

ROBO Cylinder® Pulse Press

# RCP6-RRA



[www.intelligentactuator.com](http://www.intelligentactuator.com)

Actuator compatible with presses that allows for simple power control

# IAI's new pulse press!

## ■ What is a pulse press?

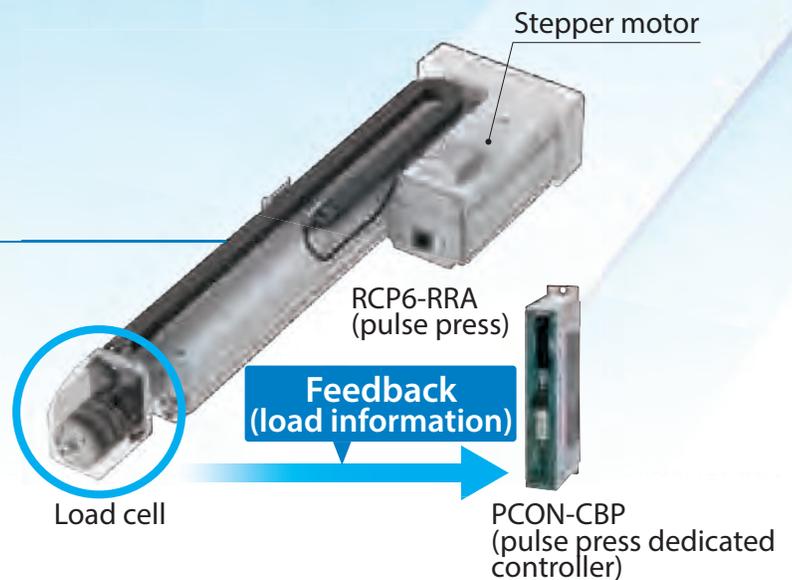
A pulse press is an actuator combining a stepper motor and load cell, that is capable of performing power control. It provides a loading repeatability of  $\pm 1.0\%$  F.S. (full scale), based on feedback from the load cell.



**POINT**

**F.S. : Full Scale**

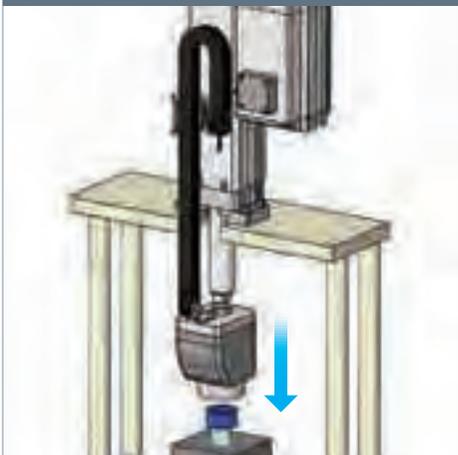
Maximum measurable value



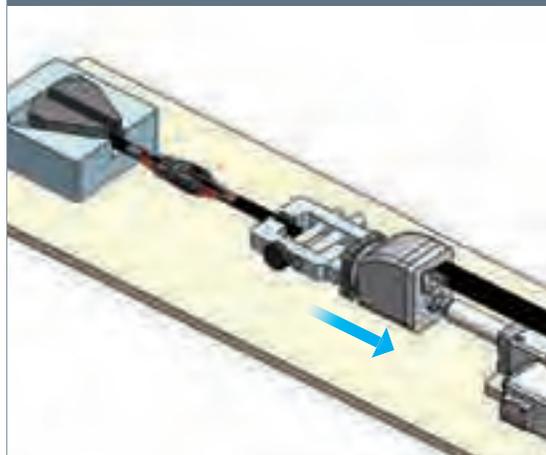
## 1 Capable of both pushing and pulling

Both pushing and pulling are supported in the load direction. There are no limitations on pushing or pulling times.

Example) Washer press fitting (pushing)



Example) Wire harness pulling test





Example System for inspecting air leaks in sweet bread packaging

## 2 Reasonable cost

Equipped with a stepper motor, it is less than half the cost of an IAI servo press.

## 3 Lineup

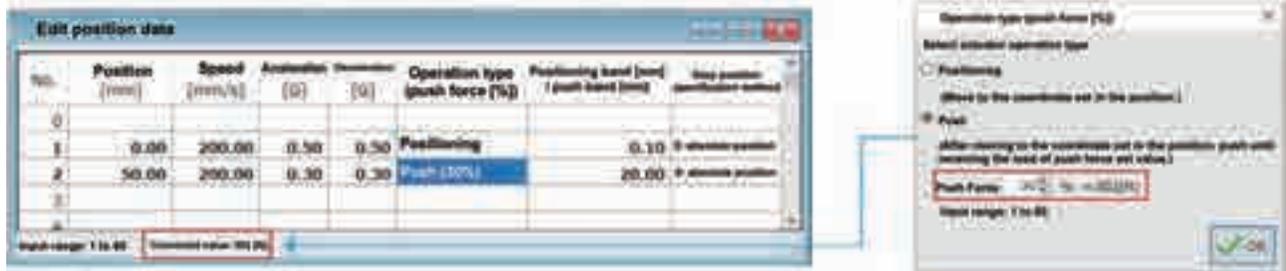
Select from several types based on use (push force from 60N to 2,000N).

RCP6-RRA4R	60N~300N
RCP6-RRA6R	60N~600N
RCP6-RRA7R	200N~2,000N

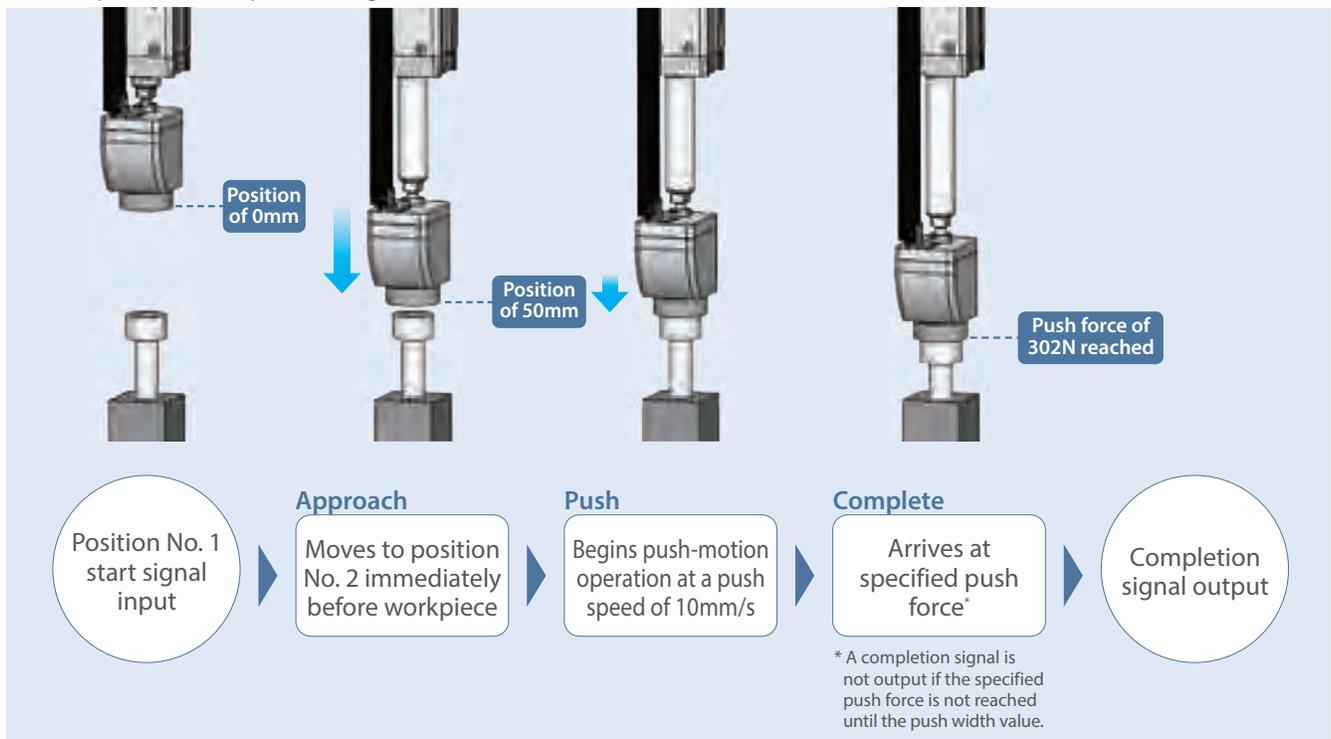
# Easy setup using a dedicated tool

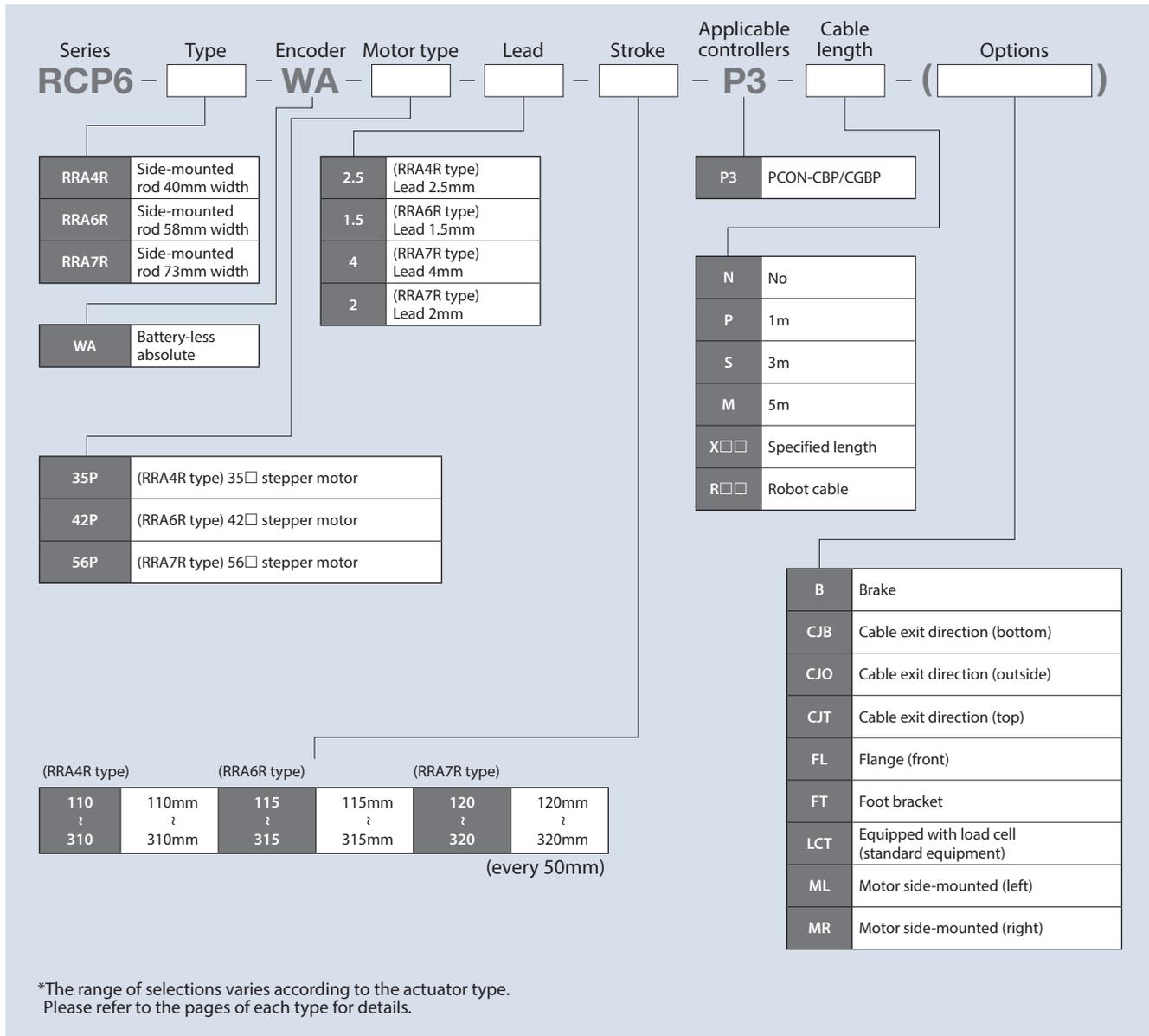
Pushing/pulling can easily be setup using the PC teaching software or teaching pendant.

