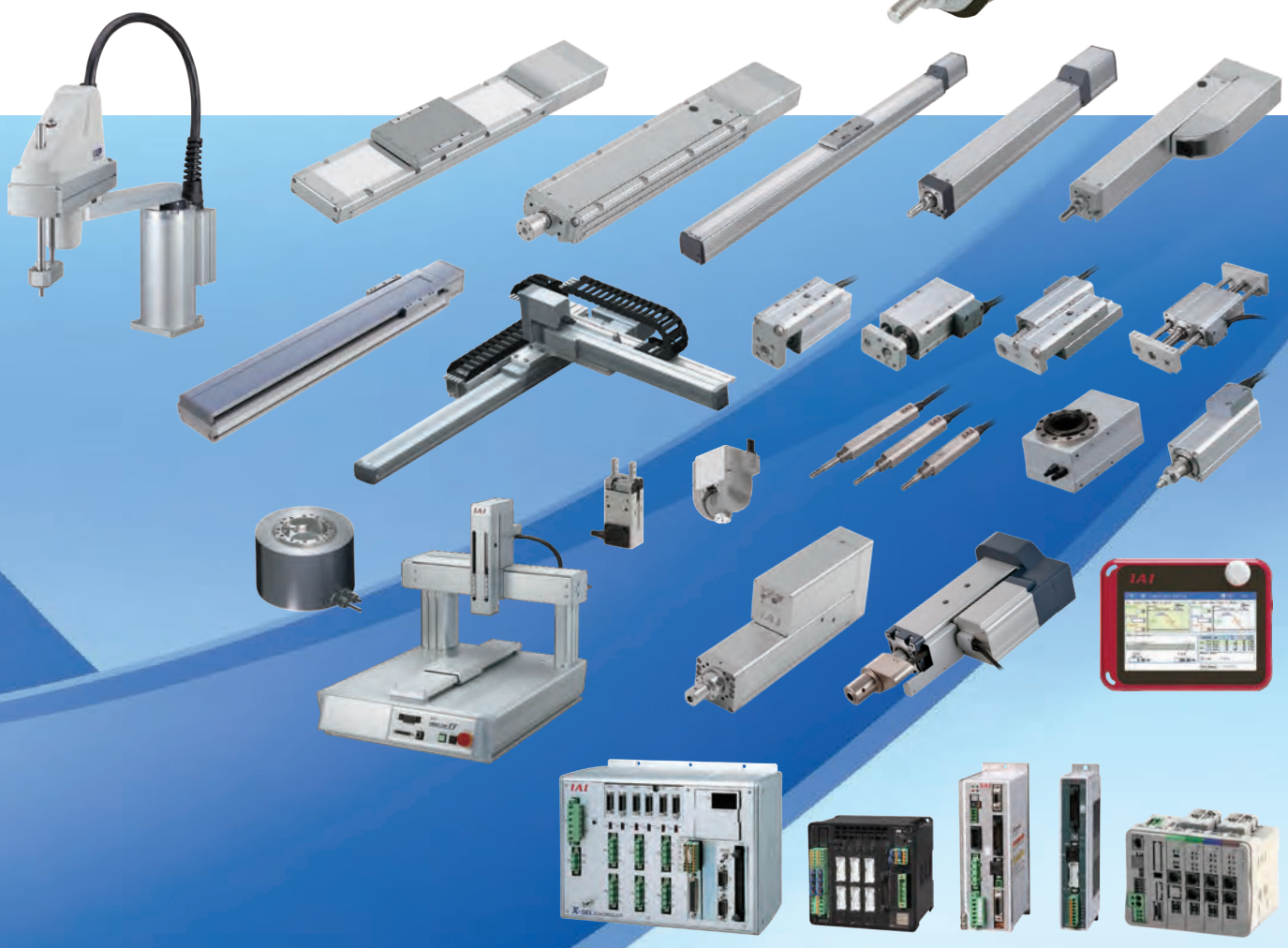


# IAI Product Lineup

30th revised Edition D

## Electric Actuators & Small Robots for Smart Industrial Automation



# Advancing into a new Era switching Air to EleCylinder

Designed to move between two points just like Air Cylinder  
Speed / Acceleration / Deceleration can be set in just 5 minutes.



