5. How to read the model of the controller

- **PCON**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCON-CB/CFB</td>
<td>Standard Type</td>
</tr>
<tr>
<td>PCON-CGB</td>
<td>High Precision Controller</td>
</tr>
</tbody>
</table>

- **ACON**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACON-C</td>
<td>Standard Type</td>
</tr>
<tr>
<td>ACON-S</td>
<td>High Precision Controller</td>
</tr>
</tbody>
</table>

- **DCON**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCON-C</td>
<td>Standard Type</td>
</tr>
<tr>
<td>DCON-S</td>
<td>High Precision Controller</td>
</tr>
</tbody>
</table>

Identification for A4-use only
- There is no identification in some cases.

Type of installation
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

Note:
- Incremental
- Battery-less Absolute
- Simple Absolute
- (With the Absolute Battery)
- (With the Absolute Battery Unit)
- (No Absolute Battery)
- (No Absolute Battery Assembly)
- Simple Absolute Type

Power-supply Voltage
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

<Series>
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Identification for IAI use only>

Series
- PCON
- ACON
- DCON

<Type of Installation>
- (Not Specified) - Screw Attachment Type
- DIN Rail Mounting Type

<Power-supply Voltage>
- 0 VDC
- 24V DC

OC Cable Length
- 0 : Equipped with no cable
- 2 : Standard
- 3 : 3m
- 5 : 5m
This product is capable for use in the environment of pollution degree 2*1 or equivalent.

### Installation Environment

1. **Installation Environment**
   - Do not use this product in the following environment:
     - Location where the surrounding air temperature exceeds the range of 0 to 40°C
     - Location where condensation occurs due to abrupt temperature changes
     - Location where relative humidity exceeds 95%
     - Location where there are explosive gas or liquid
     - Location exposed to rain or water
     - Location exposed to direct sunlight
     - Location where the product may come in contact with water, oil or chemical droplets
     - Environment that blocks the air vent (Refer to Installation and Noise Elimination)
   - When using the products in any of the locations specified below, provide a sufficient shield.
     - Location subject to electrostatic noise
     - Location where a high magnetic field is present
     - Location with the main or power line passing nearby

2. **Storage and Preservation Environment**
   - Storage and preservation environment follows the installation environment. Especially in a long-term storage, consider the following points before using the machine:
     - Location where the surrounding air temperature exceeds the range of 0 to 40°C
     - Location where condensation occurs due to abrupt temperature changes
     - Location where the product may come in contact with water, oil or chemical droplets
     - Location where the surrounding humidity exceeds 95%
     - Location exposed to rain or water
     - Location exposed to direct sunlight
     - Location where the product may come in contact with water, oil or chemical droplets
     - Environment that blocks the air vent (Refer to Installation and Noise Elimination)
   - When using the products in any of the locations specified below, provide a sufficient shield:
     - Location subject to electrostatic noise
     - Location where a high magnetic field is present
     - Location with the main or power line passing nearby

### Installation and Noise Elimination

1. **Noise Elimination Gounding (Frame Ground)**
   - 1) Wire to be twisted for the 24V DC power supply.
   - 2) Separate the signal and exciter lines from the power supply and power lines.

2. **Precautions regarding wiring method**
   - 1) Wire to be twisted for the 24V DC power supply.
   - 2) Separate the signal and exciter lines from the power supply and power lines.

3. **Noise Sources and Elimination**
   - Carry out noise elimination measures for power devices on the same power path and in the same equipment.
   - The following are examples of measures to eliminate noise sources:
     - AC relais valves, magnetic switches and relays
     - DC relais valves, magnetic switches and relays

4. **Heat Radiation and Installation**
   - Design and Build the system considering the size of the controller box, location of the controller and coating factors to keep the surrounding temperature around 40°C.
Power Supply and Emergency Stop Circuit

The table shows the address maps separately for CC-Link type and those other than CC-Link type.

### Address Map

<table>
<thead>
<tr>
<th>Host System &lt;PLC&gt;</th>
<th>PLC output: Input in PCON / ACON / DCON (n is the top register address for each axis)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remote I/O Mode</td>
</tr>
<tr>
<td>Remote I/O Mode:</td>
<td>Mode 0 (Active)</td>
</tr>
<tr>
<td>Remote I/O Mode:</td>
<td>Mode 0 (Active)</td>
</tr>
<tr>
<td>Remote I/O Mode:</td>
<td>Mode 0 (Active)</td>
</tr>
<tr>
<td>Remote I/O Mode:</td>
<td>Mode 0 (Active)</td>
</tr>
<tr>
<td>Remote I/O Mode:</td>
<td>Mode 0 (Active)</td>
</tr>
<tr>
<td>Remote I/O Mode:</td>
<td>Mode 0 (Active)</td>
</tr>
<tr>
<td>Remote I/O Mode:</td>
<td>Mode 0 (Active)</td>
</tr>
<tr>
<td>Remote I/O Mode:</td>
<td>Mode 0 (Active)</td>
</tr>
</tbody>
</table>

### Operation Modes and Functions (Except for MECHATROLINK-II)

The machine can be operated selecting one mode from the following five operation modes.

1. **Remote I/O Mode**: This is the method where the operation through PIO (24V I/O) is performed using the fieldbus. The safety category-conformity is confirmed using the fieldbus by means of only specifying the target position using numerical values.