## ■ PC teaching software (screenshot)



## ■ Example of washer press fitting





Specification Table

Type	Stroke (mm) and max speed (mm/s)							Lead (mm)	Max. push/pull force (N)	Payload (kg)		Reference page
	* Length of band = Stroke (*Numbers in band = Maximum speed by stroke)									Horizontal	Vertical	
	110	115	120	- Stroke can be selected in 50mm units -		310	315					
RRA4R	200							2.5	300	3	3	P5
RRA6R	110							1.5	600	10	10	P9
RRA7R	160							4	1,000	10	10	P13
	85							2	2,000	10	10	

# RCP6-RRA4R

(Pulse press specification)

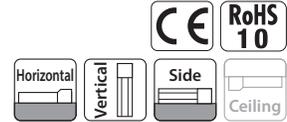


## Model Specification Items

<b>RCP6</b>	<b>RRA4R</b>	<b>WA</b>	<b>35P</b>	<b>2.5</b>		<b>P3</b>		
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controllers	Cable length	Option
		WA Battery-less absolute	35P Stepper motor 35□ size	2.5 2.5mm	110 110mm 310 310mm (every 50mm)	P3 PCON	N No P 1m S 3m M 5m X□ Specified length R□ Robot cable	Refer to Options below.



(Note) The figure above is the motor side-mounted to left (ML).



**POINT Selection Notes**

- There are no limitations on the continuous push time or continuous pull time.
- Continuous operation is possible at a duty ratio of 100%.
- Pay close attention to the mounting method of the body. Please refer to P. 20 for details.
- Pay close attention to the mounting orientation. Please refer to P. 20 for details.
- Please refer to P. 20 for information on load cells.

Stroke	
Stroke (mm)	RCP6-RRA4R
110	<input type="radio"/>
160	<input type="radio"/>
210	<input type="radio"/>
260	<input type="radio"/>
310	<input type="radio"/>

Options * Please check the Options reference pages to confirm each option.		
Name	Option code	Reference page
Brake (Note 1)	<b>B</b>	17
Cable exit direction (bottom) (Note 1, 2)	<b>CJB</b>	17
Cable exit direction (outside) (Note 1)	<b>CJO</b>	17
Cable exit direction (top) (Note 1)	<b>CJT</b>	17
Flange (front) (Note 1)	<b>FL</b>	17
Foot bracket (Note 2, 3)	<b>FT</b>	18
Equipped with load cell (standard equipment) (Note 4)	<b>LCT</b>	18
Motor side-mounted (left) (Note 5)	<b>ML</b>	18
Motor side-mounted (right) (Note 5)	<b>MR</b>	18

- (Note 1) Cable exit direction (CJB/CJO/CJT) and flange (front) (FL) cannot be selected when selecting brake (B) with a stroke of 110mm.  
 (Note 2) Foot bracket (FT) cannot be selected when selecting cable exit direction (bottom) (CJB).  
 (Note 3) Please refer to P. 18 for the number of brackets included.  
 (Note 4) Be sure to enter a selection in the options section of the model number.  
 (Note 5) Be sure to enter a code in the options section of the model number.

Cable Length		
Type	Cable code	P3
Standard type	<b>P</b> (1m)	<input type="radio"/>
	<b>S</b> (3m)	<input type="radio"/>
	<b>M</b> (5m)	<input type="radio"/>
Specified length	<b>X06</b> (6m) ~ <b>X10</b> (10m)	<input type="radio"/>
	<b>X11</b> (11m) ~ <b>X15</b> (15m)	<input type="radio"/>
	<b>X16</b> (16m) ~ <b>X20</b> (20m)	<input type="radio"/>
Robot cable	<b>R01</b> (1m) ~ <b>R03</b> (3m)	<input type="radio"/>
	<b>R04</b> (4m) ~ <b>R05</b> (5m)	<input type="radio"/>
	<b>R06</b> (6m) ~ <b>R10</b> (10m)	<input type="radio"/>
	<b>R11</b> (11m) ~ <b>R15</b> (15m)	<input type="radio"/>
	<b>R16</b> (16m) ~ <b>R20</b> (20m)	<input type="radio"/>

Main Specifications

Item		Description
Lead	Ball screw lead (mm)	2.5
Horizontal	Payload	Maximum payload (kg) (high-output enabled)
		Maximum payload (kg) (high-output disabled)
	Speed / acceleration / deceleration	Max. speed (mm/s)
Vertical	Payload	Maximum payload (kg) (high-output enabled)
		Maximum payload (kg) (high-output disabled)
	Speed / acceleration / deceleration	Max. speed (mm/s)
Push	Max. push force (N)	300
	Min. push force (N)	60
	Max. push speed (mm/s)	10
Pull	Max. pull force (N)	300
	Min. pull force (N)	60
	Max. pull speed (mm/s)	10
Brake	Brake specification	Non-excitation actuating solenoid brake
	Brake holding force (kg)	3
Stroke	Min. stroke (mm)	110
	Max. stroke (mm)	310
	Stroke pitch (mm)	50

Item	Description
Drive system	Ball screw, φ8mm, rolled C10
Positioning repeatability	±0.02mm
Lost motion	0.1mm or less
Load cell rated capacity	600N
Loading repeatability (Note 6)	±1.0% F.S. (Note 7)
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (no condensation)
Ingress protection	IP20
Vibration & shock resistance	4.9m/s <sup>2</sup>
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor
Encoder type	Battery-less absolute
Number of encoder pulses	8192 pulse/rev

(Note 6) Ratio (in percentage) of the load variations caused by the repeated operations to the load cell rated capacity.

(Note 7) F.S.: Full Scale, the maximum measurable value.

Tables of Payload by Speed/Acceleration

High-output setting enabled (the unit for payload is kg)

Orientation	Horizontal	Vertical
	Acceleration (G)	
Speed (mm/s)	0.5	0.5
0	3	3
40	3	3
85	3	3
130	3	3
150	3	3
200	3	3

High-output setting disabled (the unit for payload is kg)

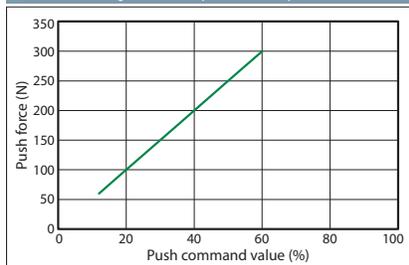
Orientation	Horizontal	Vertical
	Acceleration (G)	
Speed (mm/s)	0.5	0.5
0	3	3
40	3	3
85	3	3
130	3	3
150	3	3

Stroke and Max Speed

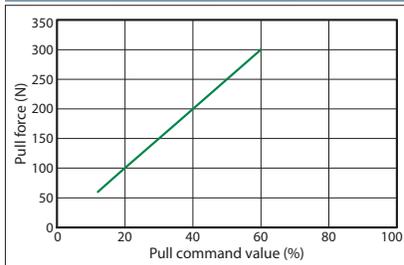
High-output setting	Stroke (mm)				
	110	160	210	260	310
Enabled	200				
Disabled	150				

(Unit: mm/s)

Correlation diagram between push force and push command value

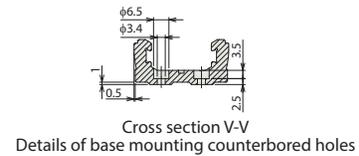
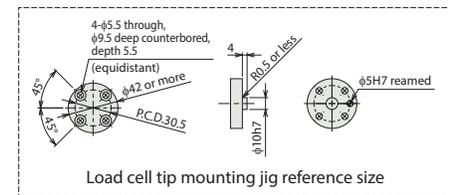
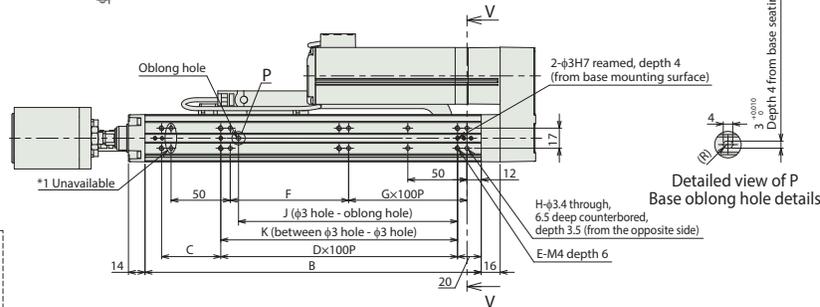
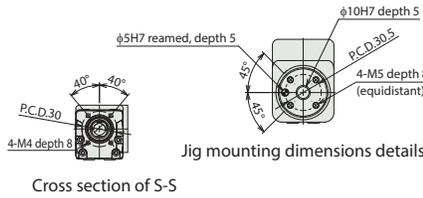
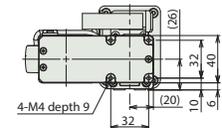
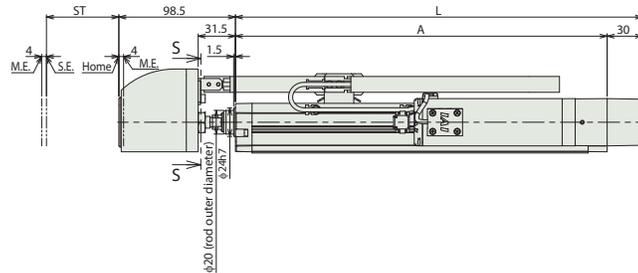
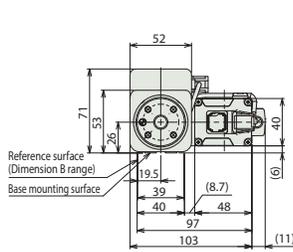
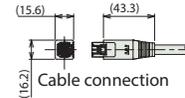
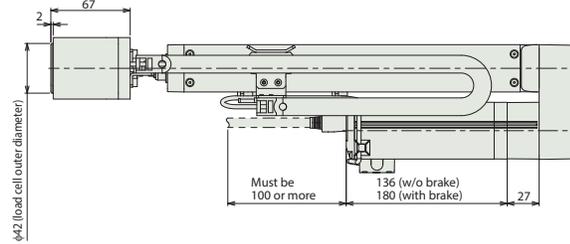
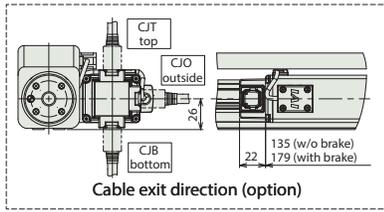


Correlation diagram between pull force and pull command value



\*1 The 2 counterbored mounting holes shown in the figure cannot be used.  
 (Note) When returning to the home position, the rod will move to the M.E. Be careful of interference with surrounding objects.

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



### Dimensions by stroke

Stroke	110	160	210	260	310
L	244	294	344	394	444
A	214	264	314	364	414
B	184	234	284	334	384
C	50	100	50	100	50
D	1	1	2	2	3
E	6	6	8	8	10
F	100	50	100	50	100
G	0	1	1	2	2
H	8	10	10	12	12
J	85	85	185	185	285
K	100	100	200	200	300

### Mass by stroke

Stroke	110	160	210	260	310	
Mass (kg)	Without brake	2.2	2.3	2.4	2.6	2.7
	With brake	2.4	2.5	2.7	2.8	2.9

### Applicable Controllers

The actuators on this page can be operated by the controllers indicated below. Please select the type depending on your intended use.

Name	External view	Maximum number of connectable axes	Power supply voltage	Control method													Maximum number of positioning points	Reference page		
				Positioner	Pulse-train	Program	Network (*selection)													
PCON-CBP/CGBP		1	24VDC	●	-	-	●	●	●	●	●	●	-	●	●	●	-	-	512 (768 for network spec.)	21

(Note) Please refer to P. 8-17 of the General Catalog 2021 for information on network abbreviation codes such as DV and CC.



# RCP6-RAA6R

(Pulse press specification)

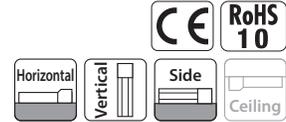


## Model Specification Items

<b>RCP6</b>	<b>RAA6R</b>	<b>WA</b>	<b>42P</b>	<b>1.5</b>		<b>P3</b>		
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controllers	Cable length	Option
		WA Battery-less absolute	42P Stepper motor 42□ size	1.5 1.5mm	115 115mm 315 315mm (every 50mm)	P3 PCON	N No P 1m S 3m M 5m X□ Specified length R□ Robot cable	Refer to Options below.



(Note) The figure above is the motor side-mounted to left (ML).



POINT  
Selection Notes

- (1) There are no limitations on the continuous push time or continuous pull time.
- (2) Continuous operation is possible at a duty ratio of 100%.
- (3) Pay close attention to the mounting method of the body. Please refer to P. 20 for details.
- (4) Pay close attention to the mounting orientation. Please refer to P. 20 for details.
- (5) Please refer to P. 20 for information on load cells.

