IAI
Quality and Innovation

IAI Product Lineup

30th revised Edition

Electric Actuators & Small Robots for Smart Industrial Automation

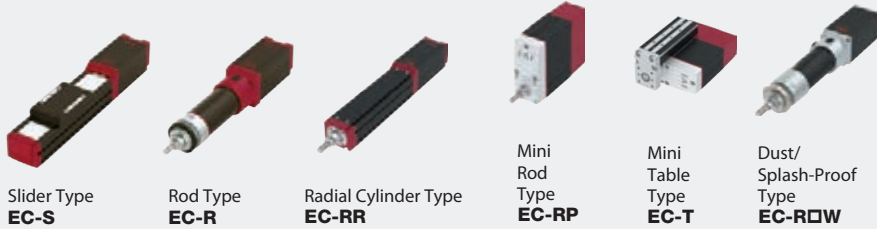green automation

IAI

SMART FACTORY

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.

EC ELECYLINDER

ELECYLINDER EC SERIES

Slider Type
EC-S

Rod Type
EC-R

Radial Cylinder Type
EC-RR

Mini Rod Type
EC-RP

Mini Table Type
EC-T

Dust/Splash-Proof Type
EC-R□W

- 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
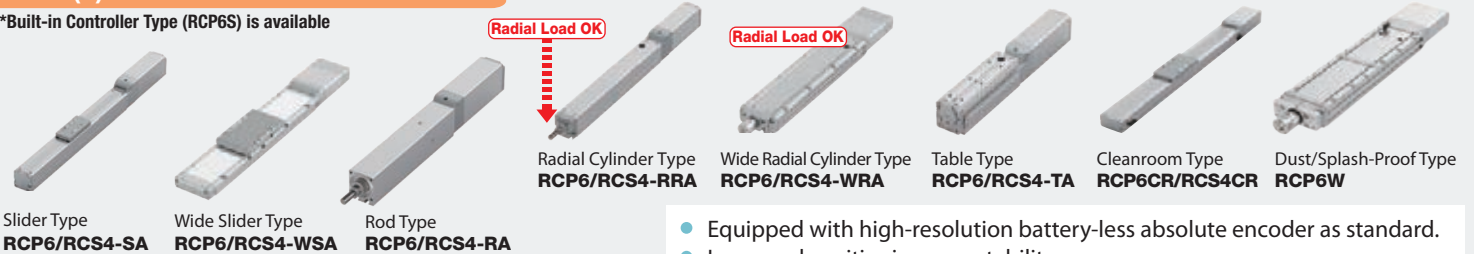- Stable velocity. Cycle time can be reduced.
- Long service life.

Next Generation RoboCylinder RCP6/RCS4

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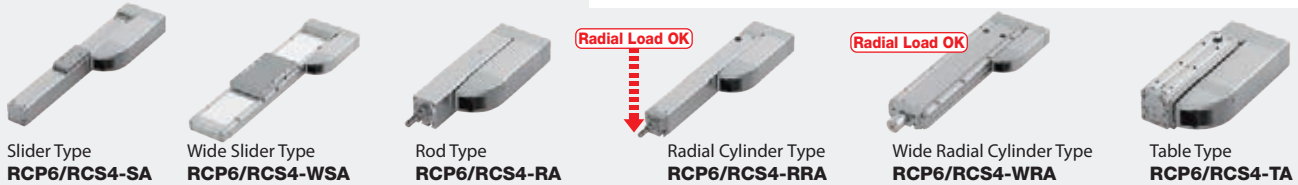54 RCS4 models with servo motor, you can find one that is most suitable for your needs.

