Slider Type

Mini

Standard

Controllers Integrated

Rod Type

Mini

Standard

Controllers Integrated

Table/Arm /Flat Type

Mini

Standard

Gripper/ Rotary Type

Linear Servo Type

Cleanroom Type

Splash-Proof

Controllers

PMEC /AMEC

PSEP /ASEP

ROBO NET

ERC2

PCON

ACON

SCON

PSEL

ASEL

SSEL

XSEL

Pulse Motor

Servo Motor (24V)

Servo Motor (200V)

Linear Servo Motor

# PSEP / ASEP Controller

**P SEP**

Model C/CW
3-position controller for RCP2/RCP3
Position Controller

**A SEP**

Model C/CW
3-position controller for RCA/RCA2/RCL
Position Controller

## Feature

### 1 Can operate with same signal as a solenoid valve.

The signal that operates the actuator is the same as the signal that operates the air cylinder. Therefore, the PLC program currently in use can be used without modification even if the air cylinder is replaced by an electric-powered cylinder. Either a single solenoid or a double solenoid may be used.

Extended

Signal ON

Retracted

Signal OFF
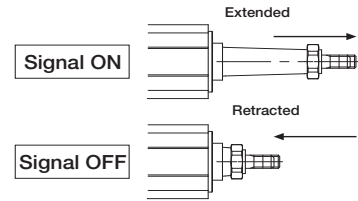
### 2 Establishes a dustproof type that supports IP53.

We provide dustproof type controllers with an IP53 equivalent (*1) protection structure, so that the controller can be mounted outside the control panel.

(1) Bottom surface excluded.

### 3 Provides the simple absolute type that can be operated immediately upon power-ON without homing.

Since the simple absolute type can store the current position with the assistance of the absolute battery unit during power-up or after the emergency stop is deactivated; it can start the next operation at that position.

(Note 1) When the actuator is connected to the simple absolute type controller, the model is considered an incremental model.
(Note 2) It can not be used for the linear servo type.

When mounting the absolute battery unit, mount it below the SEP controller.
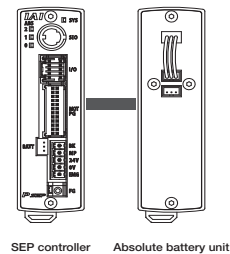
SEP controller     Absolute battery unit

### 4 Pushing and intermediate stop operation is available.

Like air cylinders, the pushing operation is available. In this operation, you can stop with a rod being pushed to a workpiece.
Since the force for the push operation is adjustable within a range between 20 to 70 % of the maximum pushing force and a signal is generated when it reaches the specified pushing force, it can be used to determine clamping or size of workpieces.
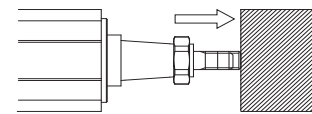
Push force is adjustable within the range of 20 to 70% of the maximum pushing force

### 5 Easy data entry with the dedicated touch panel teaching unit.

Data, such as setting target positions or pushing force, are easily entered with the optional touch panel teaching model: CON-PT.
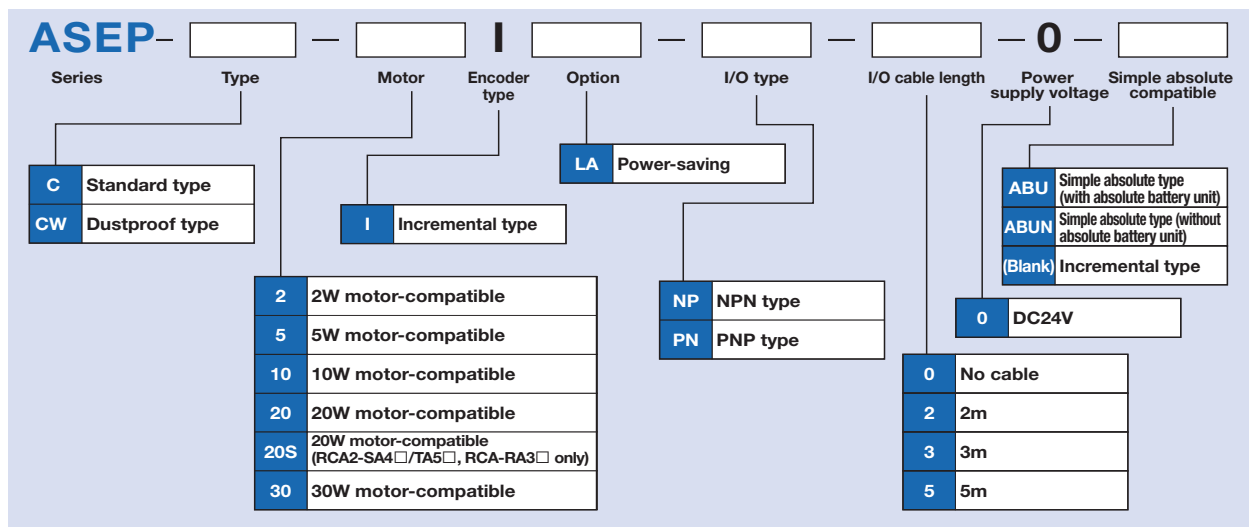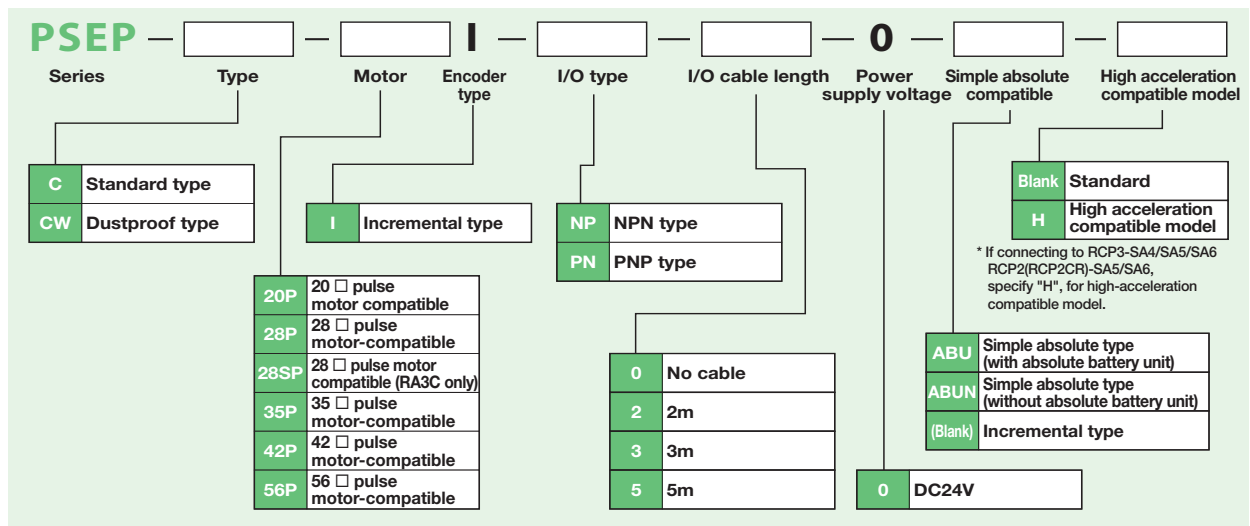Since the touch panel teaching unit provides an interactive menu and can be controlled directly on the screen, you can operate intuitively with no assistance from operation manuals.

## Model List

| Series name | PSEP | | | | ASEP | | | |
|---|---|---|---|---|---|---|---|---|
| Type | C | | CW | | C | | CW | |
| Name | Standard | | Dustproof | | Standard | | Dust proof | |
| Positioning method | Incremental encoder | Simple absolute type | Incremental encoder | Simple absolute type | Incremental encoder | Simple absolute type | Incremental encoder | Simple absolute type |
| External View | | | | | | | | |
| Description | Position controller, for pulse motors, specialized to 2 positions / 3 positions positioning and easier control | | PSEP-C dustproof type with an IP53 equivalent protection structure | | Position controller, for servo motors, specialized to 2 positions / 3 positions positioning and easier control | | ASEP-C dustproof type with an IP53 equivalent protection structure | |
| Number of positions | 2 positions / 3 positions | | | | | | | |
| Standard price | – | – | – | – | – | – | – | – |

## Model

**PSEP** – ☐ – ☐ **I** – ☐ – ☐ – **0** – ☐ – ☐

Series / Type / Motor / Encoder type / I/O type / I/O cable length / Power supply voltage / Simple absolute compatible / High acceleration compatible model

| C | Standard type |
|---|---|
| CW | Dustproof type |

| I | Incremental type |
|---|---|

| 20P | 20 ☐ pulse motor compatible |
|---|---|
| 28P | 28 ☐ pulse motor-compatible |
| 28SP | 28 ☐ pulse motor compatible (RA3C only) |
| 35P | 35 ☐ pulse motor-compatible |
| 42P | 42 ☐ pulse motor-compatible |
| 56P | 56 ☐ pulse motor-compatible |

| NP | NPN type |
|---|---|
| PN | PNP type |

| 0 | No cable |
|---|---|
| 2 | 2m |
| 3 | 3m |
| 5 | 5m |

| 0 | DC24V |
|---|---|

| Blank | Standard |
|---|---|
| H | High acceleration compatible model |

\* If connecting to RCP3-SA4/SA5/SA6 RCP2(RCP2CR)-SA5/SA6, specify "H", for high-acceleration compatible model.

| ABU | Simple absolute type (with absolute battery unit) |
|---|---|
| ABUN | Simple absolute type (without absolute battery unit) |
| (Blank) | Incremental type |

**ASEP** – ☐ – ☐ **I** ☐ – ☐ – ☐ – **0** – ☐

Series / Type / Motor / Encoder type / Option / I/O type / I/O cable length / Power supply voltage / Simple absolute compatible

| C | Standard type |
|---|---|
| CW | Dustproof type |

| I | Incremental type |
|---|---|

| LA | Power-saving |
|---|---|

| 2 | 2W motor-compatible |
|---|---|
| 5 | 5W motor-compatible |
| 10 | 10W motor-compatible |
| 20 | 20W motor-compatible |
| 20S | 20W motor-compatible (RCA2-SA4☐/TA5☐, RCA-RA3☐ only) |
| 30 | 30W motor-compatible |

| NP | NPN type |
|---|---|
| PN | PNP type |

| 0 | No cable |
|---|---|
| 2 | 2m |
| 3 | 3m |
| 5 | 5m |

| 0 | DC24V |
|---|---|

| ABU | Simple absolute type (with absolute battery unit) |
|---|---|
| ABUN | Simple absolute type (without absolute battery unit) |
| (Blank) | Incremental type |

