



RCP6 Actuator Pulse Pressing First Step Guide First Edition

Thank you for purchasing our product.

Make sure to read the Safety Guide and detailed Instruction Manual as well as this First Step Guide to ensure correct use. This Instruction Manual is original.

Warning : Read the instruction manual carefully and follow the instruction manual when handling this equipment. Please downloaded the user's manual from our website. You can download it free of charge. User registration is required for first time users.
URL:www.iai-robot.co.jp/data_dl/CAD_MANUAL/
Keep a printout of the introduction manual near the equipment in which this product is installed so that it can be checked at all times, or display it on your computer, tablet terminal, etc. so that you can check it immediately.
If you need a bound copy of the instruction manual, order it from the nearest sales office listed in the First Step Guide or at the end of the instruction manual. It will be provided for a fee.

- Using or copying all or part of this Instruction Manual without permission is prohibited.
- The company names, names of products and trademarks of each company shown in the sentences are registered trademarks.

Product Check

This product is comprised of the following parts if it is of standard configuration.

If you find any fault in the contained model or any missing parts, contact us or our distributor.

1. Parts (The option is excluded.)

No.	Part Name	Model	Quantity	Remarks
1	Actuator Main Body	Refer to How to read the model No.	1	
Accessories				
2	Motor • Encoder Cable ^(Note 1)		1	
3	Safety Guide	M0194	1	

Note 1 Please refer to the wiring layout for the enclosed motor • encoder cables.

2. How to Read the Model Plate

Model	MODEL RCP6- RAA6R -WA-45P-1.5-115-P3-S-B-LCT
Serial number	S/N:B01000000 DATE:01/05/2021 MADE IN JAPAN

3. How to Read the Model Number

RCP6- RRA6R- WA-42P-1.5-115-P3-S-B-LCT- **	
Series name	Identification for IAI use only ^(Note 4)
<Type> Motor Reversing Type RRA4R RRA6R RRA7R	<Options> B : With brake ^(Note 1) CJB : Cable Eject Direction (Bottom side) ^(Note 1) ^(Note 2) CJO : Cable Eject Direction (Out side) ^(Note 1) CJT : Cable Eject Direction (Top side) ^(Note 1) FL : Flange (Front) ^(Note 1) FT : Foot Bracket ^(Note 2) LCT : Equipped with Loadcell (Equipped in Standard) ML : Motor Reversed Direction ^(Note 3) MR : Motor Reversed Direction ^(Note 3)
<Encoder type> WA : Battery-less absolute	
<Motor type> 35P(RRA4R Type): 35□Pulse Motor 42P(RRA6R Type): 42□Pulse Motor 56P(RRA7R Type): 56□Pulse Motor	
<Lead> 2.5 : RRA4R 2.5mm 1.5 : RRA6R 1.5mm 4 : RRA7R 4mm 2 : RRA7R 2mm	<Cable length> N : None P: 1m S : 3m M: 5m X□□ : Length specification R□□ : Robot Cable
<Stroke> [Refer to 1.2 Specifications of the Instruction Manual]	<Controller> P3 : PCON-CBP/CGBP

Note 1 RRA4R Type is not available for selecting "-B-FL" and "-B-CJ*-FL" when the stroke is 110mm.

Note 2 "CJB" and "FT" cannot be selected at the same time.

Note 3 Make sure to select either of them.

Note 4 Identification for IAI use only : It may be displayed for IAI use. It is not a code to show the model type.

Precautions in Handling

1. Handling of the Packed Product

Unless otherwise specified, the actuator is shipped with each axis packaged separately.

- Do not damage or drop the package.
The package is not specially designed to withstand dropping or shock due to collision.
- Keep the unit in horizontal orientation for stationary positioning or transportation.
Follow the instruction if there is any for the packaging condition.
- Do not climb onto the package.
- Do not put anything that could deform the package on it.
- Transport a heavy package with at least more than two operators.
Consider an appropriate method for transportation.

2. Handling of the Unpacked Product

- Carry the slider type by its base part.
- Do not attempt to hold the motor unit, loadcell, cables or cable carriers for transportation, or pull cables to move the device.
- Do not damage or drop the package during transportation.
- Do not apply excessive force to any part.
- Do not attempt to apply impact on the loadcell. The loadcell may get damaged.

Environments for Installation, Storage and Preservation

1. Installation Environment

Please attempt to avoid installing the product to such places as listed below.

It is generally the environment where a worker can work without any protection gear.

Also, make sure to keep enough space necessary for maintenance work.