## ELECYLINDER EC SERIES



- Simple model selection & operation
- Start and end points can be set at any value.
- **A** (Acceleration), **V** (Velocity), **D** (Deceleration), A.V.D. can be adjusted individually.
- Few maintenance parts
- Stable velocity. Cycle time can be reduced.
- Long service life.

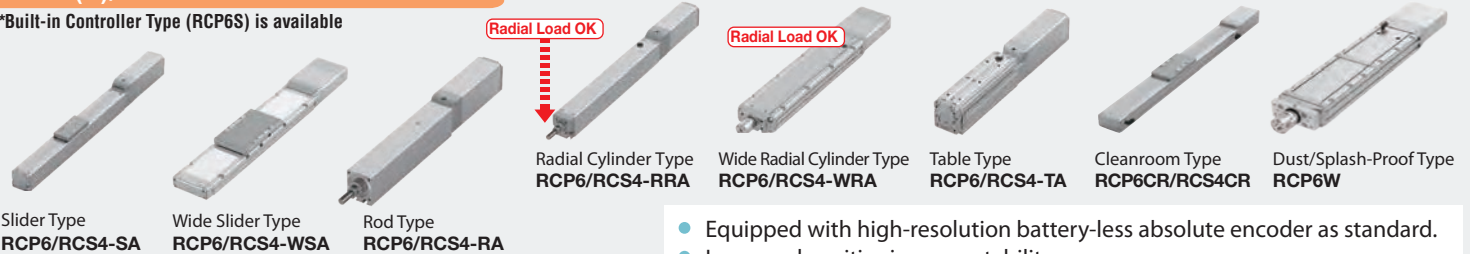
# Next Generation RoboCylinder RCP6/RCS4

From an abundant lineup of 92 RCP6 models with pulse motor or 54 RCS4 models with servo motor, you can find one that is most suitable for your needs.



## RCP6(S)/RCS4 SERIES STRAIGHT MOTOR TYPE

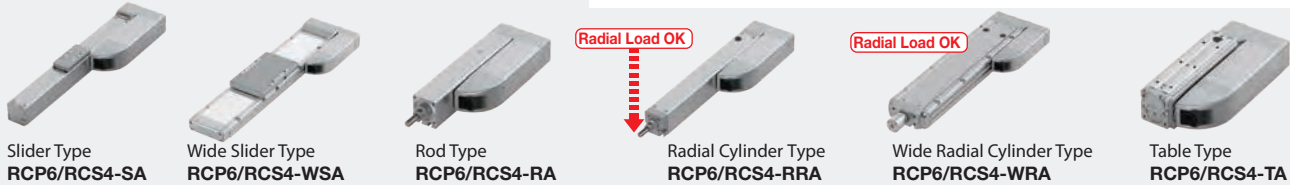
\*Built-in Controller Type (RCP6S) is available



- Equipped with high-resolution battery-less absolute encoder as standard.
- Improved positioning repeatability:  $\pm 10\mu\text{m}$  (Standard Type),  $\pm 5\mu\text{m}$  (High-Precision specification).
- PowerCon compatible.
- Built-in Controller (RCP6S) can be selected for every RCP6 type.
- Cleanroom and Dust/Splash-Proof specification series available.

## RCP6(S)/RCS4 SERIES SIDE-MOUNTED MOTOR TYPE

\*Built-in Controller Type (RCP6S) is available



# Servo Press Compatible RoboCylinder with Load Cell

Compact and low-thrust rod type actuator that can even be used for simple pressing. The high-precision position control enables easy adjustment of the push force and the position control, typically difficult for hydraulic equipment. 8 types from a range of 20N - 50000N are available.



- Loading repeatability is  $\pm 0.5\%$ . Supports traceability.
- Variety of product groups: 8 models in the lineup.
- Setting is easy by using a dedicated software.
- Newly developed 3kW motor driver achieved max. Thrust of 5t and max. Speed of 220mm/sec.
- With Battery-less Absolute Encoder as Standard.
- High Payload Rod Types without Load Cell also available: max. Payload of 1/0.6t (horizontal/vertical).



# Wrist Unit

IAI's unique design makes the parts light and compact. Low cost compared to 6-axis articulated robots. Orthogonal axes and interpolation commands are possible.