# PSEP / ASEP Controller
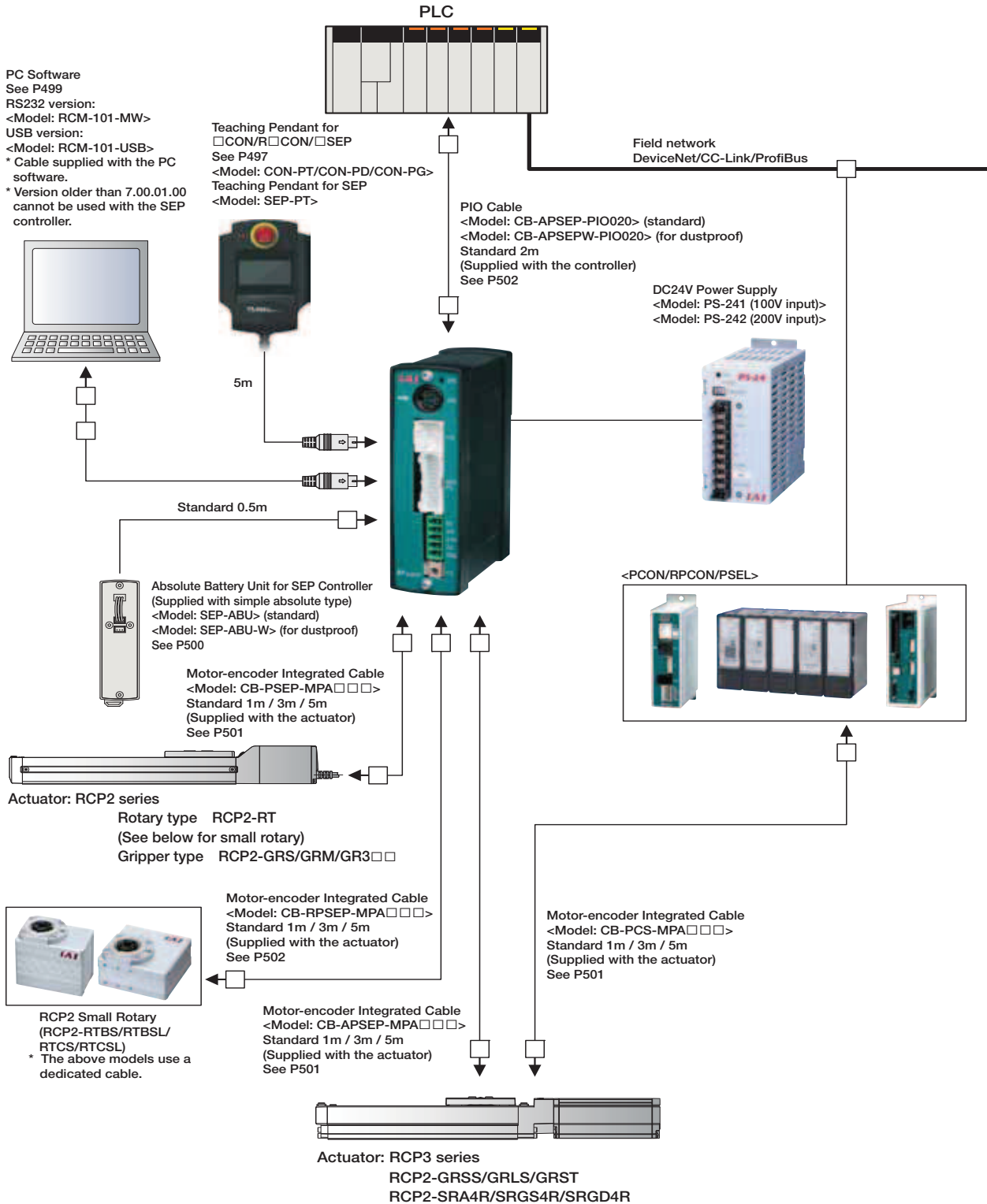
Slider Type
Mini
Standard
Controllers Integrated
Rod Type
Mini
Standard
Controllers Integrated
Table/Arm /Flat Type
Mini
Standard
Gripper/ Rotary Type
Linear Servo Type
Cleanroom Type
Splash-Proof
Controllers
PMEC /AMEC
PSEP /ASEP
ROBO NET
ERC2
PCON
ACON
SCON
PSEL
ASEL
SSEL
XSEL
Pulse Motor
Servo Motor (24V)
Servo Motor (200V)
Linear Servo Motor

## System structure

## [PSEP]

**PLC**

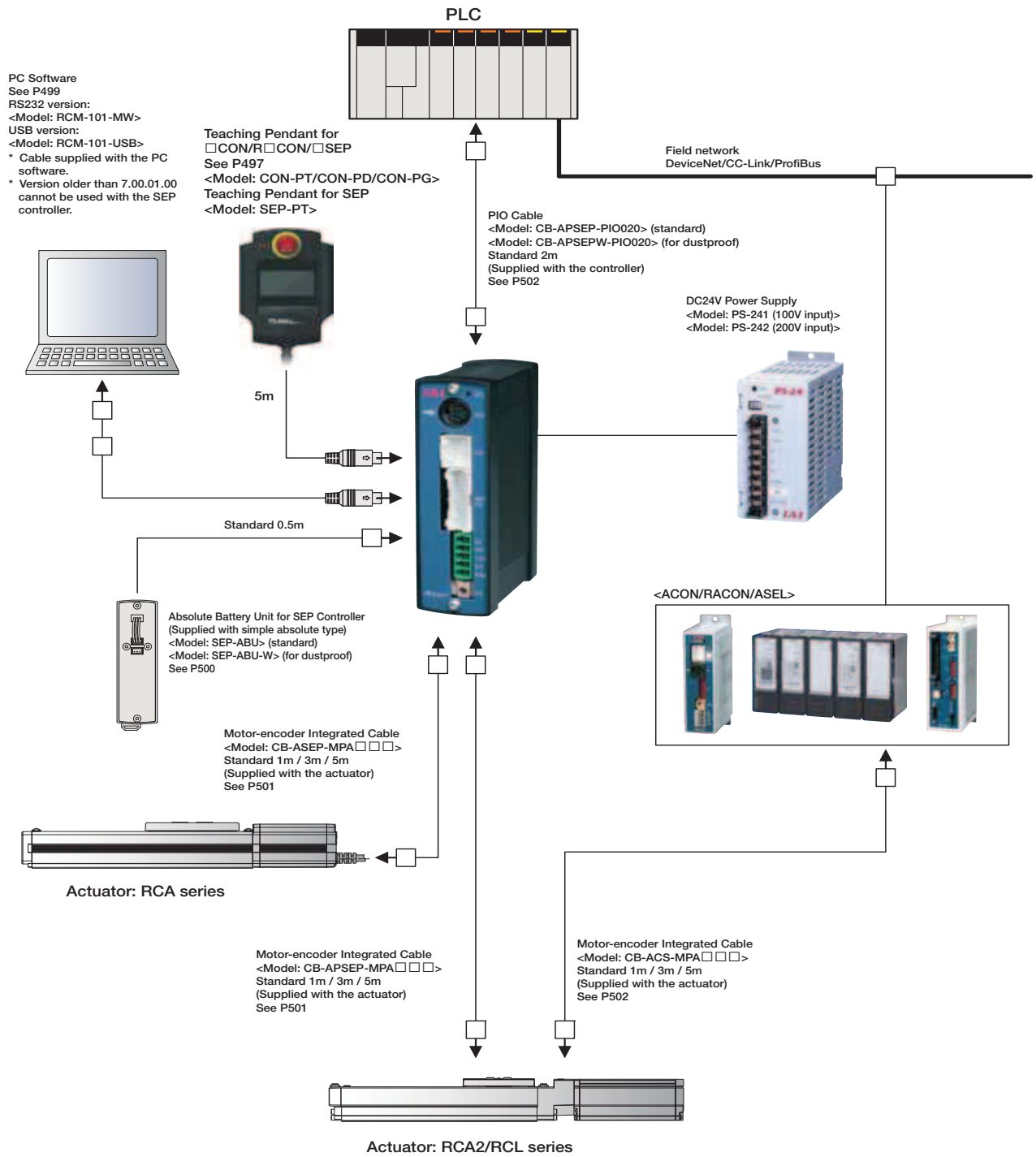**Field network**
DeviceNet/CC-Link/ProfiBus

**PC Software**
See P499
RS232 version:
<Model: RCM-101-MW>
USB version:
<Model: RCM-101-USB>
* Cable supplied with the PC software.
* Version older than 7.00.01.00 cannot be used with the SEP controller.

**Teaching Pendant for**
□CON/R□CON/□SEP
See P497
<Model: CON-PT/CON-PD/CON-PG>
Teaching Pendant for SEP
<Model: SEP-PT>

**PIO Cable**
<Model: CB-APSEP-PIO020> (standard)
<Model: CB-APSEPW-PIO020> (for dustproof)
Standard 2m
(Supplied with the controller)
See P502

**DC24V Power Supply**
<Model: PS-241 (100V input)>
<Model: PS-242 (200V input)>

5m

Standard 0.5m

**Absolute Battery Unit for SEP Controller**
(Supplied with simple absolute type)
<Model: SEP-ABU> (standard)
<Model: SEP-ABU-W> (for dustproof)
See P500

<PCON/RPCON/PSEL>

**Motor-encoder Integrated Cable**
<Model: CB-PSEP-MPA□□□>
Standard 1m / 3m / 5m
(Supplied with the actuator)
See P501

**Actuator: RCP2 series**
Rotary type    RCP2-RT
(See below for small rotary)
Gripper type    RCP2-GRS/GRM/GR3□□

**Motor-encoder Integrated Cable**
<Model: CB-RPSEP-MPA□□□>
Standard 1m / 3m / 5m
(Supplied with the actuator)
See P502

**Motor-encoder Integrated Cable**
<Model: CB-PCS-MPA□□□>
Standard 1m / 3m / 5m
(Supplied with the actuator)
See P501

**RCP2 Small Rotary**
(RCP2-RTBS/RTBSL/ RTCS/RTCSL)
* The above models use a dedicated cable.

**Motor-encoder Integrated Cable**
<Model: CB-APSEP-MPA□□□>
Standard 1m / 3m / 5m
(Supplied with the actuator)
See P501

**Actuator: RCP3 series**
RCP2-GRSS/GRLS/GRST
RCP2-SRA4R/SRGS4R/SRGD4R

## System structure

### [ASEP]

**PLC**

RS232 version:
<Model: RCM-101-MW>
USB version:
<Model: RCM-101-USB>
* Cable supplied with the PC software.
* Version older than 7.00.01.00 cannot be used with the SEP controller.