Stroke	
Stroke (mm)	RCP6-RAA6R
115	○
165	○
215	○
265	○
315	○

Options * Please check the Options reference pages to confirm each option.			
Name	Option code	Reference page	
Brake	<b>B</b>	17	
Cable exit direction (bottom) (Note 1)	<b>CJB</b>	17	
Cable exit direction (outside)	<b>CJO</b>	17	
Cable exit direction (top)	<b>CJT</b>	17	
Flange (front)	<b>FL</b>	17	
Foot bracket (Note 1, 2)	<b>FT</b>	18	
Equipped with load cell (standard equipment) (Note 3)	<b>LCT</b>	18	
Motor side-mounted (left) (Note 4)	<b>ML</b>	18	
Motor side-mounted (right) (Note 4)	<b>MR</b>	18	

(Note 1) Foot bracket (FT) cannot be selected when selecting cable exit direction (bottom) (CJB).

(Note 2) Please refer to P. 18 for the number of brackets included.

(Note 3) Be sure to enter a selection in the options section of the model number.

(Note 4) Be sure to enter a code in the options section of the model number.

Cable Length		
Type	Cable code	P3
Standard type	<b>P</b> (1m)	○
	<b>S</b> (3m)	○
	<b>M</b> (5m)	○
Specified length	<b>X06</b> (6m) ~ <b>X10</b> (10m)	○
	<b>X11</b> (11m) ~ <b>X15</b> (15m)	○
	<b>X16</b> (16m) ~ <b>X20</b> (20m)	○
	<b>R01</b> (1m) ~ <b>R03</b> (3m)	○
Robot cable	<b>R04</b> (4m) ~ <b>R05</b> (5m)	○
	<b>R06</b> (6m) ~ <b>R10</b> (10m)	○
	<b>R11</b> (11m) ~ <b>R15</b> (15m)	○
	<b>R16</b> (16m) ~ <b>R20</b> (20m)	○

Main Specifications

Item		Description	
Lead	Ball screw lead (mm)	1.5	
Horizontal	Payload	Maximum payload (kg) (high-output enabled)	10
		Maximum payload (kg) (high-output disabled)	10
	Speed / acceleration / deceleration	Max. speed (mm/s)	110
		Rated acceleration/deceleration (G)	0.3
		Max. acceleration/deceleration (G)	0.3
Vertical	Payload	Maximum payload (kg) (high-output enabled)	10
		Maximum payload (kg) (high-output disabled)	10
	Speed / acceleration / deceleration	Max. speed (mm/s)	110
		Rated acceleration/deceleration (G)	0.3
		Max. acceleration/deceleration (G)	0.3
Push		Max. push force (N)	600
		Min. push force (N)	60
		Max. push speed (mm/s)	10
Pull		Max. pull force (N)	600
		Min. pull force (N)	60
		Max. pull speed (mm/s)	10
Brake	Brake specification	Non-excitation actuating solenoid brake	
	Brake holding force (kg)	10	
Stroke		Min. stroke (mm)	115
		Max. stroke (mm)	315
		Stroke pitch (mm)	50

Item	Description
Drive system	Ball screw, φ10mm, rolled C10
Positioning repeatability	±0.02mm
Lost motion	0.1mm or less
Load cell rated capacity	600N
Loading repeatability (Note 6)	±1.0% F.S. (Note 7)
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (no condensation)
Ingress protection	IP20
Vibration & shock resistance	4.9m/s <sup>2</sup>
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor
Encoder type	Battery-less absolute
Number of encoder pulses	8192 pulse/rev

(Note 6) Ratio (in percentage) of the load variations caused by the repeated operations to the load cell rated capacity.

(Note 7) F.S.: Full Scale, the maximum measurable value.

Tables of Payload by Speed/Acceleration

■ High-output setting enabled (the unit for payload is kg)

Orientation	Horizontal	Vertical
	Acceleration (G)	
Speed (mm/s)	0.3	0.3
0	10	10
35	10	10
70	10	10
100	10	10
110	10	10

■ High-output setting disabled (the unit for payload is kg)

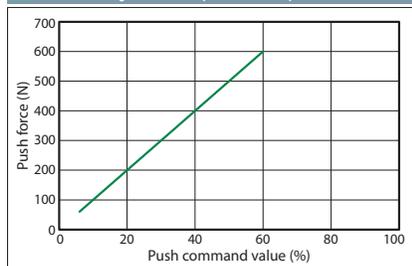
Orientation	Horizontal	Vertical
	Acceleration (G)	
Speed (mm/s)	0.3	0.3
0	10	10
35	10	10
80	10	10

Stroke and Max Speed

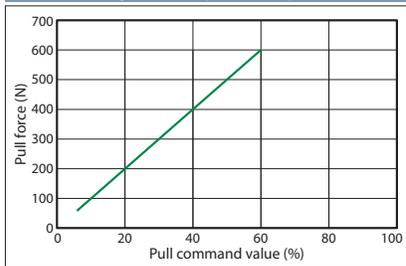
High-output setting	Stroke (mm)				
	115	165	215	265	315
Enabled	110				
Disabled	80				

(Unit: mm/s)

Correlation diagram between push force and push command value



Correlation diagram between pull force and pull command value







# RCP6-RAA7R

(Pulse press specification)



## Model Specification Items

<b>RCP6</b>	<b>RAA7R</b>	<b>WA</b>	<b>56P</b>			<b>P3</b>		
Series	Type	Encoder type	Motor type	Lead	Stroke	Applicable controllers	Cable length	Option
		WA Battery-less absolute	56P Stepper motor 56□ size	4 4mm 2 2mm	120 120mm 320 320mm (every 50mm)	P3 PCON	N No P 1m S 3m M 5m X□ Specified length R□ Robot cable	Refer to Options below.



(Note) The figure above is the motor side-mounted to left (ML).



**POINT Selection Notes**

- (1) There are no limitations on the continuous push time or continuous pull time.
- (2) Continuous operation is possible at a duty ratio of 100%.
- (3) Pay close attention to the mounting method of the body. Please refer to P. 20 for details.
- (4) Pay close attention to the mounting orientation. Please refer to P. 20 for details.
- (5) Please refer to P. 20 for information on load cells.

Stroke (mm)	RCP6-RAA7R	
	Lead 4 (1000N)	Lead 2 (2000N)
120	<input type="radio"/>	<input type="radio"/>
170	<input type="radio"/>	<input type="radio"/>
220	<input type="radio"/>	<input type="radio"/>
270	<input type="radio"/>	<input type="radio"/>
320	<input type="radio"/>	<input type="radio"/>

Options * Please check the Options reference pages to confirm each option.			
Name	Option code	Reference page	
Brake	<b>B</b>	17	
Cable exit direction (bottom) (Note 1)	<b>CJB</b>	17	
Cable exit direction (outside)	<b>CJO</b>	17	
Cable exit direction (top)	<b>CJT</b>	17	
Flange (front)	<b>FL</b>	17	
Foot bracket (Note 1, 2)	<b>FT</b>	18	
Equipped with load cell (standard equipment) (Note 3)	<b>LCT</b>	18	
Motor side-mounted (left) (Note 4)	<b>ML</b>	18	
Motor side-mounted (right) (Note 4)	<b>MR</b>	18	

(Note 1) Foot bracket (FT) cannot be selected when selecting cable exit direction (bottom) (CJB).  
 (Note 2) Please refer to P. 18 for the number of brackets included.  
 (Note 3) Be sure to enter a selection in the options section of the model number.  
 (Note 4) Be sure to enter a code in the options section of the model number.

Type	Cable code	P3
Standard type	<b>P</b> (1m)	<input type="radio"/>
	<b>S</b> (3m)	<input type="radio"/>
	<b>M</b> (5m)	<input type="radio"/>
Specified length	<b>X06</b> (6m) ~ <b>X10</b> (10m)	<input type="radio"/>
	<b>X11</b> (11m) ~ <b>X15</b> (15m)	<input type="radio"/>
	<b>X16</b> (16m) ~ <b>X20</b> (20m)	<input type="radio"/>
Robot cable	<b>R01</b> (1m) ~ <b>R03</b> (3m)	<input type="radio"/>
	<b>R04</b> (4m) ~ <b>R05</b> (5m)	<input type="radio"/>
	<b>R06</b> (6m) ~ <b>R10</b> (10m)	<input type="radio"/>
	<b>R11</b> (11m) ~ <b>R15</b> (15m)	<input type="radio"/>
	<b>R16</b> (16m) ~ <b>R20</b> (20m)	<input type="radio"/>

Main Specifications

		Item	Description	
Lead		Ball screw lead (mm)	4	2
Horizontal	Payload	Maximum payload (kg) (high-output enabled)	10	10
		Maximum payload (kg) (high-output disabled)	10	10
	Speed / acceleration/ deceleration	Max. speed (mm/s)	160	85
		Rated acceleration/deceleration (G)	0.3	0.3
Vertical	Payload	Maximum payload (kg) (high-output enabled)	10	10
		Maximum payload (kg) (high-output disabled)	10	10
	Speed / acceleration/ deceleration	Max. speed (mm/s)	160	85
		Rated acceleration/deceleration (G)	0.3	0.3
Push		Max. acceleration/deceleration (G)	0.3	0.3
		Max. push force (N)	1000	2000
		Min. push force (N)	200	200
Pull		Max. push speed (mm/s)	10	10
		Max. pull force (N)	1000	2000
		Min. pull force (N)	200	200
Brake		Max. pull speed (mm/s)	10	10
		Brake specification	Non-excitation actuating solenoid brake	
		Brake holding force (kg)	10	10
Stroke		Min. stroke (mm)	120	120
		Max. stroke (mm)	320	320
		Stroke pitch (mm)	50	50

Item	Description
Drive system	Ball screw, φ12mm, rolled C10
Positioning repeatability	±0.02mm
Lost motion	0.1mm or less
Load cell rated capacity	2000N
Loading repeatability (Note 6)	±1.0% F.S. (Note 7)
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (no condensation)
Ingress protection	IP20
Vibration & shock resistance	4.9m/s <sup>2</sup>
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor
Encoder type	Battery-less absolute
Number of encoder pulses	8192 pulse/rev

(Note 6) Ratio (in percentage) of the load variations caused by the repeated operations to the load cell rated capacity.  
 (Note 7) F.S.: Full Scale, the maximum measurable value.

Tables of Payload by Speed/Acceleration

■ High-output setting enabled (the unit for payload is kg)

Lead 4 (1000N)

Orientation	Horizontal	Vertical
	Acceleration (G)	
Speed (mm/s)	0.3	0.3
0	10	10
35	10	10
70	10	10
115	10	10
160	10	10

Lead 2 (2000N)

Orientation	Horizontal	Vertical
	Acceleration (G)	
Speed (mm/s)	0.3	0.3
0	10	10
35	10	10
70	10	10
85	10	10

■ High-output setting disabled (the unit for payload is kg)

Lead 4 (1000N)

Orientation	Horizontal	Vertical
	Acceleration (G)	
Speed (mm/s)	0.3	0.3
0	10	10
35	10	10
70	10	10
115	10	10

Lead 2 (2000N)

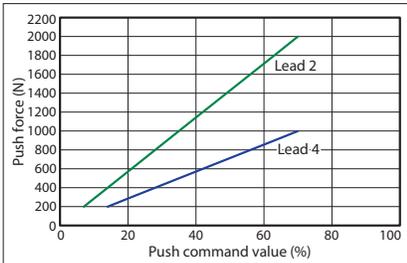
Orientation	Horizontal	Vertical
	Acceleration (G)	
Speed (mm/s)	0.3	0.3
0	10	10
35	10	10
60	10	10

Stroke and Max Speed

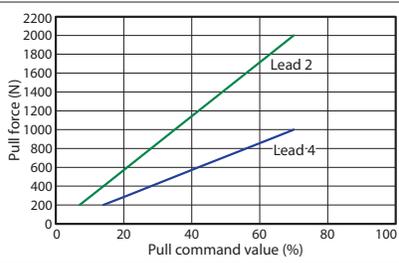
Lead (mm)	Push force Pull force	High-output setting	Stroke (mm)				
			120	170	220	270	320
4	1000N	Enabled	160				
		Disabled	115				
2	2000N	Enabled	85				
		Disabled	60				

(Unit: mm/s)

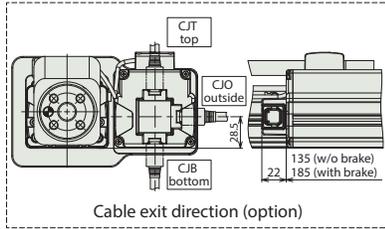
Correlation diagram between push force and push command value



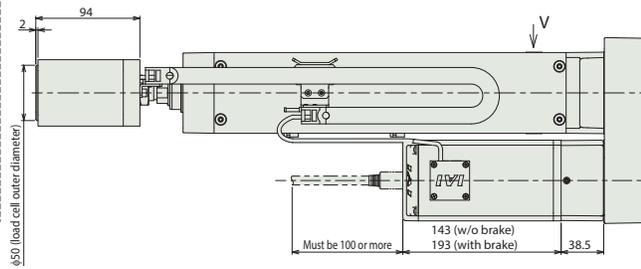
Correlation diagram between pull force and pull command value



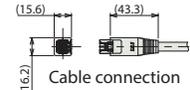
(Note) When returning to the home position, the rod will move to the M.E. Be careful of interference with surrounding objects.



