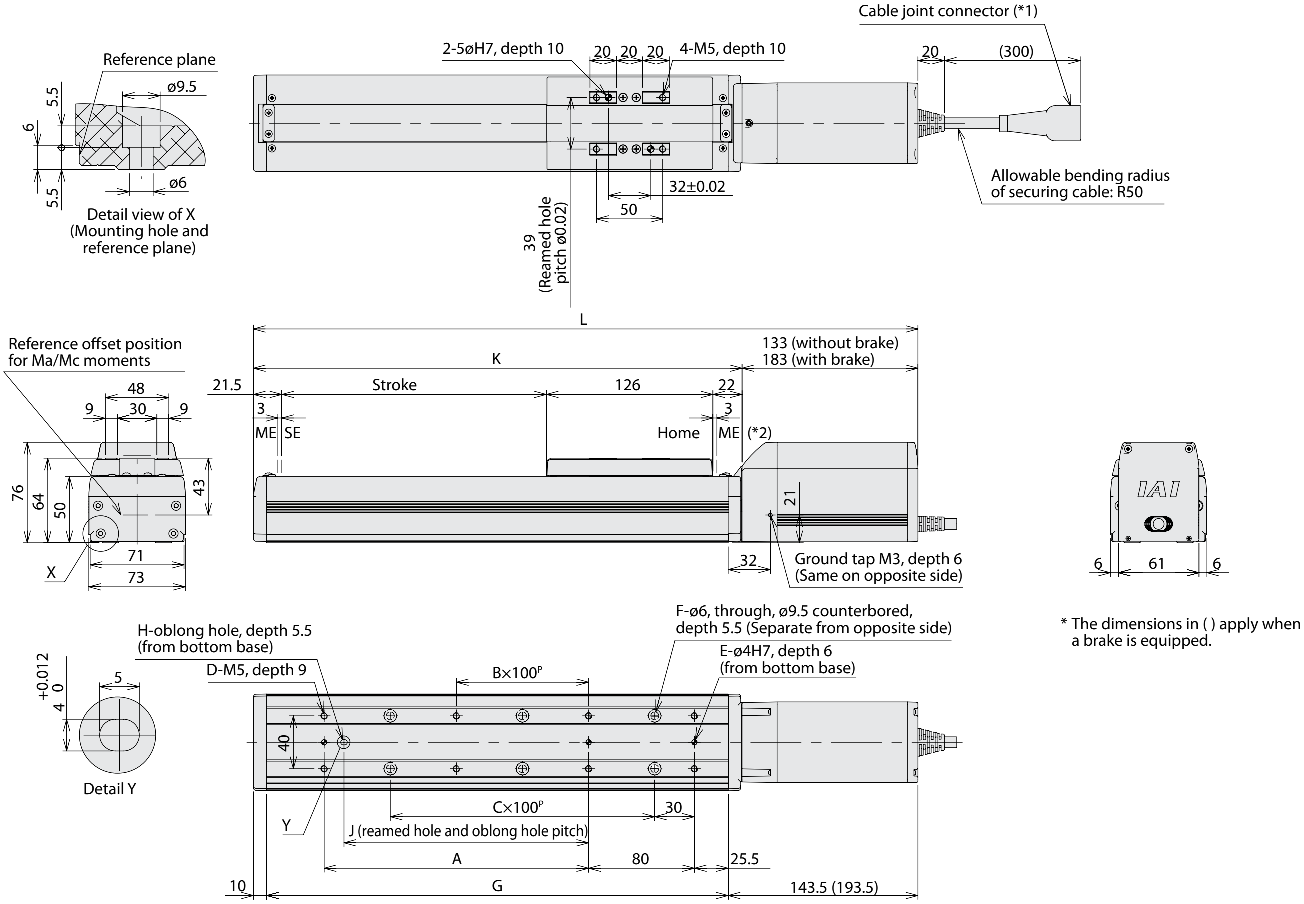
CAD drawings can be downloaded from the website. **www.intelligentaktuator.com**

2D CAD

*If the non-motor end specification is selected, reverse the dimension on motor end (distance to the home) and that on front end.

*1 Connect the motor and encoder cables.

*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.



* The dimensions in ( ) apply when a brake is equipped.

■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	352.5	402.5	452.5	502.5	552.5	602.5	652.5	702.5	752.5	802.5	852.5	902.5	952.5	1002.5	1052.5	1102.5
	With brake	402.5	452.5	502.5	552.5	602.5	652.5	702.5	752.5	802.5	852.5	902.5	952.5	1002.5	1052.5	1102.5	1152.5
A		0	100	100	200	200	300	300	400	400	500	500	600	600	700	700	800
B		0	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7
C		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
D		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
E		2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
F		4	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18
G		199	249	299	349	399	449	499	549	599	649	699	749	799	849	899	949
H		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J		0	85	85	185	185	285	285	385	385	485	485	585	585	685	685	785
K		219.5	269.5	319.5	369.5	419.5	469.5	519.5	569.5	619.5	669.5	719.5	769.5	819.5	869.5	919.5	969.5
Mass (kg)	Without brake	3.4	3.6	3.8	4.1	4.3	4.6	4.8	5.1	5.3	5.6	5.8	6.0	6.3	6.5	6.8	7.0
	With brake	3.9	4.1	4.3	4.6	4.8	5.1	5.3	5.6	5.8	6.1	6.3	6.5	6.8	7.0	7.3	7.5

Applicable Controller

RCP4 series actuators can be operated with the controller indicated below. Select the type according to your intended application.

Title	External view	Model number	Features	Maximum number of positioning points	Input power	Power supply capacity	Standard price	Reference page
Positioner type (NPN specification)		PCON-CA-56PI-NP-□-0-□	Register positions to move the actuator into the controller beforehand, and specify the number corresponding to each desired position to operate the actuator.	512 points	DC24V	Refer to P. 27	—	P. 21
Positioner type (PNP specification)		PCON-CA-56PI-PN-□-0-□						
Pulse-train type (NPN specification)		PCON-CA-56PI-PLN-□-0-□	The actuator can be operated freely via pulse-train controller from an external output device.	—			—	
Pulse-train type (PNP specification)		PCON-CA-56PI-PLP-□-0-□						

* Refer to P. 22 for the details of the aforementioned model numbers.

RCP4-RA5C

ROBO Cylinder, Rod Type, Motor Unit Coupled, Actuator Width 52 mm, 24-V Pulse Motor

Model Specification Items

RCP4	— RA5C	— I	— 42P	— □	— □	— P3	— □	— □
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
		I: Incremental specification	42P: Pulse motor, size 42□	20: 20 mm 12: 12 mm 6: 6 mm 3: 3 mm	50: 50mm ~ 400: 400mm (every 50mm)	P3: PCON-CA	N: None P: 1 m S: 3 m M: 5 m X□□: Specified length R□□: Robot cable	Refer to the options table below.

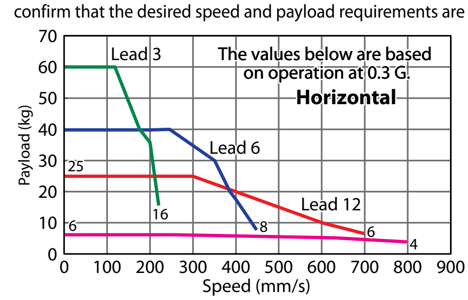
Built-in guide mechanism

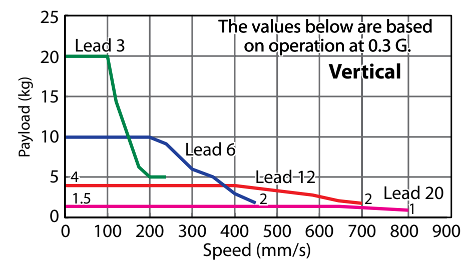
POINT Notes on selection

(1) The payload is the value when operated at 0.3 G acceleration. The upper limit of acceleration is 1 G (or 0.5 G in a vertical installation). Note that raising the acceleration causes the payload to drop. (Refer to P. 20.)

■ Correlation Diagrams of Speed and Payload

With the RCP4 series, due to the characteristics of the pulse motor, payload decreases as the speed increases. Use the chart below to confirm that the desired speed and payload requirements are met.





Actuator Specifications

■ Leads and Payloads

Model number	Lead (mm)	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Maximum push force (N)	Positioning repeatability (mm)	Stroke (mm)
RCP4-RA5C-I-42P-20-①-P3-②-③	20	6	1.5	56	±0.03	50~400 (every 50mm)
RCP4-RA5C-I-42P-12-①-P3-②-③	12	25	4	93	±0.02	
RCP4-RA5C-I-42P-6-①-P3-②-③	6	40	10	185		
RCP4-RA5C-I-42P-3-①-P3-②-③	3	60	20	370		

Code explanation ① Stroke ② Cable length ③ Options

■ Stroke and Maximum Speed (See P20)

Lead \ Stroke	50~400 (every 50mm)
20	800
12	700
6	450
3	225

(unit: mm/s)

① Stroke

Stroke (mm)	Standard price
50	—
100	—
150	—
200	—
250	—
300	—
350	—
400	—

② Cable Length

Type	Cable symbol	Standard price
Standard type	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~X10 (10m)	—
	X11 (11m) ~X15 (15m)	—
	X16 (16m) ~X20 (20m)	—
Robot cable	R01 (1m) ~R03 (3m)	—
	R04 (4m) ~R05 (5m)	—
	R06 (6m) ~R10 (10m)	—
	R11 (11m) ~R15 (15m)	—
	R16 (16m) ~R20 (20m)	—

③ Options

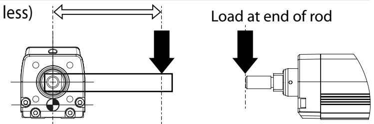
Name	Option code	See page	Standard price
Brake	B	—	—
Flange bracket	FL	—	—
Non-motor end specification	NM	—	—
Scraper	SC	—	—

Actuator Specifications

Item	Description
Drive system	Ball screw Ø10 mm, rolled C10
Lost motion	0.1mm or less
Rod	Ø22 stainless steel pipe
Rod non-rotation precision	±0.1 deg
Allowable load/torque at end of rod	Refer to the table on the facing page.
Load offset distance at end of rod	100mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

Offset distance at end of rod (100mm or less)