Teaching Pendant for
□CON/R□CON/□SEP
<Model: CON-PT/CON-PD/CON-PG>
Teaching Pendant for SEP
<Model: SEP-PT>

Field network
DeviceNet/CC-Link/ProfiBus

PIO Cable
<Model: CB-APSEP-PIO020> (standard)
<Model: CB-APSEPW-PIO020> (for dustproof)
Standard 2m
(Supplied with the controller)

DC24V Power Supply
<Model: PS-241 (100V input)>
<Model: PS-242 (200V input)>

5m

Standard 0.5m

Absolute Battery Unit for SEP Controller
(Supplied with simple absolute type)
<Model: SEP-ABU> (standard)
<Model: SEP-ABU-W> (for dustproof)

<ACON/RACON/ASEL>

Motor-encoder Integrated Cable
<Model: CB-ASEP-MPA□□□>
Standard 1m / 3m / 5m
(Supplied with the actuator)

**Actuator: RCA series**

Motor-encoder Integrated Cable
<Model: CB-APSEP-MPA□□□>
Standard 1m / 3m / 5m
(Supplied with the actuator)

Motor-encoder Integrated Cable
<Model: CB-ACS-MPA□□□>
Standard 1m / 3m / 5m
(Supplied with the actuator)

**Actuator: RCA2/RCL series**

Slider Type
Mini
Standard
Controllers Integrated
Rod Type
Mini
Standard
Controllers Integrated
Table/Arm /Flat Type
Mini
Standard
Gripper/ Rotary Type
Linear Servo Type
Cleanroom Type
Splash-Proof
Controllers
PMEC /AMEC
PSEP /ASEP
ROBO NET
ERC2
PCON
ACON
SCON
PSEL
ASEL
SSEL
XSEL
Pulse Motor
Servo Motor (24V)
Servo Motor (200V)
Linear Servo Motor

*IAI*

PSEP / ASEP **490**

## PIO Pattern Description

The SEP controller provides the following six PIO patterns from which you can choose for operation.
Also, PIO patterns 0 to 2 support both the single solenoid and double solenoid signal configurations.
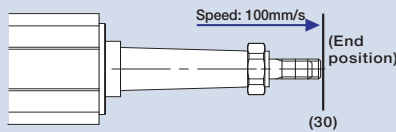
| PIO Pattern Number | | 0 | | 1 | | 2 | | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| PIO Pattern Name | | Standard 2-position movement | | Moving speed change | | Position Data Change | | 2-input 3-position travel | 3-input 3-position travel | Continuous cycle operation |
| Feature | | Continuous cycle operation | | 2-position motion | | 2-position motion | | 3-position motion | 3-position motion | Continuous motion between 2 positions |
| | | Push | | Push | | Push | | Push | Push | Push |
| | | – | | Changing speed during motion | | Motion position data change | | – | – | – |
| Supported solenoid configurations | | Single | Double | Single | Double | Single | Double | – | – | – |
| Input | 0 | Motion signal | Motion signal 1 | Motion signal | Motion signal 1 | Motion signal | Motion signal 1 | Motion signal 1 | Retract motion signal | Continuous operation signal |
| | 1 | Pause signal | Motion signal 2 | Pause signal | Motion signal 2 | Pause signal | Motion signal 2 | Motion signal 2 | Extend motion signal | Pause signal |
| | 2 | – (Reset signal) | | Moving speed change signal (reset signal) | | Target position change signal (reset signal) | | – (Reset signal) | Intermediate motion signal (reset signal) | – (Reset signal) |
| | 3 | – /Servo-ON signal | | – /Servo-ON signal | | – /Servo-ON signal | | – /Servo-ON signal | – /Servo-ON signal | – /Servo-ON signal |
| Output | 0 | Retract motion output signal | | Retract motion output signal | | Retract motion output signal | | Retract motion output signal | Retract motion output signal | Retract motion output signal |
| | 1 | Extend motion output signal | | Extend motion output signal | | Extend motion output signal | | Extend motion output signal | Extend motion output signal | Extend motion output signal |
| | 2 | Homing completion signal / Servo-ON output signal | | Homing completion signal /Servo-ON output signal | | Homing completion signal /Servo-ON output signal | | Midpoint position output signal | Midpoint position output signal | Homing completion signal /Servo-ON output signal |
| | 3 | Alarm output signal / Servo-ON output signal | | Alarm output signal /Servo-ON output signal | | Alarm output signal /Servo-ON output signal | | Alarm output signal /Servo-ON output signal | Alarm output signal /Servo-ON output signal | Alarm output signal /Servo-ON output signal |

* For the signals above, see the controller manuals (downloadable from our website).

### PIO Pattern 0 (Standard 2-Position travel)

This PIO pattern involves movements between two positions—the end position and the home position.
The positions can be set numerically to any position (by inputting to the controller using the optional touch panel teaching pendant).
Two motions are possible: A "positioning motion" moves the rod or the slider to the specified position, and a "pushing motion" pushes the rod against a workpiece.
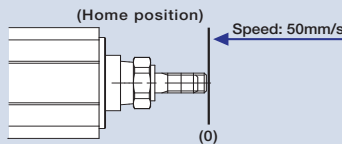
#### Positioning Motion (Single Solenoid)

Speed: 100mm/s
(End position)
(30)

| End Position Data | |
|---|---|
| Position | 30 |
| Speed | 100 |
| Pushing force | – |
| Width | – |

| Input Signals | |
|---|---|
| Input 0 | ON |
| Input 1 | – |
| Input 2 | – |
| Input 3 | – |

When Input 0 is turned ON, the slider/rod moves to the end position (30mm coordinate) at a speed of 100mm/s.

(Home position)
Speed: 50mm/s
(0)

| Home Position Data | |
|---|---|
| Position | 0 |
| Speed | 50 |
| Pushing force | – |
| Width | – |

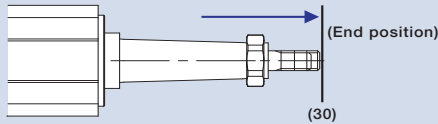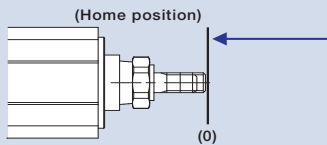| Input Signals | |
|---|---|
| Input 0 | OFF |
| Input 1 | – |
| Input 2 | – |
| Input 3 | – |

When input 0 is turned OFF, the slider/rod returns to the home position (0mm coordinate) at a speed of 50mm/s.

Sidebar navigation: Slider Type, Mini, Standard, Controllers Integrated, Rod Type, Mini, Standard, Controllers Integrated, Table/Arm /Flat Type, Mini, Standard, Gripper/ Rotary Type, Linear Servo Type, Cleanroom Type, Splash-Proof, Controllers, PMEC /AMEC, PSEP /ASEP, ROBO NET, ERC2, PCON, ACON, SCON, PSEL, ASEL, SSEL, XSEL, Pulse Motor, Servo Motor (24V), Servo Motor (200V), Linear Servo Motor

## Positioning Motion (Double Solenoid)


(End position)
(30)

| End Position Data | |
|---|---|
| Position | 30 |
| Speed | 100 |
| Pushing force | – |
| Width | – |

**Input Signals**

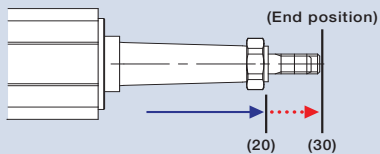| Input 0 | OFF |
|---|---|
| Input 1 | ON |
| Input 2 | – |
| Input 3 | – |

When Input 1 is turned ON and Input 0 is turned OFF, the slider/rod moves to the end position (30mm coordinate) at a speed of 100mm/s.


(Home position)
(0)

| Home Position Data | |
|---|---|
| Position | 0 |
| Speed | 50 |
| Pushing force | – |
| Width | – |

**Input Signals**

| Input 0 | ON |
|---|---|
| Input 1 | OFF |
| Input 2 | – |
| Input 3 | – |

When Input 0 is turned ON and Input 1 is turned OFF, the slider/rod returns to the home position (0mm coordinate) at a speed of 50mm/s.

## Push motion (single solenoid)


(End position)
(20)  (30)

| End Position Data | |
|---|---|
| Position | 30 |
| Speed | 100 |
| Pushing force | 50 |
| Width | 10 |

**Input Signals**

| Input 0 | ON |
|---|---|
| Input 1 | – |
| Input 2 | – |
| Input 3 | – |

When Input 0 is turned ON, the rod moves to the 20mm position at 100mm/s, and then starts pushing from the 20mm position to the 30mm position at slow speed.

* The pushing motion is performed only if there is a numerical value for the pushing force in the controller's position data. (If there is no numerical value for the pushing force, a positioning motion will be performed instead.)

## Push motion (double solenoid)
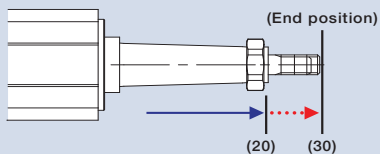

(End position)
(20)  (30)

| End Position Data | |
|---|---|
| Position | 30 |
| Speed | 100 |
| Pushing force | 50 |
| Width | 10 |

**Input Signals**

| Input 0 | OFF |
|---|---|
| Input 1 | ON |
| Input 2 | – |
| Input 3 | – |

When Input 1 is turned ON and Input 0 is turned OFF, the rod moves to the 20mm position at 100mm/s, and then starts pushing from the 20mm position to the 30mm position at slow speed.

* The pushing motion is performed only if there is a numerical value for the pushing force in the controller's position data. (If there is no numerical value for the pushing force, a positioning motion will be performed instead.)

Slider Type
Mini
Standard
Controllers Integrated
Rod Type
Mini
Standard
Controllers Integrated
Table/Arm /Flat Type
Mini
Standard
Gripper/ Rotary Type
Linear Servo Type
Cleanroom Type
Splash-Proof
Controllers
PMEC /AMEC
PSEP /ASEP
ROBO NET
ERC2
PCON
ACON
SCON
PSEL
ASEL
SSEL
XSEL
Pulse Motor
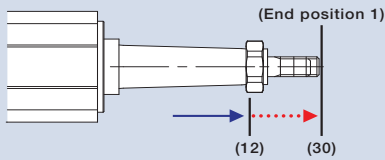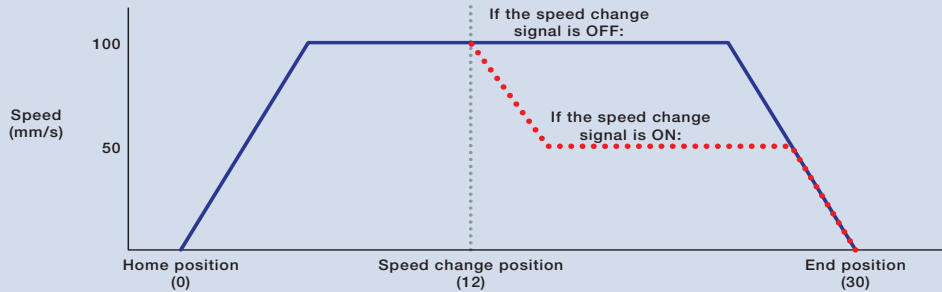Servo Motor (24V)
Servo Motor (200V)
Linear Servo Motor

## PIO Pattern 1 (Speed Change During Movement)

This PIO pattern involves movements between two positions—the end position and the home position.
The speed can be changed in 2 stages. (The speed can be either increased or decreased.)
The speed change occurs when the rod/slider passes the speed change position, specified in the position values.