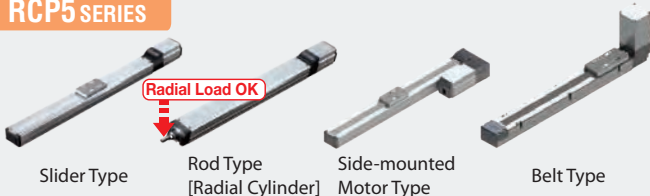
# RoboCylinder



These affordable, highly precise and highly rigid actuators have 1/5th the running cost of a pneumatic system

RoboCylinder is high-performance electric actuator equipped with a ball screw, linear guide, and servo motor. These next-generation actuators have multi-point positioning capability as well as the ability to change speed and acceleration, unlike anything seen with air cylinders.

## RCP5 SERIES



- Battery-less absolute encoder as standard equipment.
- By using a PowerCon, it has 1.5 times higher speeds and double the payload compared to traditional models.

## RCP4 SERIES



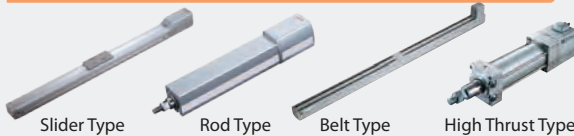
- By using a PowerCon, it has 1.5 times higher speeds and double the payload compared to traditional models.

## RCP3 SERIES



Table Type

## RCP2 SERIES PULSE MOTOR TYPE WITH HIGH PERFORMANCE



Slider Type

Rod Type

Belt Type

High Thrust Type

## RCP4/RCP2 GRIPPER



Horizontal Type

## RCP6 GRIPPER



Slim High-force Type

Long Stroke Type



Slider Type

Rotary Type

High Force Gripper

3-finger-Gripper

Short Body Type

Short Body Type with Guide

Vertical Type

- A high push force is achieved utilizing the characteristics of pulse motors.
- An abundance of sizes and variations is available to meet a wide range of applications.

- Equipped with a Battery-less Absolute Encoder.
- High Rigidity
- Slim High-force Type: Flat Shape with height of 39mm.
- Long Stroke Type: max. opening/closing stroke of 260mm

## RCP6 ROTARY TYPE



Large Diameter Hollow Rotary Type

## RCA2 SERIES

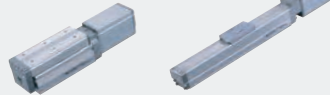


Table Type

Slider Type

## RCA SERIES 24V SERVO MOTOR TYPE



Rod Type

Side-mounted Motor Rod Type

Rod Type with Guide

- Shaped similar to a rod-type air cylinder, these actuators accept various mounting brackets that are used on air cylinders.
- Three motor installation methods are available to choose from.
- An optional home check sensor can be set.



Slider Type



Side-mounted Motor Slider Type



Rotary Chuck Unit

## RCS3 SERIES



Aluminum-base Type



Steel-base Type

## RCS2 SERIES 230V SERVO MOTOR TYPE



Slider Type



Side-mounted Motor Slider Type



Slim Rod Type



Gripper Type



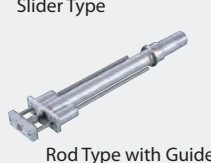
High-speed Slider Type  
RCS3-CT8C



High-speed Table Type  
RCS3-CTZ5C



Ultra-high-thrust Rod Type



Rod Type with Guide



Large Diameter Hollow Rotary Type

- Equipped with a servo motor, these actuators support high loads and long strokes.
- When an XSEL controller is used, you can combine three or more axes.
- Compatible with Profibus, DeviceNet, CC-Link, and other field networks.

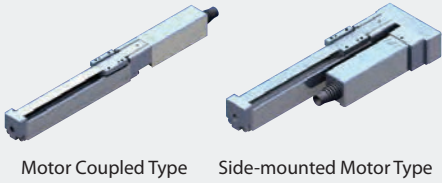


# Mini RoboCylinder

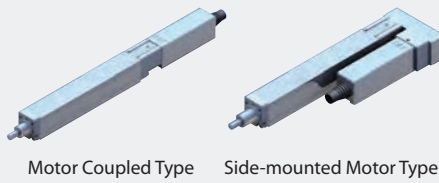


Next-generation electric actuators, the solution for space constrained applications