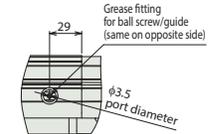
Cable exit direction (option)



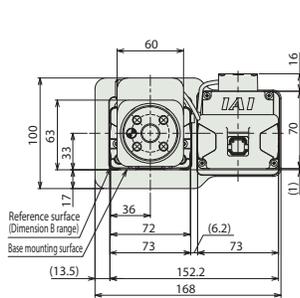
ST: Stroke  
M.E: Mechanical end  
S.E: Stroke end



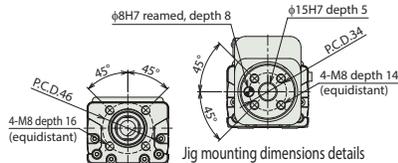
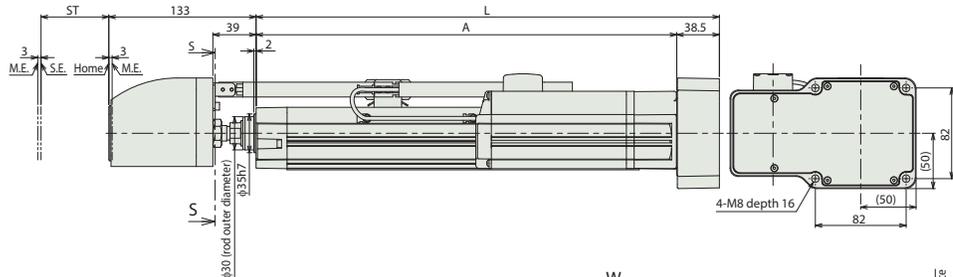
Cable connection



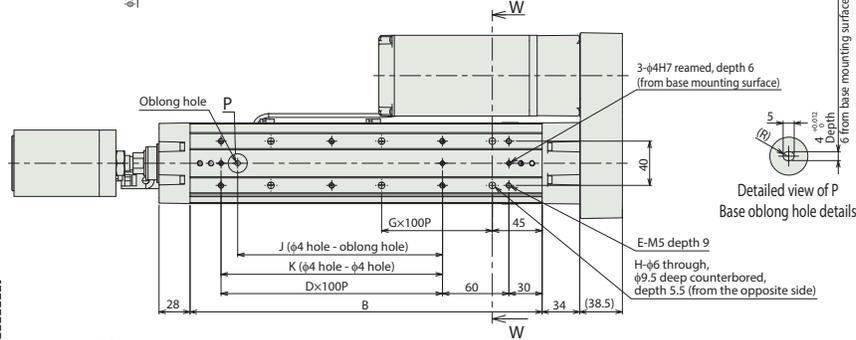
Arrow view V  
Greasing port



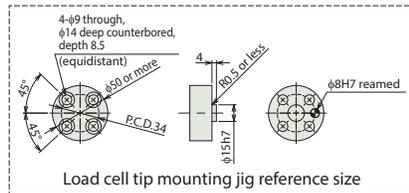
Reference surface  
(Dimension B range)  
Base mounting surface



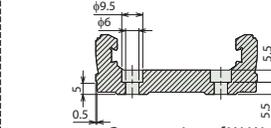
Cross section of S-S



Detailed view of P  
Base oblong hole details



Load cell tip mounting jig reference size



Cross section of W-W  
Details of base mounting counterbored holes

Dimensions by stroke

Stroke	120	170	220	270	320
L	318.5	368.5	418.5	468.5	518.5
A	280	330	380	430	480
B	218	268	318	368	418
D	1	1	2	2	3
E	6	6	8	8	10
G	1	2	2	3	3
H	4	6	6	8	8
J	85	85	185	185	285
K	100	100	200	200	300

Mass by stroke

Mass (kg)	Stroke		120	170	220	270	320
	Without brake	With brake	6.0	6.3	6.6	6.9	7.2
			6.6	6.9	7.2	7.5	7.8

Applicable Controllers

The actuators on this page can be operated by the controllers indicated below. Please select the type depending on your intended use.

Name	External view	Maximum number of connectable axes	Power supply voltage	Control method											Maximum number of positioning points	Reference page				
				Positioner	Pulse-train	Program	Network (*selection)													
PCON-CBP/CGBP		1	24VDC	●	-	-	DV	CC	CIE	PR	CN	ML	ML3	EC	EP	PRT	SSN	ECM	512 (768 for network spec.)	21

(Note) Please refer to P. 8-17 of the General Catalog 2021 for information on network abbreviation codes such as DV and CC.



# Options

## Brake

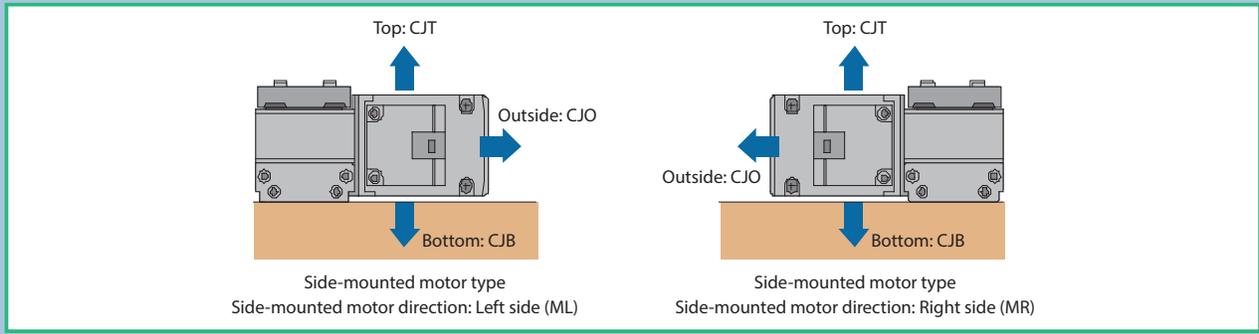
**Model** B

**Description** When the actuator is mounted vertically, this works as a holding mechanism that prevents the rod from falling and damaging any attachments when the power or servo is turned off.

## Cable exit direction

**Model** CJT / CJB / CJO

**Description** This option allows the exit direction of the motor-encoder cable to be changed to top, bottom, or outside.

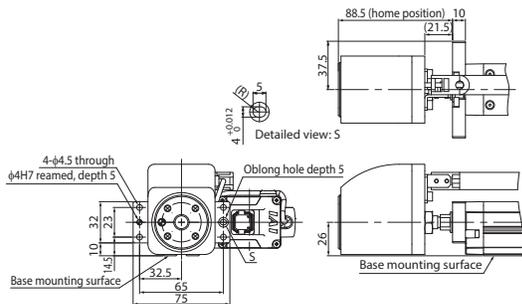


## Flange (front)

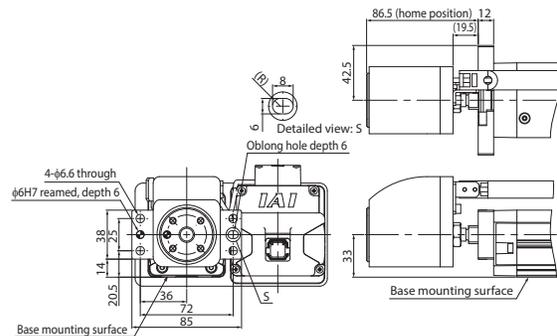
**Model** FL

**Description** This bracket is used for mounting the actuator body side with bolts.

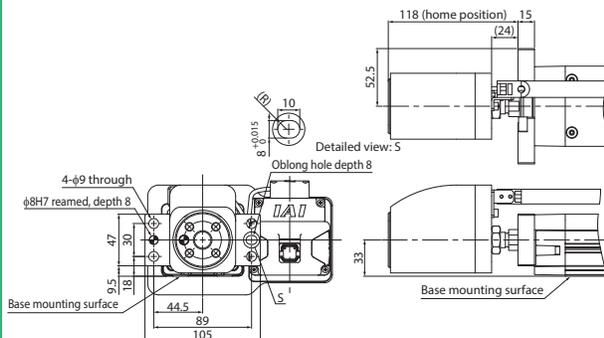
RCP6-RR4R(LCT)  
Individual model number: RCP6L-FL-RR4 (Note 1)  
(Individual weight: 0.14kg / Material: Steel)



RCP6-RR6R(LCT)  
Individual model number: RCP6L-FL-RR6 (Note 1)  
(Individual weight: 0.20kg / Material: Steel)



RCP6-RR7R(LCT)  
Individual model number: RCP6L-FL-RR7 (Note 1)  
(Individual weight: 0.36kg / Material: Steel)



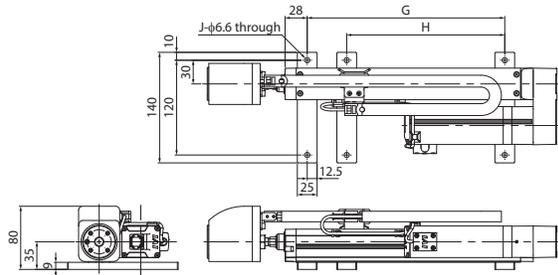
(Note 1) 4 hex socket bolts enclosed

**Foot bracket****Model FT**

**Description** This bracket is used for mounting the actuator body from the top with bolts. The actuator body may be twisted or deformed if an insufficient number of mounting foot brackets are used. Actuator life could also be shortened.  
\* Refer to the installation dimensions in the actuator drawing for the installation pitch between the foot brackets.

**RCP6-RAA4R**

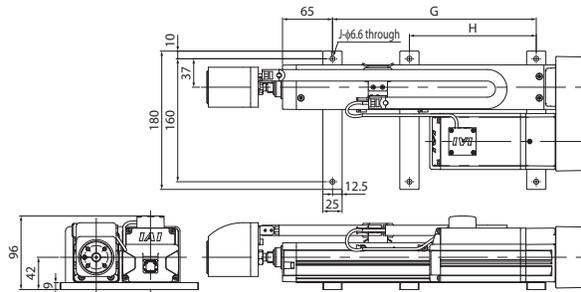
Individual model number: RCS3-FT-RA4-2 (Note 1)



ST	G	H	J	"FT" selected as option	
				No. of foot brackets	Number of hex socket bolts enclosed
110	150	0	4	2	4
160	200	0	4	2	4
210	250	200	6	3	6
260	300	200	6	3	6
310	350	200	6	3	6

**RCP6-RAA6R**

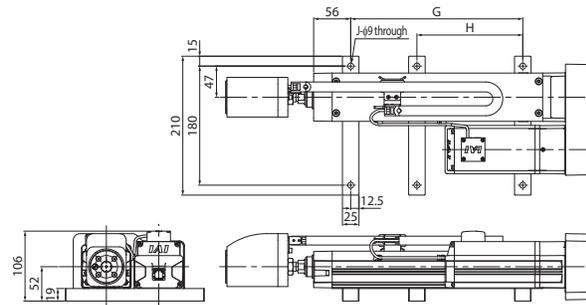
Individual model number: RCS3-FT-RA6-2 (Note 1)



ST	G	H	J	"FT" selected as option	
				No. of foot brackets	Number of hex socket bolts enclosed
115	165	0	4	2	4
165	165	0	4	2	4
215	265	165	6	3	6
265	265	165	6	3	6
315	365	165	6	3	6

**RCP6-RAA7R**

Individual model number: RCS3-FT-RA7-2 (Note 1)



ST	G	H	J	"FT" selected as option	
				No. of foot brackets	Number of hex socket bolts enclosed
120	160	0	4	2	4
170	160	0	4	2	4
220	260	160	6	3	6
270	260	160	6	3	6
320	360	160	6	3	6

(Note 1) 2 hex socket bolts enclosed

**Equipped with load cell****Model LCT**

**Description** This option installs a load cell to the rod tip and operates with force control.  
\*LCT must be selected for pulse press.

