IAI
Quality and Innovation

R-unit

Unit-connecting controllers

RCON

Positioner Type

RSEL

Program Type

REC

ELECYLINDER Drive Unit

www.intelligentactuator.com

Unit-connecting controllers

R-unit

This series of unit-connecting controllers allows you to freely select and combine connected actuators and control methods.

Positioner Type

RCON

R-unit

Program Type

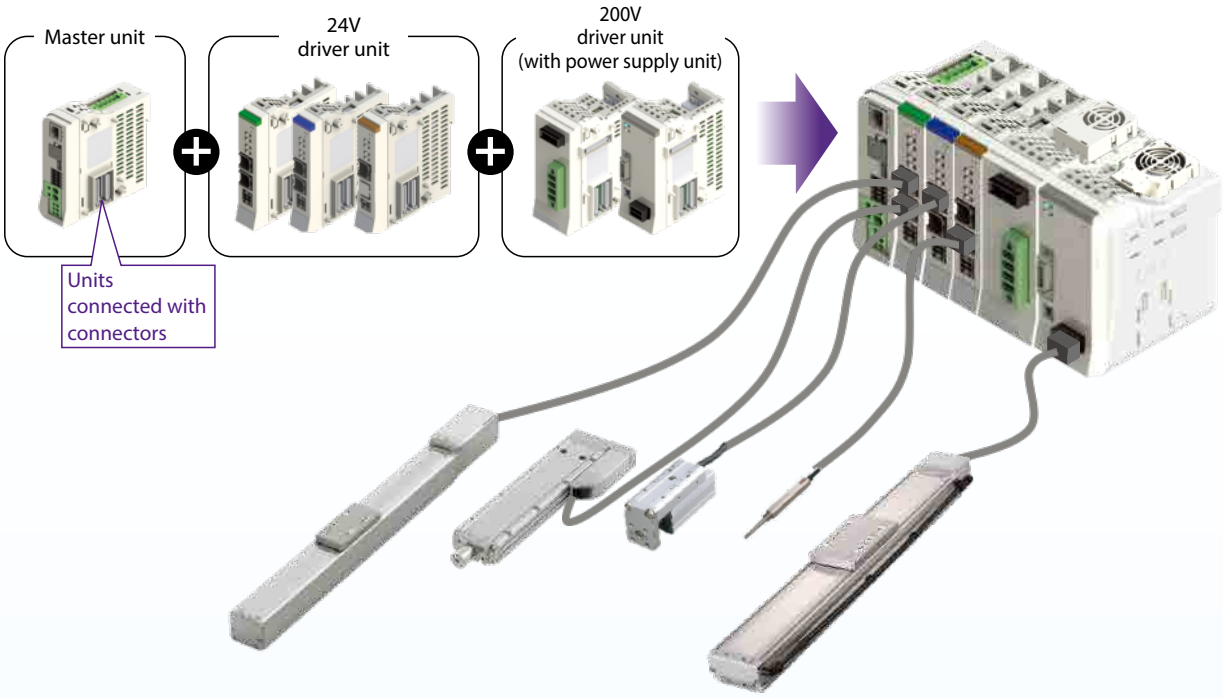
RSEL

ELECYLINDER Drive Unit

REC

Unit-connecting controllers support a wide array of combinations!

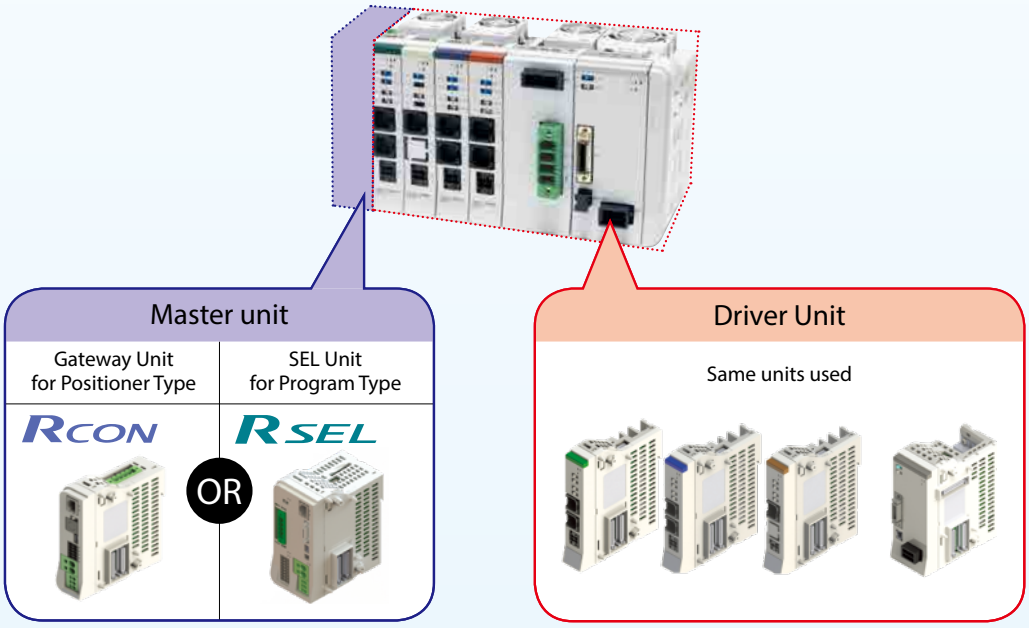
Combine a driver unit with the exact number of required axes for a more compact controller and reduced installation space.
This allows for mixed control of an actuator with both a 24V motor and 200V motor.



Use the same driver units

The system can be changed just by switching out the master unit based on the control method.
This allows the same driver units to be used.

R-unit

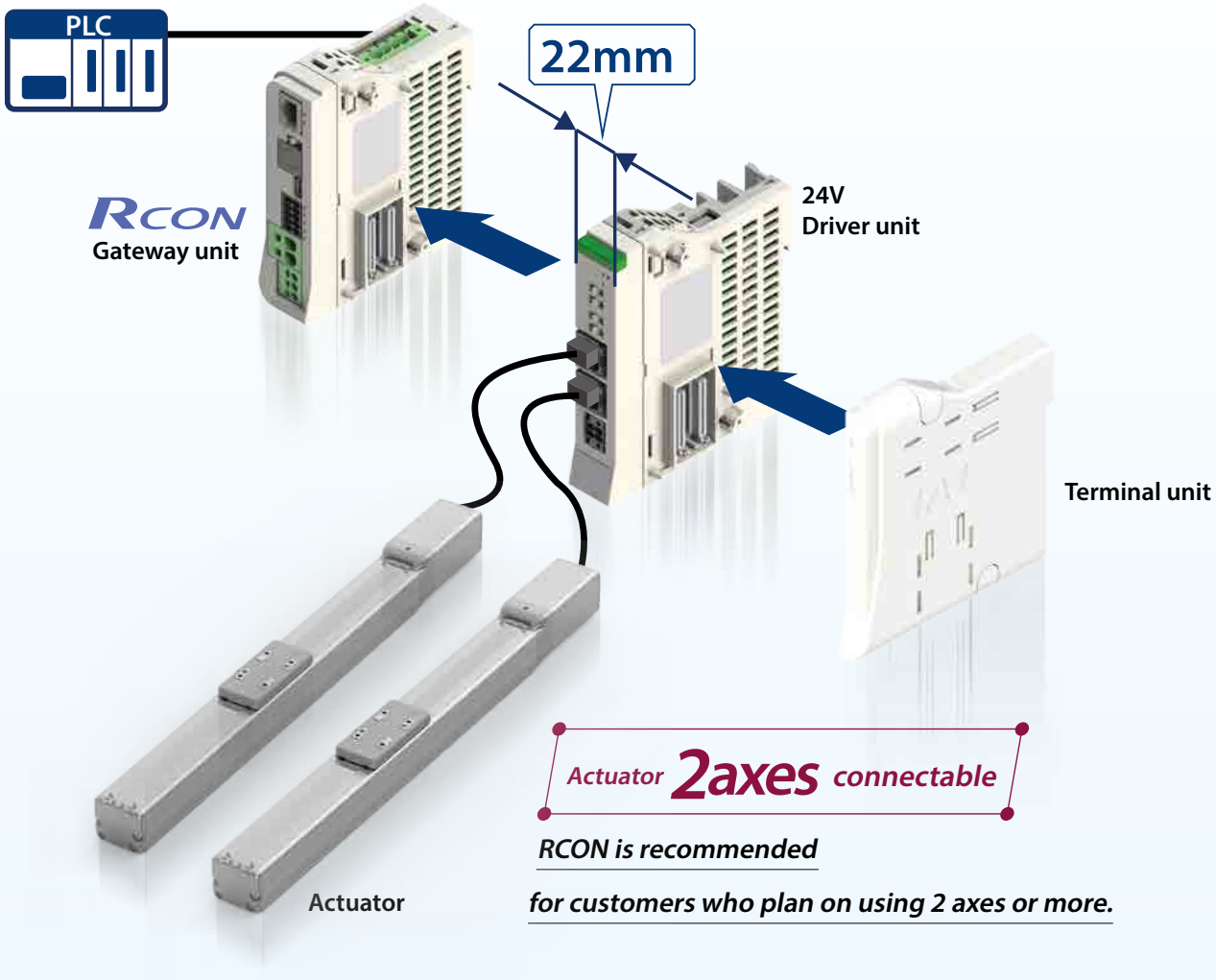


Saves space inside the control panel

RCON

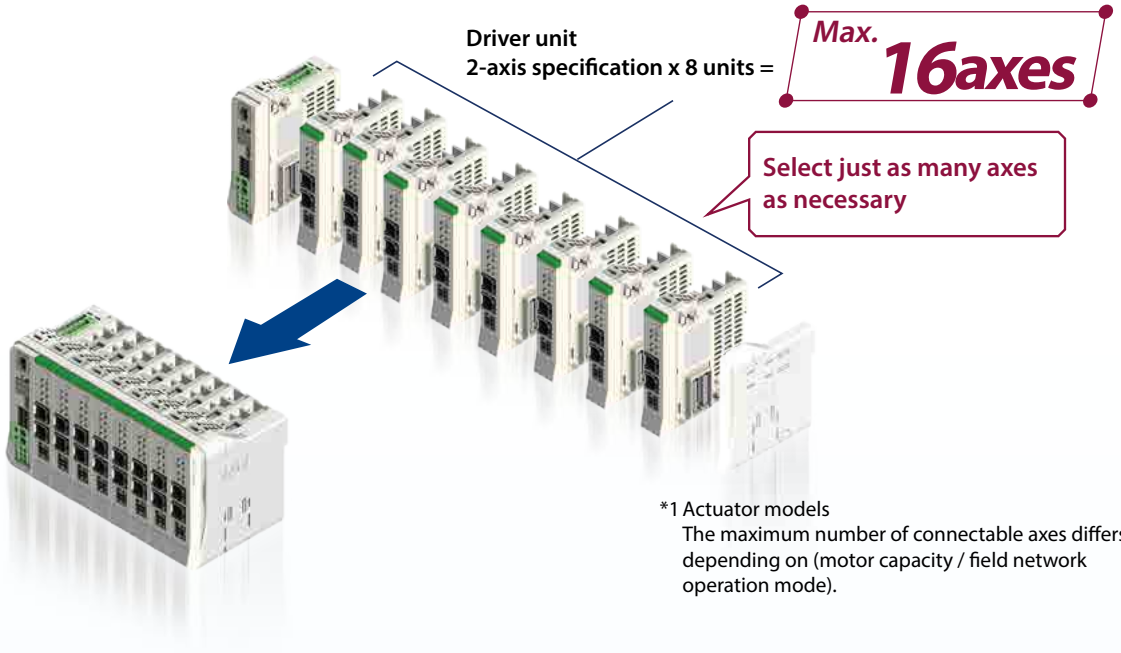
RCON is recommended for actuators with two axes or more.

Up to 2 axes of actuators can be connected to one driver unit with 22mm width, making it ideal for saving space in the control panel.



Up to 16 axes[*1] of actuators can be connected.

There will be no wasted space as only the necessary driver units will be added.