Load at end of rod



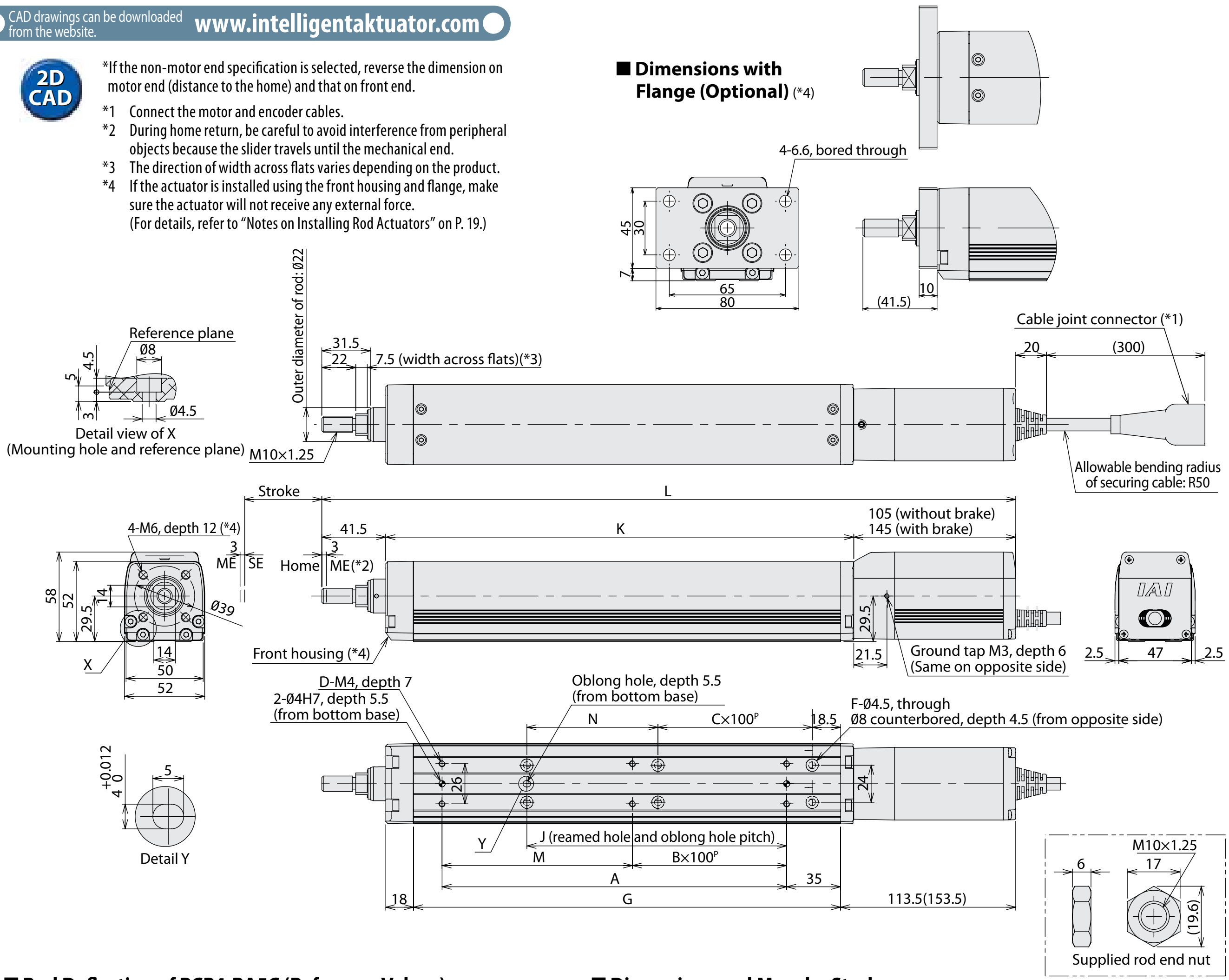
Dimensional Drawings

CAD drawings can be downloaded from the website. **www.intelligentaktuator.com**

2D CAD

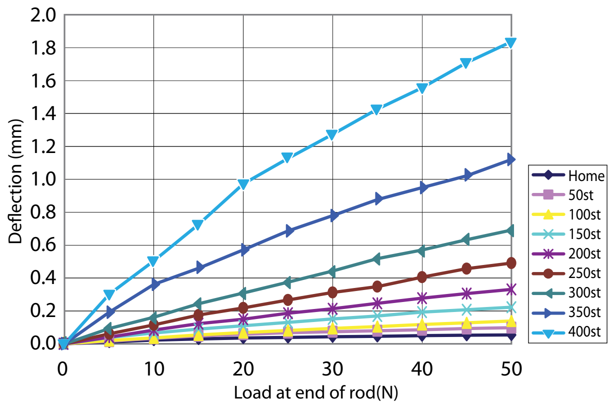
*If the non-motor end specification is selected, reverse the dimension on motor end (distance to the home) and that on front end.

*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.
*3 The direction of width across flats varies depending on the product.
*4 If the actuator is installed using the front housing and flange, make sure the actuator will not receive any external force.
(For details, refer to "Notes on Installing Rod Actuators" on P. 19.)



■ Rod Deflection of RCP4-RA5C (Reference Values)

(The graph below plots deflection as measured by installing the actuator vertically and applying a radial force to the rod from one side.)



■ Dimensions and Mass by Stroke

Stroke		50	100	150	200	250	300	350	400
L	Without brake	300	350	400	450	500	550	600	650
	With brake	340	390	440	490	540	590	640	690
A		73.5	123.5	173.5	223.5	273.5	323.5	373.5	423.5
B		0	0	1	1	2	2	3	3
C		0	0	0	1	1	2	2	3
D		4	4	6	6	8	8	10	10
F		4	4	4	6	6	8	8	10
G		127	177	227	277	327	377	427	477
J		18.5	68.5	118.5	168.5	218.5	268.5	318.5	368.5
K		153.5	203.5	253.5	303.5	353.5	403.5	453.5	503.5
M		73.5	123.5	73.5	123.5	73.5	123.5	73.5	123.5
N		35	85	135	85	135	85	135	85
Allowable static load at end of rod (N)		65.6	51.2	41.7	34.9	29.8	25.7	22.4	19.7
Allowable dynamic load at end of rod (N)	Load offset 0mm	32.4	23.6	18.1	14.4	11.6	9.5	7.7	6.2
	Load offset 100mm	25.6	19.7	15.7	12.7	10.4	8.6	7.1	5.7
Allowable static torque at end of rod (N•m)		6.6	5.2	4.3	3.7	3.2	2.8	2.6	2.3
Allowable dynamic torque at end of rod (N•m)		2.6	2.0	1.6	1.3	1.0	0.9	0.7	0.6
Mass (kg)	Without brake	1.9	2.1	2.4	2.7	2.9	3.2	3.4	3.7
	With brake	2.1	2.4	2.6	2.9	3.1	3.4	3.7	3.9

Applicable Controller

RCP4 series actuators can be operated with the controller indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power supply capacity	Standard price	Reference page
Positioner type (NPN specification)		PCON-CA-42PI-NP-□-0-□	Register positions to move the actuator to in the controller beforehand, and specify the number corresponding to each desired position to operate the actuator.	512 points	DC24V	Refer to P. 27	—	P. 21
Positioner type (PNP specification)		PCON-CA-42PI-PN-□-0-□						
Pulse-train type (NPN specification)		PCON-CA-42PI-PLN-□-0-□	The actuator can be operated freely via pulse-train controller from an external output device.	—			—	
Pulse-train type (PNP specification)		PCON-CA-42PI-PLP-□-0-□						

* Refer to P. 22 for the details of the aforementioned model numbers.

RCP4-RA6C

ROBO Cylinder, Rod Type, Motor Unit Coupled, Actuator Width 61mm, 24-V Pulse Motor

Model Specification Items	RCP4	RA6C	I	56P			P3		
	Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controller	Cable length	Options
			I: Incremental specification	56P: Pulse motor, size 56□	24: 24mm 16: 16mm 8: 8mm 4: 4mm	50: 50mm ≀ 500: 500mm (every 50mm)	P3: PCON-CA	N: None P: 1 m S: 3 m M: 5 m X□□: Specified length R□□: Robot cable	Refer to the options table below.

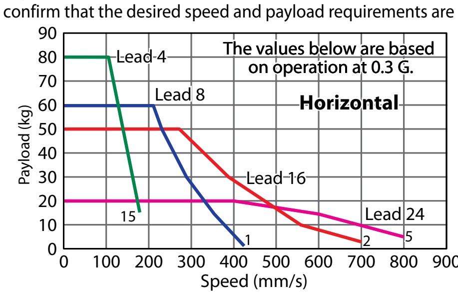
Built-in guide mechanism

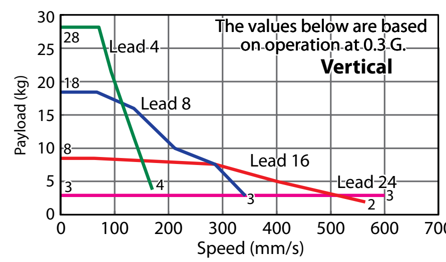
POINT Notes on selection

(1) The payload is the value when operated at 0.3 G acceleration. The upper limit of acceleration is 1 G (or 0.5 G in a vertical installation). Note that raising the acceleration causes the payload to drop. (Refer to P. 20.)

■ **Correlation Diagrams of Speed and Payload**

With the RCP4 series, due to the characteristics of the pulse motor, payload decreases as the speed increases. Use the chart below to confirm that the desired speed and payload requirements are met.





Actuator Specifications

■ **Leads and Payloads**

Model number	Lead (mm)	Maximum payload Horizontal (kg)	Maximum payload Vertical (kg)	Maximum push force (N)	Positioning repeatability (mm)	Stroke (mm)
RCP4-RA6C-I-56P-24-①-P3-②-③	24	20	3	182	±0.03	50~500 (every 50mm)
RCP4-RA6C-I-56P-16-①-P3-②-③	16	50	8	273	±0.02	
RCP4-RA6C-I-56P-8-①-P3-②-③	8	60	18	547		
RCP4-RA6C-I-56P-4-①-P3-②-③	4	80	28	1094		

Code explanation ① Stroke ② Cable length ③ Options

■ **Stroke and Maximum Speed (See P20)**

Lead \ Stroke	50~500 (every 50mm)
24	800 <600>
16	700 <560>
8	420
4	210

The values in < > apply when the actuator is used vertically. (Unit: mm/s)

① Stroke

Stroke (mm)	Standard price
50	—
100	—
150	—
200	—
250	—
300	—
350	—
400	—
450	—
500	—

② Cable Length

Type	Cable symbol	Standard price
Standard type	P (1m)	—
	S (3m)	—
	M (5m)	—
Special length	X06 (6m) ~X10 (10m)	—
	X11 (11m) ~X15 (15m)	—
	X16 (16m) ~X20 (20m)	—
Robot cable	R01 (1m) ~R03 (3m)	—
	R04 (4m) ~R05 (5m)	—
	R06 (6m) ~R10 (10m)	—
	R11 (11m) ~R15 (15m)	—
	R16 (16m) ~R20 (20m)	—

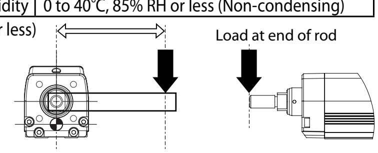
③ Options

Name	Option code	See page	Standard price
Brake	B	—	—
Flange bracket	FL	—	—
Non-motor end specification	NM	—	—
Scraper	SC	—	—