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

RC ROBO CYLINDER

RCP6(S)/RCS4 SERIES STRAIGHT MOTOR TYPE
*Built-in Controller Type (RCP6S) is available

Slider Type
RCP6/RCS4-SA

Wide Slider Type
RCP6/RCS4-WSA

Rod Type
RCP6/RCS4-RA

Radial Load OK

Radial Cylinder Type
RCP6/RCS4-RRA

Radial Load OK

Wide Radial Cylinder Type
RCP6/RCS4-WRA

Table Type
RCP6/RCS4-TA

Cleanroom Type
RCP6CR/RCS4CR

Dust/Splash-Proof Type
RCP6W

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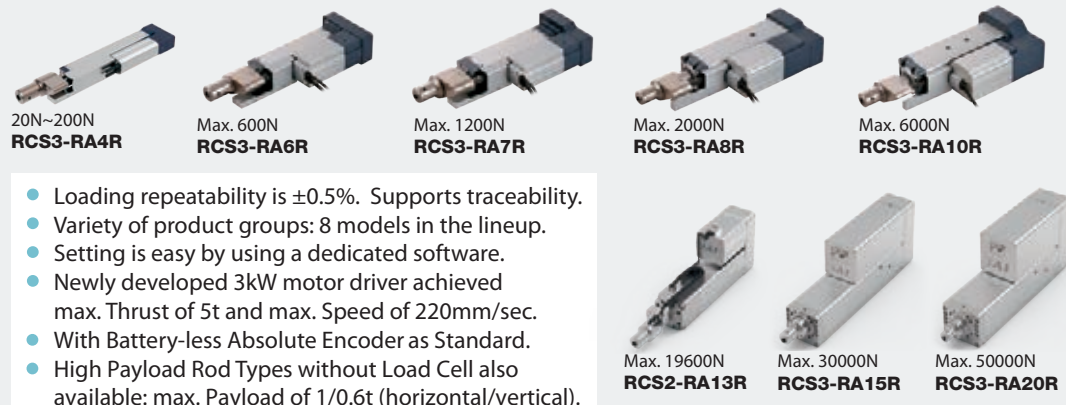- Cleanroom and Dust/Splash-Proof specification series available.

RCP6(S)/RCS4 SERIES SIDE-MOUNTED MOTOR TYPE
*Built-in Controller Type (RCP6S) is available

Slider Type
RCP6/RCS4-SA

Wide Slider Type
RCP6/RCS4-WSA

Rod Type
RCP6/RCS4-RA

Radial Load OK

Radial Cylinder Type
RCP6/RCS4-RRA

Radial Load OK

Wide Radial Cylinder Type
RCP6/RCS4-WRA

Table Type
RCP6/RCS4-TA

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.

20N~200N
RCS3-RA4R

Max. 600N
RCS3-RA6R

Max. 1200N
RCS3-RA7R

Max. 2000N
RCS3-RA8R

Max. 6000N
RCS3-RA10R

Max. 19600N
RCS2-RA13R

Max. 30000N
RCS3-RA15R

Max. 50000N
RCS3-RA20R

- Loading repeatability is ±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.
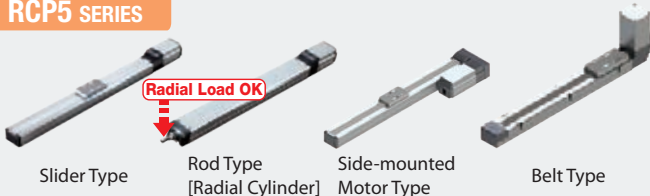Orthogonal axes and interpolation commands are possible.

Compact Type
WU-S

Medium Type
WU-M

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.
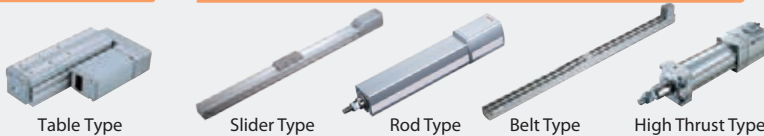
ROBO CYLINDER