*1 Actuator models
The maximum number of connectable axes differs depending on (motor capacity / field network operation mode).

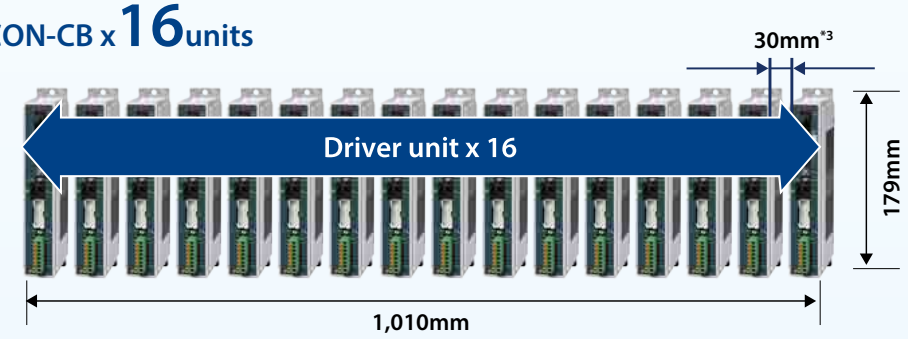
Saves up to 85%[*2] of control panel space and reduces costs by as much as 60%.

*2 IAI product comparison

Up to about 85% of control panel space can be saved,
compared with models that connect a 1-axis actuator to a single driver unit.

The conventional type ([Comparison example] below) requires network options installed to match the number of controllers.
RCON can control driver units for up to 16 axes of actuators with a single gateway,
allowing cost reductions up to 60%. It is especially recommended when using multiple axes.

PCON-CB x 16 units



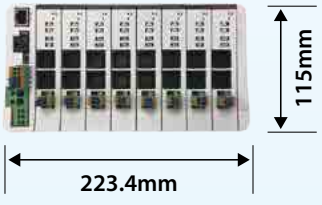
PCON-CB
CC-Link specification x 16 units

*3 Minimum distance required for natural heat dissipation of the controller

60% cost reduction

RCON x 16-axis connection specification

85% Space saving

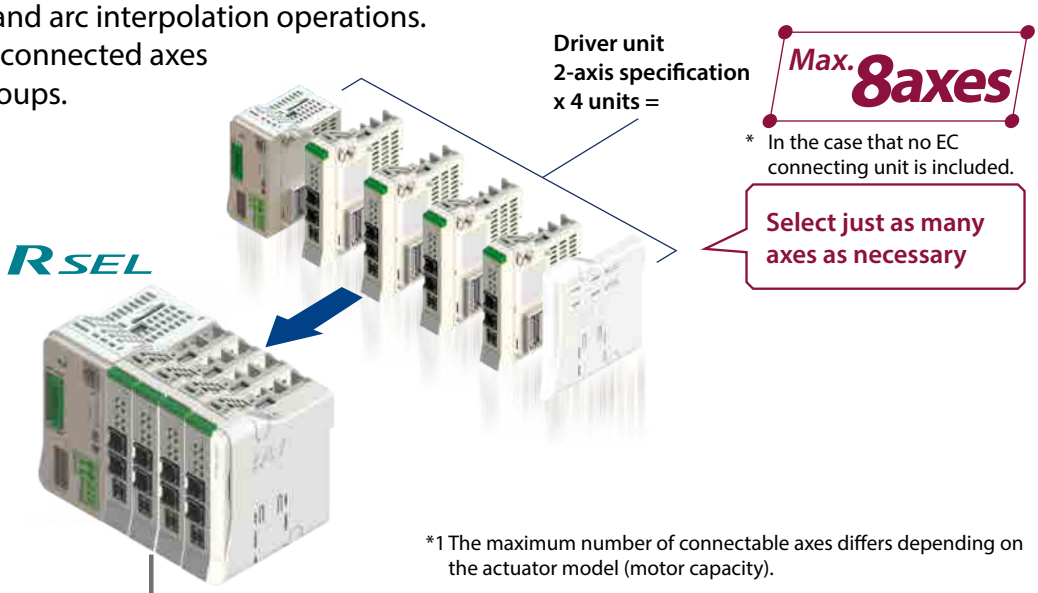


RCON
CC-Link specification
stepper motor 16 axes

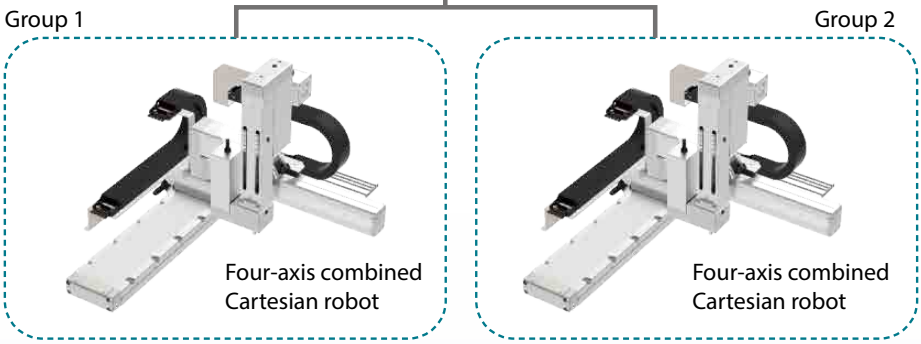
RSEL

Compact program controller that connects up to 16 axes*1 of actuators.

Supports both linear and arc interpolation operations.
Also allows control of connected axes to be split into two groups.



*1 The maximum number of connectable axes differs depending on the actuator model (motor capacity).

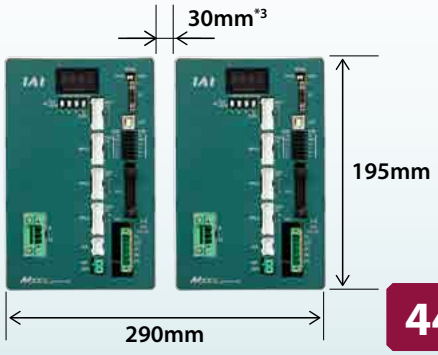


Max. 67%*2 space savings inside the control panel

*2 IAI product comparison

Up to about 67% of control panel space can be saved,
compared with models that connect a 4-axis actuator to a single driver unit.

MSEL x2units (8-axis connection)

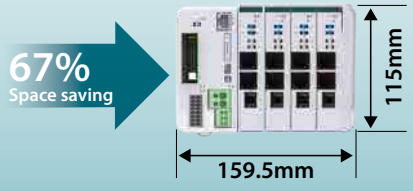


*3 Minimum distance required for natural heat dissipation of the controller

MSEL
CC-Link specification
8 axes (4 axes x 2 units)

44% cost reduction

RSEL x8-axis connection specification

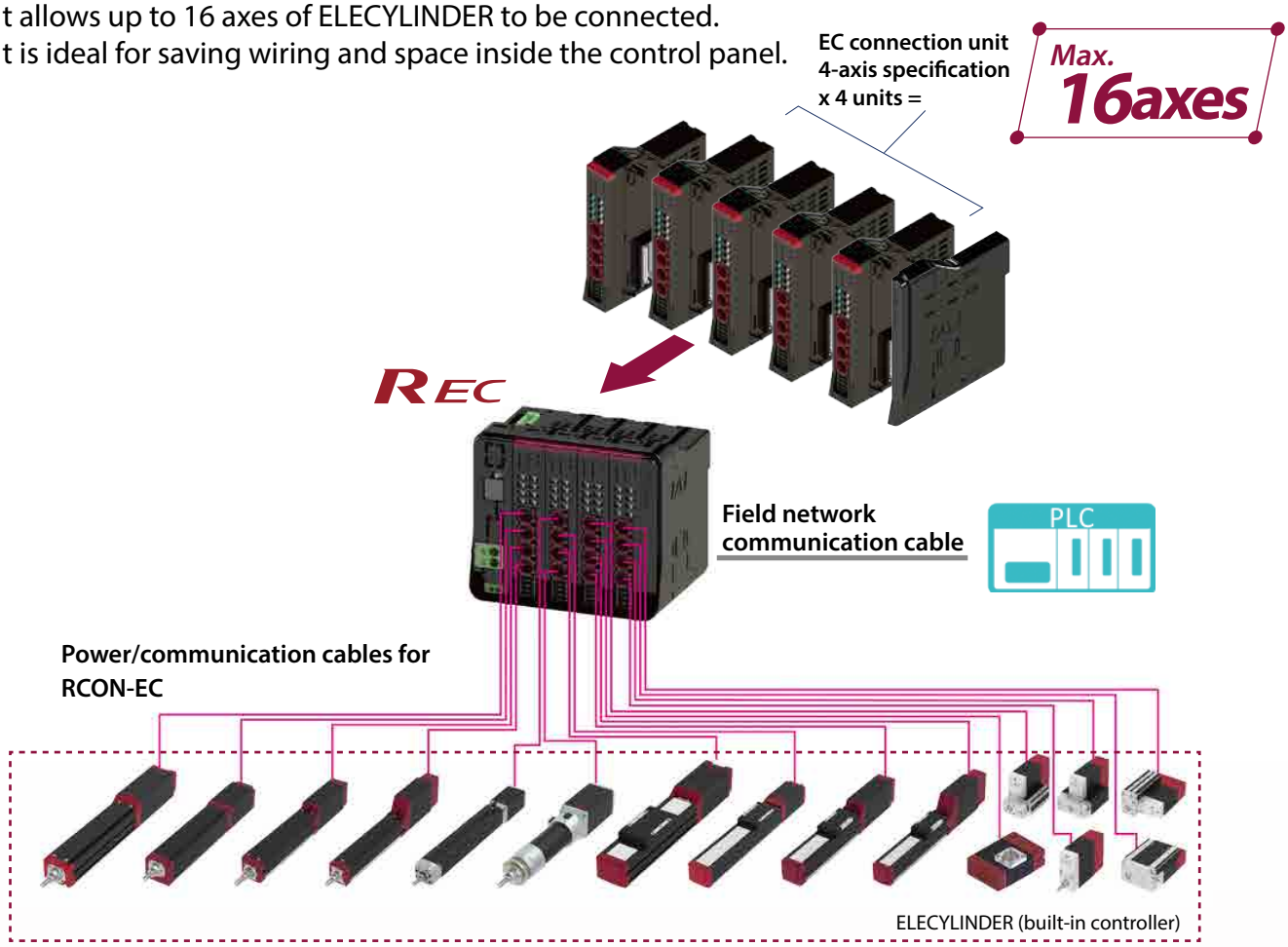


RSEL
CC-Link specification
stepper motor 8 axes

REC

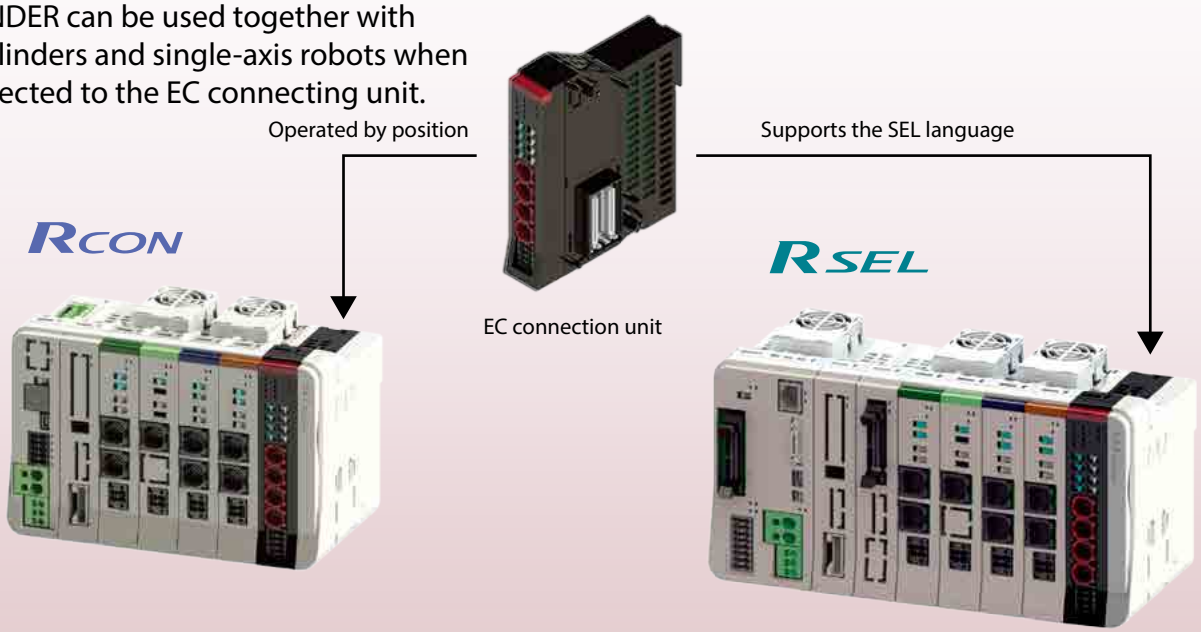
Connect ELECYLINDER to a field network

This field network connection unit is specifically for use with ELECYLINDER.
It allows up to 16 axes of ELECYLINDER to be connected.
It is ideal for saving wiring and space inside the control panel.