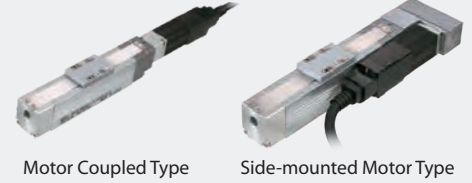
## RCP3 MINI SLIDER TYPE



## RCP3 MINI ROD TYPE

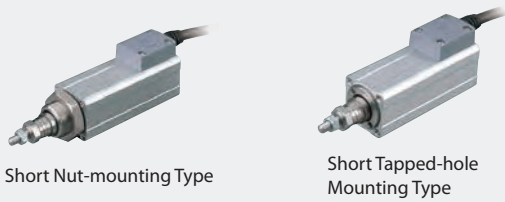


## RCA2 MINI SLIDER TYPE

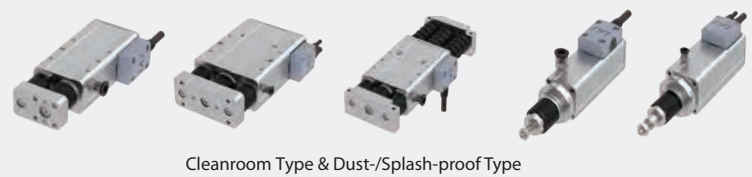


- Replacement is simple with the coupled type motor.
- You can choose from the straight type (motor coupled type) and the side-mounted motor type.

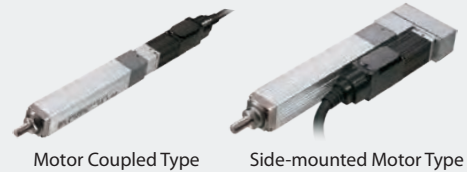
## RCA2/RCS2 MINI ROD TYPE



## RCA2/RCS2 MINI ROD TYPE CLEANROOM DUST/SPLASH-PROOF



## RCA2 MINI ROD TYPE

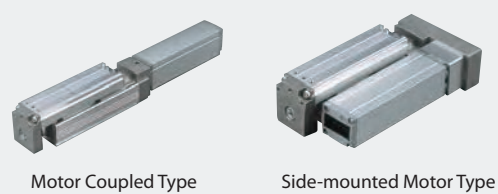


- You can choose between the slim motor coupled type and the short free mounting type, that has significantly reduced in length.
- You can choose between built-in guide type which allows for increased rigidity and straightness, or the external guide type which has significantly been reduced in size.

## RCA2/RCS2 MINI TABLE TYPE



## RCP3/RCA2 MINI TABLE TYPE



- The built-in guide allows the actuator to hold overhung loads.
- You can choose between the compact short type and the motor coupled type with longer stroke.

## RCD MICRO CYLINDER



- The smallest in the industry with a cross-section size of 12mm.
- The built-in encoder allows position control.

## Solenoid Gripper

Compact and lightweight electric gripper that fits in the palm of the hand.

The price is as low as an air chuck. Opening and closing of the fingers are operated simply by ON/OFF signals of single wiring. Continuous retention is possible while still in the gripping or release state.



# Single-axis Robots

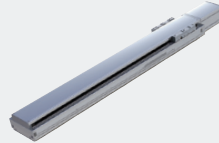
Intelligent actuators with high-speed and high-transfer capabilities



Standard Type: **ISB**  
High-precision  
Standard Type: **ISPB**



Standard Type: **ISA**  
High-precision  
Standard Type: **ISPA**



High-rigidity  
Steel-base Type  
**SSPA**



Simple Dust-proof  
Standard/High-precision Type  
**IS(P)DB/IS(P)DA**



High-rigidity  
Belt-drive Type  
**IF**



Rotary Type  
**RS**



Nut Rotational Type  
**NSA**

- ISB/ISDB Series equipped with Battery-less Absolute Encoder as standard.
- ISB/ISDB High-speed Type equipped with 3x lead ball screws.
- Many variations are available to meet diverse applications.
- The guide is integrated with the base for the linear actuators.

