

# RCP2W Actuator

## Dust and Splash-Proof

## Slider Type

### First Step Guide First Edition

Thank you for purchasing our product.  
Make sure to read the Safety Guide and detailed Instruction Manual (CD) included with the product in addition to this First Step Guide to ensure correct use.  
This Instruction Manual is original.

**Warning :** Operation of this equipment requires detailed installation and operation instructions which are provided on the CD Manual included in the box this device was packaged in. It should be retained with this device at all times.  
A copy of the CD Manual can be requested by contacting your nearest IAI Sales Office listed at the back cover of the Instruction Manual or on the First Step Guide.

- 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	Remarks
1	Actuator Main Body	[Refer to "2.How to read the model plate", "3.How to read the model."]	
Accessories			
2	Motor • Encoder Cable*1		
3	First Step Guide		
4	Instruction Manual (CD)		
5	Safety Guide		

\*1 Please refer to [Wiring] for the applicable cables.

### 2. How to read the model plate

Model → **MODEL RCP2W-SA16C-I-86P-8-100-P2-S-NM**  
Serial number → **SERIAL No.800061910**      **MADE IN JAPAN**

### 3. How to read the model

**RCP2W-SA16C-I-86P-8-100-P2-S-NM**

<Series> → **R**  
<Type> → **C**  
<Encoder Type> → **I** : Incremental  
<Motor Type> → **86P** : Pulse Motor 56 □Size, high output  
<Lead> → **4** : 4mm  
              **8** : 8mm  
<Option> → **CO** : With Cover  
              **NM** : Reversed Home Specification  
<Cable Length> → **N** : None  
                      **P** : 1m  
                      **S** : 3m  
                      **M** : 5m  
                      **X□□** : Specified Length (Example: X07=7m)  
                      **R□□** : Robot Cable (Example: R05=5m)  
<Applicable Controller> → **P2** : PCON-CF  
<Stroke> → **100**

[Refer to the Catalog for specification details.]

## 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 is not supplied with any special treatment that enables it to resist an impact caused by a drop or crash.
- If the shipping box is to be left standing, it should be in a horizontal position. Follow the instruction if there is any for the packaging condition.
- Do not step or sit on the package.
- Do not put any load that may cause a deformation or breakage of the package.

### 2. Handling of Robot without Package

- Do not carry the actuator by holding the cable, or do not move it by pulling the cable.
- When carrying the actuator, exercise caution not to bump it against nearby objects or structures.
- Do not give any excessive force to any of the sections in the actuator.

## Installation Environment, Storage Environment

### 1. Installation Environment

An environment that satisfies the following conditions is required during installation.

- There should be no direct sunlight.
- Any radiant heat from a large heat source such as a heat treatment furnace should not be directed at the machine main body.
- The ambient temperature should be 0 to 40°C.
- The relative humidity should be 85% or less. There should not be dew condensation.
- There should be no corrosive gas or flammable gas.
- There should be no flammable dust or ignitable liquid in the surroundings.
- There should be no dust containing magnetic substances or abrasives in the surroundings.
- Oil mist or cutting liquid should not be directed at the machine.
- Chemical liquid should not be splashed on it.
- An impact or vibration should not be transmitted to it.
- There should be no strong electromagnetic waves, ultraviolet rays or radiation.
- The actuator should not be installed where it gets dipped in liquid.  
(This actuator possesses the water durability of IP67 protection structure.)
- The working space required for maintenance or inspection should be secured.

### 2. Storage and Preservation Environment

The storage and preservation environment should comply with the same standards as those for the installation environment. In particular, when the machine is to be stored for a long time, pay close attention to environmental conditions so that no dew condensation forms.

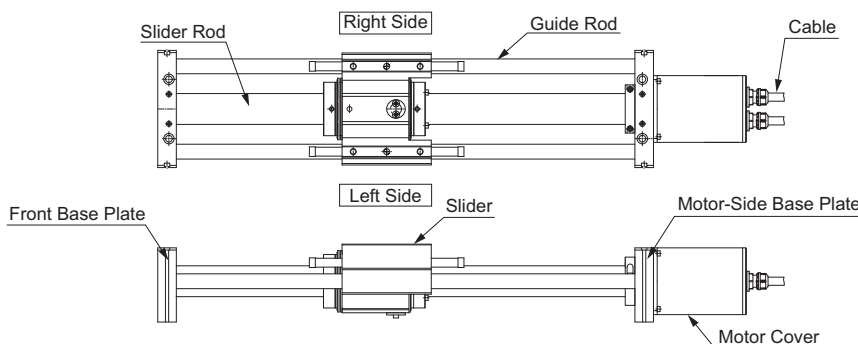
Unless specially specified, moisture absorbency protection is not included in the package when the machine is delivered. In the case that the machine is to be stored in an environment where dew condensation is anticipated, take the condensation preventive measures from outside of the entire package, or directly after opening the package.

For storage temperature, the machine withstands temperatures up to 60°C for a short time, but in the case of the storage period of 1 month or more, control the temperature to 50°C or less.