EC connection unit can be connected with other driver units connected to RCON/RSEL.

ELECYLINDER can be used together with
ROBO Cylinders and single-axis robots when
it is connected to the EC connecting unit.



Seven high-performance functions that only IAI is capable of delivering

High function1 Compatibility: No.1 in the industry with nine field network types supported

IAI controller can be connected to various field networks as remote I/O station.

* Connectable networks differ depending on the series.

CC-Link CC-Link IE Field DeviceNet™ EtherNet/IP™

EtherCAT® PROFIBUS® PROFINET®

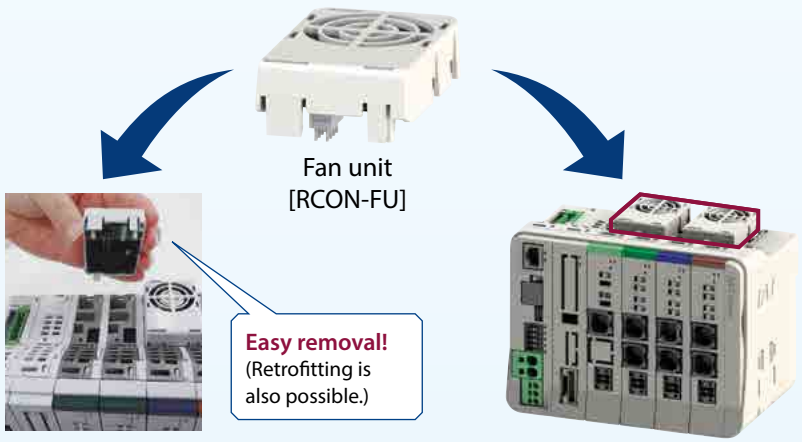
MECHATROLINK SSCNETIII/H SERVO SYSTEM CONTROLLER NETWORK

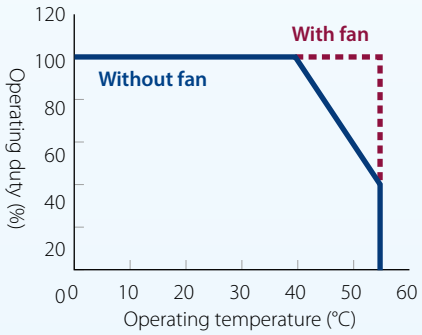
High function2 Supports controller installation environment temperatures of 0 ~ 55°C

Install the optional fan unit to enable use in environments of 0 to 55°C without lowering actuator operating duty ratio. (One fan is required for each SEL unit and for every two 24V driver units.)
A fan unit is required for 200V power supply units and 200V driver units.

* Simple absolute units support 0~40°C.

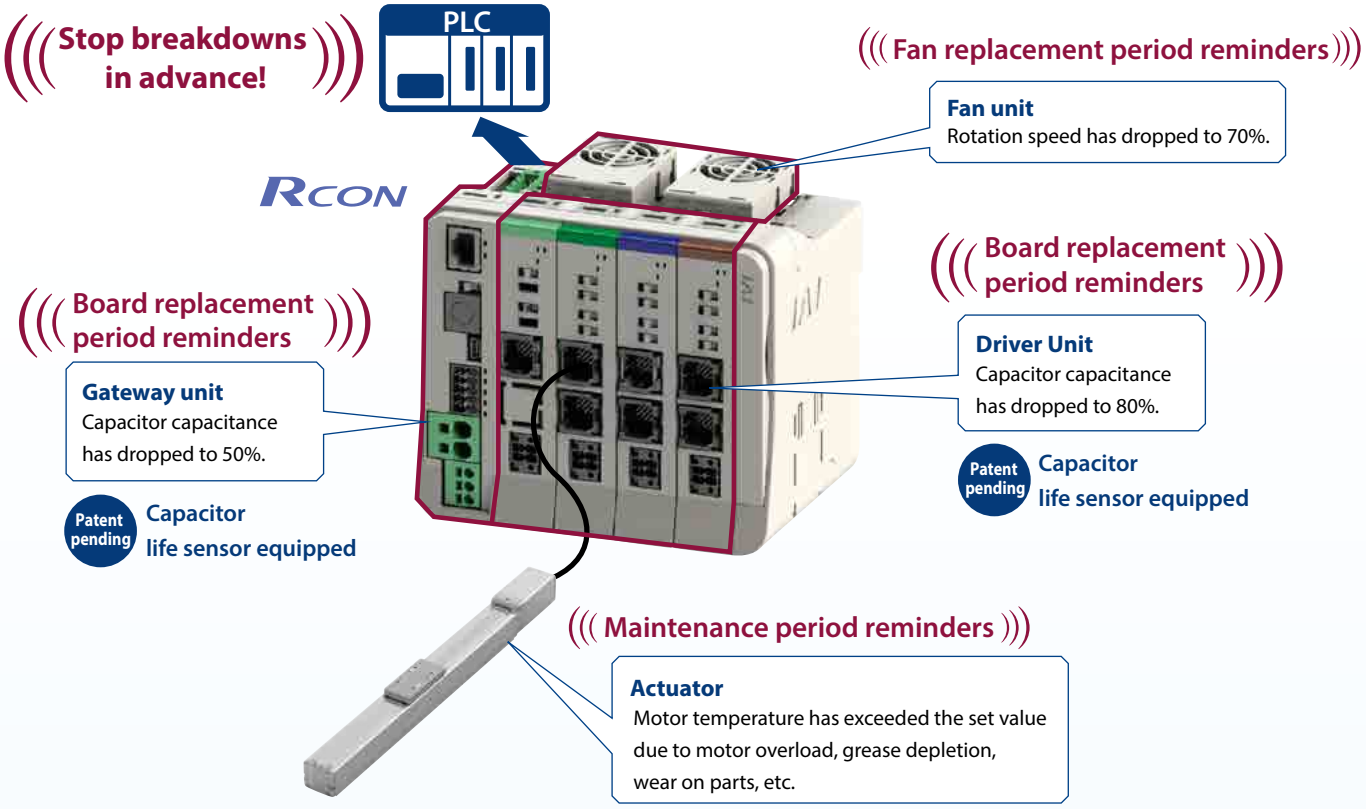
REC supports 55°C without a fan.





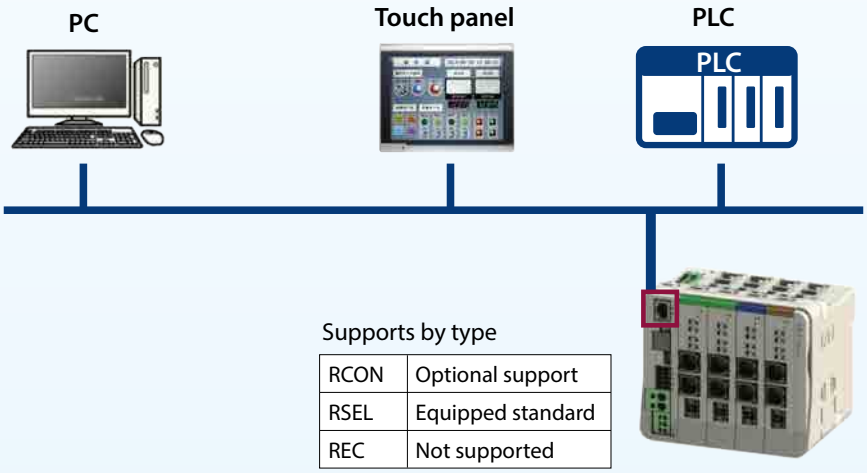
High function3 Predictive maintenance/preventative maintenance function

R-units have a preventative maintenance function for the capacitor and a predictive maintenance function for the fan unit and actuator.



High function4 Ethernet-equipped

Supports Ethernet connections. (Excluding REC.)



Supports by type

RCON	Optional support
RSEL	Equipped standard
REC	Not supported

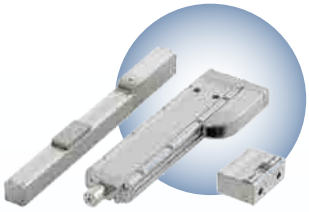
High function5 Highest number of connection actuators in the industry! Can be connected with 947 IAI actuators*

* See P.48 for connectable actuators.
(As of August 2021)

● Models with 24V motors

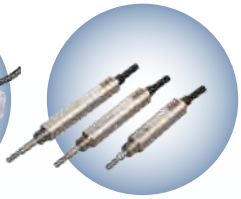
Supports actuators equipped with a battery-less absolute encoder
as well as those with simple absolute encoders and incremental encoders.

RCP Series

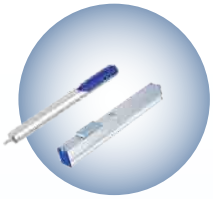


RCA Series

RCD Series



RCL Series



24V driver unit

WU Series

IK Series

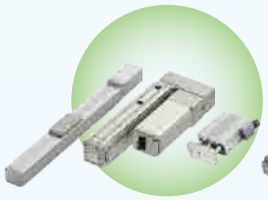
EC Series

EC connection unit

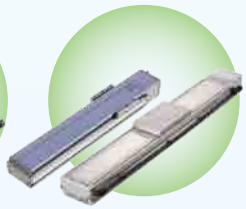
● Models with 200V motors

These products are capable of driving actuators equipped with 200V motors and 60W to 750W motors. 200V driver units support actuators equipped with battery-less absolute encoders and incremental encoders.
When connecting to extended unit+SCON, actuators equipped with 12W to 3300W motors are operable and all encoders are supported.

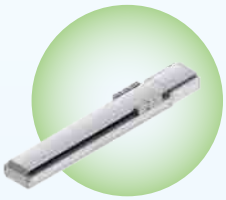
RCS Series



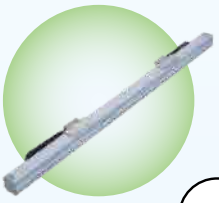
IS(D)B Series



SSPA Series



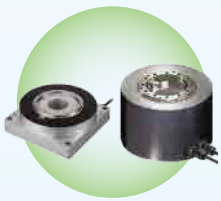
LSA Series



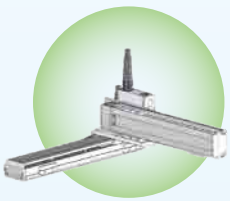
200V driver unit
+ power supply unit

NS(A) Series

DD(A) Series



ICSB Series



Expansion unit
+ SCON connection

High function6 Motor power cutoff method can be selected

In accordance with customer safety function applications, the motor power cutoff method at emergency stop can be selected through the RCON wiring method.