Actuator Specifications

Item	Description
Drive system	Ball screw ø12 mm, rolled C10
Lost motion	0.1mm or less
Rod	ø25 stainless steel pipe
Rod non-rotation precision	±0.1 deg
Allowable load/torque at end of rod	Refer to the table on the facing page.
Load offset distance at end of rod	100mm or less
Ambient operating temperature, humidity	0 to 40°C, 85% RH or less (Non-condensing)

Offset distance at end of rod (100mm or less)



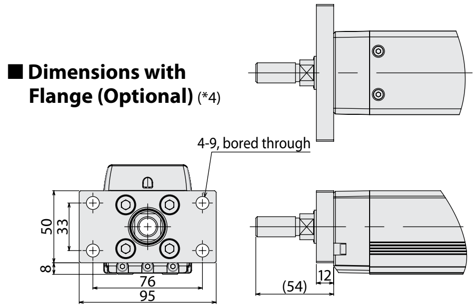
CAD drawings can be downloaded from the website. **www.intelligentaktuator.com**

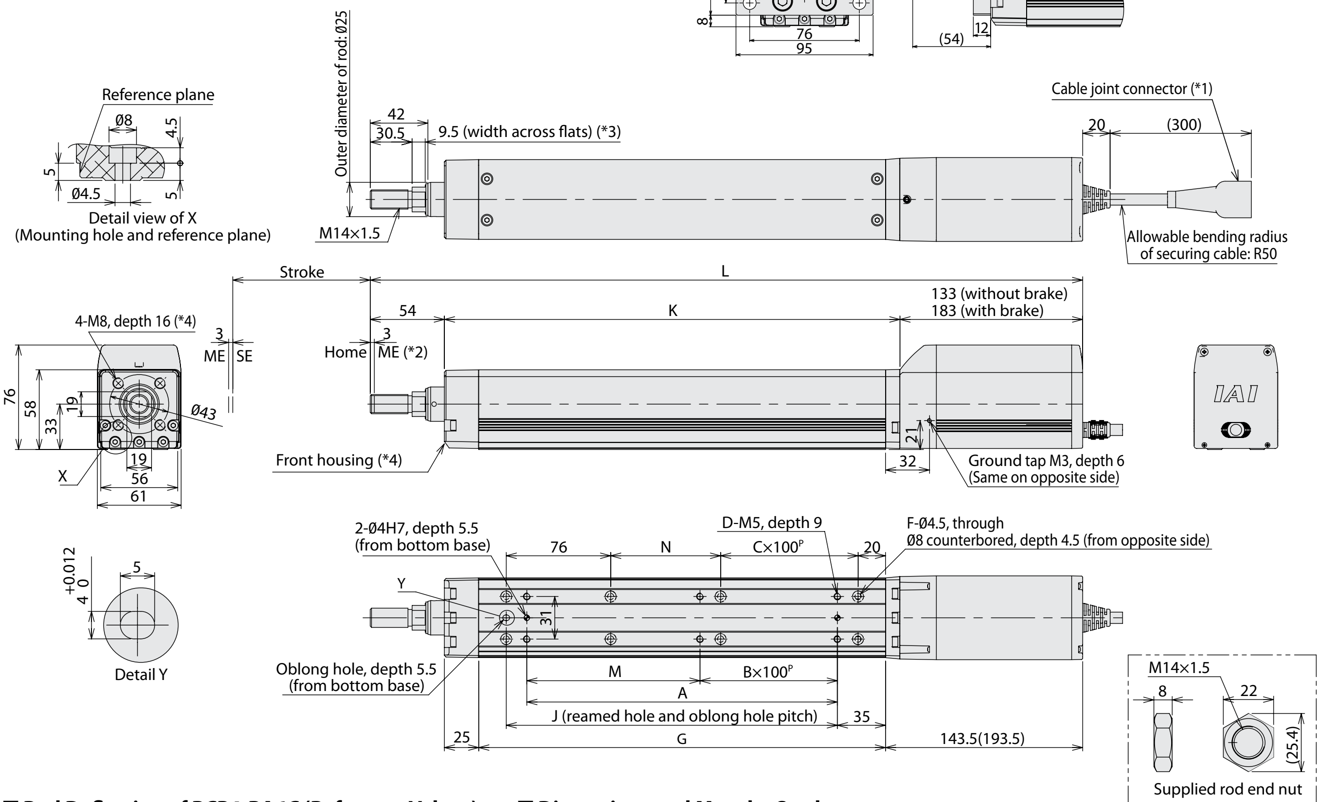
2D CAD

*If the non-motor end specification is selected, reverse the dimension on motor end (distance to the home) and that on front end.

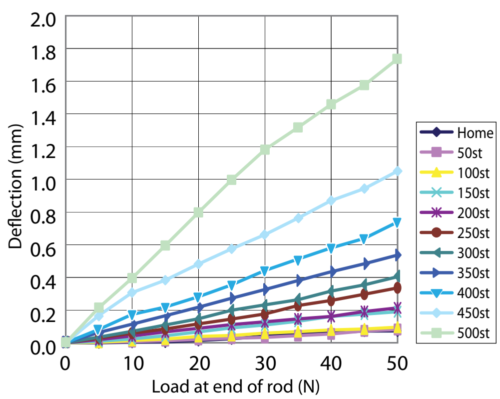
*1 Connect the motor and encoder cables.
*2 During home return, be careful to avoid interference from peripheral objects because the slider travels until the mechanical end.
*3 The direction of width across flats varies depending on the product.
*4 If the actuator is installed using the front housing and flange, make sure the actuator will not receive any external force.
(For details, refer to "Notes on Installing Rod Actuators" on P. 19.)

■ **Dimensions with Flange (Optional)** (*4)





■ **Rod Deflection of RCP4-RA6C (Reference Values)**
(The graph below plots deflection as measured by installing the actuator vertically and applying a radial force to the rod from one side.)



■ **Dimensions and Mass by Stroke**

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	368.5	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5
	With brake	418.5	468.5	518.5	568.5	618.5	668.5	718.5	768.5	818.5	868.5
A		76	126	176	226	276	326	376	426	476	526
B		0	0	1	1	2	2	3	3	4	4
C		0	0	0	1	1	2	2	3	3	4
D		4	4	6	6	8	8	10	10	12	12
F		6	6	6	8	8	10	10	12	12	14
G		146	196	246	296	346	396	446	496	546	596
J		91	141	191	241	291	341	391	441	491	541
K		181.5	231.5	281.5	331.5	381.5	431.5	481.5	531.5	581.5	631.5
M		76	126	76	126	76	126	76	126	76	126
N		30	80	130	80	130	80	130	80	130	80
Allowable static load at end of rod (N)		112.7	91.5	76.7	65.7	57.2	50.4	44.8	40.2	36.2	32.7
Allowable dynamic load at end of rod (N)	Load offset 0mm	49.0	37.4	29.9	24.5	20.4	17.1	14.5	12.3	10.3	8.6
	Load offset 100mm	38.7	31.0	25.5	21.4	18.1	15.4	13.2	11.2	9.5	8.0
Allowable static torque at end of rod (N•m)		11.4	9.3	7.9	6.8	6.0	5.4	4.9	4.5	4.1	3.8
Allowable dynamic torque at end of rod (N•m)		3.9	3.1	2.5	2.1	1.8	1.5	1.3	1.1	1.0	0.8
Mass (kg)	Without brake	3.4	3.7	4.1	4.4	4.7	5.0	5.4	5.7	6.0	6.3
	With brake	3.9	4.2	4.6	4.9	5.2	5.5	5.9	6.2	6.5	6.8

Applicable Controller

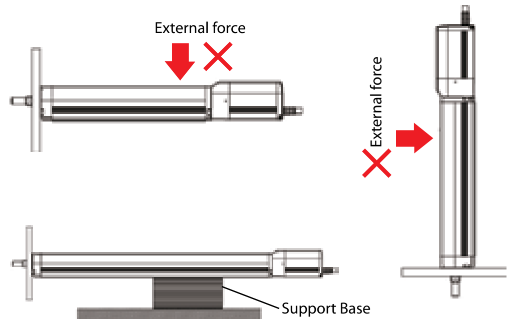
RCP4 series actuators can be operated with the controller indicated below. Select the type according to your intended application.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power supply capacity	Standard price	Reference page
Positioner type (NPN specification)		PCON-CA-56PI-NP-□-0-□	Register positions to move the actuator to in the controller beforehand, and specify the number corresponding to each desired position to operate the actuator.	512 points	DC24V	Refer to P. 27	—	P. 21
Positioner type (PNP specification)		PCON-CA-56PI-PN-□-0-□						
Pulse-train type (NPN specification)		PCON-CA-56PI-PLN-□-0-□	The actuator can be operated freely via pulse-train controller from an external output device.	—			—	
Pulse-train type (PNP specification)		PCON-CA-56PI-PLP-□-0-□						

* Refer to P. 22 for the details of the aforementioned model numbers.

Notes on Installing Rod Actuators

When installing the actuator using the front housing or with a flange (optional), make sure the actuator will not receive external forces. (External forces may cause malfunction or damaged parts.) If the actuator will receive external forces or when the actuator is combined with a Cartesian robot, etc., use the mounting holes on the actuator base to secure the actuator.

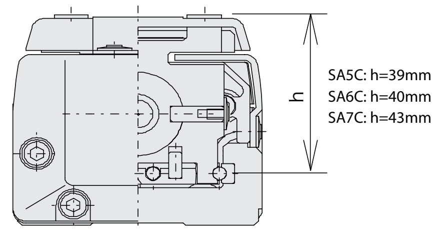


Even if the actuator will not receive external forces, provide a support base as shown in the figure on the right to support the actuator if the actuator is installed horizontally and operated over a stroke of 150 or more. (It is recommended that a support base be installed whenever possible even if the stroke is 150 or less.)

Selection Guideline (Correlation Diagram of Push Force and Current-limiting Value)

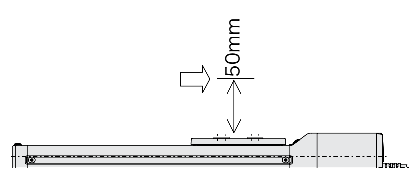
In push-motion operation, the push force can be used by changing the current-limiting value of the controller over a range of 20% to 70%. The maximum push-force varies depending on the model, so check the required push force from the table below and select an appropriate type meeting the purpose of use.

When performing push-motion operation using a slider actuator, limit the push current so that the reactive force moment generated by the push force will not exceed 80% of the rated moment (Ma, Mb) specified in the catalog. To help with the moment calculations, the application position of the guide moment is shown in the figure below. Calculate the necessary moment by considering the offset of the push force application position.



Note that if an excessive force exceeding the rated moment is applied, the guide may be damaged and the life may become shorter. Accordingly, include a sufficient safety factor when deciding on the push force.

Calculation example)
If push-motion operation is performed with a RCP4-SA7C by applying 100 N at the position shown to the right, the moment received by the guide, or Ma, is calculated as (43 + 50) x 100 = 9300 (N•mm) = 9.3 (N•m).