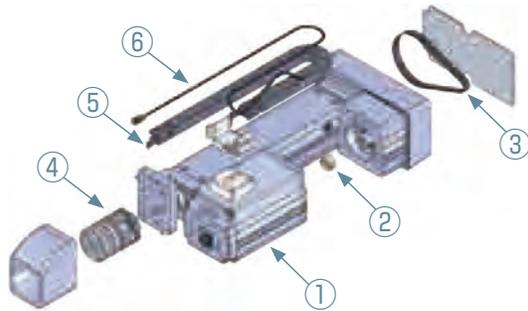
**Motor side-mounted direction****Model ML / MR**

**Description** This code is for specifying the motor side-mounted direction. Side-mounted to left is ML and right is MR.



# Maintenance parts

## Maintenance part schematics



- ① Motor unit
- ② Coupling spacer
- ③ Timing belt
- ④ Load cell unit
- ⑤ Cable track assembly
- ⑥ Load cell cable assembly

\* Please refer to the dimensions on the product pages for the direction and dimensions when selecting the cable exit direction option.

## Maintenance part model list

The numbers in the tables match the numbers in the schematics.

### ① Motor unit

Type	Motor side-mounted direction	Cable exit direction	① Motor unit model	
			Without brake	With brake
RRA4R	Left/right same	Not specified	RCP6-MUPP4R	RCP6-MUPP4R-B
		Bottom	RCP6-MUPP4R-CJB-ML	RCP6-MUPP4R-B-CJB-ML
		Outside	RCP6-MUPP4R-CJO-ML	RCP6-MUPP4R-B-CJO-ML
	Left side	Top	RCP6-MUPP4R-CJT-ML	RCP6-MUPP4R-B-CJT-ML
		Bottom	RCP6-MUPP4R-CJB-MR	RCP6-MUPP4R-B-CJB-MR
		Outside	RCP6-MUPP4R-CJO-MR	RCP6-MUPP4R-B-CJO-MR
Right side	Top	RCP6-MUPP4R-CJT-MR	RCP6-MUPP4R-B-CJT-MR	
	Not specified	RCP6-MUPP6R-ML	RCP6-MUPP6R-B-ML	
	Bottom	RCP6-MUPP6R-CJB-ML	RCP6-MUPP6R-B-CJB-ML	
RRA6R	Left side	Outside	RCP6-MUPP6R-CJO-ML	RCP6-MUPP6R-B-CJO-ML
		Top	RCP6-MUPP6R-CJT-ML	RCP6-MUPP6R-B-CJT-ML
		Not specified	RCP6-MUPP6R-MR	RCP6-MUPP6R-B-MR
	Right side	Bottom	RCP6-MUPP6R-CJB-MR	RCP6-MUPP6R-B-CJB-MR
		Outside	RCP6-MUPP6R-CJO-MR	RCP6-MUPP6R-B-CJO-MR
		Top	RCP6-MUPP6R-CJT-MR	RCP6-MUPP6R-B-CJT-MR
RRA7R	Left side	Not specified	RCP6-MUPP7R-ML	RCP6-MUPP7R-B-ML
		Bottom	RCP6-MUPP7R-CJB-ML	RCP6-MUPP7R-B-CJB-ML
		Outside	RCP6-MUPP7R-CJO-ML	RCP6-MUPP7R-B-CJO-ML
		Top	RCP6-MUPP7R-CJT-ML	RCP6-MUPP7R-B-CJT-ML
	Right side	Not specified	RCP6-MUPP7R-MR	RCP6-MUPP7R-B-MR
		Bottom	RCP6-MUPP7R-CJB-MR	RCP6-MUPP7R-B-CJB-MR
		Outside	RCP6-MUPP7R-CJO-MR	RCP6-MUPP7R-B-CJO-MR
		Top	RCP6-MUPP7R-CJT-MR	RCP6-MUPP7R-B-CJT-MR

### ② Coupling spacer

Type	② Coupling spacer model
RRA4R	CPG-RCP6-S
RRA6R	
RRA7R	CPG-RCP6-M

### ③ Timing belt

Type	③ Timing belt model
RRA4R	TB-RCS3-RA4R
RRA6R	TB-RCS3-RA6R
RRA7R	TB-RCS3-RA7R

### ④ Load cell unit

Type	④ Load cell model
RRA4R	K-TIAI/600N1-1-PT
RRA6R	
RRA7R	K-TIAI/2KN1-1-PT

### ⑤ Cable track assembly

Type	Stroke	⑤ Cable track assembly model
RRA4R	110mm	CVR-P6PP-16
	160mm	CVR-P6PP-18
	210mm	CVR-P6PP-23
	260mm	CVR-P6PP-28
	310mm	CVR-P6PP-31
RRA6R	115mm	CVR-P6PP-18
	165mm	
	215mm	CVR-P6PP-23
	265mm	CVR-P6PP-28
	315mm	CVR-P6PP-33
RRA7R	120mm	CVR-P6PP-18
	170mm	CVR-P6PP-23
	220mm	
	270mm	CVR-P6PP-28
	320mm	CVR-P6PP-33

### ⑥ Load cell cable assembly

Type	Stroke	⑥ Load cell cable assembly model
RRA4R	110mm	CB-P6PP-LDC006
	160mm	CB-P6PP-LDC007
	210mm	CB-P6PP-LDC008
	260mm	CB-P6PP-LDC009
	310mm	CB-P6PP-LDC010
RRA6R	115mm	CB-P6PP-LDC006
	165mm	CB-P6PP-LDC007
	215mm	CB-P6PP-LDC008
	265mm	CB-P6PP-LDC009
	315mm	CB-P6PP-LDC010
RRA7R	120mm	CB-P6PP-LDC006
	170mm	CB-P6PP-LDC008
	220mm	
	270mm	CB-P6PP-LDC009
	320mm	CB-P6PP-LDC010

# Mounting orientation and load cell handling precautions

## Mounting orientation

Horizontal mounting on flat surface



Vertical mounting



Horizontal mounting to side



Horizontal mounting suspended

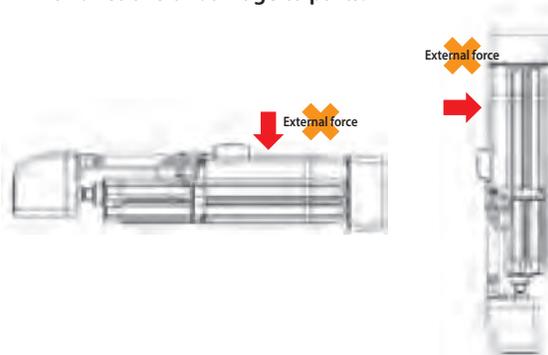


- Keep the body installation surface and workpiece mounting surface flatness at 0.05mm/m or lower. Uneven flatness will increase the sliding resistance of the slider and may cause a malfunction.

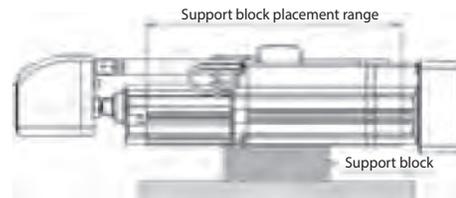
## Precautions for installation

Keep the following in mind when using a screw hole or foot bracket to fix in place.

- 1 Do not attempt to apply any external force to the body of ROBO Cylinder. External force may cause malfunctions or damage to parts.

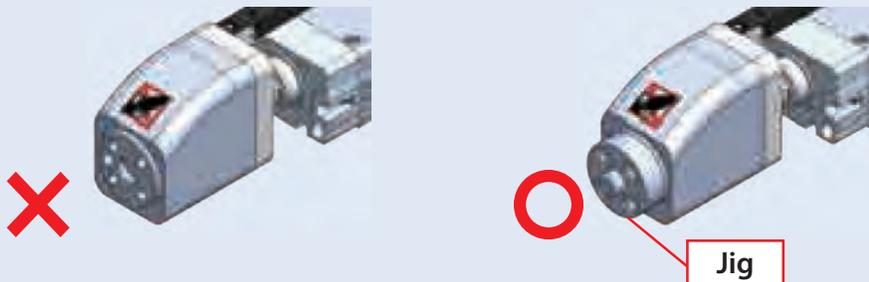


- 2 Prepare a support block as shown in the figure below when fixing the base seating surface horizontally, even if there is no external force applied on the body.



## Load cell handling precautions

- Never push/pull during positioning operations. Doing so will damage the load cell.
- Use with a jig mounted to the load cell.



- Do not apply a radial load or moment load to the body of the load cell.
- Do not subject the body of the load cell to collisions or other shocks exceeding the specified value. Be especially careful not to mistakenly collide with the load cell during mounting.
- Be careful not to hold the product by the load cell when transporting it.
- The load cell must be periodically calibrated. Please refer to the instruction manual for information on calibration.

# PCON-CBP



Pulse press dedicated controller



(\*1)

(\*1) CC-Link IE Field and MECHATROLINK-I/II connection specifications are not CE Marking compliant

## Features

### 1 High resolution battery-less absolute encoder support

Pulse press specification actuators are equipped with high resolution battery-less absolute encoders. As no battery is needed for retaining position data, it is possible to save space around the control panel, which helps to keep down the cost of the equipment.



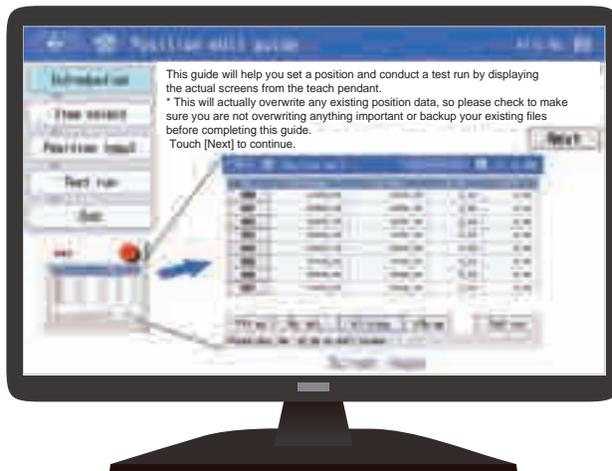
### 2 Supports force control using a load cell

The current load value can be read from the load cell. Load directions are supported from either press fitting or pulling, and can be easily switched out by specifying position data.

### 3 N unit display support for target loads

Position data pushing (%) is displayed as a converted target load (N). If the collision detection function is disabled, a converted "N" value is also displayed for the threshold (%).

[PC-compatible teaching software]



IA-OS: Position editing screen

[Teaching pendant]