Actuator
All-axis motor power cutoff

(Gateway unit)
All-axis motor power port

Actuator
Single-axis motor power cutoff

(24V driver unit)
Single-axis drive-source cutoff terminal

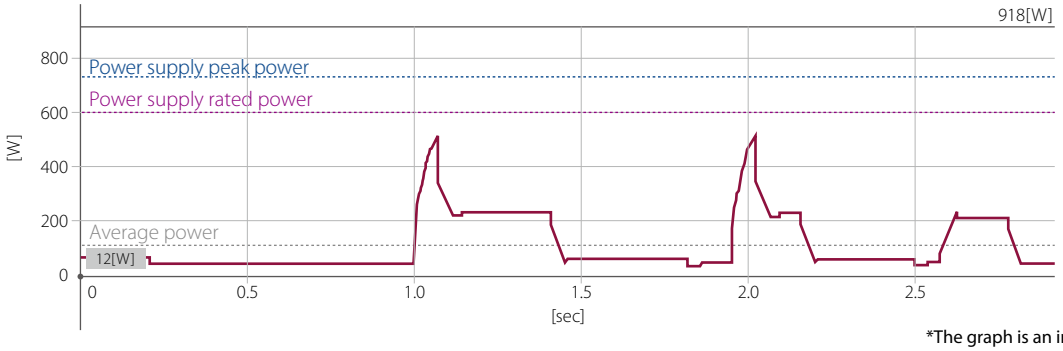
(200V driver unit)
Single-axis driver stop power cutoff terminal

High function7 Helps visualize equipment with 24V power monitor

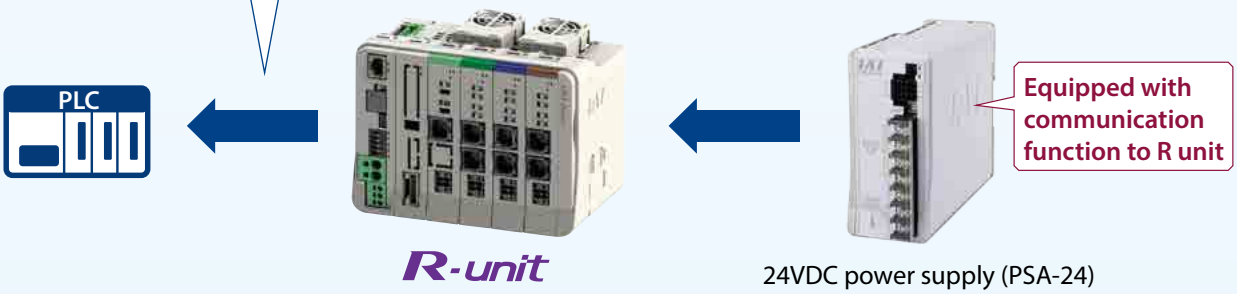
Helps visualize equipment.

The following IAI 24VDC power supply (PSA-24) monitoring can be output to a PLC via an R-unit.

● Output voltage ● Output current ● Power load factor ● Total energizing time
● Internal temperature ● Low fan speed warning



*The graph is an image.

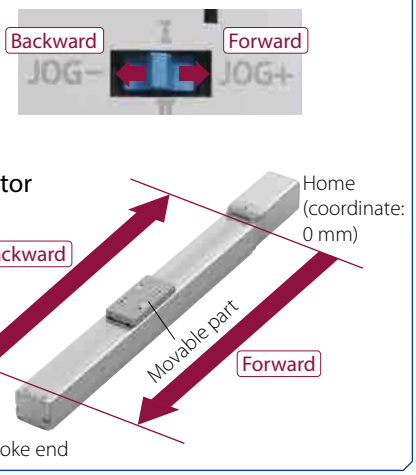


MEMO

Easy start-up and maintenance.

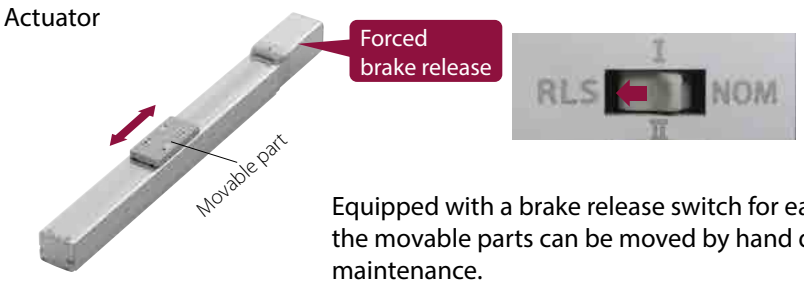
The actuator movable parts for each axis can be moved forward/backward, even without a teaching pendant or PC teaching software.

Each axis JOG (+/-) switch



JOG switch enabled in manual mode with PC software/teaching pendant manual operation window closed.

Each axis brake release switch



Equipped with a brake release switch for each axis, the movable parts can be moved by hand during maintenance.

USB port

Connection to a PC is possible using a commercial USB cable.
Dedicated cables are not required.

*Compatible with miniUSB (mini-B).

RCON

Easy to program even for a beginner!

The PC-dedicated teaching software "IA-OS" supports users.

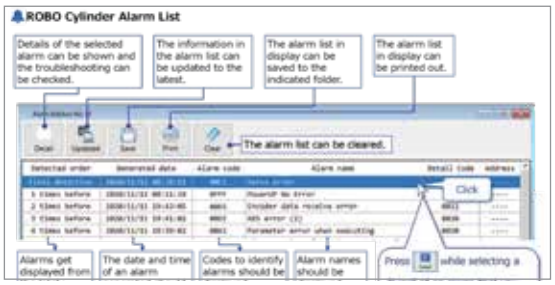
Even beginners can operate easily with troubleshooting information.

Troubleshooting Examples

Even if it fails, it can be repaired immediately. In case of trouble, IAI's troubleshooting is displayed.

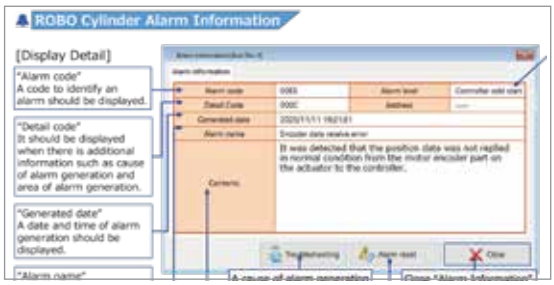
Alarm List

An alarm list with alarms generated in the past (history) with troubleshooting information.



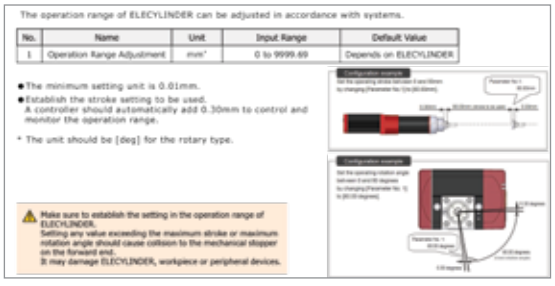
Alarm Information

Alarm details / troubleshooting information.



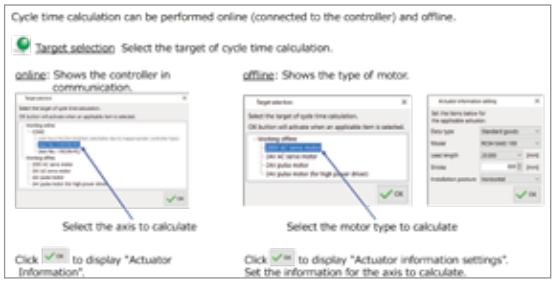
Parameter Edit : Operation Range Adjustment

The operation range of ELECYLINDER can be adjusted in accordance with system.



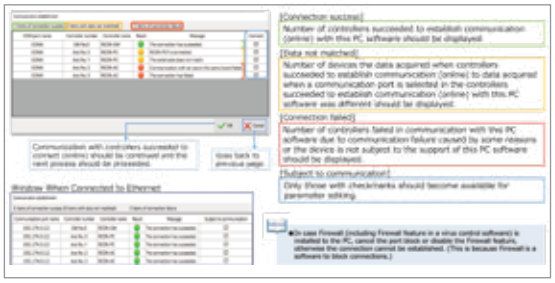
Cycle Time Calculation

Calculating the time required for operation from data such as the actuator used and the transportation load.



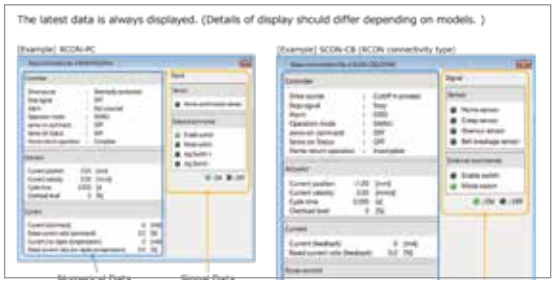
Communication Establishment

Success or failure of connectivity establishment is displayed.



Status Monitor

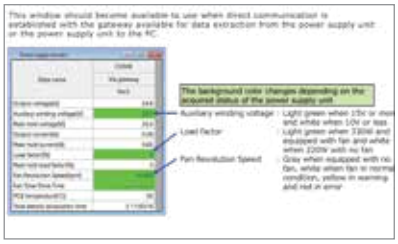
The latest status data is displayed.



Troubleshooting Examples

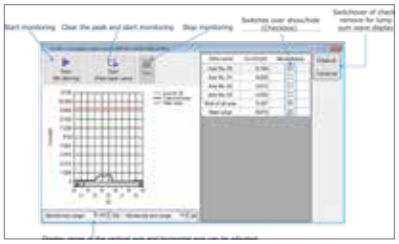
Power Supply Monitor

Check the data that the power supply unit possesses.



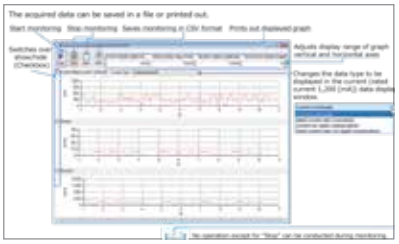
Current Consumption Wave Monitor

Displays time-dependent change of the current of each controller and the total current of all the controllers.



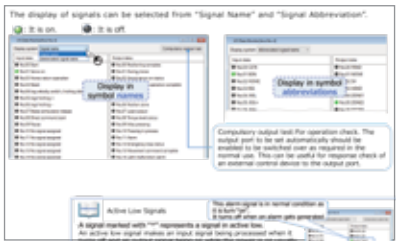
Velocity and Current Monitoring

Displays time-dependent change of the velocity, current and deviation in a graph.



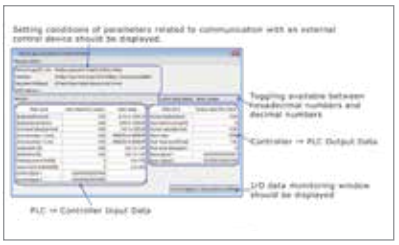
I/O Data Monitor

Check the status of signals in the input and output ports.



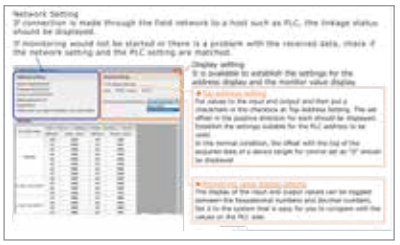
Network Data Monitor (Single axis controller)

Displays the data to be communicated between an external device and applicable controllers.



Network Data Monitor (for Gateway)

Data for communication between Gateway and an external device is displayed.

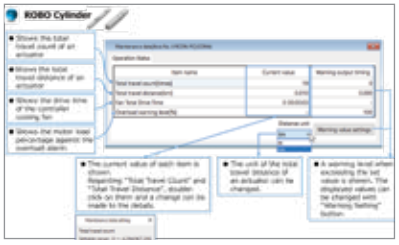


Servo Monitor

Time variation of data is displayed.

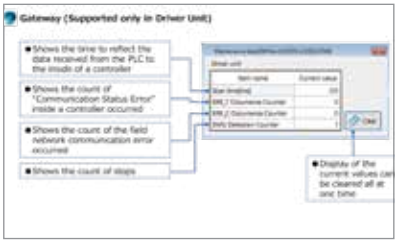
Maintenance Data (Robo Cylinder)

Displays the necessary information for maintenance.