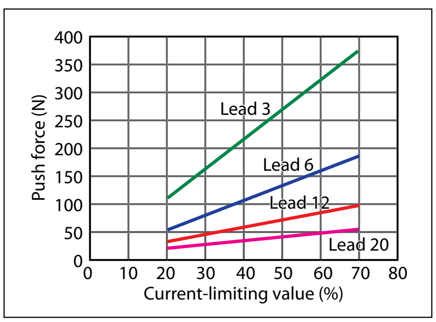


Since the rated moment Ma of the SA7C is 13.9 (N•m),
13.9 x 0.8 = 11.12 > 9.3, suggesting that this selection is acceptable.
If a Mb moment generates due to push-motion operation, calculate the moment from the overhang and confirm, in the same way, that the calculated moment is within 80% of the rated moment.

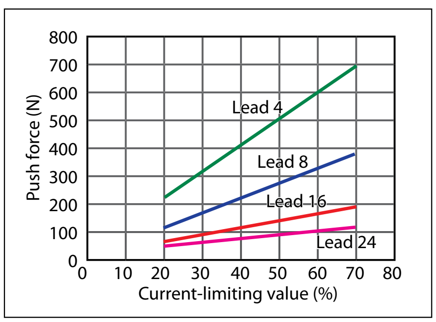
Correlation Diagrams of Push Force and Current-limiting value

The table below is only a reference, and the graphs may vary slightly from the actual values.

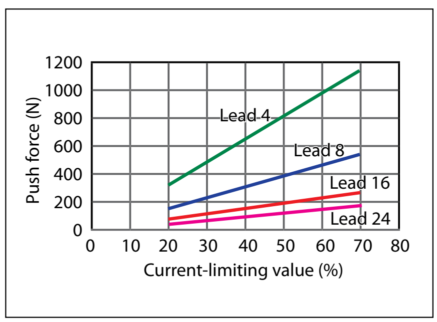
SA5C/SA6C/RA5C type



SA7C type



RA6C type



Notes on Use

- The relationship of push force and current-limiting value is only a reference, and the graphs may vary slightly from the actual values.
- If the current-limiting value is less than 20%, the push force may vary. Make sure the current-limiting value remains 20% or more.
- The graphs assume a traveling speed of 20 mm/s during push-motion operation.

Selection Guideline (Table of RCP4 Payload by Speed/Acceleration)

The maximum acceleration/deceleration of the RCP4 is 1.0 G in a horizontal application or 0.5 G in vertical application. The payload drops as the acceleration increases, so when selecting a model, use the tables below to find one that meets the desired speed, acceleration and payload.

RCP4-SA5C, Lead 20

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	6.5	6.5	5	5	4	1	1	1
160	6.5	6.5	5	5	4	1	1	1
320	6.5	6.5	5	5	4	1	1	1
480	6.5	6.5	5	5	4	1	1	1
640	6.5	6.5	5	5	4	1	1	1
800	6.5	6.5	5	4	3	1	1	1
960		6.5	5	3	2		1	1
1120		6	3	2	1.5		0.5	0.5
1280			1	1	1			0.5
1440			1	0.5				

(Unit: kg)

RCP4-SA5C, Lead 12

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	9	9	9	9	8	2.5	2.5	2.5
100	9	9	9	9	8	2.5	2.5	2.5
200	9	9	9	9	8	2.5	2.5	2.5
300	9	9	9	9	8	2.5	2.5	2.5
400	9	9	9	9	8	2.5	2.5	2.5
500	9	9	9	8	6.5	2.5	2.5	2.5
600	9	9	9	6	4	2.5	2.5	2.5
700	9	9	8	4	2.5	2.5	2.5	2
800		7	5	2	1		1.5	1
900		5	3	1	1		0.5	0.5

(Unit: kg)

RCP4-SA5C, Lead 6

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	18	18	14	14	12	6	6	6
50	18	18	14	14	12	6	6	6
100	18	18	14	14	12	6	6	6
150	18	18	14	14	12	6	6	6
200	18	18	14	14	12	6	6	6
250	18	18	14	14	12	6	6	5.5
300	18	18	14	14	10	6	5.5	5
350	18	18	12	11	8	6	4.5	4
400	18	14	10	7	6	4.5	3.5	3
450	16	10	6	4	2	3.5	2	2

(Unit: kg)

RCP4-SA5C, Lead 3

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	20	20	18	18	14	12	12	12
25	20	20	18	18	14	12	12	12
50	20	20	18	18	14	12	12	12
75	20	20	18	18	14	12	12	12
100	20	18	18	16	12	12	12	12
125	20	18	18	16	12	12	12	12
150	20	18	18	12	10	12	11	10
175	20	18	14	10	6	11	9	8
200	20	18	8			9	7	6
225	20	6				6	5	

(Unit: kg)

RCP4-SA6C, Lead 20

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	10	10	9	7	6	1	1	1
160	10	10	9	7	6	1	1	1
320	10	10	9	7	6	1	1	1
480	10	10	9	7	6	1	1	1
640	10	10	8	6	5	1	1	1
800	10	9	6.5	4.5	3	1	1	1
960		8	5	3.5	2		1	1
1120		6.5	3	2	1.5		0.5	0.5
1280			1	1	1			0.5
1440			1	0.5				

(Unit: kg)

RCP4-SA6C, Lead 12

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	15	15	12.5	11	10	2.5	2.5	2.5
100	15	15	12.5	11	10	2.5	2.5	2.5
200	15	15	12.5	11	10	2.5	2.5	2.5
300	15	15	12.5	11	10	2.5	2.5	2.5
400	15	14	11	10	8.5	2.5	2.5	2.5
500	15	13	10	8	6.5	2.5	2.5	2.5
600	15	12	9	6	4	2.5	2.5	2.5
700	12	10	8	4	2.5	2.5	2.5	2
800	10	7	5	2	1	2	1.5	1
900		5	3	1	1		0.5	0.5

(Unit: kg)

RCP4-SA6C, Lead 6

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	25	25	20	16	14	6	6	6
50	25	25	20	16	14	6	6	6
100	25	25	20	16	14	6	6	6
150	25	25	20	16	14	6	6	6
200	25	25	20	16	14	6	6	6
250	25	25	20	16	14	6	6	5.5
300	25	25	20	15	11	6	5.5	5
350	25	20	14	12	9	6	4.5	4
400	25	16	10	8	6.5	4.5	3.5	3
450	18	12	6	5	2.5	3.5	2	2

(Unit: kg)

RCP4-SA6C, Lead 3

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	25	25	25	25	25	12	12	12
25	25	25	25	25	25	12	12	12
50	25	25	25	25	25	12	12	12
75	25	25	25	25	25	12	12	12
100	25	25	25	25	25	12	12	12
125	25	25	25	25	25	12	12	12
150	25	25	25	25	22.5	12	11	10
175	25	25	25	20	19	11	9	8
200	25	25	20	18	16	9	7	6
225	25	18	16	15	12	6	5	

(Unit: kg)

RCP4-SA7C, Lead 24

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	20	20	18	16	14	3	3	3
200	20	20	18	16	14	3	3	3
400	20	20	18	16	14	3	3	3
600	20	16	15	10	9	3	3	3
800	16	12	10	7	4		3	2.5
1000		8	4.5	4	2		2	1.5
1200		5.5	2	2	1		1	1

(Unit: kg)

RCP4-SA7C, Lead 16

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	40	40	35	28	27	8	8	8
140	40	40	35	28	27	8	8	8
280	40	38	35	25	24	8	8	8
420	35	25	20	15	10	6	5	4.5
560	25	20	15	10	6	5	4	3
700	20	15	10	5	3	4	3	2
840		9	4	2	2			
980		4						

(Unit: kg)

RCP4-SA7C, Lead 8

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	45	45	45	40	40	16	16	16
70	45	45	45	40	40	16	16	16
140	45	45	40	38	35	16	16	16
210	45	40	35	30	24	11	10	9.5
280	40	30	25	20	15	9	8	7
350	35	20	9	4		7	5	4
420	25	7				5	2	
490	15					2		

(Unit: kg)

RCP4-SA7C, Lead 4

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	45	45	45	40	40	25	25	25
35	45	45	45	40	40	25	25	25
70	45	45	45	40	40	25	25	25
105	45	45	45	40	35	22	20	19
140	45	45	35	30	25	16	14	12
175	45	30	18			11	9	7.5
210	40	8				8		
245	35							

(Unit: kg)

RCP4-RA5C, Lead 20

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	6	6	6	5	5	1.5	1.5	1.5
160	6	6	6	5	5	1.5	1.5	1.5
320	6	6	6	5	3	1.5	1.5	1.5
480	6	6	6	5	3	1.5	1.5	1.5
640		6	4	3	2		1.5	1.5
800		4	3				1	1

(Unit: kg)

RCP4-RA5C, Lead 12

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	25	25	18	16	12	4	4	4
100	25	25	18	16	12	4	4	4
200	25	25	18	16	10	4	4	4
300	25	25	18	12	8	4	4	4
400	20	20	14	10	6	4	4	4
500	15	15	8	6	4	4	3.5	3
600	10	10	6	3	2	4	3	2
700		6	2				2	1

(Unit: kg)

RCP4-RA5C, Lead 6

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	40	40	35	30	25	10	10	10
50	40	40	35	30	25	10	10	10
100	40	40	35	30	25	10	10	10
150	40	40	35	25	25	10	10	10
200	40	40	30	25	20	10	10	10
250	40	40	27.5	22.5	18	10	9	8
300	40	35	25	20	14	6	6	6
350	40	30	14	12	10	5	5	5
400	30	18	10	6	5	4	3	3
450	25	8	3			2	2	1

(Unit: kg)

RCP4-RA5C, Lead 3

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	60	60	50	45	40	20	20	20
25	60	60	50	45	40	20	20	20
50	60	60	50	45	40	20	20	20
75	60	60	50	45	40	20	20	20
100	60	60	50	45	40	20	20	20
125	60	60	50	40	30	18	14	10
150	60	50	40	30	25	14	10	6
175	60	40	35	25	20	12	6	5
200	60	35	30	20	14	8	5	4.5
225	40	16	16	10	6	5	5	4

(Unit: kg)

RCP4-RA6C, Lead 24

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	20	20	18	15	12	3	3	3
200	20	20	18	15	12	3	3	3
400	20	20	18	15	10	3	3	3
600	15	14	9	7	4	3	3	2
800		5	1	1				

(Unit: kg)

RCP4-RA6C, Lead 16

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	50	50	40	35	30	8	8	8
140	50	50	40	35	30	8	8	8
280	50	50	35	25	20	8	7	7
420	50	25	18	14	10	6	4.5	4
560	12	10	5	3	2	4	2	1
700	3	2						

(Unit: kg)

RCP4-RA6C, Lead 8

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	60	60	50	45	40	18	18	18
70	60	60	50	45	40	18	18	18
140	60	60	50	45	40	16	16	12
210	60	60	40	31	26	10	10	9
280	60	34	22	15	11	8	7	6
350	60	14	5	1		3	3	2
420	15	1				2		