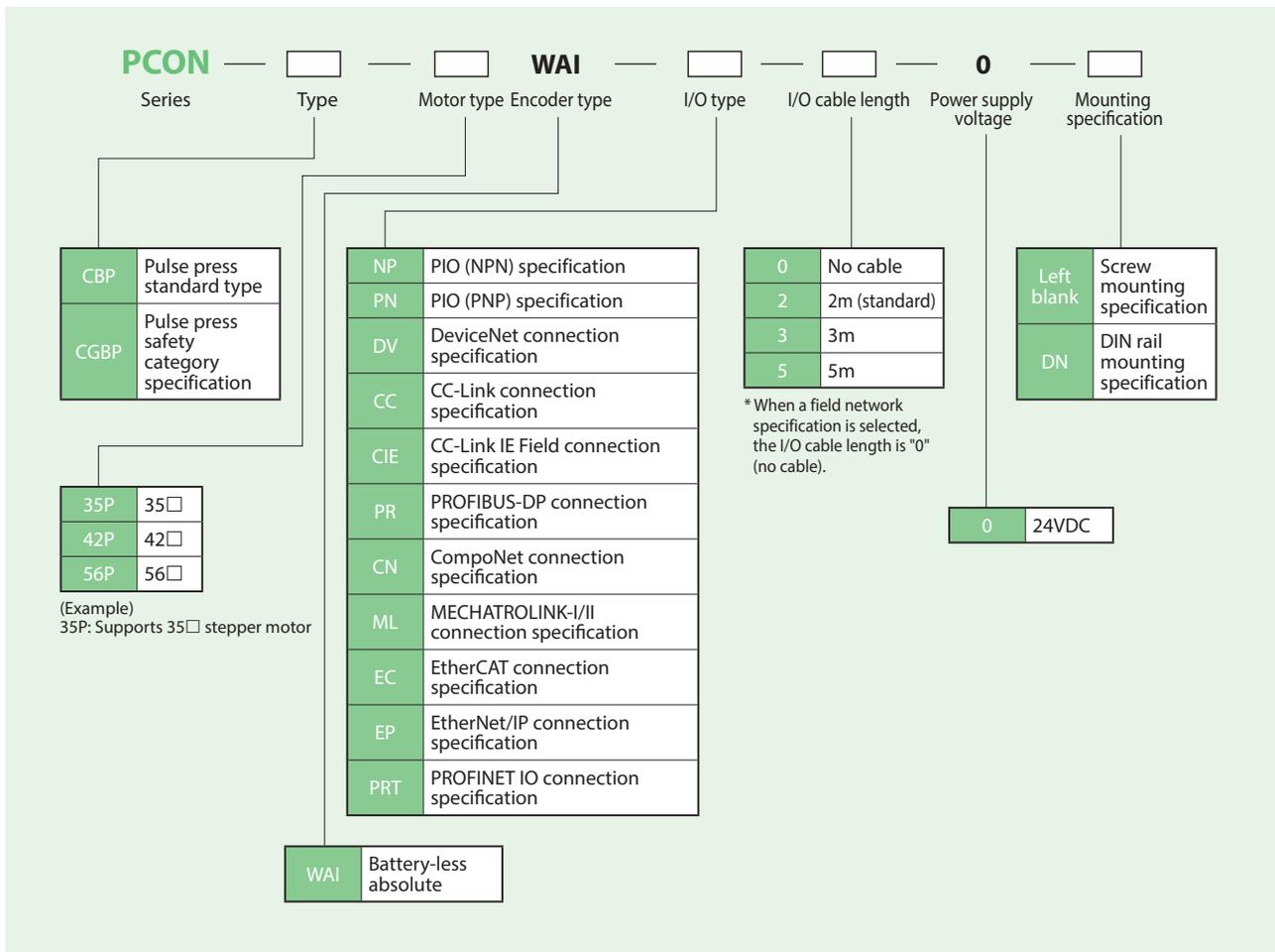
TB-02: Position editing screen

List of Models

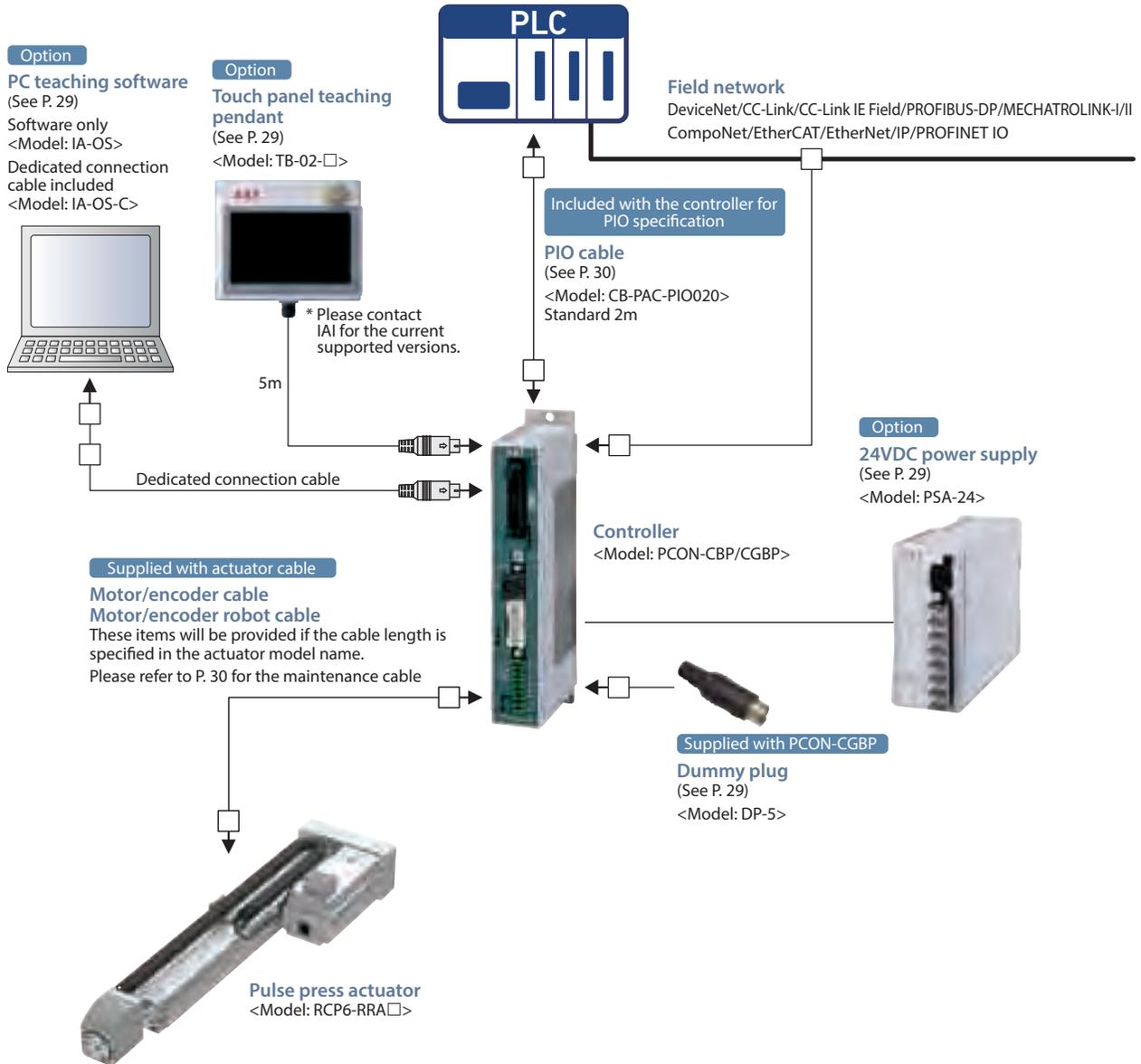
Model	PCON-CBP/CGBP									
External view										
I/O type	Positioner type	Field network type								
		 DeviceNet DeviceNet connection specification	 CC-Link CC-Link connection specification	 CC-Link IE Field CC-Link IE Field connection specification	 PROFIBUS PROFIBUS-DP connection specification	 CompoNet CompoNet connection specification	 MECHATROLINK I,II MECHATROLINK I,II connection specification*1	 EtherCAT EtherCAT connection specification	 EtherNet/IP EtherNet/IP connection specification	 PROFINET IO PROFINET IO connection specification
I/O type model number	NP/PN	DV	CC	CIE	PR	CN	ML	EC	EP	PRT
PCON-CBP/CGBP	-	-	-	-	-	-	-	-	-	-

\*1 MECHATROLINK-I/II is treated as an Intelligent I/O and supports only asynchronous commands.

Model Specification Items



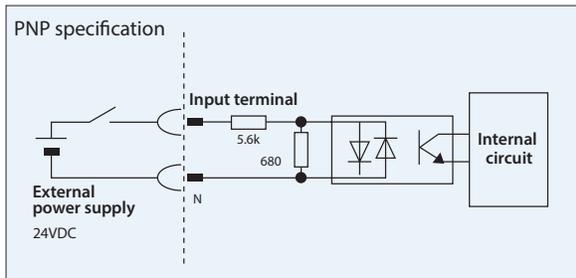
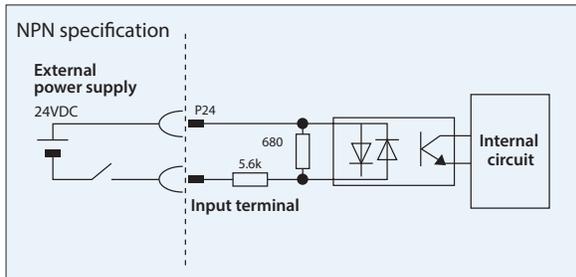
**System Configuration**



PIO Input/Output Interface

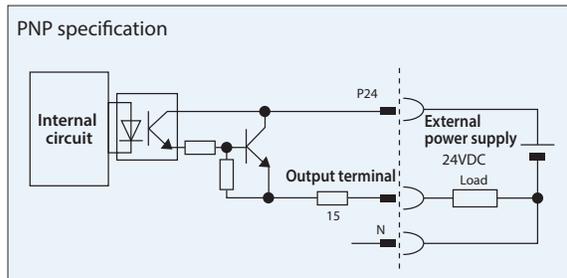
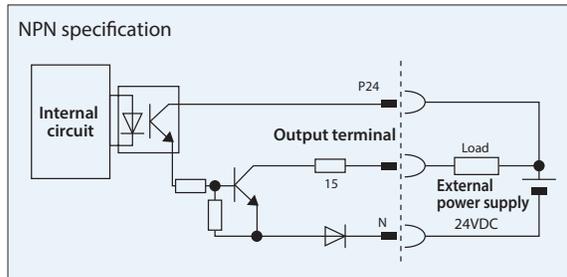
Input/output External input specification

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



Input/output External input specification

Item	Specifications
Load voltage	24VDC
Maximum load current	50mA, 1 circuit
Leakage current	2mA max./point



Types of PIO Patterns (Control Patterns)

This controller has 8 types of control methods.

Please set the PIO pattern that best suits your application in Parameter No.25, "PIO Pattern Selection."

Type	Set value of parameter No.25	Mode	Overview
PIO pattern 0	0 (factory setting)	Positioning mode (standard type)	<ul style="list-style-type: none"> <li>•Number of positioning points: 64 points</li> <li>•Zone signal output<sup>*1</sup>: 1 point</li> <li>•Position number command: Binary code</li> <li>•Position zone signal output<sup>*2</sup>: 1 point</li> </ul>
PIO pattern 1	1	Teaching mode (teaching type)	<ul style="list-style-type: none"> <li>•Number of positioning points: 64 points</li> <li>•Position zone signal output<sup>*2</sup>: 1 point</li> <li>•Jog (inching) operation using PIO signals is supported</li> <li>•Current position data can be written to the position table using PIO signals</li> </ul>
PIO pattern 2	2	256-point mode (256 positioning points type)	<ul style="list-style-type: none"> <li>•Number of positioning points: 256 points</li> <li>•Position number command: Binary code</li> <li>•Position zone signal output<sup>*2</sup>: 1 point</li> </ul>
PIO pattern 3	3	512 mode (512 positioning points type)	<ul style="list-style-type: none"> <li>•Number of positioning points: 512 points</li> <li>•Position number command: Binary code</li> <li>•No zone signal output</li> </ul>
PIO pattern 4	4	Solenoid valve mode 1 (7-point type)	<ul style="list-style-type: none"> <li>•Number of positioning points: 7 points</li> <li>•Zone signal output<sup>*1</sup>: 1 point</li> <li>•Position number command: Individual number signal ON</li> <li>•Position zone signal output<sup>*2</sup>: 1 point</li> </ul>
PIO pattern 5	5	Solenoid valve mode 2 (3-point type)	<ul style="list-style-type: none"> <li>•Number of positioning points: 3 points</li> <li>•Completion signal: A signal equivalent to a LS (limit switch) signal can be output</li> <li>•Zone signal output<sup>*1</sup>: 1 point</li> <li>•Position zone signal output<sup>*2</sup>: 1 point</li> </ul>
PIO pattern 6	6	Force control mode 1	<ul style="list-style-type: none"> <li>•Number of positioning points: 32 points</li> <li>•Position zone signal output<sup>*2</sup>: 1 point</li> <li>•Load cell calibration command</li> </ul>
PIO pattern 7	7	Force control mode 2	<ul style="list-style-type: none"> <li>•Number of positioning points: 5 points</li> <li>•Position zone signal output<sup>*2</sup>: 1 point</li> <li>•Load cell calibration command</li> </ul>

\*1 Zone signal output: Please set the desired zone range in Parameter No.1/2 or 23/24. It will remain effective once home return is completed.

\*2 Position zone signal output: This command function relates to the position number. Set the desired zone range in the position table. This function will only become enabled when the corresponding position is specified. It will be disabled for all other position commands.

