



Thin and Small ROBO Cylinder Mini Cylinder RCD Actuator

First Step Guide First Edition

Thank you for purchasing our product.
Make sure to read the Safety Guide and detailed Instruction Manual (CD/DVD) 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/DVD Manual included in the box this device was packaged in. It should be retained with this device at all times.
A hard copy of 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. Product Check

No.	Part Name	Model	Remarks
1	Actuator Main Body	Refer to "How to read the model plate", "How to read the model No."	
Accessories			
2	Motor • Encoder Cable*1		
3	Nut		Refer to list below
4	First Step Guide		
5	Instruction Manual (CD/DVD)		
6	Safety Guide		

*1 Please refer to the wiring layout for the enclosed motor cable and encoder cable.

Type	Attachment Nut M10×1.0	Rod Tip Nut M4×0.7
RA1D	1	2

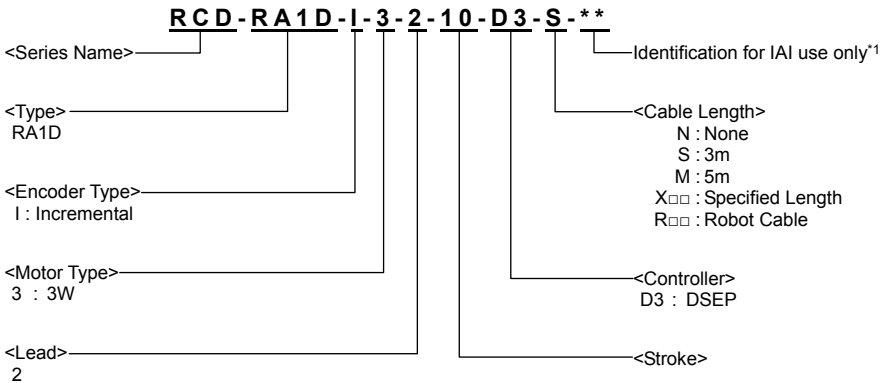
2. Instruction Manuals for the Controllers Related to This Product

No.	Name	Manual No.
1	ASEP/PSEP/DSEP Controller Instruction Manual	ME0267
2	PC Software RCM-101-MW/ RCM-101-USB Instruction Manual	ME0155
3	CON-PTA/PDA/PGA Instruction Manual	ME0295

3. How to read the model plate



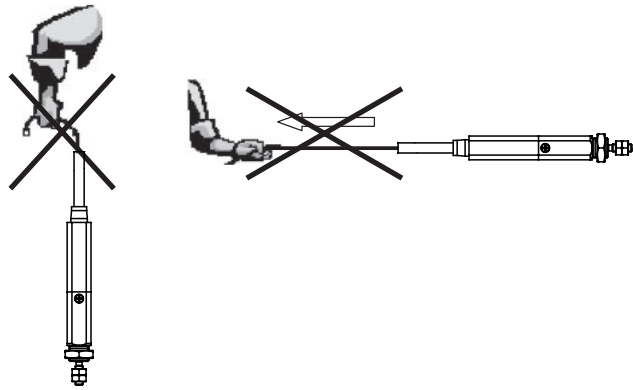
4. How to read the Model No.



*1 This may be displayed for the manufacturing reason.
(This is not to indicate the manufacturing model code.)

Precautions in Handling

1. Handling of the Packed Product
Take the greatest care in transporting the product, not to bump or drop it.
 - An operator should never attempt to carry a heavy package on his own.
 - When setting down the package temporarily, keep it horizontal.
 - Do not step on the package.
 - Do not place on the package a heavy object that may cause the box deformation or apply stress on it.
2. Handling of the Unpacked Product
Do not transport the actuator by holding the Motor Unit, cable or move it by pulling the cable.



- When the actuator is taken out from the package and handled, hold the base section.
- When the stainless sheet is attached, never hold the stainless sheet section.
- When transporting the actuator, be careful not to hit it against other objects. In particular, pay attention to the side cover.
- Do not give any unnatural force to any of the sections in the actuator. In particular, pay attention not to apply any force on the stainless steel sheet if the actuator is equipped with the stainless steel sheet.

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

Make sure to have a treatment for blocking when using in the following conditions:

- Place where noise is generated by such facts as static electricity
- Place where exposed to the influence of strong electric or magnetic field
- Place where exposed to the influence of ultraviolet or radiant rays

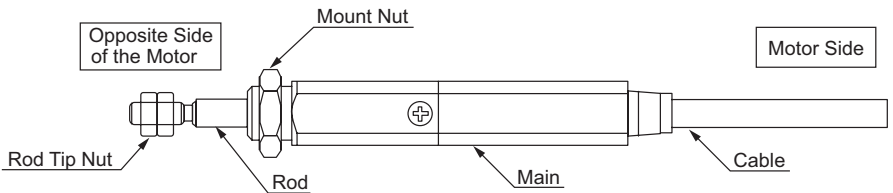
2. Storage and Preservation Environment

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

The product should be settled in the horizontal orientation while in storage and reservation. In the case it is stored in the packaged condition, follow the posture instruction if any displayed on the package.

Names of the Parts

This manual indicates the right and left of the actuator in the view that it is placed in the horizontal orientation, and is looked from the top view and the motor side.



For the details of dimensions and outlines, refer to the catalog or Instruction Manual (CD/DVD).