(Unit: kg)

RCP4-RA6C, Lead 4

Orientation	Horizontal					Vertical		
Speed (mm/s)	Acceleration (G)							
	0.1	0.3	0.5	0.7	1	0.1	0.3	0.5
0	80	80	70	65	60	28	28	28
35	80	80	70	65	60	28	28	28
70	80	80	70	65	60	28	28	28
105	80	80	60	50	40	22	20	18
140	80	50	30	20	15	16	12	10
175	50	15				9	4	
210	20					2		

(Unit: kg)

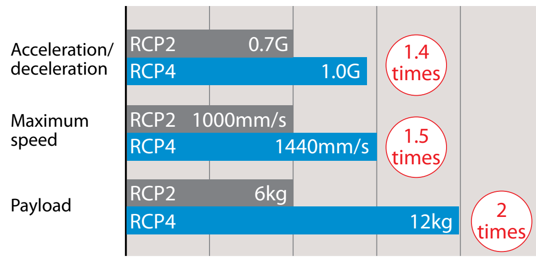
PCON-CA

Positioner / Pulse-train Type
Controller with High-output Driver for RCP4
<Power CON 150>

1 Built-in high-output driver designed exclusively for RCP4 generates greater torque at high speed

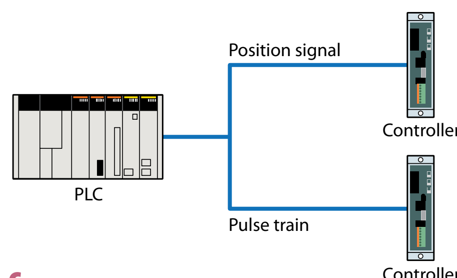
The newly developed high-output driver (patent pending) achieves significantly improved specifications compared to conventional models (RCP2 series), with the acceleration/ deceleration higher by 1.4 times, maximum speed by 1.5 times, and payload twice as large.

(*) The rates of improvement vary depending on the type.



2 Positioner type and pulse-train type to choose from

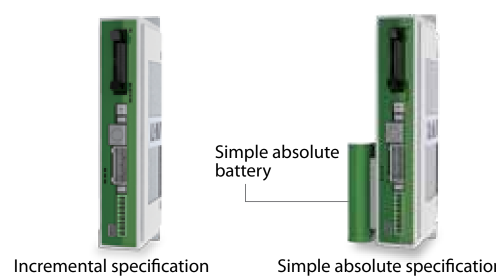
You can select a controller of one of two types: the positioner type where position numbers are specified by I/Os (input/output signals) from a PLC, etc., and the pulse-train type where the actuator is operated by sending pulses. (Pulse-train controllers also support positioner operation using I/Os.)



3 Incremental specification and simple absolute specification to choose from

Instead of the simple absolute unit which was offered as an option for the conventional PCON series, two types of controllers are now available including the incremental specification and simple absolute specification. The simple absolute specification comes standard with a battery, so it can be used as a simple absolute unit to facilitate the startup process without having to add a separate device.

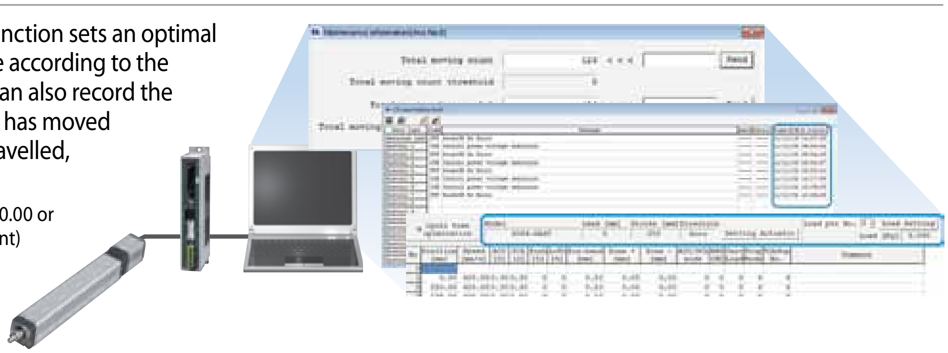
(Note) All pulse-train Power CON controllers are of the incremental specification.



4 Takt time minimization function, maintenance information, calendar function

The takt time minimization function sets an optimal acceleration/deceleration rate according to the load that is available (*). You can also record the number of times the actuator has moved and the distance that it has travelled, for use in maintenance.

(*) You need PC software Ver. 8.03.00.00 or later or a CON-PTA (teaching pendant) to use the takt time minimization function.



List of Models

Series name	PCON		
Type name	CA		
Description	Controller with high-output driver for RCP4		
External view			
Control method	Positioner type		Pulse-train type
Positioning method	Incremental specification	Simple absolute specification	Incremental specification
Position points	512 points	512 points	—
Standard price	—	—	—

Model Number

PCON — **CA** — [Motor type] **I** [I/O type] — [I/O cable length] — **0** — [For simple absolute type]

Series / Type / Motor type / Encoder type / I/O type / I/O cable length / Power supply voltage / For simple absolute type

Type

CA	Controller with high-output driver for RCP4

Encoder type

I	Incremental

*The encoder type is still "I(incremental specification)" for the simple absolute type.

I/O cable length

0	No cable
2	2m (standard)
3	3m
5	5m

Motor type

20P	20 frame pulse motor compatible
20SP	20 frame high thrust pulse motor compatible (RCP3-RA2A□/RA2B□dedicated)
28P	28 frame pulse motor compatible
28SP	28 frame pulse motor compatible (RCP2-RA3C dedicated)
35P	35 frame pulse motor compatible
42P	42 frame pulse motor compatible
56P	56 frame pulse motor compatible

* "20SP" is a dedicated code for RCP3-RA2. When this code is specified, the motor type of the actuator is automatically specified as "20SP," as well.
* "28SP" is a dedicated code for RCP2-RA3. When this code is specified, the motor type of the actuator is automatically specified as "28P."

I/O type

NP	NPN PIO (parallel I/O) specification
PN	PNP PIO (parallel I/O) specification
PLN	NPN pulse-train input specification
PLP	PNP pulse-train input specification

Power supply voltage

0	24-VDC specification

For simple absolute type

(Blank)	Normal incremental specification (not simple absolute type)
AB	Simple absolute specification The controller comes with a simple absolute battery on its side face.
ABUN	Simple absolute specification If "ABUN" is specified in the model number, the controller is of simple absolute type but it does not come with a simple absolute battery.

Note: **The PCON-CA controller can operate actuators of the RCP2/RCP3/RCP4 series. The controller settings are fixed for each actuator. If you wish to connect an actuator different from the one initially set, please contact IAI.**

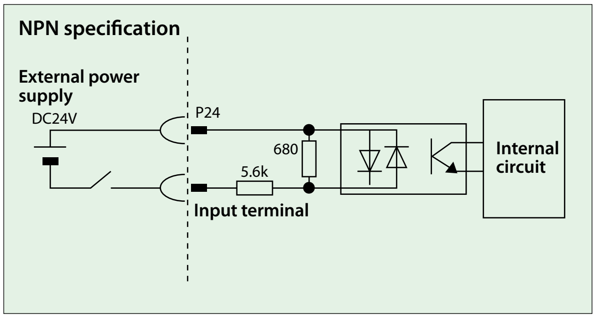
PIO I/O Interface

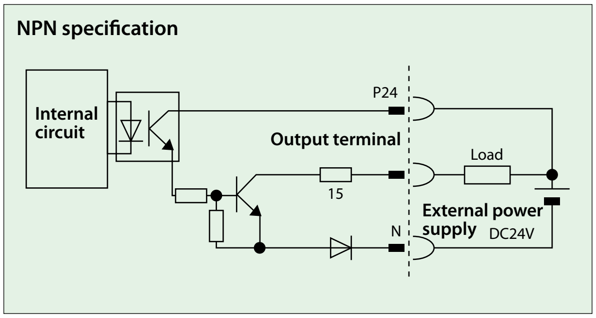
■ Input Part External Input Specifications

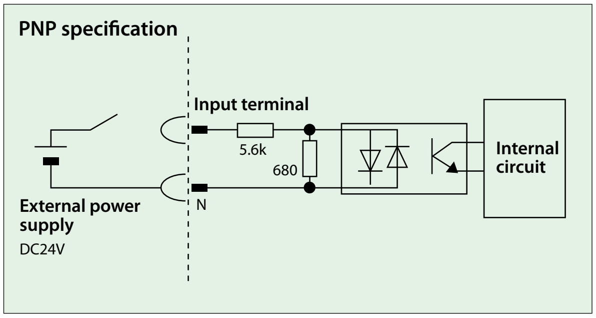
Item	Specification
Input voltage	24 VDC ± 10%
Input current	5mA, 1 circuit
ON/OFF voltage	ON voltage: 18 VDC min. OFF voltage: 6 VDC max.

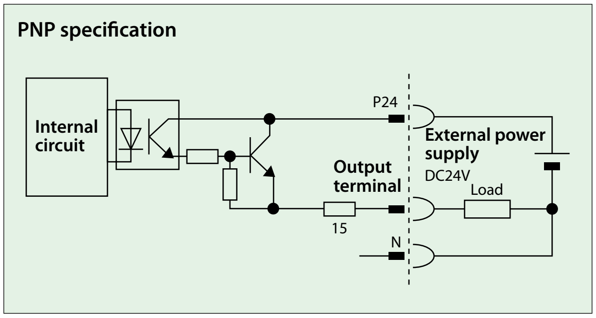
■ Output Part External Output Specifications

Item	Specification
Load voltage	24 VDC
Maximum load current	50mA, 1 circuit
Leak current	2mA max. per point









Types of PIO Patterns (Control Patterns)

This controller supports seven types of control methods. Select in Parameter No. 25, "PIO pattern selection" the PIO pattern that best suits your purpose of use.

Type	Set value of Parameter No. 25	Mode	Overview
PIO pattern 0	0 (factory setting)	Positioning mode (standard type)	• Number of positioning points: 64 points • Position number command: Binary Coded Decimal (BCD) • Zone signal output*1: 1 point • Position zone signal output*2: 1 point
PIO pattern 1	1	Teaching mode (teaching type)	• Number of positioning points: 64 points • Position number command: Binary Coded Decimal (BCD) • Position zone signal output*2: 1 point • Jog (inching) operation using PIO signals is supported. • Current position data can be written to the position table using PIO signals.
PIO pattern 2	2	256-point mode (256 positioning points)	• Number of positioning points: 256 points • Position number command: Binary Coded Decimal (BCD) • Position zone signal output*2: 1 point
PIO pattern 3	3	512-point mode (512 positioning points)	• Number of positioning points: 512 points • Position number command: Binary Coded Decimal (BCD) • No zone signal output
PIO pattern 4	4	Solenoid valve mode 1 (7-point type)	• Number of positioning points: 7 points • Position number command: Individual number signal ON • Zone signal output*1: 1 point • Position zone signal output*2: 1 point
PIO pattern 5	5	Solenoid valve mode 2 (3-point type)	• Number of positioning points: 3 points • Position number command: Individual number signal ON • Completion signal: A signal equivalent to a LS (limit switch) signal can be output. • Zone signal output*1: 1 point • Position zone signal output*2: 1 point
PIO pattern 6	6	Pulse-train control mode	• Differential pulse input (200 kpps max.) • Home return function • Zone signal output*1: 2 points • No feedback pulse output

*1 Zone signal output: A desired zone is set by Parameter Nos. 1 and 2 or 23 and 24, and the set zone always remains effective once home return has completed.
*2 Position zone signal output: This function is available as part of a position number. A desired zone is set in the position table and becomes effective only when the corresponding position is specified, but not with commands specifying other positions.