# Cleanroom Types

Dedicated cleanroom types conforming to ISO cleanliness class 2.5 \*

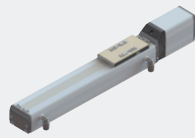
\* ISO Standard 14644-1:2015 (according to class 4 of previous ISO Standard 14644-1:1999)



Pulse Motor  
**RCP6(S)CR**



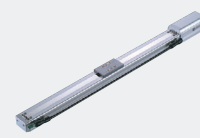
Pulse Motor  
**RCP5CR**



Pulse Motor  
**RCP4CR**



Pulse Motor  
**EC-S□CR**



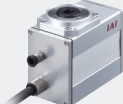
Servo Motor  
**RCACR**



Servo Motor  
**RCS2CR/  
RCS3CR/RCS4CR**



Gripper Type  
**RCP2CR-GR**



Rotary Type  
**RCP2CR-RT**



High-performance Type  
**IS(P)DBCR/IS(P)DACR**



High-performance  
Steel-base Type  
**SSPDACR**



Pulse Motor  
SCARA Robot  
**IXP-□C**



SCARA Robot  
**IX-NNC**



Ultra-compact  
SCARA Robot  
**IX-NNC**

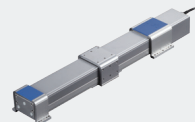
- A well sealed structure allows it to achieve ISO cleanliness class 2.5.
- A wide variety of products are available, from RoboCylinder all the way to single-axis actuators and SCARA robots.

# Splash-proof/Dust-proof Types

These actuators offer protection conforming to IP54~IP67, and are a desirable solution when operated in adverse environments.



Pulse Motor  
Rod / Radial Cylinder Type  
**RCP5W-RA6/7/8/10  
RCP6(S)W-R(R)A4/6/7/8  
RCP6(S)W-WRA10/  
12/14/16**



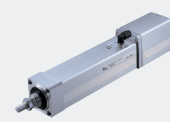
Pulse Motor Slider Type  
**RCP4W-SA5/6/7**



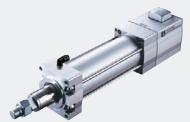
Pulse Motor Rod Type  
**RCP4W-RA6/7**



Pulse Motor Slider Type  
**RCP2W-SA16C**



Pulse Motor Rod Type  
**RCP2W-RA4C/RA6C**



Pulse Motor  
High-thrust Rod Type  
**RCP2W-RA10C**



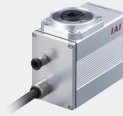
Pulse Motor  
Rod / Radial Cylinder Type  
**EC-R(R)6/7□W**



Servo Motor Rod Type  
**RCS2W-RA4  
RCAW-RA3/4**



Gripper Type  
**RCP2W-GR**



Rotary Type  
**RCP2W-RT**



High power Slider Type  
**ISWA/ISPWA**



Pulse Motor  
SCARA Robot  
**IXP-□W**

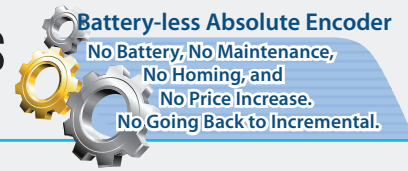


SCARA Robot  
**IX-NNW  
IXA-□NSW**

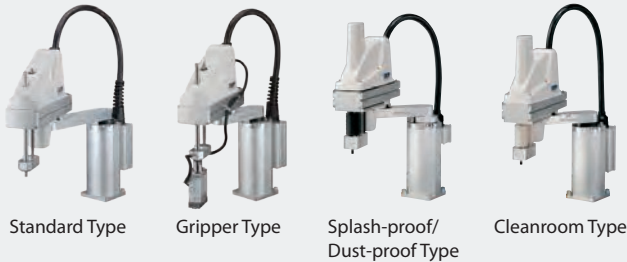
- These actuators handle environments with extreme dust or water splashes.
- Many variations are available to meet diverse applications.

# IXP Series | PowerCon Scara Robots

All models come standard with pulse motors and battery-less absolute encoders



**POWERCON SCARA ROBOT** ARM LENGTH 180/250/350/450/550/650mm



- All models come with pulse motors and battery-less absolute encoders.
- The encoder resolution has increased to 10 times that of the existing IXP.
- The cost of IXP is around half of the traditional models.
- Lighter than conventional models.
- The regular cycle time is about 60% shorter than conventional cartesian robots.
- Added 3-axis specification, 4-axis with gripper specification.
- Equipped with optimal speed and acceleration/deceleration settings.

# IX Series | Scara Robots

The IX SCARA robots feature high performance and functionality



**SCARA ROBOT** ARM LENGTH 120/150/180/250/350/500/600/700/800mm



- Achieves high speeds, payload and precision with servo motors.
- Easy programming makes these actuators much more user-friendly.
- It supports a wide variety of arm lengths, ranging from 120mm to 800mm.