RCP5 SERIES

Radial Load OK

Slider Type   Rod Type [Radial Cylinder]   Side-mounted Motor Type   Belt Type

- 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

Radial Load OK

Slider Type   Rod Type [Radial Cylinder]   Side-mounted Motor Type

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

RCP3 SERIES

Table Type

Slider Type

RCP2 SERIES PULSE MOTOR TYPE WITH HIGH PERFORMANCE

Slider Type   Rod Type   Belt Type   High Thrust Type

Rotary Type   High Force Gripper   3-finger-Gripper   Short Body Type   Short Body Type with Guide   Vertical Type
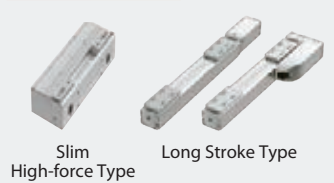
- A high push force is achieved utilizing the characteristics of pulse motors.
- An abundance of sizes and variations is available to meet a wide range of applications.

RCP4/RCP2 GRIPPER

Horizontal Type

RCP6 GRIPPER

Slim High-force Type   Long Stroke Type

- 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

Coming Soon

Large Diameter Hollow Rotary Type

Coming Soon
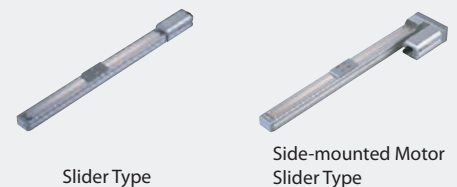
Rotary Chuck Unit

RCA2 SERIES

Table Type   Slider Type

- 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.

RCA SERIES 24V SERVO MOTOR TYPE

Rod Type   Side-mounted Motor Rod Type   Rod Type with Guide

Slider Type   Side-mounted Motor Slider Type

RCS3 SERIES

Aluminum-base Type   Steel-base Type   Slider Type

High-speed Slider Type **RCS3-CT8C**   High-speed Table Type **RCS3-CTZ5C**   Ultra-high-thrust Rod Type

RCS2 SERIES 230V SERVO MOTOR TYPE

Slider Type   Side-mounted Motor Slider Type   Slim Rod Type   Gripper Type

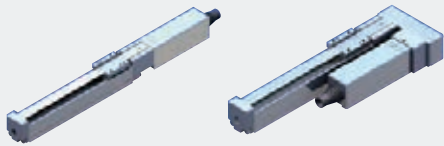Rod Type with Guide   Large Diameter Hollow Rotary Type

- 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.
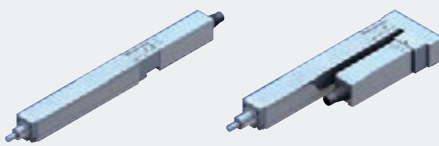
Mini RoboCylinder

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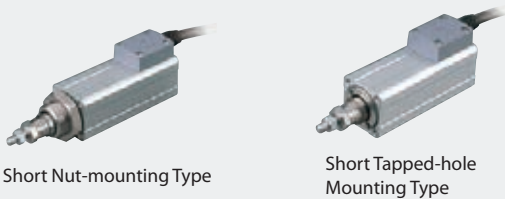
RC ROBO CYLINDER

RCP3 MINI SLIDER TYPE

Motor Coupled Type   Side-mounted Motor 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.
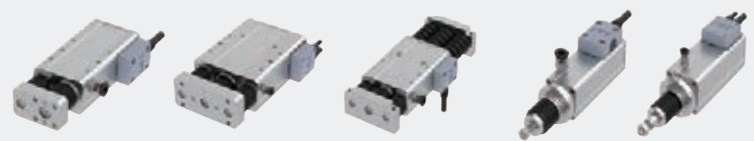
RCP3 MINI ROD TYPE

Motor Coupled Type   Side-mounted Motor Type

RCA2 MINI SLIDER TYPE

Motor Coupled Type   Side-mounted Motor Type

RCA2/RCS2 MINI ROD TYPE

Short Nut-mounting Type   Short Tapped-hole Mounting Type

Short Free Mounting Type with Single Guide   Short Free Mounting Type with Double Guides   Short Slide Unit Type with Double Guides

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

Cleanroom Type & Dust-/Splash-proof Type

RCA2 MINI ROD TYPE

Motor Coupled Type   Side-mounted Motor 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.