### (Single Solenoid)



If the speed change signal is OFF:

If the speed change signal is ON:

Speed (mm/s)

100

50

Home position (0)

Speed change position (12)

End position (30)

(End position 1)

(12)     (30)

**Input Signals**

| Input 0 | ON |
|---------|-----|
| Input 1 | – |
| Input 2 | ON |
| Input 3 | – |

When Input 0 is turned ON while Input 2 is turned ON, the rod moves at the initial speed up to the trigger point.
After it passes the trigger point, the speed changes.
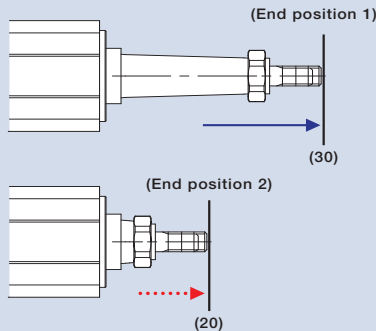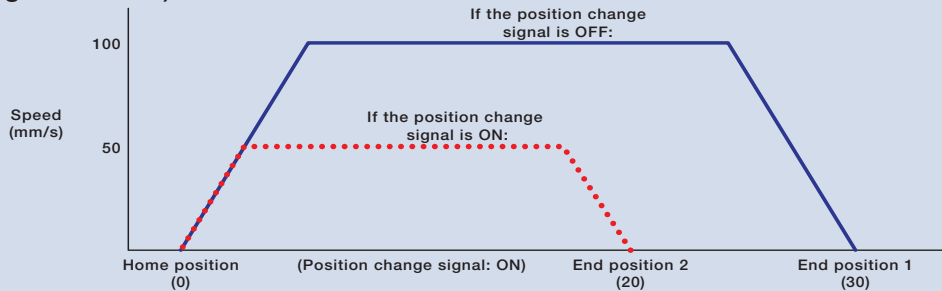If Input 2 is not turned ON, the speed will not change.

| Home Position Data | |
|--------------------|-----|
| Position | 0 |
| Speed | 50 |
| Trigger point | 12 |
| Trigger speed | 100 |
| Pushing force | – |
| Width | – |

| End Position Data | |
|-------------------|-----|
| Position | 30 |
| Speed | 100 |
| Trigger point | 12 |
| Trigger speed | 50 |
| Pushing force | – |
| Width | – |

## PIO Pattern 2 (Position Change)

This PIO pattern involves movements between two positions—the end position and the home position.
You can set 2 sets of data for the end / home positions, speed, pushing force, and pushing width.
Switching between the 2 sets of data can be done by turning ON/OFF Input 2, which is the signal for switching the target position.

### (Single Solenoid)



If the position change signal is OFF:

If the position change signal is ON:

Speed (mm/s)

100

50

Home position (0)

(Position change signal: ON)

End position 2 (20)

End position 1 (30)

(End position 1)

(30)

(End position 2)

(20)

**Input Signals**

| Input 0 | ON |
|---------|-----|
| Input 1 | – |
| Input 2 | ON |
| Input 3 | – |

If Input 2 (position change signal) is OFF when Input 0 is turned ON, the rod moves according to the position and speed set in "End Position Data 1" (position: 30 / speed: 100).
If Input 2 is ON when Input 0 is turned ON, the rod's movement changes to the position and speed set in "End Position Data 2" (position: 20 / speed: 50).
If Input 2 is OFF when the movement starts, but is turned ON in transit, the target position and speed is changed from that position.

| End Position Data 1 | |
|---------------------|-----|
| Position | 30 |
| Speed | 100 |
| Pushing force | – |
| Width | – |

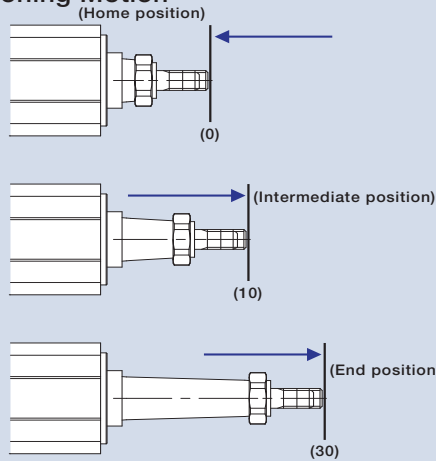| End Position Data 2 | |
|---------------------|-----|
| Position | 20 |
| Speed | 50 |
| Pushing force | – |
| Width | – |

## PIO Pattern 3 (2-Input 3-Position Travel)

This PIO pattern involves movements between 3 positions—the end position, the home position, and an intermediate position.
Changing between the positions is done by a combination of 2 signals, Input 0 and Input 1.

### Positioning Motion

(Home position)

(0)

**Input Signals**

| Input 0 | ON |
|---------|-----|
| Input 1 | OFF |
| Input 2 | – |
| Input 3 | – |

When only Input 0 is turned ON, the rod moves to the home position at the specified speed.

(Intermediate position)

(10)

**Input Signals**

| Input 0 | ON |
|---------|-----|
| Input 1 | ON |
| Input 2 | – |
| Input 3 | – |

When Input 0 and Input 1 are both turned ON, the rod moves to the intermediate position at the specified speed.

(End position)

(30)

**Input Signals**

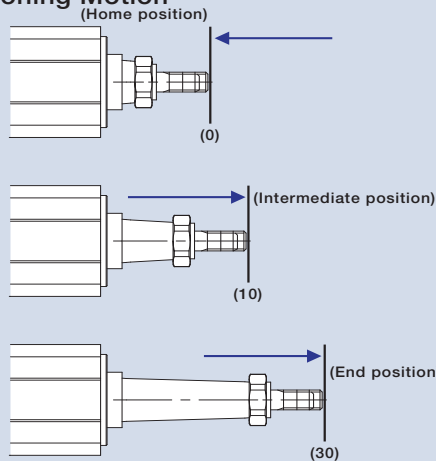| Input 0 | OFF |
|---------|-----|
| Input 1 | ON |
| Input 2 | – |
| Input 3 | – |

When only Input 1 is turned ON, the rod moves to the end position at the specified speed.

## PIO Pattern 4 (3-Input 3-Position Travel)

This PIO pattern involves movements between 3 positions—the end position, the home position, and an intermediate position.
Changing between positions is done by three signals—Input 0, Input 1 and Input 2, which are commanded to move to the home, end and intermediate positions, respectively.

### Positioning Motion

(Home position)

(0)

**Input Signals**

| Input 0 | ON |
|---------|-----|
| Input 1 | OFF |
| Input 2 | OFF |
| Input 3 | – |

When Input 0 is turned ON, the rod moves to the home position at the specified speed.

(Intermediate position)

(10)

**Input Signals**

| Input 0 | OFF |
|---------|-----|
| Input 1 | OFF |
| Input 2 | ON |
| Input 3 | – |

When Input 2 is turned ON, the rod moves to the intermediate position at the specified speed.

(End position)

(30)

**Input Signals**

| Input 0 | OFF |
|---------|-----|
| Input 1 | ON |
| Input 2 | OFF |
| Input 3 | – |

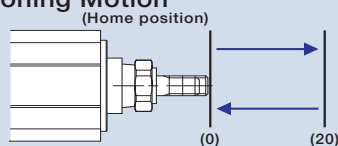When Input 1 is turned ON, the rod moves to the end position at the specified speed.

## PIO Pattern 5 (Continuous Cycle Operation)

This PIO pattern involves continuous cycling between 2 positions—the end and home positions.
When Input 0 (continuous operation signal) is turned ON, the rod continuously moves between the specified 2 positions.
If Input 0 is turned OFF while in motion, it stops after reaching the current destination.

### Positioning Motion

(Home position)

(0)          (20)

**Input Signals**

| Input 0 | ON |
|---------|-----|
| Input 1 | – |
| Input 2 | – |
| Input 3 | – |

When Input 0 is turned ON, the rod moves continuously between the end and home positions at the specified speed.

Slider Type
Mini
Standard
Controllers Integrated
Rod Type
Mini
Standard
Controllers Integrated
Table/Arm /Flat Type
Mini
Standard
Gripper/ Rotary Type
Linear Servo Type
Cleanroom Type
Splash-Proof
Controllers
PMEC /AMEC
PSEP /ASEP
ROBO NET
ERC2
PCON
ACON
SCON
PSEL
ASEL
SSEL
XSEL
Pulse Motor
Servo Motor (24V)
Servo Motor (200V)
Linear Servo Motor

# PSEP / ASEP Controller

## I/O Signal

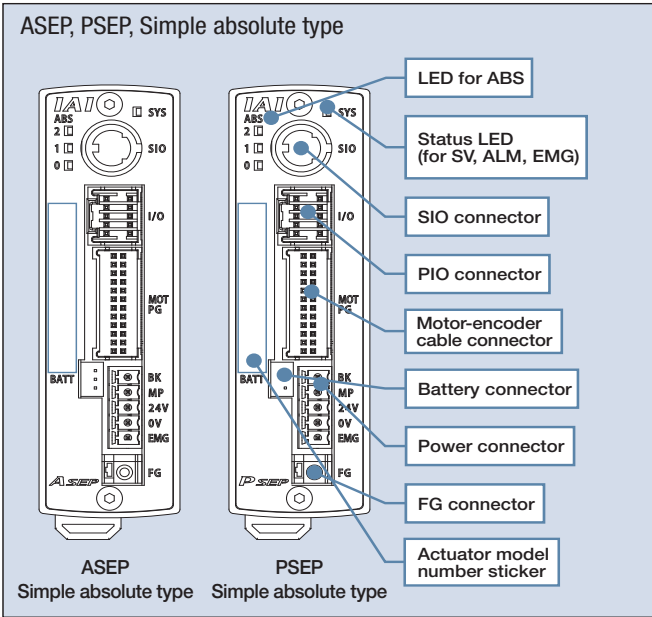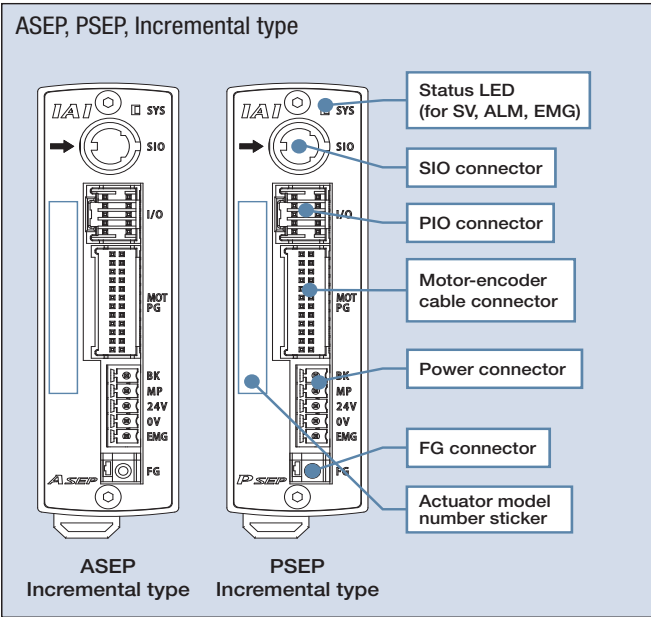| Pin No. | Cable color | PIO pattern | | 0 | | 1 | | 2 | | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PIO pattern name | | Standard 2-position motion | | Speed change | | Position change | | 2-input 3-position travel | 3-input 3-position travel | Continuous cycle operation |
| | | Solenoid type | | Single | Double | Single | Double | Single | Double | – | – | – |
| 1 | Brown | COM | | 24V | | 24V | | 24V | | 24V | 24V | 24V |
| 2 | Red | COM | | 0V | | 0V | | 0V | | 0V | 0V | 0V |
| 3 | Orange | Input | 0 | ST0 | ST0 | ST0 | ST0 | ST0 | ST0 | ST0 | ST0 | ASTR |
| 4 | Yellow | | 1 | *STP | ST1(–) | *STP | ST1(–) | *STP | ST1(–) | ST1 | ST1(–) | –/*STP |
| 5 | Green | | 2 | –(RES) | | SPDC(RES) | | CN1(RES) | | –(RES) | ST2(RES) | –(RES) |
| 6 | Blue | | 3 | –/SON | | –/SON | | –/SON | | –/SON | –/SON | –/SON |
| 7 | Purple | Output | 0 | LS0/PE0 | | LS0/PE0 | | LS0/PE0 | | LS0/PE0 | LS0/PE0 | LS0/PE0 |
| 8 | Grey | | 1 | LS1/PE1 | | LS1/PE1 | | LS1/PE1 | | LS1/PE1 | LS1/PE1 | LS1/PE1 |
| 9 | White | | 2 | HEND/SV | | HEND/SV | | HEND/SV | | LS2/PE2 | LS2/PE2 | HEND/SV |
| 10 | Black | | 3 | *ALM/SV | | *ALM/SV | | *ALM/SV | | *ALM/SV | *ALM/SV | *ALM/SV |