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	6	7
			Positioning mode	Teaching mode	256-point mode	512-point mode	Solenoid valve mode 1	Solenoid valve mode 2	Force control mode 1	Force control mode 2
Pin number	Input	Number of positioning points	64 points	64 points	256 points	512 points	7 points	3 points	32 points	5 points
		Home return signal	○	○	○	○	○	×	○	○
		Jog signal	×	○	×	×	×	×	×	×
		Teaching signal (current position writing)	×	○	×	×	×	×	×	×
	Output	Brake release	○	×	○	○	○	○	○	○
		Moving signal	○	○	×	×	×	×	×	×
		Zone signal	○	△	△	×	○	○	△	△
		Position zone signal	○	○ (Note 1)	○ (Note 1)	×	○	○	○ (Note 1)	○ (Note 1)
1A	24V	P24								
2A	24V	P24								
3A	—	—								
4A	—	—								
5A	Input	IN0	PC1	PC1	PC1	PC1	ST0	ST0	PC1	ST0
6A		IN1	PC2	PC2	PC2	PC2	ST1	ST1(JOG+)	PC2	ST1
7A		IN2	PC4	PC4	PC4	PC4	ST2	ST2(non-functional)	PC4	ST2
8A		IN3	PC8	PC8	PC8	PC8	ST3	—	PC8	ST3
9A		IN4	PC16	PC16	PC16	PC16	ST4	—	PC16	ST4
10A		IN5	PC32	PC32	PC32	PC32	ST5	—	—	—
11A		IN6	—	MODE	PC64	PC64	ST6	—	—	—
12A		IN7	—	JISL	PC128	PC128	—	—	—	—
13A		IN8	—	JOG+	—	PC256	—	—	CLBR	CLBR
14A		IN9	BKRL	JOG-	BKRL	BKRL	BKRL	BKRL	BKRL	BKRL
15A		IN10	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD
16A		IN11	HOME	HOME	HOME	HOME	HOME	—	HOME	HOME
17A		IN12	*STP	*STP	*STP	*STP	*STP	—	*STP	*STP
18A		IN13	CSTR	CSTR/PWRT	CSTR	CSTR	—	—	CSTR	—
19A		IN14	RES	RES	RES	RES	RES	RES	RES	RES
20A	IN15	SON	SON	SON	SON	SON	SON	SON	SON	
1B	Output	OUT0	PM1(ALM1)	PM1(ALM1)	PM1(ALM1)	PM1(ALM1)	PE0	LSO	PM1	PE0
2B		OUT1	PM2(ALM2)	PM2(ALM2)	PM2(ALM2)	PM2(ALM2)	PE1	LS1(TRQS)	PM2	PE1
3B		OUT2	PM4(ALM4)	PM4(ALM4)	PM4(ALM4)	PM4(ALM4)	PE2	LS2 (Note 2)	PM4	PE2
4B		OUT3	PM8(ALM8)	PM8(ALM8)	PM8(ALM8)	PM8(ALM8)	PE3	—	PM8	PE3
5B		OUT4	PM16	PM16	PM16	PM16	PE4	—	PM16	PE4
6B		OUT5	PM32	PM32	PM32	PM32	PE5	—	TRQS	TRQS
7B		OUT6	MOVE	MOVE	PM64	PM64	PE6	—	LOAD	LOAD
8B		OUT7	ZONE1	MODES	PM128	PM128	ZONE1	ZONE1	CEND	CEND
9B		OUT8	PZONE/ZONE2	PZONE/ZONE1	PZONE/ZONE1	PM256	PZONE/ZONE2	PZONE/ZONE2	PZONE/ZONE1	PZONE/ZONE1
10B		OUT9	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS
11B		OUT10	HEND	HEND	HEND	HEND	HEND	HEND	HEND	HEND
12B		OUT11	PEND	PEND/WEND	PEND	PEND	PEND	—	PEND	PEND
13B		OUT12	SV	SV	SV	SV	SV	SV	SV	SV
14B		OUT13	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS
15B		OUT14	*ALM	*ALM	*ALM	*ALM	*ALM	*ALM	*ALM	*ALM
16B	OUT15	LOAD/TRQS *ALML	*ALML	LOAD/TRQS *ALML	LOAD/TRQS *ALML	LOAD/TRQS *ALML	*ALML	*ALML	*ALML	
17B	—	—								
18B	—	—								
19B	0V	N								
20B	0V	N								

(Note) In the table above, the asterisk (\*) symbol accompanying each code indicates a negative logic signal. PM1 through PM8 are alarm binary code output signals that are used when an alarm is generated.

(Note 1) In all PIO patterns other than pattern 3, this signal can be switched with PZONE by setting Parameter No.149 accordingly.

(Note 2) The setting will not become effective until the home return is completed.

Reference: Negative logic signals

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.

**Field Network Specification: Explanation of Operation Modes**

If controlling via a field network, one of the following 8 modes can be selected to operate the actuator. Please note that the data areas required on the PLC side will vary depending on the mode.

**Mode description**

	Mode	Description
0	Remote I/O mode	Similar to the PIO specification, this mode operates by turning bits ON/OFF over a network. The number of positioning points and functions will vary depending on the operation patterns (PIO patterns) set by the controller's parameters.
1	Position/simple direct value mode	The target position value is directly input, while all other operational conditions (speed, acceleration, etc.) are used by specifying the position number of the desired operating condition entered in position data.
2	Half direct value mode	The actuator is operated by directly inputting values other than the target position (speed, acceleration/deceleration, and push current).
3	Full direct value mode	The actuator is operated by directly inputting values for the target position, speed, acceleration/deceleration rate, push current limit value, etc. The current position, current speed, command current value, and load cell data can also be read.
4	Remote I/O mode 2	This mode is the same as the remote I/O mode above, with the added functionality of reading the current position and command current value.
5	Position/simple direct value mode 2	This mode provides a force control function instead of the display and zone functions of the position/simple direct value mode above.
6	Half direct value mode 2	This can read load cell data instead of the command current (which is a function of the half direct value mode above).
7	Remote I/O mode 3	This mode is the same as the remote I/O mode above, with the added functionality of reading current position and load cell data.

**Required data size for each network**

Mode	DeviceNet	CompoNet	CC-Link	CC-Link IE Field	MECHATROLINK-I/II	PROFIBUS-DP	EtherCAT	EtherNet/IP	PROFINET IO
0 Remote I/O mode	2 bytes	2 bytes	1 station	4 words	2 bytes	2 bytes	2 bytes	2 bytes	2 bytes
1 Position/simple direct value mode	8 bytes	8 bytes	1 station	4 words	8 bytes	8 bytes	8 bytes	8 bytes	8 bytes
2 Half direct value mode	16 bytes	16 bytes	2 stations	8 words	16 bytes	16 bytes	16 bytes	16 bytes	16 bytes
3 Full direct value mode	32 bytes	32 bytes	4 stations	16 words	× (Note 1)	32 bytes	32 bytes	32 bytes	32 bytes
4 Remote I/O mode 2	12 bytes	12 bytes	1 station	4 words	12 bytes	12 bytes	12 bytes	12 bytes	12 bytes
5 Position/simple direct value mode 2	8 bytes	8 bytes	1 station	4 words	8 bytes	8 bytes	8 bytes	8 bytes	8 bytes
6 Half direct value mode 2	16 bytes	16 bytes	2 stations	8 words	16 bytes	16 bytes	16 bytes	16 bytes	16 bytes
7 Remote I/O mode 3	12 bytes	12 bytes	1 station	4 words	12 bytes	12 bytes	12 bytes	12 bytes	12 bytes

(Note 1) MECHATROLINK does not support the full direct value mode.

**List of functions by operation mode**

Mode	Remote I/O mode	Position/simple direct value mode	Half direct value mode	Full direct value mode (Note 1)	Remote I/O mode 2	Position/simple direct value mode 2	Half direct value mode 2	Remote I/O mode 3
Number of positioning points	512 points	768 points	Unlimited	Unlimited	512 points	768 points	Unlimited	512 points
Operates by direct assignment of position data	×	○	○	○	×	○	○	×
Direct assignment of speed/acceleration	×	×	○	○	×	×	○	×
Push-motion operation	○	○	○	○	○	○	○	○
Current position reading	×	○	○	○	○	○	○	○
Current speed reading	×	×	○	○	×	×	○	×
Operates by specifying position No.	○	○	×	×	○	○	×	○
Completed position number reading	○	○	×	×	○	○	×	○
Force control	△ (Note 2)	×	×	○	△ (Note 2)	○	○	△ (Note 2)
Current load data reading	×	×	×	○	×	○	○	○

\* ○ indicates that the operation is supported, and × indicates that it is not supported.

(Note 1) MECHATROLINK does not support the full direct value mode.

(Note 2) Usable when PIO pattern is set to 6 or 7.

Specification List

Item		Specification
		PCON-CBP/CGBP
Number of controlled axes		1 axis
Power supply voltage		24VDC ±10%
Load current (including control-side current consumption) (Note 1)		High-output setting disabled: 2.2A max. High-output setting enabled: 3.5A rated / 4.2A max.
Electromagnetic brake power (for actuator with brake)		24VDC±10%, 0.15A (max.)
Inrush current (Note 2)		8.3A
Momentary power failure resistance		500µs max.
Supported encoders		High-resolution battery-less absolute encoder: 8192 pulses/rev
Actuator cable length		Up to 20m
External interface	PIO specification	Dedicated 24VDC signal input/output (NPN/PNP selection) Input max. of 16 points, output max. of 16 points, cable length max. of 10m
	Field network specification	DeviceNet, CC-Link, CC-Link IE Field, PROFIBUS-DP, CompoNet, MECHATROLINK-I/II, EtherCAT, EtherNet/IP, PROFINET IO
Data setting, input method		PC teaching software, touch panel teaching pendant
Data retention memory		Position data and parameters are saved in non-volatile memory (no limit to rewrite)
Operation mode		Positioner mode
Number of positioner-mode positions		Up to 512 points for positioner type or up to 768 points for network type (Note) The total number of positioning points varies depending on which PIO pattern is selected
Insulation resistance		10MΩ or more at 500VDC
Electric shock protection mechanism		Class I, basic insulation
Mass (Note 3)		Screw mounting specification: 250g or less, DIN rail mounting specification: 285g or less
Cooling method		Natural air cooling
Environment	Ambient operating temperature	0 ~ 40°C
	Ambient operating humidity	85% RH or less (no condensation)
	Operating environment	Free from corrosive gases
	Ingress protection	IP20

(Note 1) 0.3A higher for the field network specification.

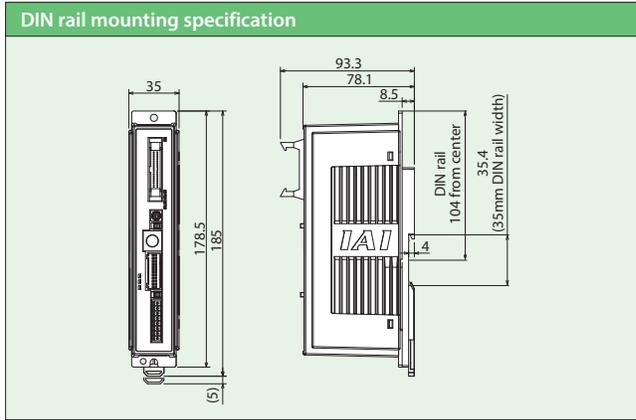
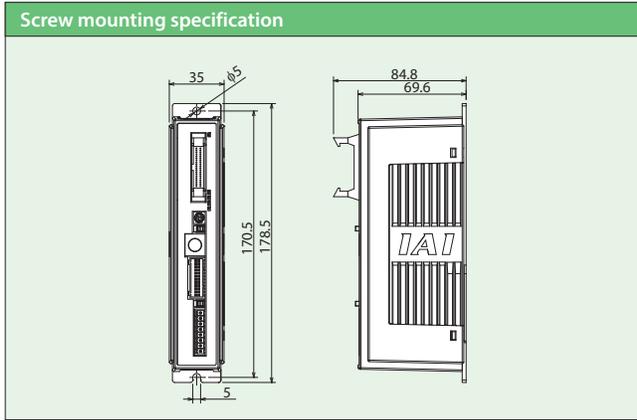
(Note 2) Inrush current flows for approx. 5 msec after power is turned ON (at 40°C). Please note that the inrush current value varies depending on the impedance of the power line.

(Note 3) 30g heavier for the field network specification.

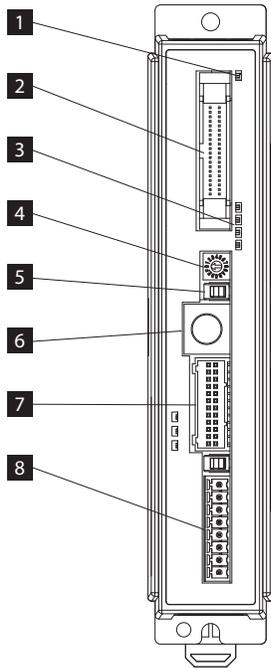
External Dimensions

CAD drawings can be downloaded from our website. [www.intelligentactuator.com](http://www.intelligentactuator.com) **2D CAD** **3D CAD**

<PCON-CBP/CGBP>



Part Names



**1 Controller display status LED**

Indicates the status of the controller.  
 ○: ON, ×: OFF, ☆: Blinking

LED		Operating status
SV (green)	ALM (red)	
×	×	Control power OFF
		Servo OFF
×	○	Alarm (operation cancel level or above)
		Motor drive power supply
		Emergency stop
○	×	Servo ON
☆	×	AUTO servo OFF
○ (orange)		Initialized when power is turned ON

**2 PIO connector /field network connector**

Cable connector for performing parallel communication with peripheral devices such as PLC.