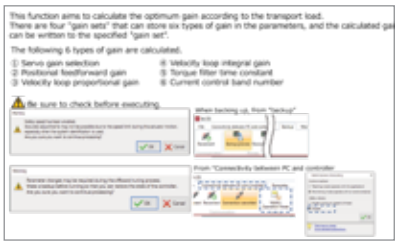
Maintenance Data (Gateway)

Displays the necessary information for maintenance.



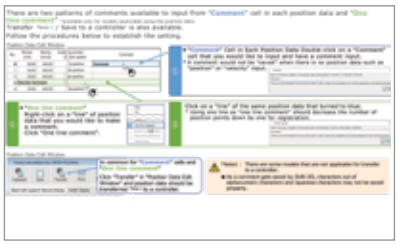
Offboard Tuning

Set a more suitable gain based on the data such as the actuator to be used and the transport load.



Comment

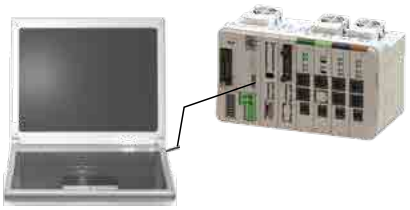
A comment is available for input.



RSEL

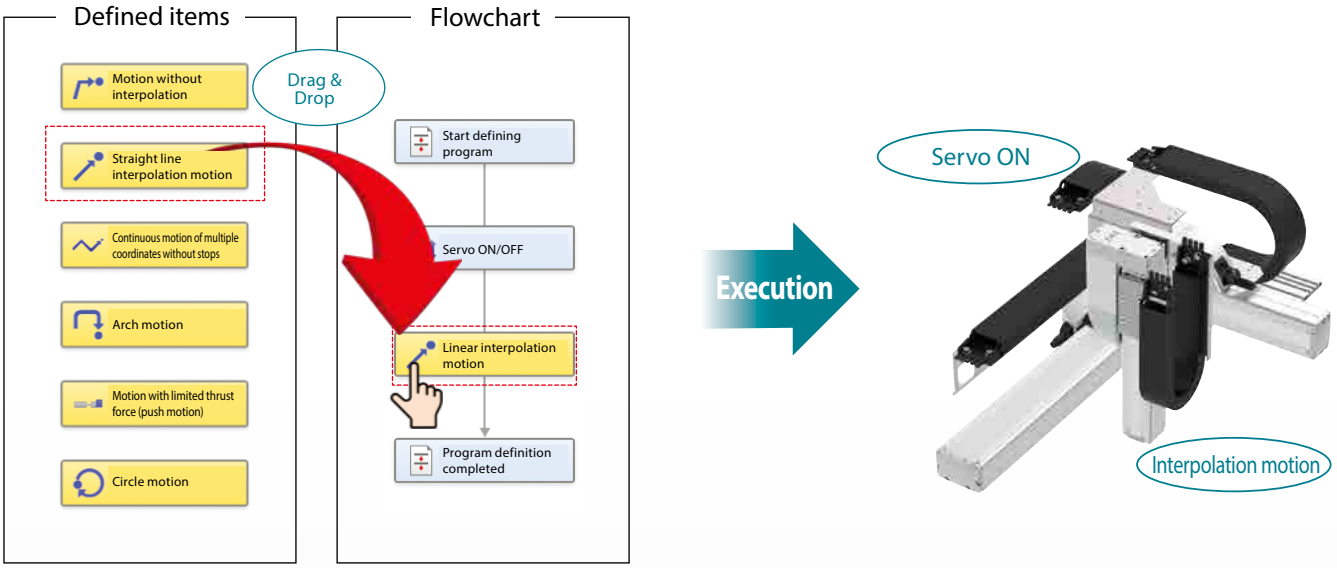
Easy to program even for a beginner!

The "SEL Programming Tool" of the PC-dedicated teaching software "IA-101" supports users.



The "SEL Programming Tool" generates SEL programs by arranging the items whose operations are defined.
Therefore, programming is possible without learning the SEL language.

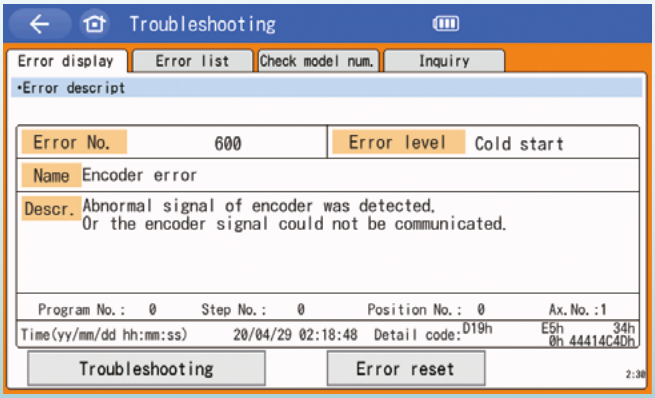
The PC-dedicated teaching software for RSEL supports V.14.00.00.00 or later.



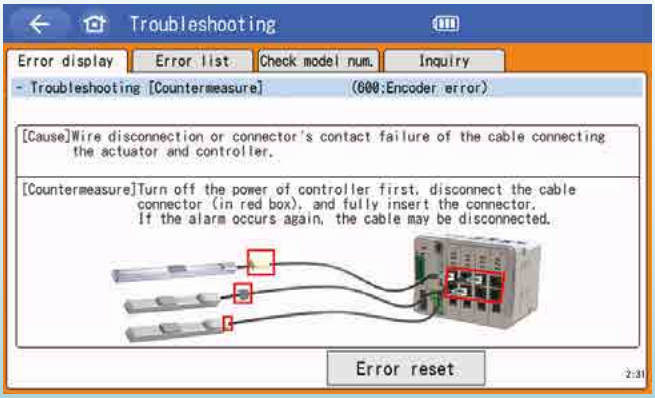
Troubleshooting by the teach pendant

Troubleshooting function has been added to the teaching pendant for program controller (TB-02/03).
It guides troubleshooting by selecting Yes/No of the trouble symptoms.
(Available for Ver. 2.70 and later)

<Description of error>



<Countermeasure>



Motion control

The RCON supports motion networks.

RCON

MECHATROLINK

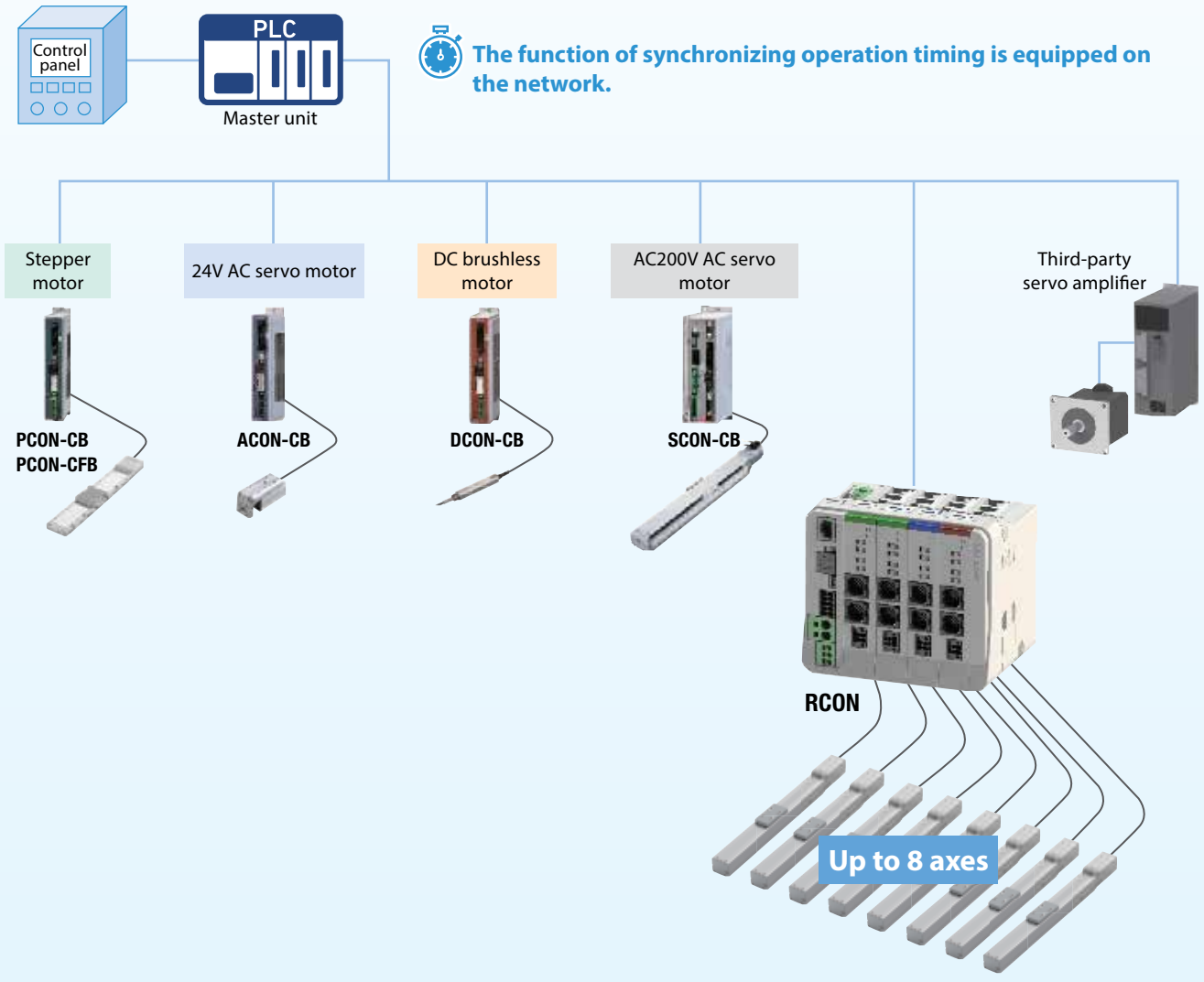
*Support MECHATROLINK III only

EtherCAT®

SSCNETIII/H
SERVO SYSTEM CONTROLLER NETWORK

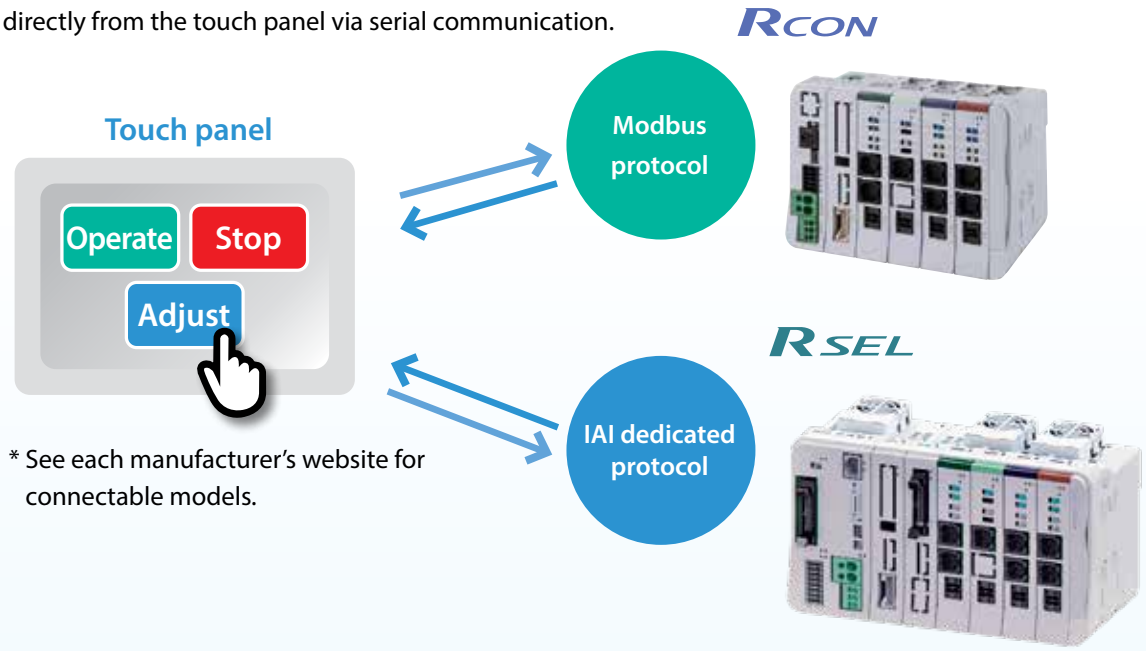
It is possible to use RCON together with third-party servo amplifiers, to synchronize with different types of motors and to perform interpolation control.