Note: The above signals marked with * are normally ON and turn OFF when active.
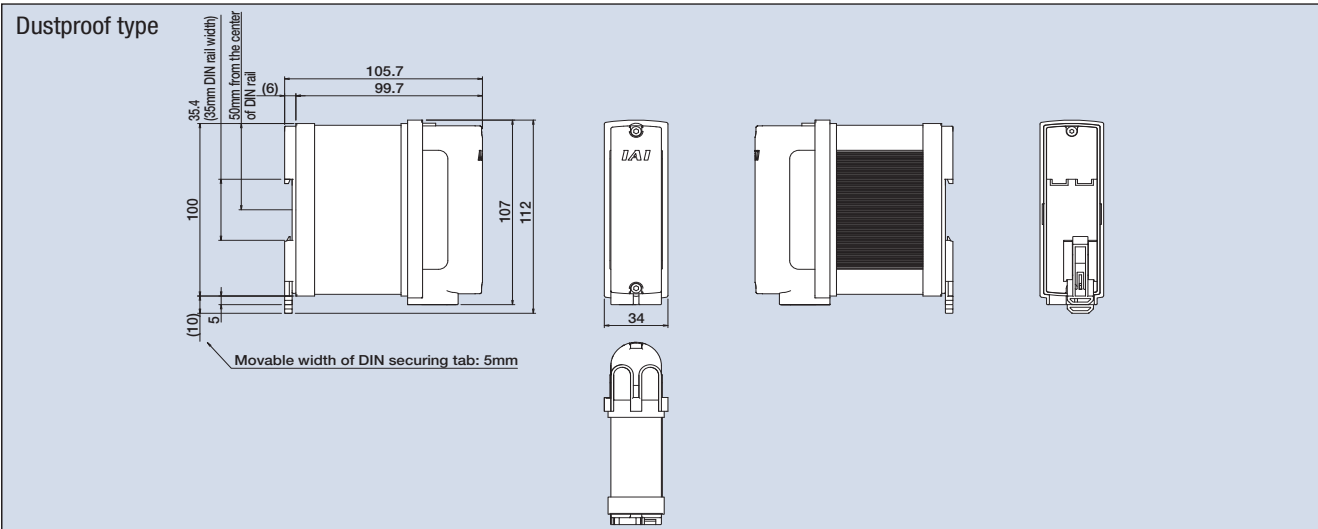
## Specification Table

| Item | | Type | | | |
|---|---|---|---|---|---|
| Controller type | | PSEP | | ASEP | |
| | | C | CW | C | CW |
| Connected actuators | | RCP2/RCP3 series actuator | | RCA/RCA2/RCL series actuator | |
| Number of control axes | | 1 | | | |
| Operating method | | Positioner Type | | | |
| Number of positions | | 2 positions/3 positions (4 positions*2) | | | |
| Backup memory | | EEPROM | | | |
| I/O connector | | 10 pin connector | | | |
| Number of I/O points | | 4 input points / 4 output points | | | |
| I/O power supply | | External power supply DC24V±10% | | | |
| Dedicated type for serial communication | | RS485 1ch | | | |
| Communication cable for peripheral equipment | | CB-APSEP-PIO□□□ | CB-APSEPW-PIO□□□ | CB-APSEP-PIO□□□ | CB-APSEPW-PIO□□□ |
| Position detection method | | Incremental encoder (Attaching an absolute battery unit makes the simple absolute specification possible *3) | | | |
| Motor-encoder cable | For RCP2 connection | CB-PSEP-MPA□□□ | | (Connection not possible) | |
| | For RCA connection | (Connection not possible) | | CB–ASEP–MPA□□□ | |
| | For RCP3/RCA2 connection | CB–APSEP-MPA□□□ | | | |
| | For RCP2 mini rotary connection | CB–RPSEP–MPA□□□ | | (Connection not possible) | |
| Input voltage | | DC24V±10% | | | |
| Controlled power supply capacity | | 0.5A (0.8A for the simple absolute specification) | | | |

### Motor power capacity

| Motor size | Rated value | Max.(*4) | Motor power output | Rated value | Maximum | |
|---|---|---|---|---|---|---|
| | | | | | Power-saving (*5) | Standard (*6) high-acceleration / deceleration |
| 20P | 0.4A | 2.0A | 2W | 0.8A | Not specified | 4.6A |
| 28P | 0.4A | 2.0A | 5W | 1.0A | Not specified | 6.4A |
| 35P | 1.2A | 2.0A | 10W (for RCL) | 1.3A | Not specified | 6.4A |
| 42P | 1.2A | 2.0A | 10W (for RCA/RCA2) | 1.3A | 2.5A | 4.4A |
| 56P | 1.2A | 2.0A | 20W | 1.3A | 2.5A | 4.4A |
| – | – | – | 20W (for 20S motor) | 1.7A | 3.4A | 5.1A |
| – | – | – | 30W | 1.3A | 2.2A | 4.4A |

| Item | | | | |
|---|---|---|---|---|
| Inrush current (*1) | Max. 10A | | | |
| Amount of heat generated | 8.4W | | 9.6W | |
| Dielectric strength voltage | DC500V 1MΩ | | | |
| Resistance to vibration | XYZ directions | 10~57Hz One-side width 0.035mm (continuous), 0.075mm (intermittent) | | |
| | | 58~150Hz 4.9m/s² (continuous), 9.8m/s² (intermittent) | | |
| Ambient operating temperature | 0~40°C | | | |
| Ambient operating humidity | 10~85%RH (non-condensing) | | | |
| Ambient operating environment | No corrosive gases | | | |
| Protection level | IP20 | IP53 (*7) | IP20 | IP53 (*7) |
| Weight | About 130g | About 160g | About 130g | About 160g |

(*1) Upon power-ON, an electrical current of 5 to 12 times as much as the rated current, called "in rush current" flows for 1 to 2 ms. Note that the amount of inrush current varies based on the impedance of power source lines.
(*2) This applies to the case where two position data points are set at each of the end and home positions during a "position change" motion pattern process.
(*3) The simple absolute type controllers cannot be used for the linear servo type.
(*4) The current reaches its maximum level during the servo motor excitation phase detection performed during the initial servo ON process after the power has been turned on. (Usually: Approx. 1 to 2 seconds, max. 10 seconds.)
(*5) When power to the motor is turned ON after shutting it OFF, current of about 6.0 A flows (for aprox.1~2ms).
(*6) The max. value of current can be detected in the magnetic pole detection process or during collision or constraint. The condition continues for up to 10 seconds in the magnetic pole detection process. In this process the above current is required.
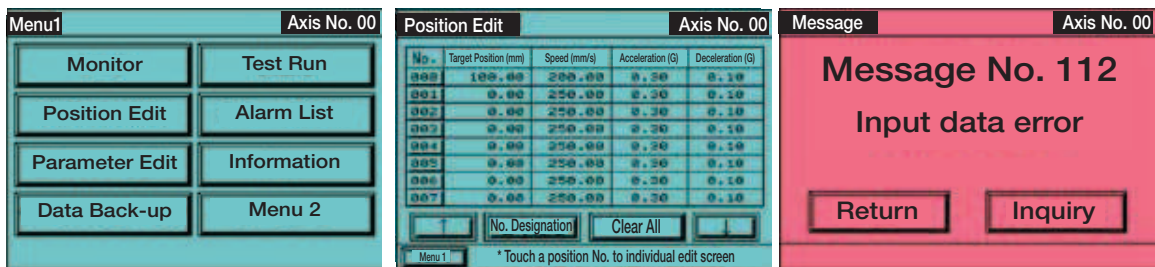(*7) The bottom surface is excluded.