**3 Current/alarm monitor LED**

Displays the normal command current ratio. Displays the alarm code when an alarm occurs.

LED	Operating status				
STS3 (green)	Status display -Servo ON: Displays the current command current ratio (proportion of rated value).				
STS2 (green)	STATUS				
	3	2	1	0	Command current ratio
STS1 (green)	ALM8	ALM4	ALM2	ALM1	Simple alarm code
	×	×	×	×	0.00% ~ 6.24%
STS0 (green)	×	×	×	○	6.25% ~ 24.99%
	×	×	○	○	25.00% ~ 49.99%
STS0 (green)	×	○	○	○	50.00% ~ 74.99%
	○	○	○	○	75.00% ~ 100.00% or higher

-During alarm: Displays a simple alarm code.

**4 Axis number setting switch**

Used to set an address to identify each controller, when controllers are linked.

**5 Operation mode setting switch**

Switch for the interlock.

Name	Description
MANU	Commands from PIO are not received
AUTO	Commands from PIO can be received

\* The emergency stop switch on the touch panel teaching pendant is enabled when the connection is made, regardless of the status (AUTO or MANU). Be sure to turn the power OFF when disconnecting the touch panel teaching pendant and SIO communication cable.

**6 SIO connector**

Connector for touch panel teaching pendant or PC communication connection.

**7 Motor/encoder connector**

Connector to connect an actuator motor and encoder cable.

**8 Power supply connector**

Connector for power supply and emergency stop status signal input.

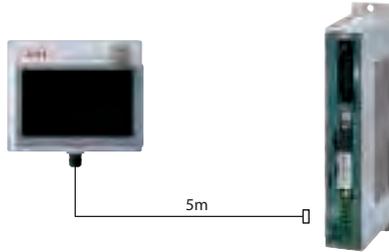
## Options

### Touch panel teaching pendant

**Features** A teaching device equipped with functions such as position teaching, trial operation, and monitoring.

**Model** **TB-02-**

**Configuration**



#### Specifications

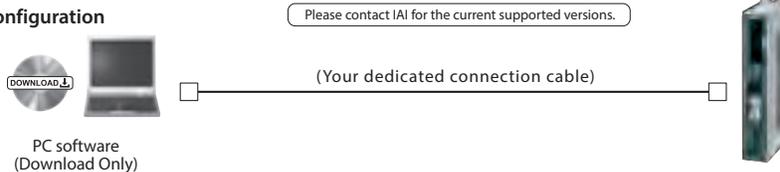
Rated voltage	24VDC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 ~ 40°C
Ambient operating humidity	5%RH ~ 85%RH (no condensation)
Environmental resistance	IP20
Weight	470g (TB-02 unit only)

### Teaching software for PC (Windows only)

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

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

**Configuration**

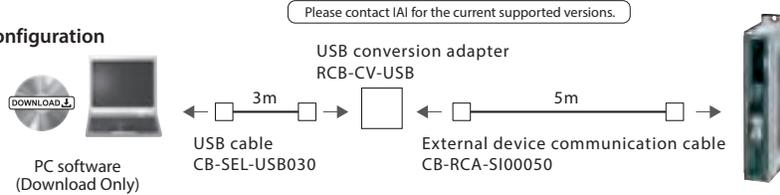


**Supported Windows versions: 7/10**



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

**Configuration**



### 24V power

#### Overview

This power source supplies 24VDC. The "Calculator" software can be used to confirm the ideal power capacity.

**Model** **PSA-24 (without fan)**

**Model** **PSA-24L (with fan)**

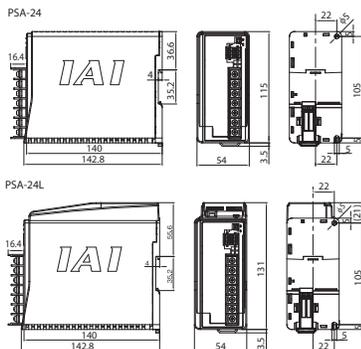


### Dummy plug

#### Features

When using safety category specification (PCON-CGBP), this will be required.

**Model** **DP-5**



Item	Specifications	
	100VAC input	200VAC input
Power input voltage range	100VAC ~ 230VAC±10%	
Input power supply current	3.9A or less	1.9A or less
Power capacity	Without fan: 250VA With fan: 390VA	Without fan: 280VA With fan: 380VA
Inrush current <sup>*1</sup>	Without fan: 17A (typ.) With fan: 27.4A (typ.)	Without fan: 34A (typ.) With fan: 54.8A (typ.)
Generated heat	28.6W	20.4W
Output voltage range <sup>*2</sup>	24V ±10%	
Continuous rated output	Without fan: 8.5A (204W), with fan: 13.8 (330W)	
Peak output	17A (408W)	
Efficiency	86% or more	90% or more
Parallel connection <sup>*3</sup>	Up to 5 units	

\*1 The pulse width of flowing inrush current is 5ms or less.  
 \*2 This power supply can vary the output voltage according to the load in order to enable parallel operation. The power supply is therefore for use with IAI controllers only.  
 \*3 Parallel connection cannot be used under the following conditions.  
 • Parallel connection of PSA-24 (specification without fan) and PSA-24L (specification with fan)  
 • Parallel connection with a power supply unit other than this power supply  
 • Parallel connection with P5-24

**Maintenance Parts**

When placing an order for a replacement cable after purchasing a product, please use the model name shown below.

**Table of compatible cables**

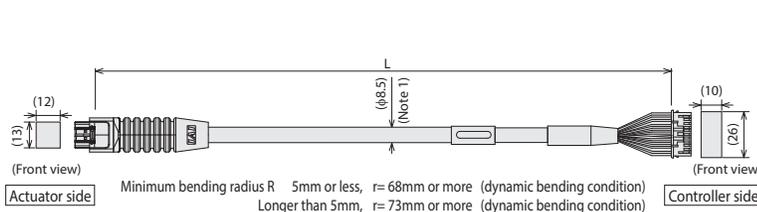
Model name	Motor/encoder cable	Motor/encoder robot cable
RCP6-RRR□□R-LCT	CB-CAN-MPA□□□□	CB-CAN-MPA□□□□-RB

Model name	PIO flat cable
PCON-CBP/CGBP	CB-PAC-PIO□□□□

Model **CB-CAN-MPA□□□□/CB-CAN-MPA□□□□-RB**

\* Please indicate the cable length (L) in □□□, maximum 20m  
Example) 080 = 8m



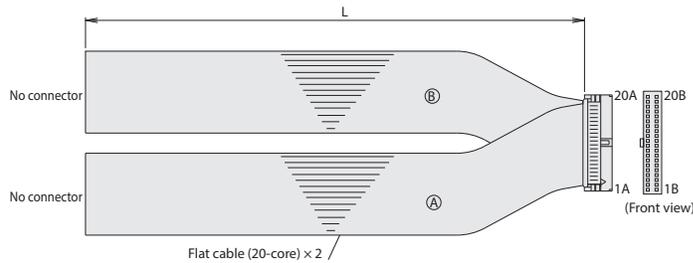
\* The robot cable is designed for flex-resistance.  
Please use the robot cable if the cable needs to be installed through a cable track.

(Note 1) If the cable length is 5m or more, φ9.1 cable diameter applies for both non-robot cables and robot cables.

Actuator side DF62DL-24S-2.2C (Hirose)				Controller side PADP-24V-1-5 (J.S.T. Mfg. Co., Ltd.)			
Standard cable	Robot cable	Signal name	Pin No.	Pin No.	Signal name	Standard cable	Robot cable
Blue (AWG22/19)	Blue (AWG22/19)	φA	3	1	φA	Blue (AWG22/19)	Blue (AWG22/19)
Orange (AWG22/19)	Orange (AWG22/19)	VMM	5	2	VMM	Orange (AWG22/19)	Orange (AWG22/19)
Brown (AWG22/19)	Brown (AWG22/19)	φB	10	3	φB	Brown (AWG22/19)	Brown (AWG22/19)
Gray (AWG22/19)	Gray (AWG22/19)	VMM	9	4	VMM	Gray (AWG22/19)	Gray (AWG22/19)
Green (AWG22/19)	Green (AWG22/19)	φ A	4	5	φ A	Green (AWG22/19)	Green (AWG22/19)
Red (AWG22/19)	Red (AWG22/19)	φ B	15	6	φ B	Red (AWG22/19)	Red (AWG22/19)
Light blue (AWG26)	Light blue (AWG26)	SALm48S	12	11	SALm48S	Light blue (AWG26)	Light blue (AWG26)
Orange (AWG26)	Orange (AWG26)	SPm48S	17	12	SPm48S	Orange (AWG26)	Orange (AWG26)
Green (AWG26)	Green (AWG26)	A+	1	13	A+	Green (AWG26)	Green (AWG26)
Brown (AWG26)	Brown (AWG26)	A-	6	14	A-	Brown (AWG26)	Brown (AWG26)
Gray (AWG26)	Gray (AWG26)	B+	11	15	B+	Gray (AWG26)	Gray (AWG26)
Red (AWG26)	Red (AWG26)	B-	16	16	B-	Red (AWG26)	Red (AWG26)
Black (AWG26)	Black (AWG26)	VPS	18	18	VPS	Black (AWG26)	Black (AWG26)
Yellow (AWG26)	Yellow (AWG26)	LDC_VCC	8	7	LDC_VCC	Yellow (AWG26)	Yellow (AWG26)
Light blue (AWG26)	Light blue (AWG26)	BK+	20	9	BK+	Light blue (AWG26)	Light blue (AWG26)
Orange (AWG26)	Orange (AWG26)	BK-	2	10	BK-	Orange (AWG26)	Orange (AWG26)
Gray (AWG26)	Gray (AWG26)	VCC	21	17	VCC	Gray (AWG26)	Gray (AWG26)
Red (AWG26)	Red (AWG26)	0VDC/0V	7	19	0VDC/0V	Red (AWG26)	Red (AWG26)
Brown (AWG26)	Brown (AWG26)	LDC_SD+	14	8	LDC_SD+	Brown (AWG26)	Brown (AWG26)
Green (AWG26)	Green (AWG26)	LDC_SD-	13	20	LDC_SD-	Green (AWG26)	Green (AWG26)
—	—	—	19	22	—	—	—
Pink (AWG26)	Pink (AWG26)	CF_VCC	22	21	CF_VCC	Pink (AWG26)	Pink (AWG26)
Black (AWG26)	Green (AWG26)	FG	24	24	FG	Black (AWG26)	Green (AWG26)

Model **CB-PAC-PIO□□□□**

\* Please indicate the cable length (L) in □□□, maximum 10m  
Example) 080 = 8m



HIF6-40D-1, 27R (Hirose)				Wiring			
No.	Signal name	Cable color	Wiring	No.	Signal name	Cable color	Wiring
1A	24V	Brown-1	1B	OUT0	Brown-3	1	1B
2A	24V	Red-1	2B	OUT1	Red-3	2	2B
3A	—	Orange-1	3B	OUT2	Orange-3	3	3B
4A	—	Yellow-1	4B	OUT3	Yellow-3	4	4B
5A	IN0	Green-1	5B	OUT4	Green-3	5	5B
6A	IN1	Blue-1	6B	OUT5	Blue-3	6	6B
7A	IN2	Purple-1	7B	OUT6	Purple-3	7	7B
8A	IN3	Gray-1	8B	OUT7	Gray-3	8	8B
9A	IN4	White-1	9B	OUT8	White-3	9	9B
10A	IN5	Black-1	10B	OUT9	Black-3	10	10B
11A	IN6	Brown-2	11B	OUT10	Brown-4	11	11B
12A	IN7	Red-2	12B	OUT11	Red-4	12	12B
13A	IN8	Orange-2	13B	OUT12	Orange-4	13	13B
14A	IN9	Yellow-2	14B	OUT13	Yellow-4	14	14B
15A	IN10	Green-2	15B	OUT14	Green-4	15	15B
16A	IN11	Blue-2	16B	OUT15	Blue-4	16	16B
17A	IN12	Purple-2	17B	—	Purple-4	17	17B
18A	IN13	Gray-2	18B	—	Gray-4	18	18B
19A	IN14	White-2	19B	OV	White-4	19	19B
20A	IN15	Black-2	20B	OV	Black-4	20	20B

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## **IAI America, Inc.**

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