Connection image



Touch panel connection

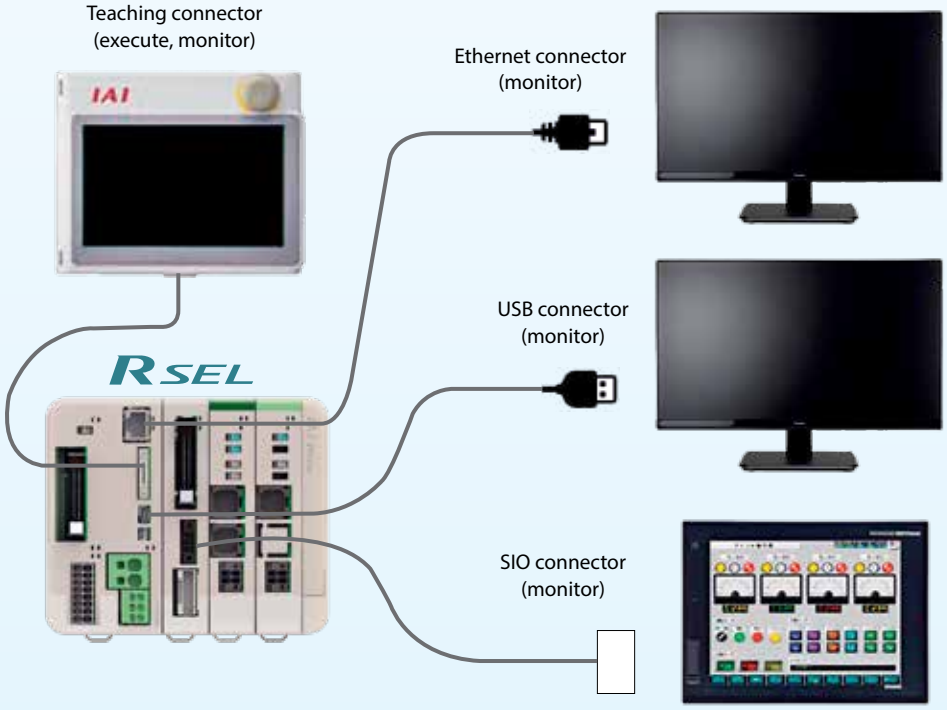
Setting, alteration and monitor of the data in the controller can be performed directly from the touch panel via serial communication.



* See each manufacturer's website for connectable models.

Serial communication protocol

The RSEL makes XSEL communication protocol in multiple channels possible.
Conditions of the controller can be monitored by multiple devices.



MEMO

MEMO

Model Selection

If the model selection software is not used, see this page for selection.

Select from three types of R-units, based on your operation method and models to connect.

Positioner Type

- For situations where the stop position will be registered in the position data, and then the position number will be specified for operation.

Max. number of connected axes: 16 axes

RCON

Refer to the selection pages beginning from P.20

Program Type

- For situations where Cartesian coordinate system operation is performed for multiple axes combining single axes.

Max. number of connected axes: 16 axes

RSEL

Refer to the selection pages beginning from P.27

ELECYLINDER Unit

- For situations where ELECYLINDER with ACR option is operated over a fieldbus.

Max. number of connected axes: 16 axes

REC

Refer to the selection pages beginning from P.35

RCON Selection Method

Step 1 Select the actuators to connect. (Up to 16 axes.)

(Note) Refer to P. 48 for actuators that cannot be connected and limitations on connection.
* Make sure to select optional "ACR" as the ELECYLINDER model.

<Selection example>

RCD Series | RCP2 Series | RCA2 Series | RCP6 Series | RCS4 Series | ISB Series | DDA Series | EC Series

Step 2 Gateway unit selection

Select the gateway unit model from the network type.

(Note) Some limitations apply on the number of max. connectable axes of actuators, depending on the network and operation mode. See P.48 and P.71 for details.

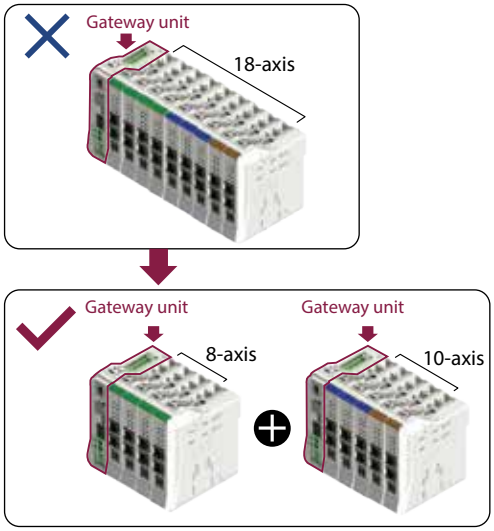
Network type	Gateway unit model
DeviceNet	RCON-GW/GWG-CC
CC-Link	RCON-GW/GWG-CIE
CC-Link IE Field	RCON-GW/GWG-DV
PROFIBUS	RCON-GW/GWG-EC/ECM
EtherCAT	RCON-GW/GWG-EP
EtherNet/IP	RCON-GW/GWG-PR
PROFINET	RCON-GW/GWG-PRT
MECHATROLINK	RCON-GW/GWG-ML3
SSCNETIII/H SERVO SYSTEM CONTROLLER NETWORK	RCON-GW/GWG-SSN

<Selection example>
Selection 1

* GW: Gateway unit of standard specifications
GWG: Gateway unit of safety category type.

Caution: Only one gateway unit can be connected per system. Split this among two or more units to connect 17 or more axes or if the power capacity is exceeded.

Example: When connecting 18 axes



Step 3 Classify actuator types into three categories.

Actuator type		Selected actuator
Models with 24V motors	RCP2/3/4/5/6 Series RCA/2 Series RCD Series RCL Series	<Selection example> RCD, RCP2, RCA2, RCP6
Models with 200V motors	RCS2/3/4 Series IS(D)B Series SSPA Series LSA Series NS(A) Series DD(A) Series	<Selection example> RCS4, ISB, DDA
ELECYLINDER (model with 24V motor)	EC Series	<Selection example> EC with ACR option

Step 4 24V driver unit selection (models with 24V motors)

Select the driver unit model and number of units according to the series name and motor type of the actuator.

Actuator		24V driver unit			<Selection example>		
Series	Motor type	External view	Number of axes connected to actuator	Model	Classification	Required units	
RCP2 RCP3 RCP4 RCP5 RCP6	20P, 28P 35P, 42P 56P	Stepper motor 	2-axis specification	RCON-PC-2	 RCP2-RTC RCP2-GRSS	1	Selection 2
			1-axis specification	RCON-PC-1	 RCP6-TA4C	1	Selection 2
	High thrust motor 56SP, 60P 86P		1-axis specification	RCON-PCF-1	 RCP6-RRA8R	1	Selection 2
RCA RCA2 RCL	2 5 10 20, 20S 30	AC servo motor 	2-axis specification	RCON-AC-2	 RCA2-GS3NA RCA2-TCA4NA	1	Selection 2
			1-axis specification	RCON-AC-1	-	-	
RCD	3D	DC brush-less motor 	2-axis specification	RCON-DC-2	-	-	
			1-axis specification	RCON-DC-1	 RCD-RA1DA	1	Selection 2

Step 5 Simple absolute unit selection

For actuators which are to use the simple absolute specification, select a number of simple absolute units (RCON-ABU-A/P) according to the number of axes.

* Connect to the driver unit with a cable (CB-ADPC-MPA005).
  The cable is supplied with the simple absolute unit.

Note: The ambient operating temperature of the simple absolute unit is within the range of 0~40°C.


RCON-ABU-A


RCON-ABU-P


Simple absolute battery

<Selection example>

This is an example in which a 2-axis RCA2 Series actuator is selected for simple absolute specification.

RCON-AC-2

Actuators to be made compatible with simple absolute


RCA2-GS3NA


RCA2-TCA4NA

Simple absolute unit

RCON-ABU-A x 2

Selection 3

Step 6 EC connection unit selection (ELECYLINDER model)

To connect an EC Series product, select the required number of connection units based on the number of units for connecting EC.

Actuator		EC connection unit			<Selection example>		
Series	Motor type	External view	Number of axes connected to actuator	Model	Classification	Required units	
EC	28P, 35P 42P, 56P		4-axis specification	RCON-EC-4	 EC-S6 with ACR option	1	Selection 4

Step 7 Classify models with 200V motors into two categories.

Models are classified as axes connected to a 200V driver unit and axes connected to an expansion unit.

Connection unit	Actuator specifications	Selected actuator
200V driver unit	Specification that meets all conditions below (Motor wattage [W]) 60W~750W (Encoder type) Incremental Battery-less Absolute	 RCS4-RA6C-WA-100  ISB-LXM-WA-200
Expansion unit	Specifications not connectable to the 200V driver unit	 DDA-LT18CS-AM-200 *This is because the absolute multi-rotation specification cannot be connected using a 200V driver unit.

Step 8 200V driver unit selection

Select one 200V power supply unit and a number of driver units according to the actuators to connect.

Unit name	External view	Number of axes connected to actuator	Model	<Selection example> Classification	Required units
200V power supply unit		-	RCON-PS2-3	-	1
200V driver unit		1-axis specification	RCON-SC-1	 RCS4  ISB	2

Selection 5

Selection 5

Step 9 Expansion unit selection

(1) Select one if there are any actuators connected with an expansion unit.

Unit name	External view	Number of axes connected to actuator	Model	<Selection example> Classification	Required units
SCON expansion unit		Max. 16 axes	RCON-EXT	 DDA	1

Selection 6

(2) Select a number of controllers (SCON-CB) to connect through the expansion unit according to the number of connected actuators.

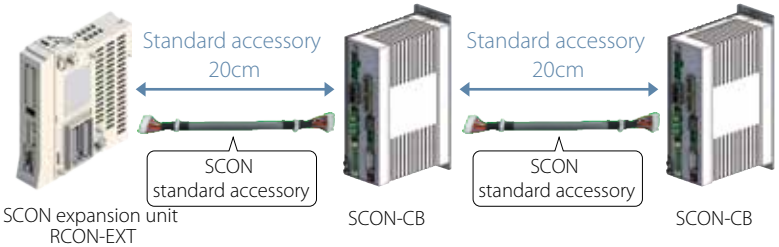
*A number of SCON-CBs must be purchased according to the number of connected axes. (Max. number of connections: 16 axes.)

Controller	External view	Number of axes connected to actuator	I/O type	<Selection example> Classification	Required units
SCON-CB/CGB		1-axis specification	SCON-**-RC-*	 DDA	1

Selection 7

● Example of connecting an expansion unit and SCON-CB

One cable (CB-RE-CTL002) is supplied as standard with SCON-CB for RCON connection.



Additional information If the connection cable is too short, purchase a separate cable to make the connection.

Model: CB-RE-CTL□□□

See P. 89

x Required number of units

Caution: The maximum cable length between devices is 3m.
The total cable length is 10m (max.).

Step 10 Calculation of various unit control power capacities (CP)

Make sure that the total control power capacity of the units and ELECYLINDER connected to RCON is as follows.