## Names
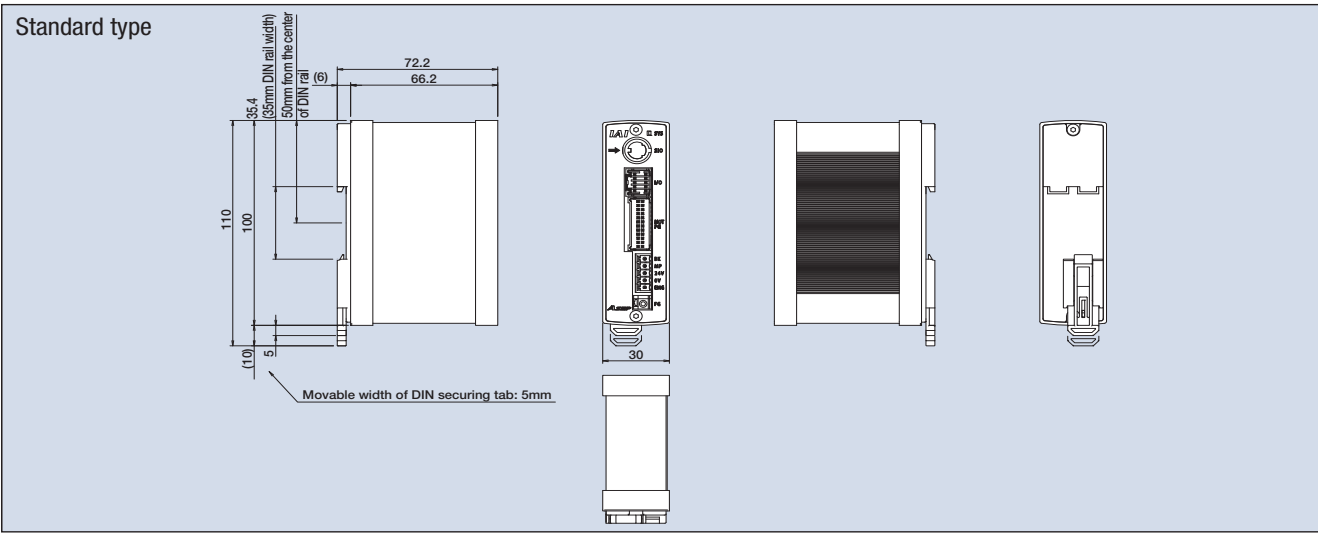
### ASEP, PSEP, Incremental type



- Status LED (for SV, ALM, EMG)
- SIO connector
- PIO connector
- Motor-encoder cable connector
- Power connector
- FG connector
- Actuator model number sticker

ASEP Incremental type

PSEP Incremental type

### ASEP, PSEP, Simple absolute type



- LED for ABS
- Status LED (for SV, ALM, EMG)
- SIO connector
- PIO connector
- Motor-encoder cable connector
- Battery connector
- Power connector
- FG connector
- Actuator model number sticker

ASEP Simple absolute type

PSEP Simple absolute type

## Outer dimensions

### Standard type



Movable width of DIN securing tab: 5mm

### Dustproof type



Movable width of DIN securing tab: 5mm

Slider Type
Mini
Standard
Controllers Integrated
Rod Type
Mini
Standard
Controllers Integrated
Table/Arm /Flat Type
Mini
Standard
Gripper/ Rotary Type
Linear Servo Type
Cleanroom Type
Splash-Proof
Controllers
PMEC /AMEC
PSEP /ASEP
ROBO NET
ERC2
PCON
ACON
SCON
PSEL
ASEL
SSEL
XSEL
Pulse Motor
Servo Motor (24V)
Servo Motor (200V)
Linear Servo Motor

# PSEP / ASEP Controller

## Option

## Touch Panel Teaching Pendant for Position Controller

▌ **Feature 1**  A data input device with an intuitive touch panel menu screen that is easy to operate, even for first-time users. You can use it to configure settings such as home / end positions, intermediate position, speed, and pushing force, or to run an adjustment operation such as jogging, inching, and moving to a specified position.

▌ **Feature 2**  Intuitive and interactive touch panel menus allow for easy configuration, even for first-time users.

| Menu1 | Axis No. 00 |
|---|---|
| Monitor | Test Run |
| Position Edit | Alarm List |
| Parameter Edit | Information |
| Data Back-up | Menu 2 |

Large, easy to read display

Position Edit — Axis No. 00
Easy configuration with the touch panel

Message — Axis No. 00
**Message No. 112**
**Input data error**
Return   Inquiry
Backlight color changes when an error occurs

▌ **Model & Specifications**

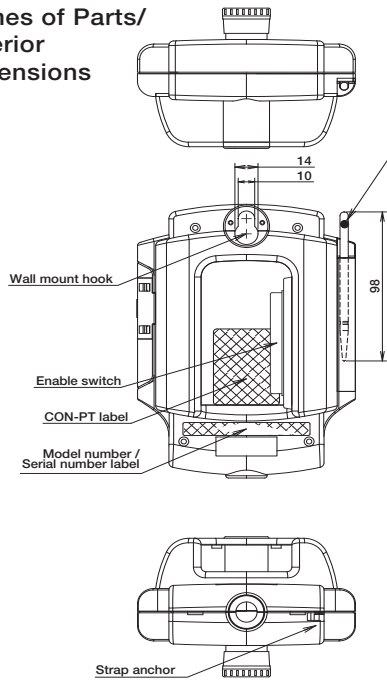| Item | Description | | | |
|---|---|---|---|---|
| Model | CON-PT-M-ENG | CON-PD-M-ENG | CON-PG-M-S-ENG | SEP-PT-ENG |
| Type | Standard type | Enable switch type | Safety compliant type | SEP controller dedicated type |
| Connectible controllers | PSEP/PCON/RPCON ASEP/ACON/RACON SCON/ERC2 (*) | | | PSEP ASEP |
| 3-position enable switch | × | ○ | ○ | × |
| Functions | Input and edit position data Movement functions (move to specified position, jog, inch) Test input and output signals Edit parameters | | | |
| Display | 3-color LED with backlight | | | |
| Operating ambient temp./Humidity | 0~50°C 20~85% RH (non-condensing) | | | |
| Environmental resistance | IP40 | | | |
| Weight (incl. 5m cable) | Approx. 750g | Approx. 780g | Approx. 780g | Approx. 550g |
| Accessories | • Touch pen | • Touch pen | • TP Adapter (Model: RCB-LB-TG) • Dummy Plug (Model: DP-4) • Controller connection cable (Model: CB-CON-LB005) • Touch pen | • Touch pen |
| Standard Price | – | – | – | – |

(*) If an ERC2 type controller does not have "4904" on the serial number label, it cannot be connected.

⚠ **Caution:** If you have a "CON" type controller (i.e. PCON, RPCON, ACON, RACON, SCON, ERC2) and an "SEP" type controller (PSEP or ASEP) linked together, you cannot connect the teaching pendant to it.

## Absolute battery unit for SEP controllers

### Names of Parts/ Exterior Dimensions

Touch pen

14
10
24
4
98

Wall mount hook

Enable switch

CON-PT label

Model number / Serial number label

Strap anchor

Controller insertion connector

CON-PT-M
CON-PD-M
SEP-PT

### Option
• Strap    Model STR-1

Emergency stop button

132

Control panel

92.1

180

(50)

5m

CON-PG-M-S

\* Please note that the CON-PG-M-S has a controller insertion connector that is different from the other models.

### CON-PG-M-S Wiring Drawing

PCON    ACON    SCON

PSEP    ASEP    ROBONET

0.5m
Controller connection cable
CB-CON-LB005

TP adaptor
RCB-LB-TG

Safety circuit

5m

CON-PG
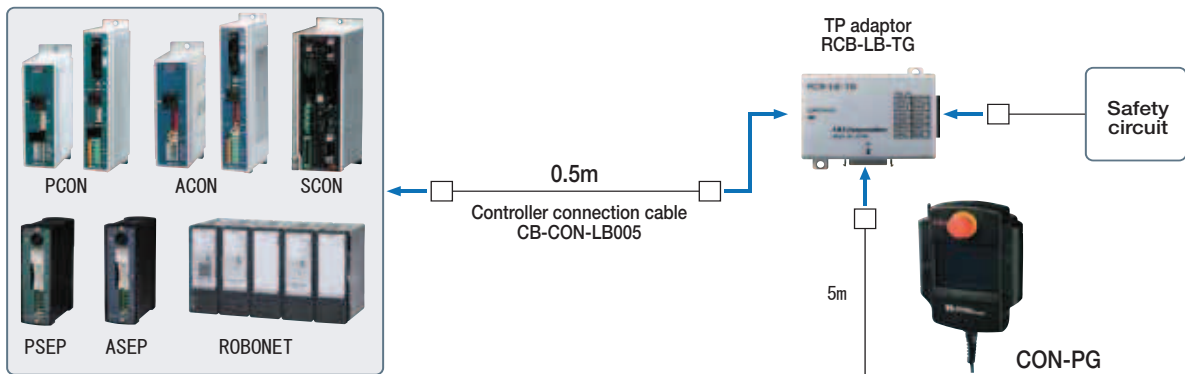
## Option

## PC Software (Windows Only)

**Features** A startup support software for inputting positions, performing test runs, and monitoring.
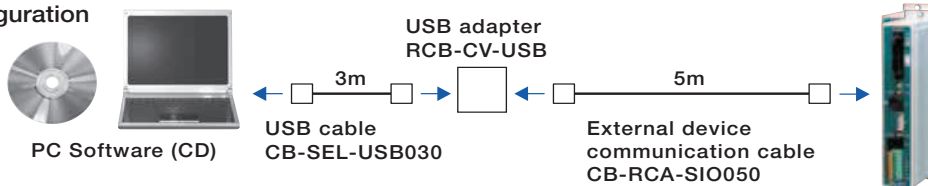With enhancements for adjustment functions, the startup time is shortened.
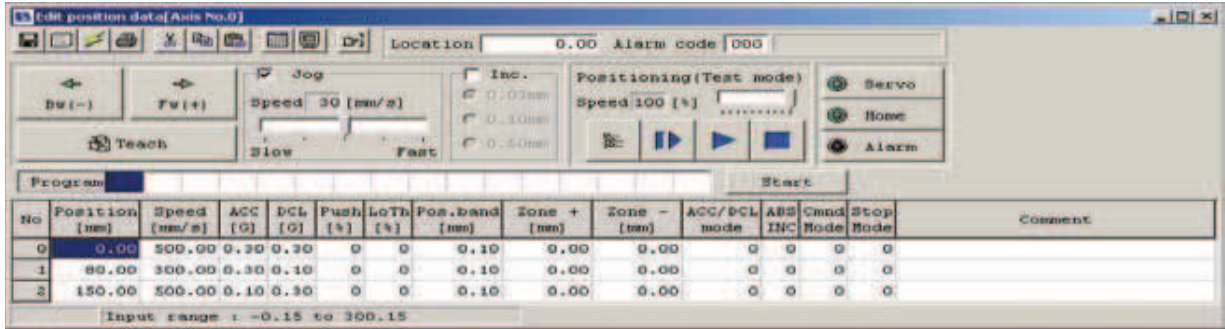


**Model** **RCM-101-MW**
(External device communication cable +
RS232 conversion unit)

**Configuration**



PC Software (CD)

RS232 adapter
RCB-CV-MW

0.3m

5m

External device
communication cable
CB-RCA-SIO050
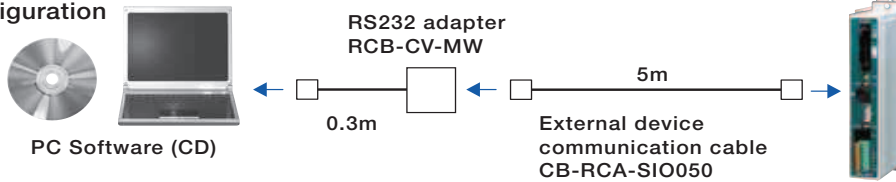
**Model** **RCM-101-USB**
(External device communication cable +
USB adapter + USB cable)

**Configuration**



PC Software (CD)

USB adapter
RCB-CV-USB

3m

5m

USB cable
CB-SEL-USB030

External device
communication cable
CB-RCA-SIO050

## Absolute battery unit for SEP controllers

**Description**  Supplied with the PSEP and ASEP simple absolute controllers.
This is a battery unit used for backing up the current position data.