# IXA Series | High-power Scara Robots

New IXA SCARA robots with servo motor and battery-less absolute encoder



**HIGH-POWER SCARA ROBOT** ARM LENGTH 180/300/450/600mm



Standard and High-speed Type (Vertical axis stroke: 50/150/180/330mm)

- Fastest cycle times. (Standard cycle time of high-speed type: 0.26s)
- Achieves a low price.
- Low vibration, accurate positioning.
- Equipped with a Battery-less Absolute Encoder as standard.
- Patent pending: Mechanical structure / features
- Standard type / High-speed type are available.

# TTA Series | Tabletop Robots

Improved tabletop robots for cell productions, R&D applications, and more



**Gate Type**

**Cantilever Type**



- Every model equipped with battery-less absolute encoder as standard.
- AC servo motor specification added to the series of previous pulse motor specification.
- Max. payload: X-axis: 30kg Z-axis: 15kg (AC servo motor), Max. speed: XY-axis: 1200mm/s Z-axis: 40mm/s (AC servo motor)
- Improved positioning repeatability:  $\pm 0.005\text{mm}$  (AC servo motor) /  $\pm 0.01\text{mm}$  (Pulse motor spec)
- The SEL Program Generator eliminates the tedious work of program creation.

# DDA Direct Drive Motors

Coming Soon

High speed/payload/precision, easy control, and compact: A direct drive motor that achieved high cost-performance.



DDA/DDACR  
Slim Type



DDA/DDACR  
High Torque type

- Positioning repeatability  $\pm 0.00103$  degree ( $\pm 3.7s$ ), Index accuracy  $\pm 0.00833$  degree ( $\pm 30s$ ) with SCON-CB & High resolution type.
- Maximum speed of 1800°/s and acceleration/deceleration of 6.0G can make faster positioning time possible.
- Standard or Cleanroom specification (Hollow bore:  $\varnothing 52mm$ ), Slim or High-torque types in lineup. Flange option is available.

## Cartesian Robots

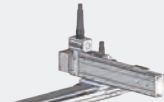
Pre-configured cartesian robots that reduce installation and setup times

**Battery-less Absolute Encoder**  
No Battery, No Maintenance,  
No Homing, and  
No Price Increase,  
No Going Back to Incremental.

### ICSB2/ICSPB2 2-AXIS CONFIGURATION



Y-axis Base Mount Type  
**XYB**



Y-axis Slider Mount Type  
**XYS**



Z-axis Base Mount Type  
**XZ**



Y-axis Base Mount Type  
**YZB**



Y-axis Slider Mount Type  
**YZS**

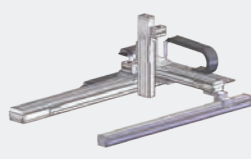


Gantry Type  
**XYG**

### ICSB3/ICSPB3 3-AXIS CONFIGURATION

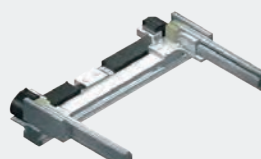


XYB + Z-axis Type  
B□□□□□□□

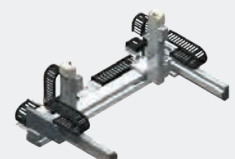


XYG + Z-axis Type  
G□□□□□□□

### ICSPA4 4-AXIS CONFIGURATION



### ICSPA6 6-AXIS CONFIGURATION



- Many variations are available to support 2 to 6-axis configurations.
- The multi-slider types (ICSPA4/ICSPA6) let you reduce space and cycle time.
- High resolution Battery-less Absolute Encoder is available.
- Any models can be customized to meet your specific needs.

## Cartesian RoboCylinder

Multi-axis RoboCylinder RCP2/RCP6/RCS2 kits at a reasonable price

### IK2-P/IK2-S 2-AXIS CONFIGURATION



Y-axis Base Mount Type  
**XYB**



Z-axis Upright Type  
**XZ**



Z-axis Base Mount Type  
**YZB**

### IK2-P6 2-AXIS CONFIGURATION



Y-axis Base Mount Type  
**XYB**



Z-axis Base Mount Type  
**YZB**

### IK3-P/IK3-S 3-AXIS CONFIGURATION



Y-axis + Z-axis Base Mount Type  
**XYB+Z**

### IK3-P6 3-AXIS CONFIGURATION



Y-axis + Z-axis Base Mount Type  
**XYB+Z**

### IK4-P6 4-AXIS CONFIGURATION



Y-axis Base Mount Type + ZR (Vertical/Rotation) Unit Type  
**XYB + ZR unit**

- IK-P series: RCP2 combinations based on 24 VDC pulse motor.
- IK-S series: RCS2 combinations based on 230 VAC servo motor.
- IK-P6 series: RCP6 combinations based on 24 VDC pulse motor with battery-less absolute encoder and high-output driver specification (PowerCon).