Item	Average current
Control power (CP)	9.0A or less

How to check

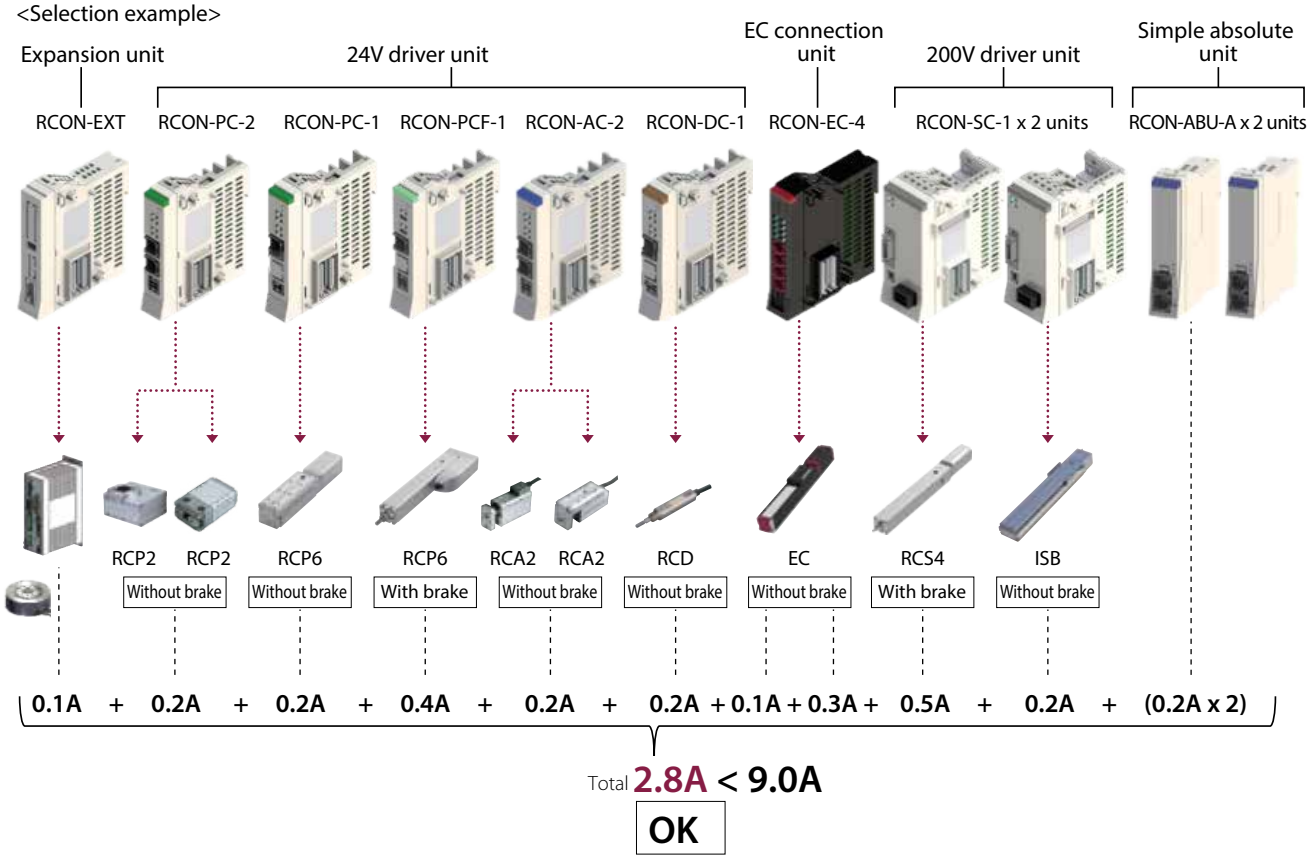
Add up while checking the "Control power capacity list" below.

Control power capacity list

Item	Specifications			Power capacity	<Selection example>
Control power capacity (per unit)	Master unit (including terminal unit)	Gateway unit	Without Ethernet	0.8A	
			With Ethernet	1.0A	
	24V driver unit (common for all types)	Without brake		0.2A	x 4 units
		With brake (1-axis specification)		0.4A	x 1 unit
		With brake (2-axis specification)		0.6A	
	200V driver unit	Without brake		0.2A	x 1 unit
		With brake		0.5A	x 1 unit
	Expansion unit			0.1A	x 1 unit
	Simple absolute unit (common to all types)			0.2A	x 2 units
	EC connection unit (per unit)			0.1A	x 1 unit
	24V specification ELECYLINDER (per axis)	Without brake		0.3 A	x 1 axis
		With brake		0.5 A	
	200V specification ELECYLINDER (per axis)	Without brake		0.32 A	
		With brake	EC-S10□, EC-S10X□	0.54 A	
		With brake	EC-S13□, EC-S13X□ EC-S15□, EC-S15X□	1.2A	

* For selection of the unit, power capacity of the master unit is not included for calculation.
However, for 24V power selection, include the master unit power capacity.

<Selection example>



Total **2.8A < 9.0A**

OK

(The total was confirmed to be 9.0A or less. If the value is larger than 9.0A, another gateway unit is required.)

Step 11 Calculation of various unit motor power capacities (MP)

Make sure that the total motor power capacity of the units connected to RCON is as follows.

Item	Average current
Motor power (MP)	37.5A or less

How to check

Add up while checking the "Motor power capacity list" below.
If the maximum current is listed, add the maximum current.
If not, add the rated current.

● 24V driver unit

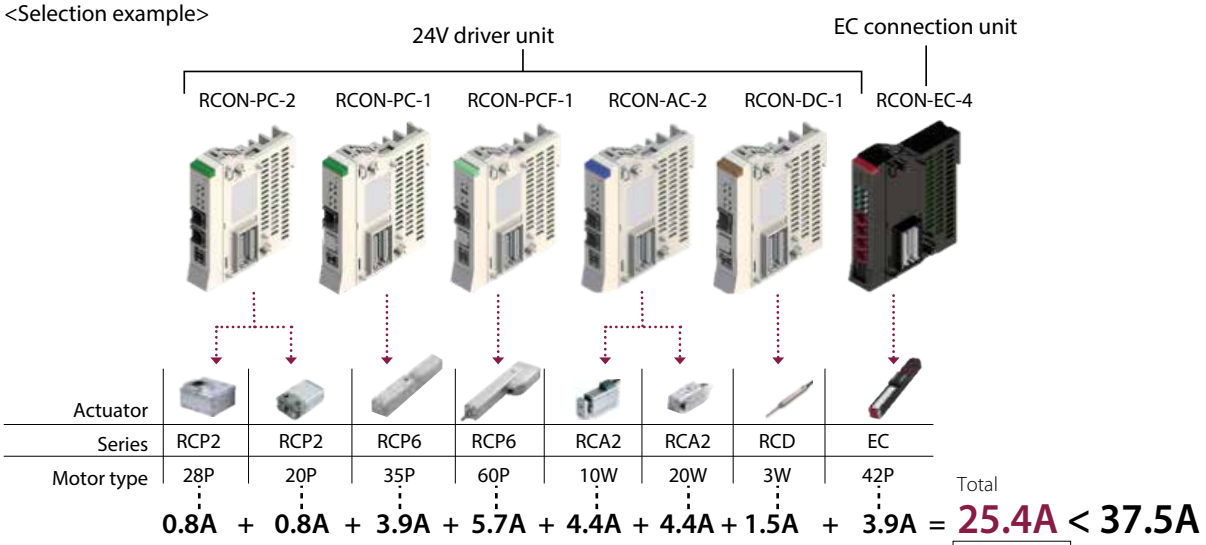
Item	Actuator/driver unit				Rated current	Max. current		<Selection example>
		Series	Motor type			When energy-saving is set		
Motor power capacity (per 1-axis actuator)	Stepper motor /RCON-PC	RCP2 RCP3	20P/20SP/28P	Without PowerCON	0.8A	-	-	x 2 axes
			28P*/35P/42P/56P		1.9A	-	-	
		RCP4 RCP5 RCP6	28P/35P/42P/ 42SP/56P	Without PowerCON	1.9A	-	-	
				With PowerCON	2.3A	-	3.9A	x 1 axis
	Stepper motor /RCON-PCF	RCP2 RCP4 RCP5 RCP6	56SP/60P/ 86P	Without PowerCON	5.7A	-	-	x 1 axis
	AC servo motor /RCON-AC	RCA RCA2	5W	Standard / Hi-accel./decel.	1.0A	-	3.3A	
			10W	Standard / Hi-accel./decel. / Energy-saving	1.3A	2.5A	4.4A	x 1 axis
			20W		1.3A	2.5A	4.4A	x 1 axis
			20W(20S)		1.7A	3.4A	5.1A	
			30W		1.3A	2.2A	4.0A	
		RCL	2W	Standard / Hi-accel./decel.	0.8A	-	4.6A	
			5W		1.0A	-	6.4A	
			10W		1.3A	-	6.4A	
	DC brush-less motor /RCON-DC	RCD	3W	Standard	0.7A	-	1.5A	x 1 axis

* Applicable models: RCP2-RA3, RCP2-RGD3

● EC connection unit

Item	Actuator/EC connection unit				Power source current			
		Series	Motor type	Type	Energy-saving disabled		Energy-saving enabled	
					Power source current	Maximum		
Motor power capacity (per 1-axis actuator)	24V stepper motor	EC	35P/42P/56P	Other than the below	2.3A	3.9A	1.9A	x 1 axis
			28P	S3□/RR3□	-	-	1.9A	
				RP4/GS4/GW4/TC4/TW4/ RTC9/GRB10/GRB13	-	-	1.7A	
			20P	GRB8	-	-	0.7A	

<Selection example>



Total

0.8A + 0.8A + 3.9A + 5.7A + 4.4A + 4.4A + 1.5A + 3.9A = 25.4A < 37.5A

OK

(The total was confirmed to be 37.5A or less. If the value is larger than 37.5A, another gateway unit is required.)

It is possible to calculate the control power and motor power capacity as in steps 10/11 (calculation when all axes are simultaneously used at maximum load).

Step 12 200V motor power limiting

Make sure that the total motor wattage (W) of the actuators connected to RCON-SC is as follows.

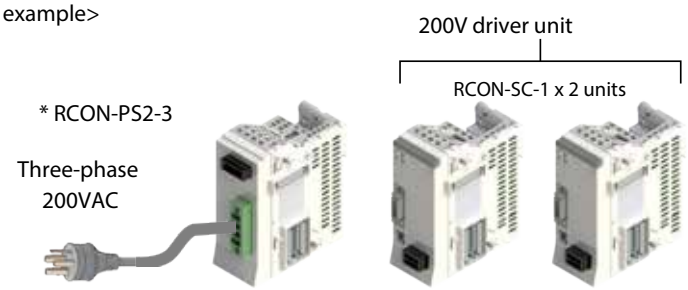
*Some limitations apply. See "Actuators that cannot connect to R-units" (P. 48) for details.

Connected power	Total max. output of connected axes
Three-phase 200VAC	2,400W
Single-phase 200VAC	1,600W

How to check

Confirm the motor wattage (W) in the actuator specifications.
For some models, it is necessary to calculate the power capacity using the "motor wattage for calculation." See P.54 for details

<Selection example>



* Only one RCON-PS2-3 can be used per RCON/RSEL system.

Actuator		
Series	RCS4	ISB
motor wattage (W)	100W	200W

Total
= 300W < 2,400W
OK

Step 13 Fan unit selection

If the controller installation environment may exceed 40°C, a fan unit will be required. (Up to 55°C.)*

(1) 24V driver unit fan unit

The number of fan units is the total number of driver units divided by 2.
If the total number of 24V driver units is an odd number, add 1 to the total number and divide it by 2.
When ordering, be sure to specify the gateway unit model.

<Selection example>

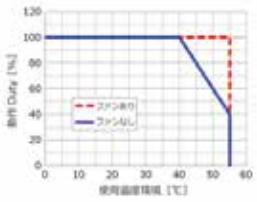
24V driver units (5 units + 1) ÷ 2 = 3 units

Fan unit [RCON-FU] x 3 units

Selection 8

Note: The ambient operating temperature of the simple absolute unit is within the range of 0~40°C even when a fan unit is installed.

*The operating temperature of the gateway unit/driver unit is within the range of 0~55°C.
However, temperature derating may occur depending on whether a fan unit is installed.
Operation without derating is possible without a fan unit at 0 ~ 40°C;
however, at 40 ~ 55°C, actuator operating duty must be reduced by 20% every 5°C.



(2) 200V driver unit and power supply unit fan units

A single fan unit is always included with each installation unit. (There is no need to specify the model.)