**Model**  **SEP-ABU (standard type)**
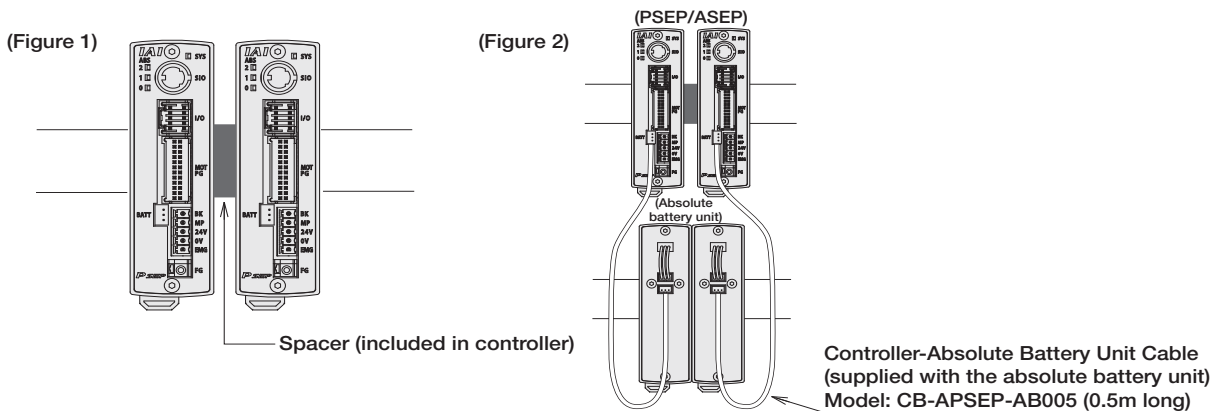**SEP-ABU-W (dustproof type)**

**Specifications**

| Item | Specifications | | | |
|------|------|------|------|------|
| Ambient operating temp./Humidity | 0~40°C (around 20°C preferred), 95% RH or below (non-condensing) | | | |
| Ambient operating environment | No corrosive gases | | | |
| Absolute battery (*1) | Model: AB-7 (Ni-MH battery/Approx. 3-year life) | | | |
| Controller-absolute battery unit cable (*1) | Model: CB-APSEP-AB005 (0.5m long) | | | |
| Weight | Standard type: Approx. 230g; Dustproof type: Approx. 260g | | | |
| Allowable encoder RPM during data retention (*2) | 800rpm | 400rpm | 200rpm | 100rpm |
| Position data retention duration (*2) | 120h | 240h | 360h | 480h |

(*1) The absolute battery unit comes with a cable to connect the controller and the absolute battery unit.
(*2) Position data retention time changes with the allowable encoder RPMs during data retention.
（800rpm→120h, 400rpm→240h, 200rpm→360h, 100rpm→480h）



Standard Type

Dustproof type
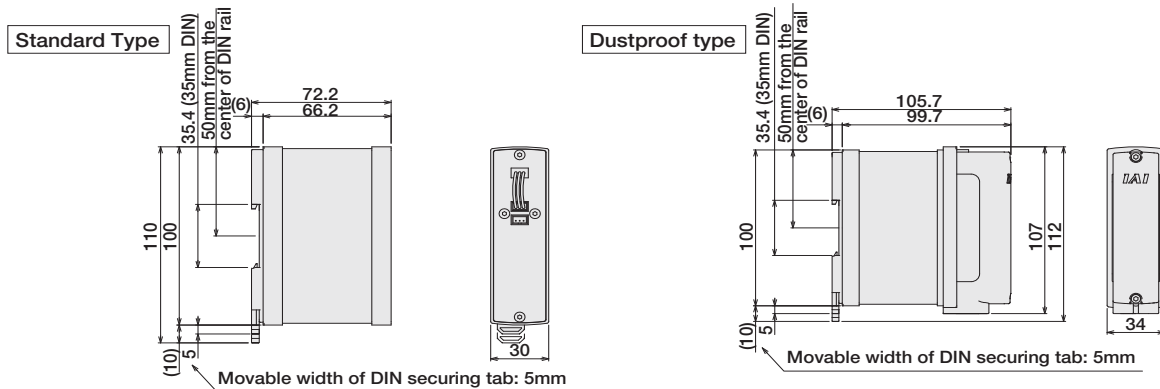
## Cautions on Controllers and Options

- When mounting the controller to a DIN rail, use the supplied spacer between the controllers to prevent them from contacting each other, to deal with heat dissipation. (See Fig. 1)
- When mounting the absolute battery units and controllers, place the absolute battery units below the controllers. (See Fig. 2)
  If there is not enough space below the controllers, mount the absolute battery units in such a way that the temperature around the controllers stays at 40°C or below.



(Figure 1)

Spacer (included in controller)

(Figure 2)

(PSEP/ASEP)

(Absolute battery unit)

Controller-Absolute Battery Unit Cable
(supplied with the absolute battery unit)
Model: CB-APSEP-AB005 (0.5m long)

- Teaching pendants for PCON, ACON, and SCON (e.g. CON-T, RCM) cannot be used with PSEP or ASEP. For PSEP and ASEP, use the SEP-PT.
- The SEP-PT cannot communicate to the linked controllers. (Please connect them directly to the controller.)
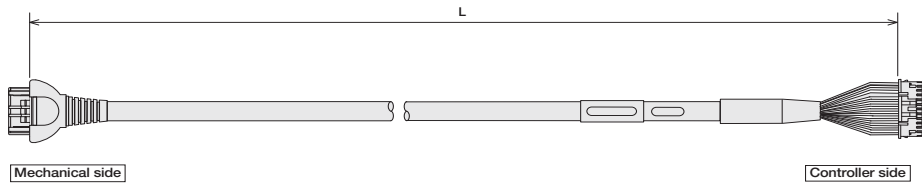
## Spare parts

When you need spare parts after purchasing the product, such as when replacing a cable, refer to the list of models below.

### Motor-encoder integrated cable for connecting [RCP3/RCA2/RCL] and [PSEP/ASEP]

**Model** **CB-APSEP-MPA□□□**

\* Enter the cable length (L) into □□□ . Compatible to a maximum of 20 meters.
Ex. 080 = 8m
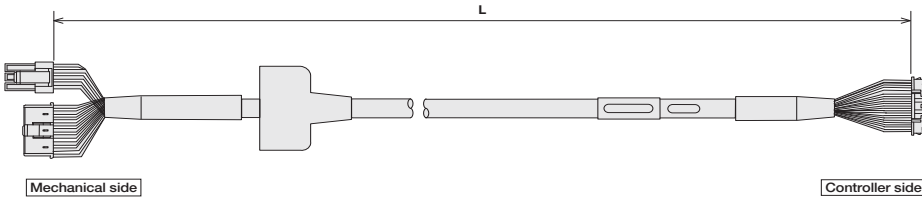


Min. bend radius r = 68 mm or larger (when movable type is used)

| Mechanical side Pin number | [PCON] (ACON) | Controller side Pin number |
|---|---|---|
| A1 | Black [ ΦA ](U) | 1 |
| B1 | White [VMM](V) | 2 |
| A2 | Brown [ Φ/A ](W) | 5 |
| B2 | Green [ ΦB ]( - ) | 3 |
| A3 | Yellow [VMM]( - ) | 4 |
| B3 | Red [ Φ/B ]( - ) | 6 |
| A4 | Orange [LS+](BK+) | 7 |
| B4 | Gray [LS-](BK-) | 8 |
| A6 | White [ - ](A+) | 11 |
| B6 | Yellow [ - ](A-) | 12 |
| A7 | Red [ A+ ](B+) | 13 |
| B7 | Green [ A- ](B-) | 14 |
| A8 | Black [ B+ ](Z+) | 15 |
| B8 | Brown [ B- ](Z-) | 16 |
| A5 | Black ( label) [BK+](LS+) | 9 |
| B5 | Brown ( label) [BK-](LS-) | 10 |
| A9 | Green ( label) [GNDLS](GNDLS) | 20 |
| B9 | Red ( label) [VPS](VPS) | 18 |
| A10 | White ( label) [VCC](VCC) | 17 |
| B10 | Yellow ( label) [GND](GND) | 19 |
| A11 | NC | 21 |
| B11 | Shield [FG](FG) | 24 |
| | NC | 22 |
| | NC | 23 |

### Motor-encoder integrated cable for connecting [RCP2] and [PSEP]

**Model** **CB-PSEP-MPA□□□**

\* Enter the cable length (L) into □□□ . Compatible to a maximum of 20 meters.
Ex. 080 = 8m



Min. bend radius r = 68 mm or larger (when movable type is used)

| Mechanical side Pin number | | Controller side Pin number |
|---|---|---|
| 1 | Black [ ΦA ] | 1 |
| 2 | White [ VMM ] | 2 |
| 4 | Red [ ΦB ] | 3 |
| 5 | Green [ VMM ] | 4 |
| 3 | Brown [ Φ/A ] | 5 |
| 6 | Yellow [ Φ/B ] | 6 |
| 16 | Orange [ BK+ ] | 9 |
| 17 | Gray [ BK- ] | 10 |
| 5 | NC | 11 |
| 6 | NC | 12 |
| 13 | Black [ LS+ ] | 7 |
| 14 | Brown [ LS- ] | 8 |
| 1 | White [ A+ ] | 13 |
| 2 | Yellow [ A- ] | 14 |
| 3 | Red [ B+ ] | 15 |
| 4 | Green [ B- ] | 16 |
| 10 | White ( label) [VCC] | 17 |
| 11 | Yellow ( label) [VPS] | 18 |
| 9 | Red ( label) [GND] | 19 |
| 12 | Green ( label) [(spare)] | 20 |
| 15 | NC | 21 |
| 7 | NC | 22 |
| 8 | NC | 23 |
| 18 | Shield [ FG ] | 24 |

### Motor-encoder integrated type cable for RCP3/RCP2 (Limited to RCP2-GRSS/GRLS/GRST/SRA4R/SRGS4R/SRGD4R types)

**Model** **CB-PCS-MPA□□□**

\* Enter the cable length (L) into □□□ . Compatible to a maximum of 20 meters.
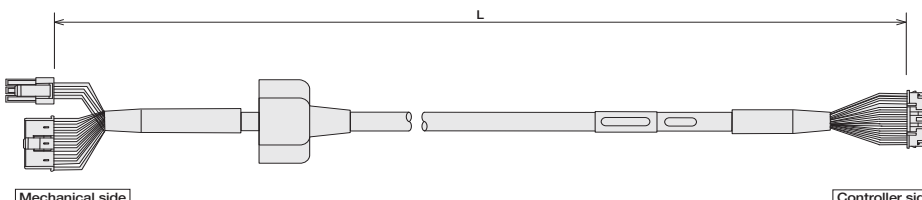Ex. 080 = 8m
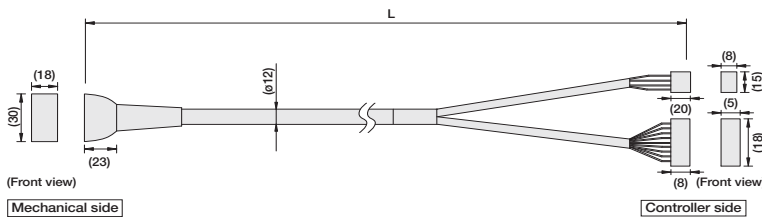