- Place where exposed to radiant heat from a huge heat source such as heat treatment
- Place where the ambient temperature goes out of the applicable range from 0 to 40°C
- Place where condensation would occur due to sudden temperature change
- Place where the relative humidity exceeds 85% RH
- Place where exposed to the direct sunlight
- Place where corrosive gas or flammable gas exist
- Place where it contains a lot of dust, salt or iron (Outside of an ordinary assembly plant)
- Place where water, oil (includes oil mist and cutting fluid) or chemical is splashed
- Place where the product main body receives vibration or hit impact
- Place with an altitude of 2,000m or more

Also, provide sufficient work space for the following maintenance and inspection:

- Space to replenish grease
- Space to replace the motor

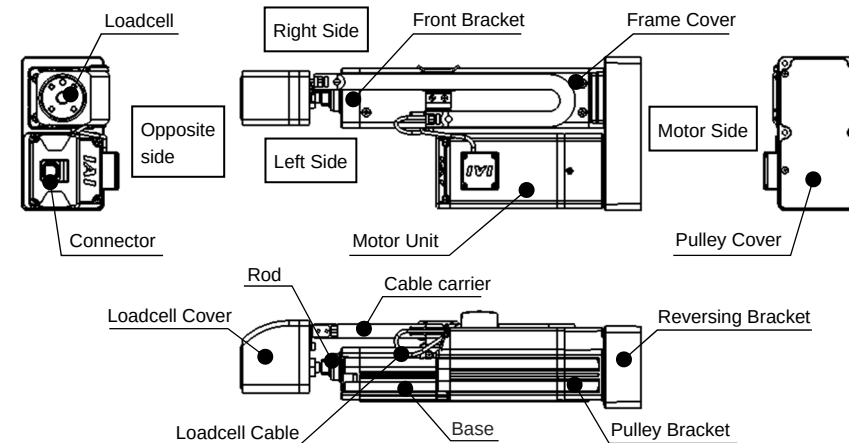
If the actuator is used in any of the following locations, provide sufficient shielding measures:

- Where noise is generated due to static electricity, etc.
- Where the actuator is subject to a strong electric or magnetic field
- Where the actuator is subject to ultraviolet or radiation

2. Storage and Preservation Environment

- For the storage and preservation environment, see the installation environment.
However, give especial consideration to the prevention of condensation during long-term storage/preservation.
- Unless especially specified, desiccant is not included in the package at shipping.
If the product is to be stored/preserved in an environment where condensation is anticipated, take condensation preventive measures.
- For short-term storage, it can be stored at 60°C or below.
For storage of one month or more, make sure that the temperature does not exceed 50°C.
- The product should be placed horizontally for storage and preservation.
If storing in the packaged condition, observe the conditions, if any, regarding storage orientation.

Names of the Parts



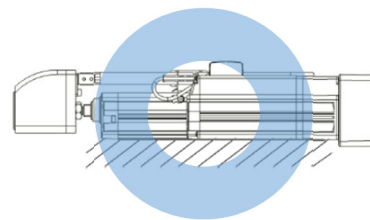
Attachment

Refer to the Instruction Manual for the attachments of the actuator and loads.

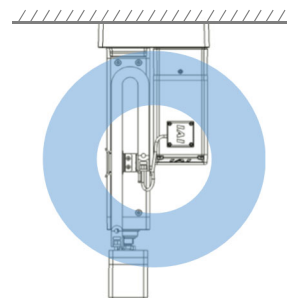
Mounting Orientation

Installation in the orientations marked with ◯ should be available.