PIO Patterns and Signal Assignments

The table below lists the signal assignments for the I/O flat cable under different PIO patterns.
Connect an external device (such as a PLC) according to this table.

Pin number	Category	PIO function	Parameter No. 25, "PIO pattern selection"					
			0	1	2	3	4	5
			Positioning mode	Teaching mode	256-point mode	512-point mode	Solenoid valve mode 1	Solenoid valve mode 2
	Input	Number of positioning points	64 points	64 points	256 points	512 points	7 points	3 points
		Home return signal	○	○	○	○	○	×
		Jog signal	×	○	×	×	×	×
		Teaching signal (writing of current position)	×	○	×	×	×	×
		Brake release	○	×	○	○	○	○
	Output	Moving signal	○	○	×	×	×	×
		Zone signal	○	×	×	×	○	○
		Position zone signal	○	○	○	×	○	○
1A	24V	P24						
2A	24V	P24						
3A	Pulse input	—						
4A		—						
5A	Input	IN0	PC1	PC1	PC1	PC1	ST0	ST0
6A		IN1	PC2	PC2	PC2	PC2	ST1	ST1(JOG+)
7A		IN2	PC4	PC4	PC4	PC4	ST2	ST2(-)
8A		IN3	PC8	PC8	PC8	PC8	ST3	—
9A		IN4	PC16	PC16	PC16	PC16	ST4	—
10A		IN5	PC32	PC32	PC32	PC32	ST5	—
11A		IN6	—	MODE	PC64	PC64	ST6	—
12A		IN7	—	JISL	PC128	PC128	—	—
13A		IN8	—	JOG+	—	PC256	—	—
14A		IN9	BKRL	JOG-	BKRL	BKRL	BKRL	BKRL
15A		IN10	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD
16A		IN11	HOME	HOME	HOME	HOME	HOME	—
17A		IN12	*STP	*STP	*STP	*STP	*STP	—
18A		IN13	CSTR	CSTR/PWRT	CSTR	CSTR	—	—
19A		IN14	RES	RES	RES	RES	RES	RES
20A		IN15	SON	SON	SON	SON	SON	SON
1B	Output	OUT0	PM1(ALM1)	PM1(ALM1)	PM1(ALM1)	PM1(ALM1)	PE0	LOS
2B		OUT1	PM2(ALM2)	PM2(ALM2)	PM2(ALM2)	PM2(ALM2)	PE1	LS1(TRQS)
3B		OUT2	PM4(ALM4)	PM4(ALM4)	PM4(ALM4)	PM4(ALM4)	PE2	LS2(-)
4B		OUT3	PM8(ALM8)	PM8(ALM8)	PM8(ALM8)	PM8(ALM8)	PE3	—
5B		OUT4	PM16	PM16	PM16	PM16	PE4	—
6B		OUT5	PM32	PM32	PM32	PM32	PE5	—
7B		OUT6	MOVE	MOVE	PM64	PM64	PE6	—
8B		OUT7	ZONE1	MODES	PM128	PM128	ZONE1	ZONE1
9B		OUT8	PZONE/ZONE2	PZONE/ZONE1	PZONE/ZONE1	PM256	PZONE/ZONE2	PZONE/ZONE2
10B		OUT9	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS
11B		OUT10	HEND	HEND	HEND	HEND	HEND	HEND
12B		OUT11	PEND	PEND/WEND	PEND	PEND	PEND	—
13B		OUT12	SV	SV	SV	SV	SV	SV
14B		OUT13	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS
15B		OUT14	*ALM	*ALM	*ALM	*ALM	*ALM	*ALM
16B		OUT15	LOAD/TRQS *ALML	*ALML	LOAD/TRQS *ALML	LOAD/TRQS *ALML	LOAD/TRQS *ALML	*ALML
17B	Pulse input	—						
18B		—						
19B	0V	N						
20B	0V	N						

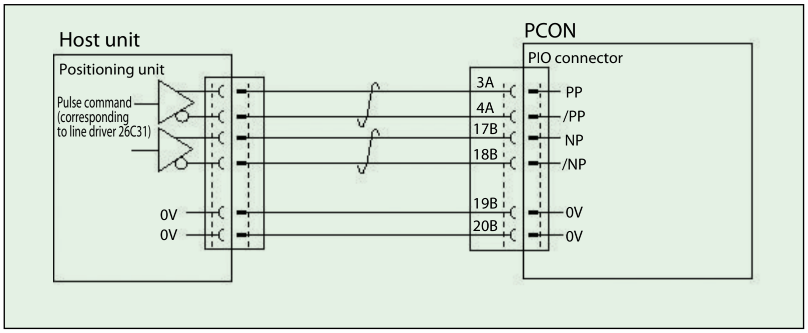
Note: In the table above, asterisk * symbol accompanying each code indicates a negative logic signal. PM1 to PM8 are alarm binary code output signals that are used when an alarm generates.

Reference) Negative logic signal
Signals denoted by * are negative logic signals. Negative logic input signals are processed when turned OFF. Negative logic output signals normally remain ON while the power is supplied, and turn OFF when the signal is output.

Note: The names of the signals above inside () are functions before the unit returns home.

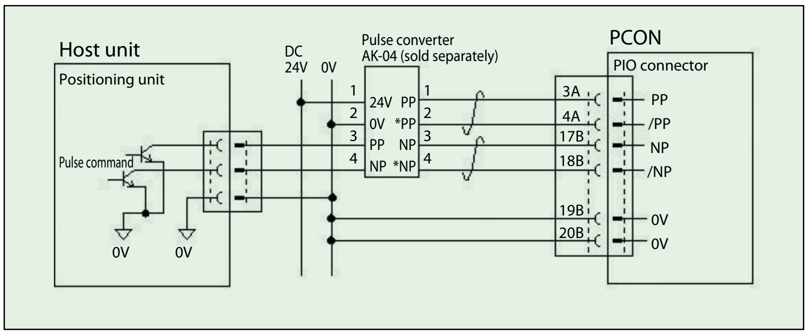
Pulse-train Control Circuit

■Host Unit = Differential Type



■Host Unit = Open Collector Type

The AK-04 (optional) is needed to input pulses.



Caution: Use the same power supply for open collector input/output to/from the host and for the AK-04.

Command Pulse Input Patterns

	Command pulse-train pattern	Input terminal	Forward	Reverse
Negative logic	Forward pulse-train	PP·/PP		
	Reverse pulse-train	NP·/NP		
	A forward pulse-train indicates the amount of motor rotation in the forward direction, while a reverse pulse-train indicates the amount of motor rotation in the reverse direction.			
	Pulse-train	PP·/PP		
	Sign	NP·/NP	Low	High
	The command pulses indicate the amount of motor rotation, while the sign indicates the rotating direction.			
	Phase A/B pulse-train	PP·/PP		
		NP·/NP		
	Command phases A and B having a 90° phase difference (multiplier is 4) indicate the amount of rotation and the rotating direction.			
Positive logic	Forward pulse train	PP·/PP		
	Reverse pulse-train	NP·/NP		
	Pulse-train	PP·/PP		
	Sign	NP·/NP	High	Low
	Phase A/B pulse-train	PP·/PP		
		NP·/NP		

I/O Signals in Pulse-train Control Mode

The table below lists the signal assignments for the flat cable in the pulse-train control mode.
Connect an external device (such as PLC) according to this table.

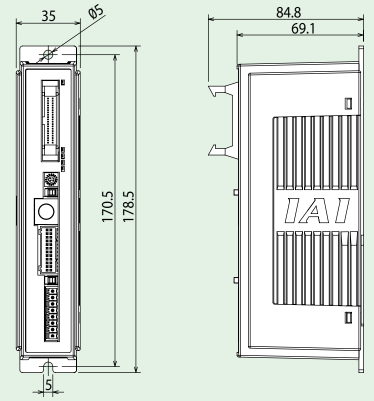
Pin number	Category	I/O number	Signal abbreviation	Signal name	Parameter No. 25, "PIO pattern 6"
1A	24V		P24	Power supply	I/O power supply +24 V
2A	24V		P24	Power supply	I/O power supply +24 V
3A	Pulse input		PP	Differential pulse-train input (+)	Differential pulses are input from the host. Up to 200 kpps can be input.
4A			/PP	Differential pulse-train input (-)	
5A	Input	IN0	SON	Servo ON	The servo is ON while this signal is ON, and OFF while the signal is OFF.
6A		IN1	RES	Reset	Present alarms are reset when this signal is turned ON.
7A		IN2	HOME	Home return	Home return operation is performed when this signal is turned ON.
8A		IN3	TL	Torque limit selection	When this signal is turned ON, the motor torque is limited to the value set by the parameter.
9A		IN4	CSTP	Forced stop	The actuator is forcibly stopped when this signal has remained ON for 16 ms or more. The actuator decelerates to a stop at the torque set in the controller and the servo turns OFF.
10A		IN5	DCLR	Deviation counter clear	This signal clears the deviation counter.
11A		IN6	BKRL	Forced brake release	The brake is forcibly released.
12A		IN7	RMOD	Operation mode switching	The operation mode can be switched when the MODE switch on the controller is set to AUTO. (AUTO when this signal is OFF, and to MANU when the signal is ON.)
13A		IN8	NC	—	Not used
14A		IN9	NC	—	Not used
15A		IN10	NC	—	Not used
16A		IN11	NC	—	Not used
17A		IN12	NC	—	Not used
18A		IN13	NC	—	Not used
19A		IN14	NC	—	Not used
20A		IN15	NC	—	Not used
1B	Output	OUT0	PWR	System ready	This signal turns ON when the controller becomes ready after the main power has been turned on.
2B		OUT1	SV	Servo ON status	This signal turns ON when the servo is ON.
3B		OUT2	INP	Positioning complete	This signal turns ON when the amount of remaining travel pulses in the deviation counter falls within the in-position band.
4B		OUT3	HEND	Home return complete	This signal turns ON upon completion of home return.
5B		OUT4	TLR	Torque limited	This signal turns ON upon reaching the torque limit while the torque is limited.
6B		OUT5	*ALM	Controller alarm status	This signal turns ON when the controller is normal, and turns OFF when an alarm generates.
7B		OUT6	*EMGS	Emergency stop status	This signal turns ON when the emergency stop of the controller is cancelled, and turns OFF when an emergency stop is actuated.
8B		OUT7	RMDS	Operation mode status	The operation mode status is output. This signal turns ON when the controller is in the manual mode.
9B		OUT8	ALM1	Alarm code output signal	An alarm code is output when an alarm generates. For details, refer to the operation manual.
10B		OUT9	ALM2		
11B		OUT10	ALM4		
12B		OUT11	ALM8		
13B		OUT12	*ALML	Minor failure alarm	This signal is output when a message-level alarm generates.
14B		OUT13	NC	—	Not used
15B		OUT14	ZONE1	Zone signal 1	This signal turns ON when the current position of the actuator falls within the parameter-set range.
16B		OUT15	ZONE2	Zone signal 2	
17B	Pulse input		NP	Differential pulse-train input (+)	Differential pulses are input from the host. Up to 200 kpps can be input.
18B			/NP	Differential pulse-train input (-)	
19B	0V		N	Power supply	I/O power supply 0 V
20B	0V		N	Power supply	I/O power supply 0 V

Note) * indicates a negative logic signal. Negative logic signals are normally ON while the power is supplied, and turn OFF when the signal is output.