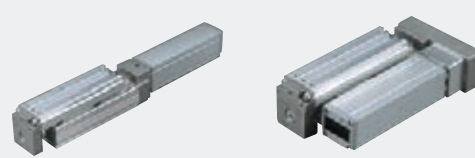## RCA2/RCS2 MINI TABLE TYPE

Short Compact Type   Short Wide Type   Short Flat Type

RCP3/RCA2 MINI TABLE TYPE

Motor Coupled Type   Side-mounted Motor 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

Ultra-compact Rod Type   Mini Vertical Gripper Type

- 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.

Small Type **GRS-S**   Medium Type **GRS-M**

Single-axis Robots

Intelligent actuators with high-speed and high-transfer capabilities

INTELLIGENT ACTUATOR

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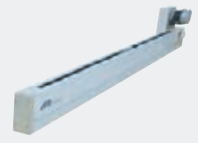High-precision Type: **ISPB**

High-rigidity Type
(Steel-base)
SSPA

Simple Dust-proof Type
ISDB/ISPDB

High-rigidity
Belt-drive Type
IF

Slim Belt-drive Type
FS

Rotary Type
RS

Nut Rotational Type
NS

- 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.
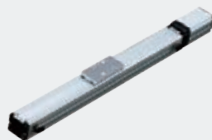- The guide is integrated with the base for the linear actuators.

Cleanroom Types

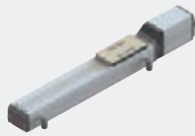Dedicated cleanroom types conforming to ISO cleanliness class 2.5 *

* 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

Servo Motor
RCACR

Servo Motor
**RCS2CR/
RCS3CR/RCS4CR**

High-performance Type
ISDBCR/ISPDBCR

Anti-static Type
ISDBCR-ESD

Gripper Type
RCP2CR-GR

Rotary Type
RCP2CR-RT

SCARA Robot
IXP-☐C

SCARA Robot
IX-NNC

Ultra-compact
SCARA Robot
IX-NNC
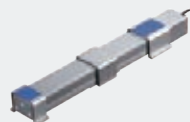
Coming Soon

Direct Drive
Motor
DDACR

- 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

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

Gripper Type
RCP2W-GR

Rotary Type
RCP2W-RT

Slider Type
ISWA/ISPWA
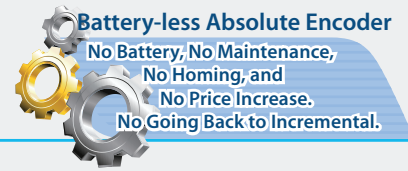
SCARA Robot
IXP-☐W

SCARA Robot
IX-NNW

Coming Soon

Direct Drive Motor
DDW

- 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 battery-less absolute encoders

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

Standard Type   Gripper Type   Splash-proof/Dust-proof Type   Cleanroom Type

- All models come standard with 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

IX INTELLIGENT ACTUATOR

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

Standard Ultra-compact Type   Standard Small, Medium, Large Type   High-speed Type   Wall Type   Ceiling Type
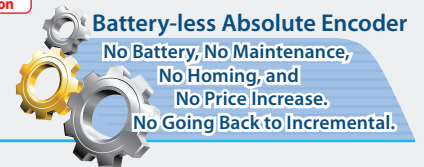
- Achieves high speeds, payload and precision.
- Easy programming makes these actuators much more user-friendly.
- It supports a wide variety of arm lengths, ranging from 120mm to 800mm.