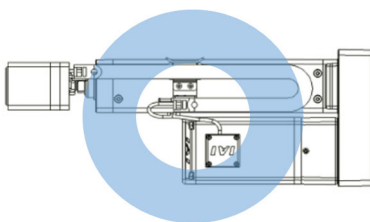
Horizontal Installation



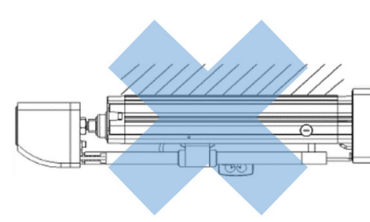
Vertical Installation



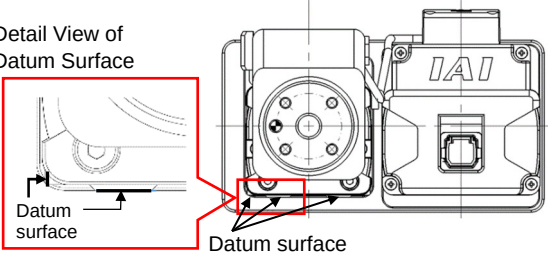
Horizontal lateral installation



Horizontal ceiling mount installation

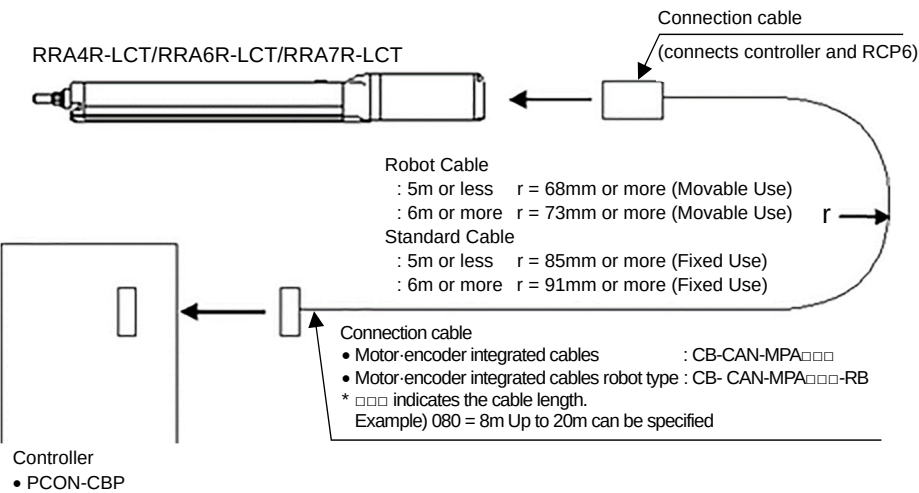


[Precautions for Attachments]

No.	Item	Precautions
1	Installation surface	• The body mounting surface should be a machined surface or a plane with similar accuracy, with flatness within 0.05mm/m. • The mounting frame should have a structure rigid enough to prevent the generation of vibration, etc. • Also consider the necessary space for maintenance work such as Actuator replacement and inspection. • The sides and the bottom of the base of the actuator are the datum surfaces for the rod run. When it is required to have a traveling accuracy, take each surface as a datum when installation. Detail View of Datum Surface  Datum surface Datum surface
2	How to Install	The following six types of installation should be available. 1. Using the screw holes on the back of the base. 2. Using the through holes on the top of the base. 3. Using through holes on the flange (front) (option model code: FL). 4. Using the screw holes on the front bracket. 5. Using the attachment holes on the reversing bracket in the motor reversing type. 6. Using the attachment holes on the foot bracket (option model code: FT). For details, refer to instruction manual.
3	Used screw	• Use hexagonal socket head bolts for the male threads for installing the base. • Use of high-tension bolts meeting at least ISO 10.9 is recommended. • Ensure to have the length of thread engagement approximately 1.5 times longer than the nominal diameter for RRA4R-LCT and approximately 1.8 times longer than the nominal diameter for RRA6R-LCT and RRA7R-LCT, and make sure that the screws tips would not come out inside the actuator when using the screw holes on the back of the base.
4	Tightening torque	• Follow the specified tightening torques described in the Instruction Manual for tightening. Failure to follow them may cause a problem due to such as deformation of an actuator.
5	Installation of Fixture on Loadcell Tip (to be prepared by user)	On the end of the loadcell unit, there is a feature to attach a tool (prepared by a user). A tool can be attached using the screw holes on the tips. • Keep the jig weight less than the allowable payload of the actuator. • When attaching a tool, pay attention not to apply impact load or unbalanced load to the loadcell or peripheral components. It may cause malfunction of the loadcell. • When attaching a tool in horizontal orientation, avoid moment load from being applied to the loadcell.

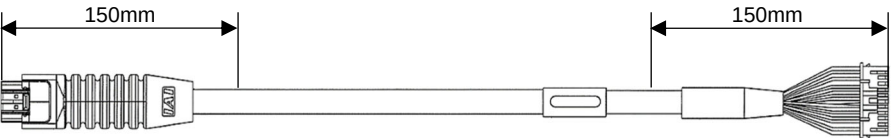
Wiring

For the controller, only the dedicated controller manufactured by our company can be used.
Use an IAI dedicated cable for connection between a controller and an actuator.