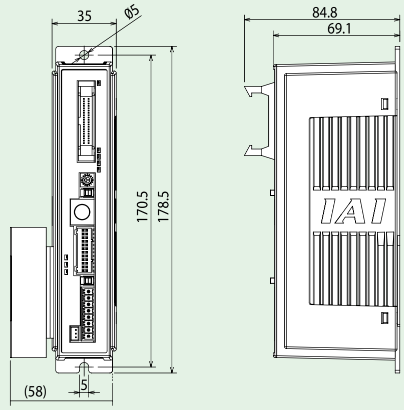
(Note) The number of encoder pulses is 800 with all RCP4 series models. For details, refer to the operation manual.

External Dimensions

Incremental specification (standard)



Simple absolute specification



Specification Table

Item				Description
Number of controlled axes				1 axis
Power supply voltage				24VDC ± 10%
Load capacity	RCP2 RCP3	Motor type	20P, 20SP, 28P, 28SP	1A
			42P, 56P	2A
	RCP4	Motor type	42P, 56P	Rated: 3.5A / 4.2A max.
Power supply for electromagnetic brake (for actuators with brake)				24VDC ± 10%, 0.15A (max.)
Heat output			RCP2, RCP3	5W
			RCP4	8W
Rush current (Note 1)				8.3A
Momentary power failure resistance				500μs max.
Emergency stop input				1 dedicated circuit (in the power supply connector), contakt B input (24VDC)
Actuator cable length				20m max.
Serial communication interface (SIO port)				RS485: 1 channel (conforming to Modbus protocol RTU/ASCII) / Speed: 9.6 to 230.4kbps Actuators can be controlled via serial communication in a mode other than pulse-train (cable length: 100m).
External interface			PIO specification	Dedicated 24-VDC signal input/output (NPN or PNP selected) --- Up to 16 input points, up to 16 output points / Cable length: 10m max.
Data setting/input method				PC software, touch-panel teaching pendant
Data retention memory				Position data and parameters are saved in the non-volatile memory (rewrite life: unlimited)
Number of positions in positioner mode				Standard 64 points, maximum 512 points (PIO specification) Note) Positioning points vary depending on the selected PIO pattern.
Pulse-train interface			Input pulse	Differential method (line driver method): 200kpps max. / Cable length: 10m max.
				Open collector method: Not supported (Note 2)
			Command pulse magnification (electronic gear ratio: A/B)	1/50 < A/B < 50/1 Setting range of A and B (set by parameters): 1 to 4096
			Feedback pulse output	None
LED display (installed on the front panel)				SV (green)/ALM (red): Servo ON/alarm generation STS0 to 3: Status indication RDY (green)/ALM (red): Absolute function normal/absolute function abnormal (simple absolute specification) 1 (green), 0 (red): Absolute function status indication (simple absolute specification)
Electromagnetic brake forced release switch (installed on the front panel)				Switched between NOM (standard) and BK RLS (forced release)
Isolation resistance				500VDC, 10MΩ or more
Electric shock protection mechanism				Class I basic isolation
Environment	Ambient operating temperature			0 ~ 40°C
	Ambient operating humidity			85%RH or less (non-condensing)
	Operating ambience			Not exposed to corrosive gases
	Maximum operating altitude			1000m
	Protection degree			IP20
	Cooling method			Natural air cooling
	Vibration			10 to 57 Hz / Amplitude: 0.075mm 57 to 150 Hz / Acceleration: 9.8m/s^2 Sweep time in X/Y/Z directions: 10 minutes / Number of sweeps: 10 times
	Weight			300g or less, or 500g (including 190g for the battery) or less for the simple absolute specification

(Note 1) Rush current will flow for approx. 1 to 2 msec after the power is turned on (at 40°C). Take note that the rush current value varies depending on the impedance of the power supply line.

(Note 2) If the host implements open collector output, use the separately sold AK-04 (optional) to convert the signals to differential output signals.

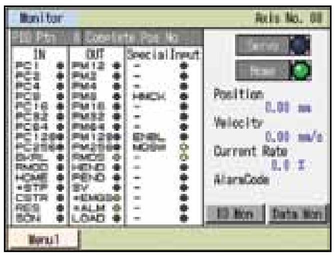
Option

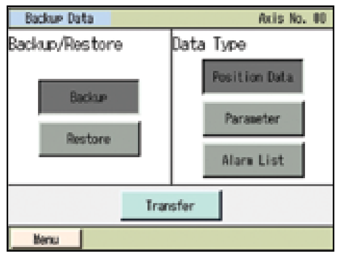
●Touch-panel Teaching Pendant for Position Controller

CON-PTA

Developed based on the design of the popular CON-PT series adopting an easy-to-use interactive touch-panel menu screen, this new data input device supports various functions offered by the PCON-CA controller.

1. Color screen for greater ease of view
2. Supporting the takt time minimization function and maintenance information checking/ input functions of the PCON-CA
3. Position, parameters and other data can be saved in a SD card
4. Built-in clock function records the date & time of each event; data can then be saved in a SD card.





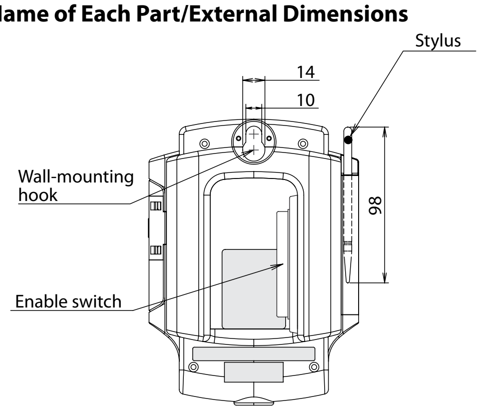
Model Numbers/Specifications

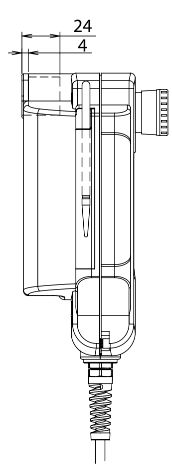
Item	Description		
Model number	CON-PTA-C-ENG	CON-PDA-C-ENG	CON-PGA-C-S-ENG
Type	Standard type	Enable switch type	Safety-category compliant type
Connectable controllers	ACON/PCON/SCON/RACON/RPCON ASEP/PSEP AMEC/PMEC ERC2 (*1) /ERC3		
3-position enable switch	×	○	○
Functions	• Position data input/editing • Moving function (moving to set positions, jogging/inching) • Parameter editing • Monitoring (current position, current speed, I/O signals, alarm code, alarm generation time) • Saving/reading data to/from external SD cards (position data parameters, alarm list) • Takt time minimization function • Maintenance information (total number of movements, total distance travelled, etc.)		
Display	65536 colors (16-bit colors), white LED backlight		
Ambient operating temperature/humidity	0 to 50°C, 20 to 80% RH (non-condensing)		
Environmental resistance	IP40 or equivalent		
Mass	Approx. 570g	Approx. 600g	
Cable length	5m		
Accessories	Stylus	Stylus	Stylus, TP adapter (Model number: RCB-LB-TG) Dummy plug (Model number: DP-4) Controller cable (Model number: CB-CON-LB005)

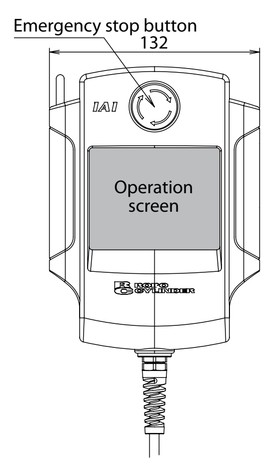
*1 Among the ERC2 series, only the actuators bearing 4904 or greater number stamped on the serial number label can be connected.

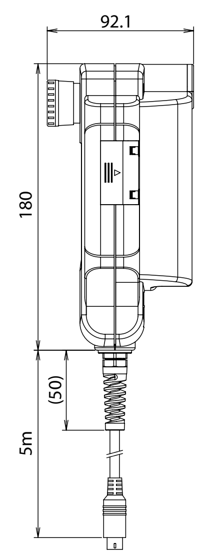
Name of Each Part

■Name of Each Part/External Dimensions









■Option

• Strap (Model number: STR-1)

Option

●PC Software (Windows Only)

This startup support software provides functions to input positions, perform test operations and monitor data, among others. It also supports the takt time minimization function, calendar function, maintenance information, etc., so, for example, you can set optimal operating conditions for your actuator and carry out preventive maintenance.

* The above functions are supported by software versions of 8.03.00.00 and later.

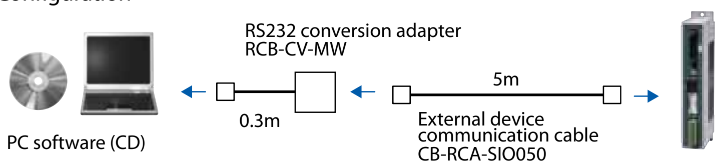
Features

Startup support software with functions to program and input positions, perform test operations and monitor data, among others. It enhances the functions needed for debugging to help shorten the startup time.