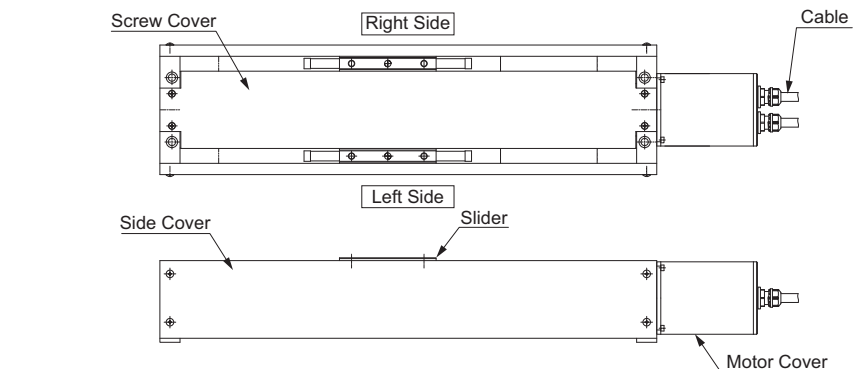
Storage and preservation should be performed in the horizontal condition.

## Names of the Parts

### 1. Standard Type



### 2. Cover Equipped Type



Please refer to the Catalog for the dimensions and profile.

## Attachment

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

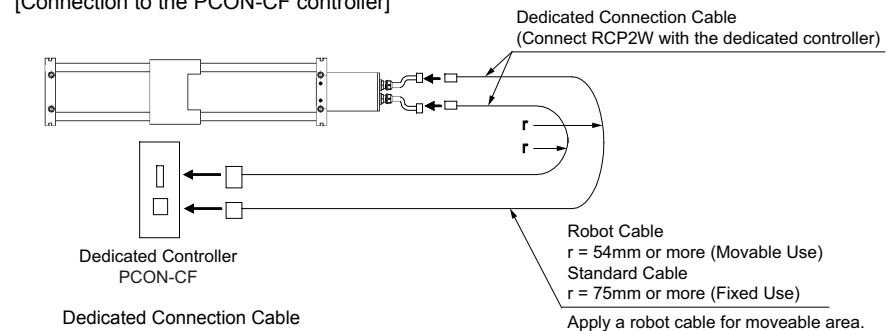
[Precautions for Attachments]

No.	Item	Precautions
1	Installation	<ul style="list-style-type: none"> <li>This actuator should basically be installed in horizontal orientation. Do not install in an angle or in vertical orientation that puts the motor in lower position. The lubricant that is applied inside the pipe may leak out and cause malfunction.</li> </ul> <p>Horizontally Oriented Mount      Mounted in Angle Vertically Oriented Mount</p>
2	Attachment Surface	<ul style="list-style-type: none"> <li>The base has to have a structure with sufficient rigidity to prevent oscillation.</li> <li>The actuator mounting surface and other surfaces that are used as a datum should be flat enough with an accuracy of machining or equivalent treatment, and the flatness of the mounting surface needs to be ±0.05mm/m or less.</li> <li>Secure the space where maintenance work can be performed.</li> </ul>
3	Bolts to be used	<ul style="list-style-type: none"> <li>For the bolts to be used, a high-tensile bolt complying with ISO-10.9 or more is recommended.</li> <li>If using the tapped holes, use screws with the thread length dimension being less than the effective depth of the holes.</li> <li>In case the tapped hole is a through hole, be careful so the screw tip does not exceed the surface of the tapped hole.</li> <li>For the actuator mounting, the effective mating length of the used bolt to the hole on the attachment surface should ensure more than the following values. M8 × 100 when tapped hole on steel M8 × 110 when tapped hole on aluminum</li> </ul>
4	Tightening Torque	<ul style="list-style-type: none"> <li>Please follow the specification values stated in the Instruction Manual (CD) for the tightening torque. Failure to do so may cause an operation problem.</li> </ul>
5	Load Moment and Overhung length	<ul style="list-style-type: none"> <li>Please follow the specification values stated in the Instruction Manual (CD) for the load moment and the overhung length. Failure to do so may cause abnormal vibration or noise, and also may remarkably shorten the product life.</li> <li>Please do not apply any external force from other than rod moving direction (radial load) to the rod. Any perpendicular or radial force to the rod may cause damage to the actuator or operation problem. Equip an actuator with a guide or an external guide if any external force from other direction than the rod moving direction is applied.</li> </ul>
6	Splash-Proof Performance	<ul style="list-style-type: none"> <li>This actuator possesses the water durability of IP67 protection structure with a few limitations as stated below;</li> <li>The actuator is not suitable for use in an environment where adhesive liquid splashes.</li> <li>The actuator cannot be used under the water.</li> </ul>
7	Loss of Synchronism	<ul style="list-style-type: none"> <li>The ball screw nut and the slider are magnetically joined together via a pipe component. Therefore, the magnetic joint may lose its synchronism with an excessive force, and the ball screw and the slider may get disjoined. Do not apply a high force such like hitting with a hammer.</li> </ul>

## Wiring

For the controller, only the dedicated controller manufactured by our company can be used.  
Use the dedicated cable enclosed in the package when connecting the actuator and the controller.