2. **Simple Direct Position Mode**: This is the method where the target position is directly specified by means of only specifying the target position using numerical values.

3. **Full Direct Value Mode**: In this operation mode, the values related to the position centers are directly specified using numerical values.

4. **Half Direct Value Mode**: In this operation mode, in addition to the target position, the speed, acceleration, deceleration and push current value are directly specified using numerical values.

5. **Remote I/O Mode 2**: Additionally, the current position and current speed reading functions are added to the remote I/O mode.

### Operation Modes and Functions

<table>
<thead>
<tr>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote I/O Mode</td>
<td>The machine is operated by specifying position data, other than the position, using a position parameter.</td>
</tr>
<tr>
<td>Simple Direct Position Mode</td>
<td>The machine is operated by specifying all position data, other than the position, using a position number.</td>
</tr>
<tr>
<td>Full Direct Value Mode</td>
<td>The machine is operated by specifying all position data, other than the position, using a position parameter.</td>
</tr>
<tr>
<td>Half Direct Value Mode</td>
<td>The machine is operated by specifying all position data, other than the position, using a position parameter.</td>
</tr>
<tr>
<td>Remote I/O Mode 2</td>
<td>The machine is operated by specifying all position data, other than the position, using a position parameter.</td>
</tr>
</tbody>
</table>

### Connection Diagram

- **Connection to RCP2 (High-Threat), RCA and RCL Series**
- **Connection to RCP3, RCP4, RCP5, RCP6 and RCA2 Series**
- **Connection to RCD Series**

**Note 1**: Applicable Connection Cable Model Codes (Example: D00 to 3m)

**Note 2**: When an alarm is sounded, the completion position No. (4 bits for PM1 to PM8) shows the simple alarm code.

**Note 3**: Supply 24V when connecting actuator equipped with brake and release brake.

**Note 4**: Connection to RCD Series

**Note 5**: The actuator is operated by specifying all position data, other than the position, using a position number.
MECHATROLINK- I / II

- Specification
  Refer to section MECHATROLINK instruction manual (ME0321).

- Interface Section
  Status indicator LEDs
  - SV: On-line status
  - EA: Error status
  - DATA: Communication status
  - IN: Input status
  - OUT: Output status

- Wiring
  Node Address Setting
  The node address is set using specific parameters.
  Set the parameter No.85 "NADR: Fieldbus Node Address" with using the personal computer application software for RC.
  Available range: 01 to 7F (hex) (It is set to “11” when the machine is delivered from the factory.)

- Starting Procedure
When using this product for the first time, make sure to avoid mistakes and incorrect wiring by referring to the procedure below

- Operation Mode Setting
  Set it according to the items for the operation modes and functions, and each fieldbus.

- Node Address Setting
  The node address is set using specific parameters.
  Set the parameter No.85 "NADR: Fieldbus Node Address" with using the personal computer application software for RC.

- Status LED
  - SV
  - EA
  - DATA
  - IN
  - OUT

- MECHATROLINK-III (Dedicated for CB Type)
Since MECHATROLINK-III is applicable for the standard servo profile but not for the standard I/O profile, it is not applicable for the operation modes for other fieldbus products (such as Full Direct Mode).

- Specification
  Refer to the Instruction Manual (ME03137)

- Status LED
  - CON
  - ERR
  - LK
  - LAD

- Interface Area
  - Status LED
  - Node Address Setting
  - Electronic Gear Ratio Setting
  - Pulse Count Direction Setting

MECHATROLINK Communication Connector : DUSB-ARB160-025A - DDK

- Electronic Gear Ratio Setting
  Set the electronic gear ratio (in Parameter No. 66 "EDEN: Electronic Gear Denominator") and the electronic gear ratio (in Parameter No. 67 "EGD: Electronic Gear Denominator") in RC/PC software considering the data length to be used.

- Wiring
  When wiring, please use the MECHATROLINK-III dedicated cable.

- Communication Speed Setting
  Establish the setting in Parameter No. 86 "FBRS : Fieldbus Communication Speed" in RC/PC software considering the data length to be used.

- Technical Support
  - IAI Quality and Innovation
  - IAI Corporation
  - IAI America, Inc.
  - IAI Robot (Thailand) Co., Ltd.

<table>
<thead>
<tr>
<th>IAI Corporation</th>
<th>IAI America, Inc.</th>
<th>IAI Robot (Thailand) Co., Ltd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Office: 5771 Ohtake Shitaya-cho Shita-ku Shitaka 424-0103, Japan</td>
<td>Head Office: 2000 W. 2379 Street, Torrance, CA 90505</td>
<td>Address: 825 PhairojKijja Tower 12th Floor, Bangna-Trad RD., Bangna, Bangkok 10260, Thailand</td>
</tr>
<tr>
<td>Technical Support available in USA, Europe and China</td>
<td>Technical Support available in USA, Europe and China</td>
<td>Email: sales/thailand@iairobot.com</td>
</tr>
<tr>
<td><a href="mailto:manual@iai-robot.com">manual@iai-robot.com</a></td>
<td>website: <a href="http://www.iai-robot.com">www.iai-robot.com</a></td>
<td><a href="http://www.iai-robot.com">www.iai-robot.com</a></td>
</tr>
</tbody>
</table>