▮ Model number With external device communication cable + RS232 conversion unit

RCM-101-MW

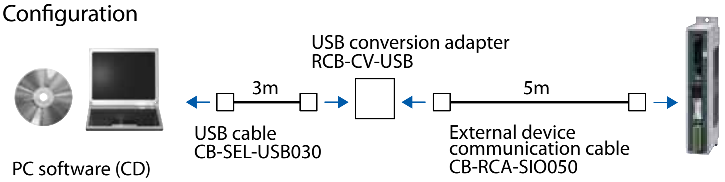
▮ Configuration



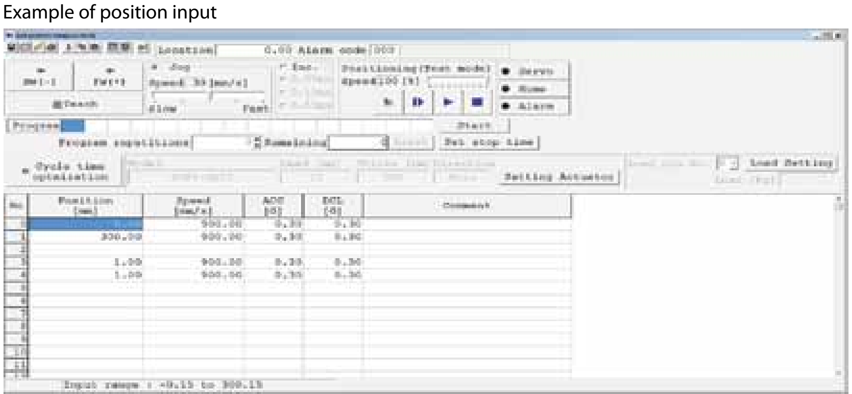
▮ Model number With external equipment communication cable + USB conversion adapter + USB cable

RCM-101-USB

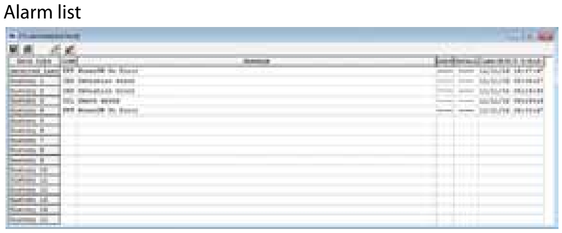
▮ Configuration



Example of position input



Alarm list



Maintenance information

Service part

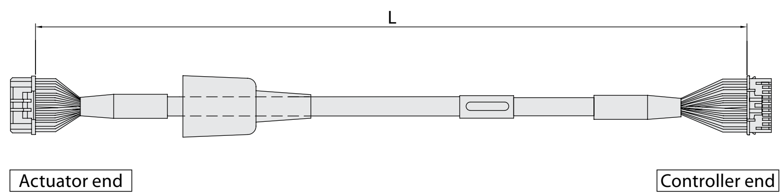
Simple absolute battery

▮ Model number **AB-7**

Integrated Motor/Encoder Cable & Integrated Motor/Encoder Robot Cable for RCP4

Model number **CB-CA-MPA□□□/CB-CA-MPA□□□-RB**

*□□□ indicates the cable length (L). A desired length can be specified up to 20m. Example: 080=8m



* Robot cables are cables resistant to flexing forces.
  If the cable must be guided in a cable track, use a robot cable.

Actuator end 1-1827863-1 (AMP) / Controller end PADP-24V-1-S (JST)

Pin No.	Signal name	Color	Pin No.	Signal name	Color
A1	ØA/U	Blue(Black)	1	ØA/U	Blue (Black)
B1	VMM/V	Orange (White)	2	VMM/V	Orange (White)
A2	Ø_A/W	Green (Brown)	5	Ø_A/W	Green (Brown)
B2	ØB/-	Brown (Green)	3	ØB/-	Brown (Green)
A3	VMM/-	Gray (Yellow)	4	VMM/-	Gray (Yellow)
B3	Ø_B/-	Red (Red)	6	Ø_B/-	Red (Red)
A4	LS+/BK+	Black (Orange)	7	LS+/BK+	Black (Orange)
B4	LS-/BK-	Yellow (Gray)	8	LS-/BK-	Yellow (Gray)
A6	-/A+	Blue (White)	11	-/A+	Blue (White)
B6	-/A-	Orange (Yellow)	12	-/A-	Orange (Yellow)
A7	A+/B+	Green (Red)	13	A+/B+	Green (Red)
B7	A-/B-	Brown (Green)	14	A-/B-	Brown (Green)
A8	B+/Z+	Gray (Black)	15	B+/Z+	Gray (Black)
B8	B-/Z-	Red (Brown)	16	B-/Z-	Red (Brown)
A5	BK+/LS+	Blue (Black)	9	BK+/LS+	Blue (Black)
B5	BK-/LS-	Orange (Brown)	10	BK-/LS-	Orange (Brown)
A9	LS_GND	Green (Green)	20	LS_GND	Green (Green)
B9	VPS	Brown (Red)	18	VPS	Brown (Red)
A10	VCC	Gray (White)	17	VCC	Gray (White)
B10	GND	Red (Yellow)	19	GND	Red (Yellow)
A11	—	—	21	—	—
B11	FG	Black (—)	22	—	—
			23	—	—
			24	FG	Black (—)

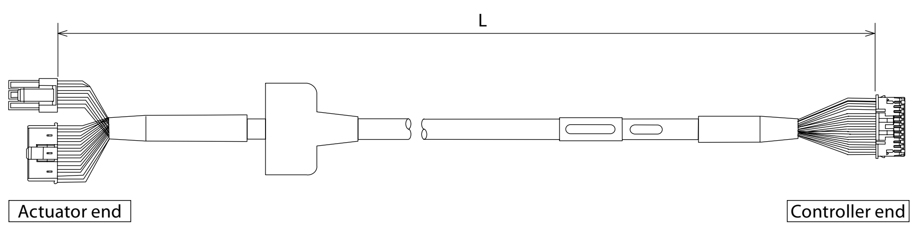
* Colors of robot cables are shown in ( ).

Integrated Motor/Encoder Cable for RCP2

Model number **CB-PSEP-MPA□□□**

*The default specification of this cable is robot cable.

*□□□ indicates the cable length (L). A desired length can be specified up to 20m. Example: 080=8m



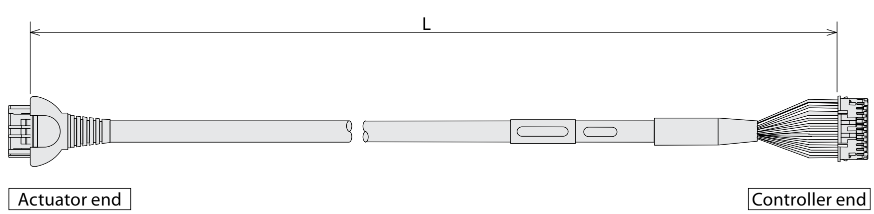
Actuator end Terminal number		Controller end Terminal number
1	Black [ØA]	1
2	White [VMM]	2
4	Red [ØB]	3
5	Green [VMM]	4
3	Brown [Ø/A]	5
6	Yellow [Ø/B]	6
16	Orange [BK+]	9
17	Gray [BK-]	10
5	NC	11
6	NC	12
13	Black [LS+]	7
14	Brown [LS-]	8
1	White [A+]	13
2	Yellow [A-]	14
3	Red [B+]	15
4	Green [B-]	16
10	White (identification tape) [VCC]	17
11	Yellow (identification tape) [VPS]	18
9	Red (identification tape) [GND]	19
12	Green (identification tape) [(spare)]	20
15	NC	21
7	NC	22
8	NC	23
18	Shield [FG]	24

Integrated Motor/Encoder Cable for RCP3

Model number **CB-APSEP-MPA□□□**

*The default specification of this cable is robot cable.

*□□□ indicates the cable length (L). A desired length can be specified up to 20m. Example: 080=8m

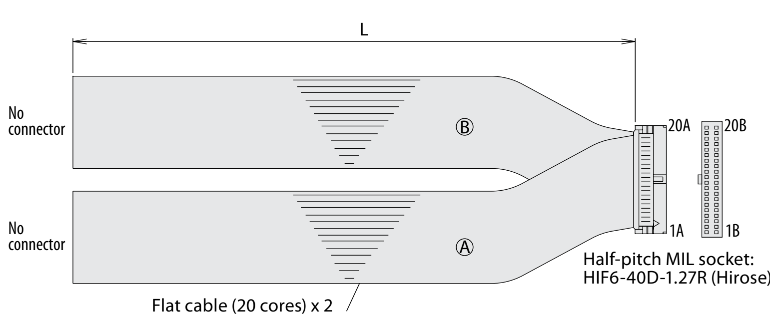


Actuator end Terminal number	[PCON] (ACON)	Controller end Terminal number
A1	Black [ØA] (U)	1
B1	White [VMM] (V)	2
A2	Brown [Ø/A] (W)	5
B2	Green [ØB] (-)	3
A3	Yellow [VMM] (-)	4
B3	Red [Ø/B] (-)	6
A4	Orange [LS+] (BK+)	7
B4	Gray [LS-] (BK-)	8
A6	White [-] (A+)	11
B6	Yellow [-] (A-)	12
A7	Red [A+] (B+)	13
B7	Green [A-] (B-)	14
A8	Black [B+] (Z+)	15
B8	Brown [B-] (Z-)	16
A5	Black (identification tape) [BK+] (LS+)	9
B5	Brown (identification tape) [BK-] (LS-)	10
A9	Green (identification tape) [GNDLS] (GNDLS)	20
B9	Red (identification tape) [VPS] (VPS)	18
A10	White (identification tape) [VCC] (VCC)	17
B10	Yellow (identification tape) [GND] (GND)	19
A11	NC	21
B11	Shield [FG] (FG)	24
	NC	22
	NC	23

I/O Flat Cable

Model number **CB-PAC-PIO□□□**

*□□□ indicates the cable length (L). A desired length can be specified up to 10m. Example: 080=8m



HIF6-40D-1.27R

No.	Signal name	Cable color	Wiring
1A	24V	Brown - 1	Flat cable [A] (pressure welded)
2A	24V	Red - 1	
3A	Pulse input	Orange - 1	
4A		Yellow - 1	
5A	IN0	Green - 1	
6A	IN1	Blue - 1	
7A	IN2	Purple - 1	
8A	IN3	Gray - 1	
9A	IN4	White - 1	
10A	IN5	Black - 1	
11A	IN6	Brown - 2	
12A	IN7	Red - 2	
13A	IN8	Orange - 2	
14A	IN9	Yellow - 2	
15A	IN10	Green - 2	
16A	IN11	Blue - 2	
17A	IN12	Purple - 2	
18A	IN13	Gray - 2	
19A	IN14	White - 2	
20A	IN15	Black - 2	

No.	Signal name	Cable color	Wiring
1B	OUT0	Brown - 3	Flat cable [B] (pressure welded) AWG 28
2B	OUT1	Red - 3	
3B	OUT2	Orange - 3	
4B	OUT3	Yellow - 3	
5B	OUT4	Green - 3	
6B	OUT5	Blue - 3	
7B	OUT6	Purple - 3	
8B	OUT7	Gray - 3	
9B	OUT8	White - 3	
10B	OUT9	Black - 3	
11B	OUT10	Brown - 4	
12B	OUT11	Red - 4	
13B	OUT12	Orange - 4	
14B	OUT13	Yellow - 4	
15B	OUT14	Green - 4	
16B	OUT15	Blue - 4	
17B	Pulse input	Purple - 4	
18B		Gray - 4	
19B	0V	White - 4	
20B	0V	Black - 4	

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