IXA Series | High-power Scara Robots

Coming Soon

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

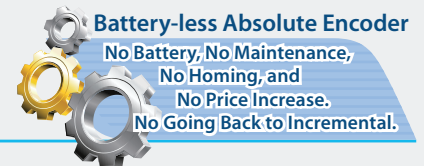## HIGH-POWER SCARA ROBOT ARM LENGTH 300/450/600mm

Standard and High-speed Type (Vertical axis stroke:: 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

2-axis Specification   3-axis Specification   4-axis Specification

Cantilever Type

2-axis Specification   3-axis Specification   4-axis Specification

- Every model equipped with battery-less absolute encoder as standard.
- AC Servo Motor specification added to the series.
- 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: ±0.005mm (AC servo motor) /±0.01mm (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.
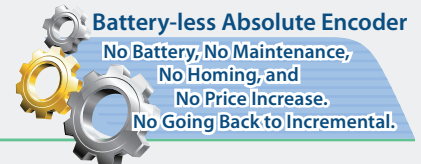
DDA/DDACR
Slim Type

DDA/DDACR
High Torque type

- Positioning repeatability ±0.00103 degree (±3.7s), Index accuracy ± 0.00833 degree (±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: Ø52mm), 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

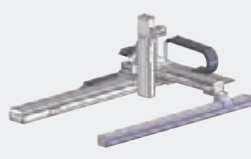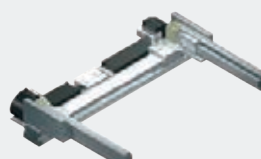## ICSB3/ICSPB3 3-AXIS CONFIGURATION
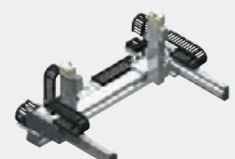
XYB + Z-axis Type
B□□□□□□

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

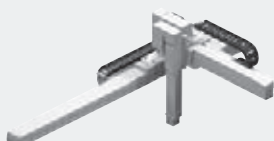Z-axis Base Mount Type
YZB

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

P SEP
For RCP2/RCP3

A SEP
For RCA/RCA2

D SEP
For RCD

- 3-position controllers.
- Use the same signals as air-cylinder solenoid valves.
- Standard and dust-proof specifications are available.
- The dust-proof specification has a protective structure conforming to IP53, allowing it to be installed outside the control panel.

P CON·CB
(PowerCon)
For RCP6/5/4/3/2

A CON·CB
For RCA/RCA2

D CON·CB
For RCD

S CON·CB
For RCS2/3/4 Single-axis

S CON-CAL
For RCS2/3/4 Single-axis/Cartesian

- PowerCon archives 150% more output compared to the traditional models. It supports RCP5 with a battery-less absolute encoder.
- Up to 512 positions can be set.
- DeviceNet, CC-Link and other field networks can be supported.
- SCON-CB comes with vibration control function.
- SCON-LC and MCON-LC with PLC function are coming soon.

MCON
For RoboCylinder, CON Series 8-axis Type

MSEP·LC
For RoboCylinder, 6-axis Type with PLC Function

MSEP
For RoboCylinder, 8-axis Type

MSCON
SCON Controller, 6-axis Type

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

- Added PLC function (MSEP-LC).
- Supporting RCP5 with battery-less absolute encoder (MSEP-LC/C).
- Supporting PowerCon (High-output driver), and Mini Cylinder (MSEP-LC/C).

- For RCS2/3/4, 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

MSEL
For RCP6/5/4/3/2/ PowerCon SCARA

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

Teaching Pendants

Programming points have never been easier
Compatible with Safety Category

*screen image

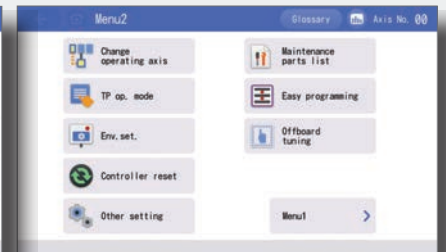Touch Panel Teaching Pendant for Position Controllers and Program Controllers
TB-02

*screen image

Touch Panel Data Setter (for EleCylinder also with Wireless Function)
TB-03