Min. bend radius r = 84 mm or larger (when movable type is used)

| Pin Number | Signal | (Wire color) | Signal | Pin Number |
|---|---|---|---|---|
| A1 | A | Black | VMM | B1 |
| B1 | VMM | White | /A | A2 |
| A2 | /A | Red | /A | A1 |
| B2 | B | Green | B | B3 |
| A3 | VMM | Yellow | VMM | B2 |
| B3 | /B | Brown | /B | A3 |
| A4 | NC | | | |
| B4 | NC | | | |
| A5 | BK+ | Pink (Red ●) | BK+ | 14 |
| B5 | BK- | Pink (Blue ●) | BK- | 13 |
| A6 | LS+ | White (Red ●) | LS+ | 16 |
| B6 | LS- | White (Blue ●) | LS- | 15 |
| A7 | A+ | Orange (Red ●) | A+ | 12 |
| B7 | A- | Orange (Blue ●) | A- | 11 |
| A8 | B+ | Gray (Red ●) | B+ | 10 |
| B8 | B- | Gray (Blue ●) | B- | 9 |
| A9 | NC | | NC | 8 |
| B9 | VPS | Orange (Blue ● Consecutive) | VPS | 7 |
| A10 | VCC | Gray (Red ● Consecutive) | VCC | 6 |
| B10 | GND | Gray (Blue ● Consecutive) | GND | 5 |
| A11 | NC | | NC | 4 |
| B11 | FG | Shield | FG | 1 |

### Motor-encoder integrated cable for connecting [RCA] and [ASEP]

**Model** **CB-ASEP-MPA□□□**

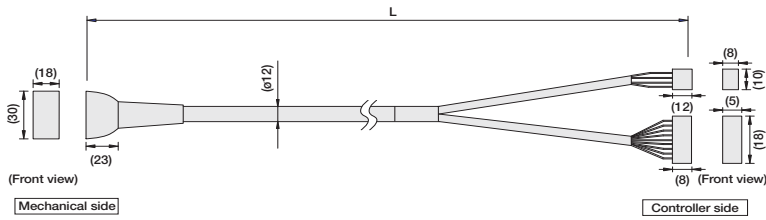\* Enter the cable length (L) into □□□ . Compatible to a maximum of 20 meters.
Ex. 080 = 8m



Min. bend radius r = 68 mm or larger (when movable type is used)

| Mechanical side Pin number | | Controller side Pin number |
|---|---|---|
| 1 | Red [ U ] | 1 |
| 2 | Yellow [ V ] | 2 |
| | NC | 3 |
| | NC | 4 |
| 3 | Black [ W ] | 5 |
| | NC | 6 |
| 18 | Orange [ BK+ ] | 7 |
| 17 | Gray [ BK- ] | 8 |
| 7 | Black [ LS+ ] | 9 |
| 16 | Brown [ LS- ] | 10 |
| 1 | White [ A+ ] | 11 |
| 2 | Yellow [ A- ] | 12 |
| 3 | Red [ B+ ] | 13 |
| 4 | Green [ B- ] | 14 |
| 10 | Black ( label) [Z+] | 15 |
| 11 | Brown ( label) [Z-] | 16 |
| 14 | White ( label) [VCC] | 17 |
| 13 | Yellow ( label) [VPS] | 18 |
| 15 | Red ( label) [GND] | 19 |
| | Green ( label) [(spare)] | 20 |
| 5 | NC | 21 |
| 8 | NC | 22 |
| 12 | NC | 23 |
| 9 | Shield [ FG ] | 24 |

### Motor-encoder integrated cable for connecting [RCA2/RCL] and [ACON/RACON/ASEL]

**Model**  **CB-ACS-MPA□□□**

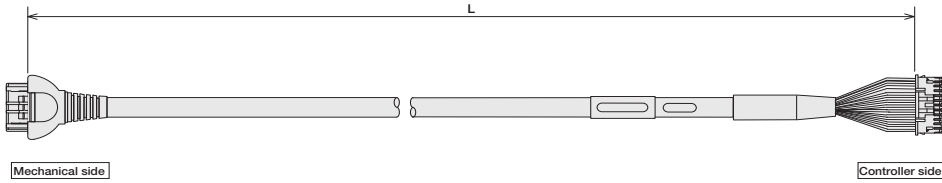\* Enter the cable length (L) into □□□ . Compatible to a maximum of 20 meters.
Ex. 080 = 8m

(Front view)
(18) (30) (23)
**Mechanical side**

(ø12) L (8) (10) (12) (5) (18) (8) (Front view)

**Controller side**

Min. bend radius r = 84 mm or larger (when movable type is used)

| Pin Number | Signal | | (Wire color) | | Signal | Pin Number |
|---|---|---|---|---|---|---|
| A1 | U | | Red | | U | 1 |
| B1 | V | | Yellow | | V | 2 |
| A2 | W | | Black | | W | 3 |
| B2 | NC | | | | | |
| A3 | NC | | | | | |
| B3 | NC | | | | | |
| A4 | BK+ | | Yellow (Red ●) | | BK+ | 16 |
| B4 | BK− | | Yellow (Blue ●) | | BK− | 15 |
| A5 | LS+ | | Pink (Red ●) | | LS+ | 18 |
| B5 | LS− | | Pink (Blue ●) | | LS− | 17 |
| A6 | A+ | | White (Red ●) | | A+ | 14 |
| B6 | A− | | White (Blue ●) | | A− | 13 |
| A7 | B+ | | Orange (Red ●) | | B+ | 12 |
| B7 | B− | | Orange (Blue ●) | | B− | 11 |
| A8 | Z+ | | Gray (Red ●) | | Z+ | 10 |
| B8 | Z− | | Gray (Blue ●) | | Z− | 9 |
| A9 | − | | Orange (Red ● Consecutive) | | − | 8 |
| B9 | /PS | | Orange (Blue ● Consecutive) | | /PS | 7 |
| A10 | VCC | | Gray (Red ● Consecutive) | | VCC | 6 |
| B10 | GND | | Gray (Blue ● Consecutive) | | GND | 5 |
| A11 | NC | | | | NC | |
| B11 | FG | | Shield | | FG | 1 |

### Motor-encoder integrated cable for connecting [RCP2 mini rotary] and [PSEP]

**Model**  **CB-RPSEP-MPA□□□**

\* Enter the cable length (L) into □□□ . Compatible to a maximum of 20 meters.
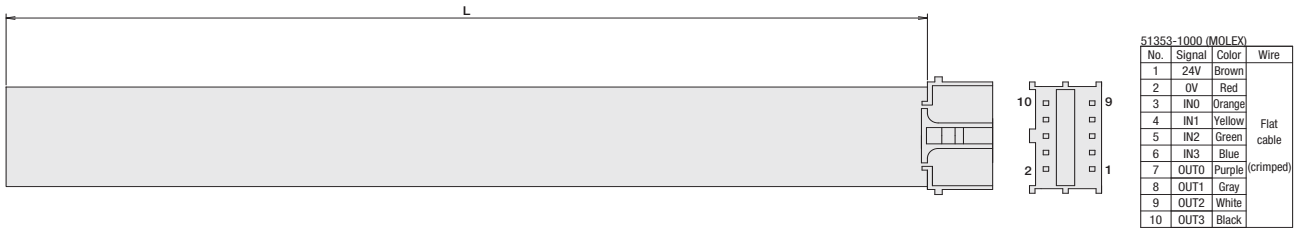Ex. 080 = 8m

L

**Mechanical side**

**Controller side**

Min. bend radius r = 68 mm or larger (when movable type is used)

| Mechanical side Pin number | | | | Controller side Pin number |
|---|---|---|---|---|
| A1 | | Black [ ØA ] | | 1 |
| B1 | | White [ VMM ] | | 2 |
| A2 | | Brown [ Ø/A ] | | 5 |
| B2 | | Green [ ØB ] | | 3 |
| A3 | | Yellow [ VMM ] | | 4 |
| B3 | | Red [ Ø/B ] | | 6 |
| A6 | | Orange [ LS+ ] | | 7 |
| B6 | | Gray [ LS- ] | | 8 |
| A7 | | Red [ A+ ] | | 13 |
| B7 | | Green [ A- ] | | 14 |
| A8 | | Black [ B+ ] | | 15 |
| B8 | | Brown [ B- ] | | 16 |
| A4 | | NC | | 7 |
| B4 | | NC | | 8 |
| A5 | | Black ( label) [BK+] | | 9 |
| B5 | | Brown ( label) [BK-] | | 10 |
| A9 | | Green ( label) [GNDLS] | | 20 |
| B9 | | Red ( label) [VPS] | | 18 |
| A10 | | White ( label) [VCC] | | 17 |
| B10 | | Yellow ( label) [GND] | | 19 |
| A11 | | NC | | 21 |
| B11 | | Shield [ FG ] (FG) | | 24 |
| | | NC | | 22 |
| | | NC | | 23 |

### I/O cable for PSEP-C/ASEP-C

**Model**  **CB-APSEP-PIO□□□**

\* Enter the cable length (L) into □□□ . Compatible to a maximum of 10 meters.
Ex. 080 = 8m

L

10  9

2  1

**51353-1000 (MOLEX)**

| No. | Signal | Color | Wire |
|---|---|---|---|
| 1 | 24V | Brown | |
| 2 | 0V | Red | |
| 3 | IN0 | Orange | |
| 4 | IN1 | Yellow | Flat |
| 5 | IN2 | Green | cable |
| 6 | IN3 | Blue | |
| 7 | OUT0 | Purple | (crimped) |
| 8 | OUT1 | Gray | |
| 9 | OUT2 | White | |
| 10 | OUT3 | Black | |

### I/O cable for PSEP-CW/ASEP-CW

**Model**  **CB-APSEPW-PIO□□□**

\* Enter the cable length (L) into □□□ . Compatible to a maximum of 10 meters.
Ex. 080 = 8m

L

10  9

2  1

**51353-1000 (MOLEX)**

| No. | Signal | Color | Wire |
|---|---|---|---|
| 1 | 24V | Brown | |
| 2 | 0V | Brown-White | |
| 3 | IN0 | Red | |
| 4 | IN1 | Red-White | |
| 5 | IN2 | Yellow | Cable |
| 6 | IN3 | Yellow-White | |
| 7 | OUT0 | Green | (crimped) |
| 8 | OUT1 | Green-White | |
| 9 | OUT2 | Black | |
| 10 | OUT3 | Black-White | |