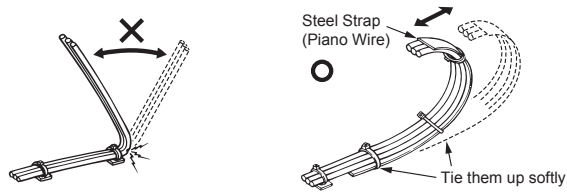
[Connection to the PCON-CF controller]



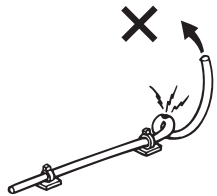
- Dedicated Connection Cable
- Motor Cable (Robot Cable) CB-RCP2-MA\*\*\*
  - Encoder Cable CB-RFA-PA \*\*\*/Encoder Cable Robot Cable CB-RFA-PA \*\*\*-RB
- \*\*\* shows the cable length.  
The max. length should be 20m.  
Example) 080-8m

[Prohibited Items in the Cable Processing]

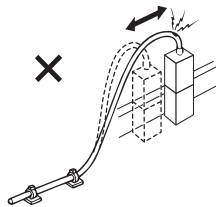
- Do not pull or bend forcibly the cable so as not to give any extra load or tension to the cable.
- Do not process the cable for extension or shortening by means of cutting out, combination or connecting with another cable.
- Do not let the cable flex at a single point.



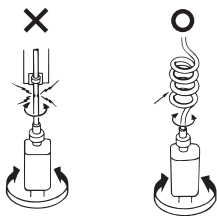
- Do not let the cable bend, kink or twist.



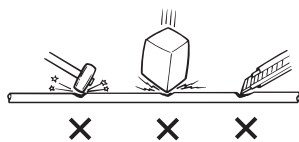
- Do not pull the cable with a strong force.



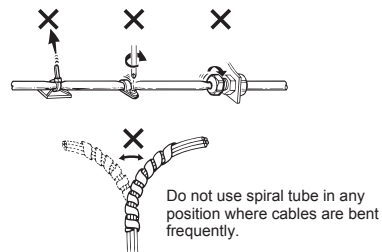
- Do not let the cable receive a turning force at a single point.



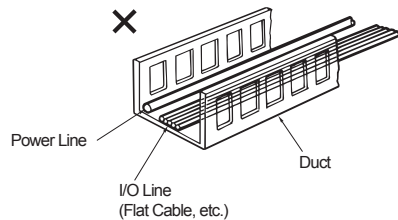
- Do not pinch, drop a heavy object onto or cut the cable.



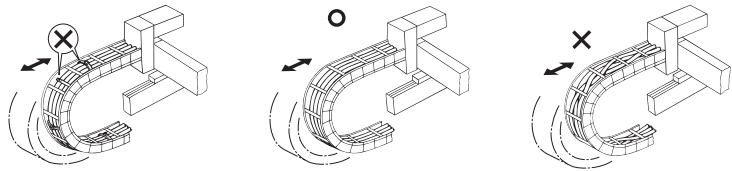
- When fixing the cable, provide a moderate slack and do not tension it too tight.



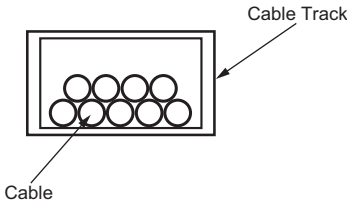
- Separate the I/O line, communication line and power line from each other. Arrange so that such lines are independently routed in the duct.



- Take care of the following items using the cable carrier.
- Arrange the wiring so that there is no entanglement or kink of the cables in the cable carrier or flexible tube, and do not bind the cables so that the cables are relatively free. (Do not bend it at an angle of 90° or less)



- The cable track capacity for cables to put in should be 60% or less to prevent cables from breaking. (Cable heat is not considered.)



**⚠ 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 Corporation

Head Office: 577-1 Obane Shimizu-KU Shizuoka City Shizuoka 424-0103, Japan  
TEL +81-54-364-5105 FAX +81-54-364-2589  
website: [www.iai-robot.co.jp/](http://www.iai-robot.co.jp/)

Technical Support available in USA, Europe and China

## IAI America, Inc.

Head Office: 2690 W, 237th Street Torrance, CA 90505  
TEL (310) 891-6015 FAX (310) 891-0815  
Chicago Office: 1261 Hamilton Parkway Itasca, IL 60143  
TEL (630) 467-9900 FAX (630) 467-9912  
Atlanta Office: 1220 Kennestone Circle Suite 108 Marietta, GA 30066  
TEL (678) 354-9470 FAX (678) 354-9471  
website: [www.intelligentactuator.com](http://www.intelligentactuator.com)

## IAI Industrieroboter GmbH

Ober der Röth 4, D-65824 Schwalbach am Taunus, Germany  
TEL 06196-88950 FAX 06196-889524

## IAI (Shanghai) Co., Ltd.

SHANGHAI JIAHUA BUSINESS CENTER A8-303, 808, Hongqiao Rd. Shanghai 200030, China  
TEL 021-6448-4753 FAX 021-6448-3992  
website: [www.iai-robot.com](http://www.iai-robot.com)