Attachment

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

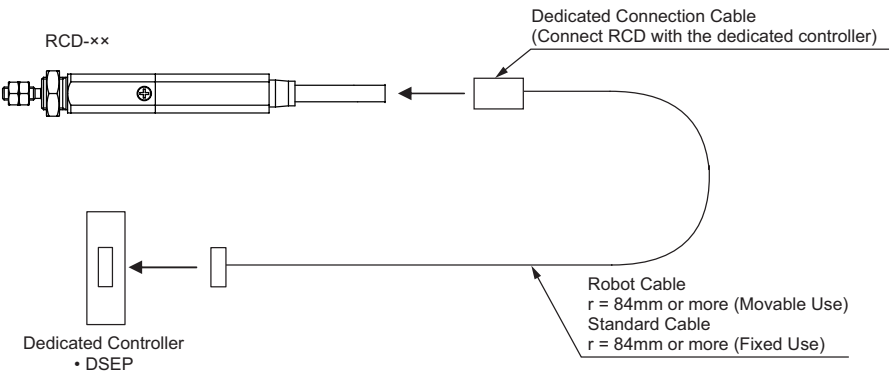
[Precautions for Attachments]

No.	Item	Precautions
1	Attachment Surface	<ul style="list-style-type: none">• The installation bracket should possess enough stiffness, and also prevent vibration exceeding 0.3G from being applied to the main unit.• Secure the space where maintenance work can be performed.
2	Tightening Torque	<ul style="list-style-type: none">• Please follow the specification values stated in the Instruction Manual (CD/DVD) for the tightening torque. Failure to do so may cause an operation problem.
3	Load Moment and Overhung length	<ul style="list-style-type: none">• 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 external guide if any external force from other direction than the rod moving direction is applied.
4	Stainless sheet	<ul style="list-style-type: none">• Do not attempt to apply torque of 0.02Nm or more to the rod while in installation. Doing so may cause a risk of a breakage or malfunction of the actuator.• When transporting a heavy work piece (0.02kg or more), make sure to join either the work piece or the rod to the external guide. In this case, use a free joint to kill the difference in the moving directions of the work piece and the rod (traveling parallelism).

Wiring

For the controller, only the dedicated controller manufactured by our company can be used.
For the connection between the actuator and controller, use the attached dedicated connection cable.

[Connection to the DSEP controller]



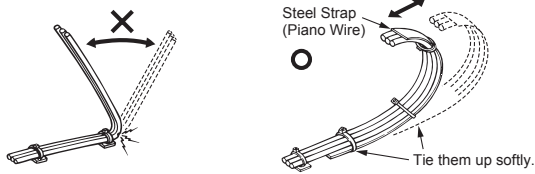
Dedicated Connection Cable

- Motor Encoder Cable CB-CA-MPA***
- Motor Encoder Cable Robot Cable CB-CA-MPA***-RB

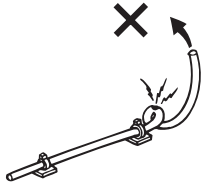
*) *** shows the cable length. The max. length should be 20m.
Example) 080 = 8m

[Prohibited Items in the Cable Processing]

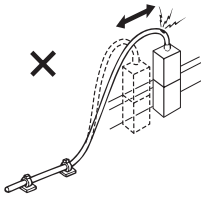
- Do not pull or bend forcibly the cable so as not to give any extra load or tension to the cable.
- Do not process the cable to extend or shortening by means of cutting out, combination or connecting with another cable.
- Do not let the cable flex at a single point.



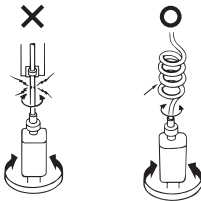
- Do not let the cable bend, kink or twist.



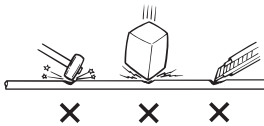
- Do not pull the cable with a strong force.



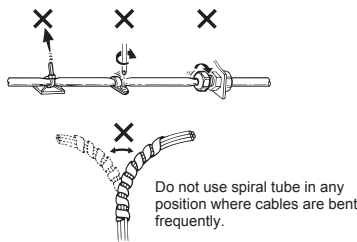
- Do not let the cable receive a turning force at a single point.



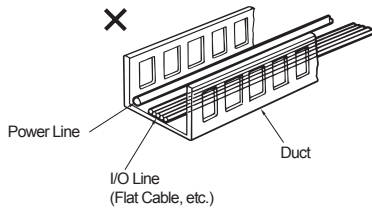
- Do not pinch, drop a heavy object onto or cut the cable.



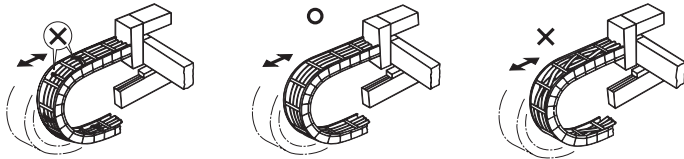
- When fixing the cable, provide a moderate slack and do not tension it too tight.



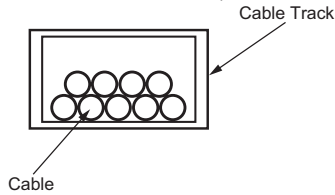
- Separate the I/O line, communication line and power line from each other. Do not store in the same duct.



- When using a cable track, make sure to apply robot cables, avoid any tangle or twist in the cable track or flexible tube, and do not tie together so the cables are free to move. (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.



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