# Controllers

A wide variety of operational patterns to fit your specific needs



## LC-LADDER

Free Ladder Programming Software is available for our controller with PLC function

### POSITION CONTROLLER

**REC**  
For EleCylinder

Coming Soon



- EC gateway master unit REC-GW for connect EleCylinder axes to field networks ProfiBus, CC-Link, DeviceNet, Profinet, CC-Link IE, EtherCAT or Ethernet/IP.
- 1~4 EleCylinder with ACR option can be connected to EC connection unit RCON-EC (up to 16 EleCylinder for max. 4 EC connection units per system).
- RCON-EC with RCON controller port allows mixed connections with RoboCylinder and single axis robots.

**P CON-CB** (PowerCon) **A CON-CB** **D CON-CB** **S CON-CB** **S CON-CAL**



For RCP6/5/4/3/2



For RCA/RCA2



For RCD



For RCS2/3/4 Single-axis (SCON-CB/LC)



For RCS2/3/4 Single-axis/ Cartesian

- PowerCon archives 150% more output compared to the traditional models. It supports RCP5 etc. with a battery-less absolute encoder.
- Up to 512 positions can be set.
- ProfiBus, DeviceNet and other field networks can be supported.
- SCON-CB comes with vibration control function.
- SCON-LC and MSEP-LC with PLC function via LC ladder software.

**M CON**

For RoboCylinder, CON Series 8-axis Type



**M SEP**

For RoboCylinder, 8-/6-axis Type (MSEP-C/LC)



**R CON**

For RoboCylinder, Single-axis, 8-/16-axis Type



**M SCON**

SCON Controller, 6-axis Type



- Supporting RCP6 with battery-less absolute encoder.
- Supporting PowerCon (High-output driver), and Mini Cylinder.

- Supporting PowerCon (High-output driver), and Mini Cylinder (MSEP-C/LC).
- Module based network controller with gateway, axis driver, SCON extension and simple absolute unit (RCON).

- For RCS2/3/4 and single-axis robot, combined 6 controllers into 1 controller.
- Supporting various field networks.

### PROGRAM CONTROLLER

**P SEL**



For RCP2/RCP3

**A SEL**



For RCA/RCA2

**S SEL**



1-2 axes  
For RCS2/RCS3/RCS4 Single-axis

**X-SEL**



1-8 axes  
For RCS2/RCS3/RCS4 Single-axis/SCARA

Coming Soon

**R SEL**



1-8 axes  
For RoboCylinder, Single-axis/Cartes. Robot

**M SEL**



1-4 axes  
For RCP6/5/4/3/2 IXP SCARA

- PSEL/ASEL/SSEL controllers support interpolated operation and are used to set 1 or 2 axes.
- XSEL and modular RSEL controllers can operate up to 8 axes.
- All controllers support ProfiBus, DeviceNet and other field networks.

# Teaching Pendants

Programming points have never been easier  
Compatible with Safety Category



\*screen image

Touch Panel Teaching Pendant for Position Controllers and Program Controllers

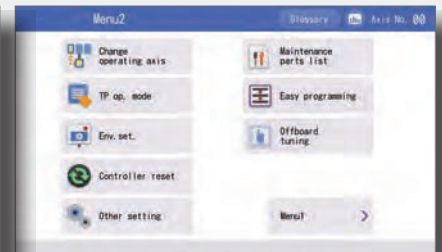
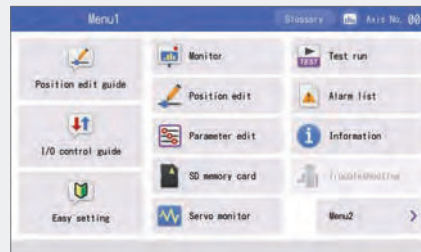
TB-02



\*screen image

Touch Panel Data Setter (for EleCylinder also with Wireless Function)

TB-03



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Vers. CE0033-30.10D