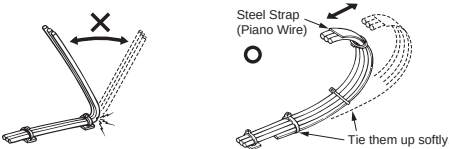


[Prohibited Items in the Cable Processing]

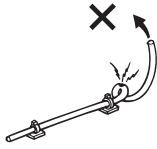
- Do not pull or bend forcibly the cable so as not to give any extra load or tension to the cable.
- Do not process the cable for extension or shortening by means of cutting out, combination or connecting with another cable.
- For cables, use one with the revision below or later.
Standard cable : CB-CAN-MA*** / ED-090-2-008-G-***-5 (5 or later for revision number at end)
Robot cable : CB-CAN-MA***-RB / ED-090-2-009-G-***-6 (6 or later for revision number at end)
- Do not bend the cable in the area from the connector tip to 150mm on the both ends.



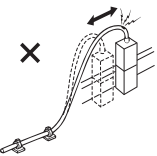
- Do not let the cable flex at a single point.
- Do not let the cable bend, kink or twist.



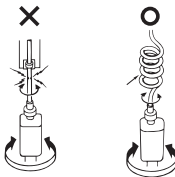
- Do not pull the cable with a strong force.



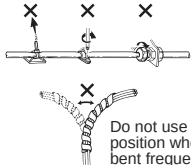
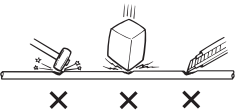
- Do not let the cable receive a turning force at a single point.



- Do not pinch, drop a heavy object onto or cut the cable.

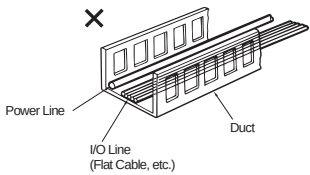


- When fixing the cable, provide a moderate slack and do not tension it too tight.



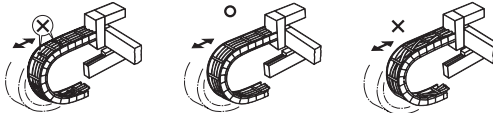
Do not use spiral tube in any position where cables are bent frequently.

- Separate the I/O line, communication line and power line from each other.
Do not store in the same duct.



Follow the instructions below when using a cable carrier.

- If there is an indication to the cable for the space factor in a cable carrier, refer to the wiring instruction given by the supplier when storing the cable in the cable carrier.
- Avoid the cables to get twined or twisted in the cable carrier, and also to have the cables move freely and do not tie them up. (Avoid tension being applied when the cables are bent.)
Do not pile up cables. It may cause faster abrasion of the sheaths or cable breakage.



⚠ Note:

- When the cable is connected or disconnected, make sure to turn off the power to the controller. When the cable is connected or disconnected with the controller power turned ON, it might cause a malfunction of the actuator and result in a serious injury or damage to the machinery.
- When the connector connection is not correct, it would be dangerous because of a malfunction of the actuator. Make sure to confirm that the connector is connected correctly.

IAI
Quality and Innovation

IAI Corporation

Head Office: 1210 Iharacho Shimizu-KU Shizuoka City Shizuoka 424-0114, Japan
TEL +81-54-364-5105 FAX +81-54-364-2589
website: www.iai-robot.co.jp/

IAI America, Inc.

Head Office: 2690 W. 237th Street, Torrance, CA 90505
TEL +1-310-891-6015 FAX +1-310-891-0815
Chicago Office: 110 East State Parkway, Schaumburg, IL 60173
TEL +1-847-908-1400 FAX +1-847-908-1399
Atlanta Office: 1220 Kennestone Circle, Suite 108, Marietta, GA 30066
TEL +1-678-354-9470 FAX +1-678-354-9471
website: www.intelligentactuator.com

Technical Support available in Europe

IAI Industrieroboter GmbH

Ober der Röth 4, D-65824 Schwalbach am Taunus, Germany
TEL +49(0)6196-88950 FAX +49(0)6196-889524
website: www.iai-automation.com

Technical Support available in Great Britain

LC Automation
control & safety

Duttons Way, Shadsworth Business Park, Blackburn, Lancashire, BB1 2QR, United Kingdom
TEL +44(0)1254-685900
website: www.lcautomation.com

IAI (Shanghai) Co., Ltd.

SHANGHAI JIAHUA BUSINESS CENTER A8-303, 808, Hongqiao Rd. Shanghai 200030, China
TEL +86-21-6448-4753 FAX +86-21-6448-3992
website: www.iai-robot.com

IAI Robot (Thailand) Co., Ltd.

825 PhairojKijja Tower 7th Floor, Debaratana RD., Bangna-Nuea, Bangna, Bangkok 10260, Thailand
TEL +66-2-361-4458 FAX +66-2-361-4456
website: www.iai-robot.co.th