<Selection example>

200V driver units x 2 units

RCON-FUH x 2 units
(supplied)

200V power supply unit

RCON-FU x 1 unit
(supplied)

Step 14 Terminal units

Select the terminal unit to connect based on the unit connected to the left of the terminal unit.
(Units are designed to prevent incorrect connections. Confirm the model first before installing a unit.)

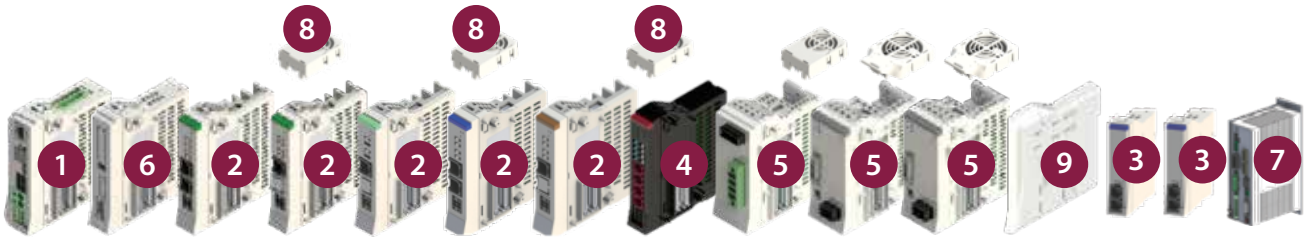
Unit connected to left	Terminal unit single product model number	Supplied unit and cautions when ordering
RCON-SC	RCON-GW-TRS	Supplied with 200V power supply unit (select "TRN (no terminal unit)" for the gateway unit option) ← Selection 9
Other than RCON-SC	RCON-GW-TR	Supplied with gateway unit

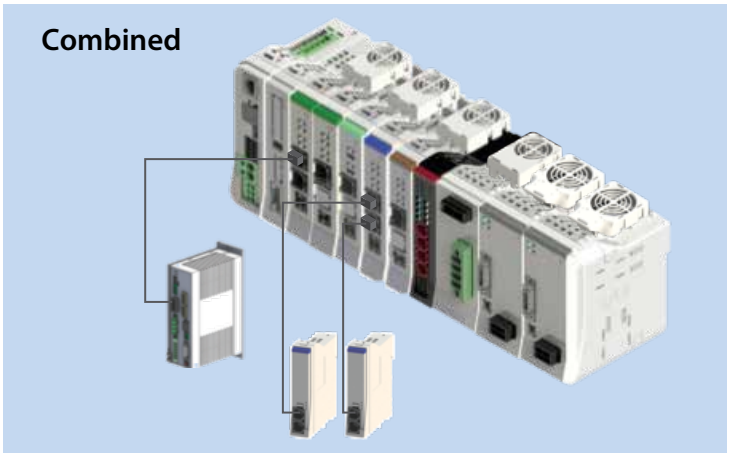
Step 15 Unit models to be ordered

Order using the model name for each unit.

<Selection example>

Order model (x number of units)	Name/specification	
RCON-GW-CC-FU3-TRN	Gateway unit (with 3 fans, without terminal unit)	1 8
RCON-EXT	SCON expansion unit	6
RCON-PC-2	24V driver unit (RCP Series connection, 2-axis specification)	2
RCON-PC-1	24V driver unit (RCP Series connection, 1-axis specification)	2
RCON-PCF-1	24V driver unit (RCP Series connection, 1-axis specification, for high thrust)	2
RCON-AC-2	24V driver unit (RCA Series connection, 2-axis specification)	2
RCON-DC-1	24V driver unit (RCD Series connection, 1-axis specification)	2
RCON-ABU-A x 2 units	Simple absolute unit (for RCA Series connection)	3
RCON-EC-4	EC connection unit	4
RCON-PS2-3	200V power supply unit	5 9
RCON-SC-1 x 2 units	200V driver unit	5
SCON-***-RC	RCON connection specification SCON controller *Select the model to order based on the actuator to connect.	7





RSEL Selection Method

Step 1 Select the actuator to connect. (Up to 16 axes)

(Note) See P. 48 for non-connectable actuators and limitations on connection.

* Make sure to select optional "ACR" as the ELECYLINDER model.

<Selection example>


RCS2 Series


RCA2 Series


RCP6 Series


WU Series


RCS4 Series


IS(P)B Series


EC series

Step 2 SEL unit selection

Select the SEL unit model from the following I/O types.

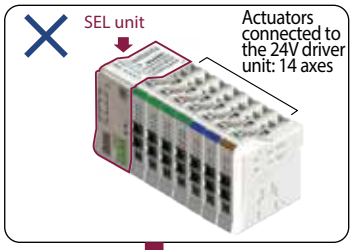
I/O type		SEL unit model
Not used		RSEL-G-E
PIO specification	NPN	RSEL-G-NP
	PNP	RSEL-G-PN
CC-Link		RSEL-G-CC
	(Bifurcated connector supplied)	RSEL-G-CC2
CC-Link IE Field		RSEL-G-CIE
DeviceNet		RSEL-G-DV
	(Bifurcated connector supplied)	RSEL-G-DV2
EtherCAT		RSEL-G-EC
EtherNet/IP		RSEL-G-EP
PROFIBUS		RSEL-G-PR
PROFINET		RSEL-G-PRT

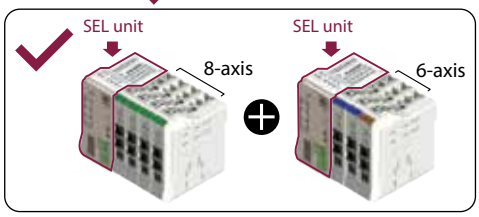
Selection 1

Caution

Only one SEL unit can be connected per system. Split this among two or more units to connect more than the maximum connectable axes or if the power capacity is exceeded.

Example: When connecting 14 axes





Maximum connectable axes to the driver unit and EC connection unit.

* 24V/200V driver unit: up to 8 axes
* EC connection unit: up to 16 axes

Step 3 Classify actuator types into three categories.

*See P. 48 for actuators that cannot be connected.

Actuator type		Selected actuator
Models with 24V motors	RCP2/3/4/5/6 Series RCA/2 Series RCD Series RCL Series WU Series	<Selection example>  RCA2  RCP6  WU
Models with 200V motors	RCS2/3/4 Series IS(D)B Series SSPA Series LSA Series NS(A) Series DD(A) Series	<Selection example>  RCS2  RCS4  ISB  ISPB
ELECYLINDER (equipped with a 24V motor)	EC series	<Selection example>  EC

Step 4 24V driver unit selection (models with 24V motors)

Select the driver unit model and number of units according to the series name and motor type of the actuator.

Actuator		24V driver unit			<Selection example>		
Series	Motor type	External view	Number of axes connected to actuator	Model	Classification	Required units	
RCP2 RCP3 RCP4 RCP5 RCP6 WU	20P, 28P 35P, 42P 56P	Stepper motor 	2-axis specification	RCON-PC-2	 WU-S	1	Selection 2
			1-axis specification	RCON-PC-1	 RCP6-RTFML	1	Selection 2
	High thrust motor 56SP, 60P 86P		1-axis specification	RCON-PCF-1	-	-	
RCA RCA2 RCL	2 5 10 20, 20S 30	AC servo motor 	2-axis specification	RCON-AC-2	-	-	
			1-axis specification	RCON-AC-1	 RCA2-GS3NA	1	Selection 2
RCD	3D	DC brush-less motor 	2-axis specification	RCON-DC-2	-	-	
			1-axis specification	RCON-DC-1	-	-	

Step 5 Simple absolute unit selection

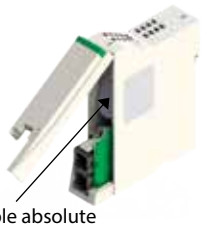
For actuators which are to use the simple absolute specification, select a number of simple absolute units (RCON-ABU-A/P) according to the number of axes.

* Connect to the driver unit with a cable (CB-ADPC-MPA005).
  The cable is supplied with the simple absolute unit.

Note: The ambient operating temperature of the simple absolute unit is within the range of 0~40°C.


RCON-ABU-A


RCON-ABU-P


Simple absolute battery

<Selection example>

This is an example in which an RCA2 Series actuator is selected for simple absolute specification.

RCON-AC-1


RCA2-GS3NA

Actuators to be made compatible with simple absolute

Simple absolute unit
RCON-ABU-A

Selection 3

Step 6 Selection of EC connection unit (ELECYLINDER model)

For connection of the EC Series, select the necessary number of connection units according to the number of connected EC units.

Actuator		EC connection unit			<Selection example>		
Series	Motor type	External view	Number of axes connected to actuator	Model	Classification	Required units	
EC	28P, 35P 42P, 56P		4-axis specification	RCON-EC-4	 EC-RR6 EC-GRB10	1	Selection 4

Step 7 Classify models with 200V motors into two categories.

Models are classified as axes connected to a 200V driver unit and axes connected to an expansion unit.

Connection unit	Actuator specifications	Selected actuator
200V driver unit	Specification that meets all conditions below (Motor wattage [W]) 60W~750W (Encoder type) Incremental Battery-less Absolute	 RCS4-WRA16R-WA-400  IS(P)B-LXL-WA-400
Expansion unit	Specifications not connectable to the 200V driver unit	 RCS2-RTC8L-I-20 *This is because the 20W specification cannot be connected to RCON-SC.

Step 8 200V driver unit selection

Select one 200V power supply unit and a number of driver units according to the actuators to connect.

Unit name	External view	Number of axes connected to actuator	Model	<Selection example> Classification	<Selection example> Required units	
200V power supply unit		-	RCON-PS2-3	-	1	Selection 5
200V driver unit		1-axis specification	RCON-SC-1	 RCS4 ISB	3	Selection 5

Step 9 Expansion unit selection

(1) Select only one of two models listed below if there are any 100/200VAC servo actuators connected with an expansion unit. (Those two different type can not be used in one system.)

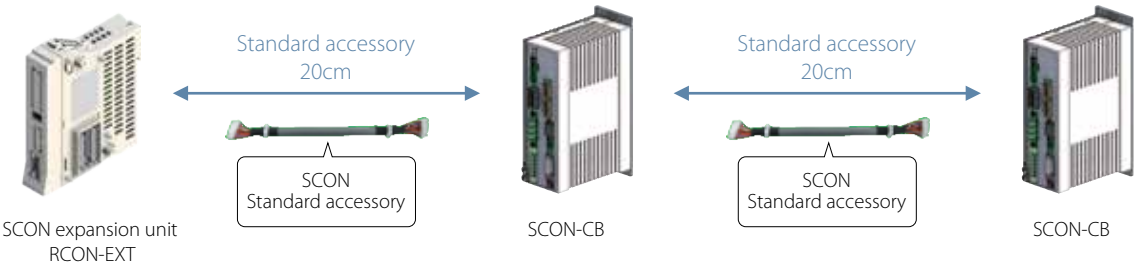
Unit name	External view	Number of axes connected to actuator	Model	<Selection example> Classification	<Selection example> Required units	
SCON expansion unit		Max. 8 axes	RCON-EXT	-	-	
PIS/SIO/SCON expansion unit Expansion unit		Max. 8 axes	RCON-EXT-NP/PN	 RCS2-RTC8L-I-20	1	Selection 6

(2) Select a number of controllers (SCON) to connect through the expansion unit according to the number of connected actuators. *A number of SCONs must be purchased according to the number of connected axes. (Max. number of connections: 8 axes.)

Controller	External view	Number of axes connected to actuator	I/O type	<Selection example> Classification	<Selection example> Required units	
SCON-CB/CGB		1-axis specification	SCON-**-RC-*	 RCS2-RTC8L-I-20	1	Selection 7

● Example of connecting an SCON connection expansion unit and SCON-CB

One cable (CB-RE-CTL002) is supplied as standard with SCON-CB for RSEL connection.



Additional information If the connection cable is too short, purchase a separate cable to make the connection.

Model: CB-RE-CTL□□□

See P. 89

x Required number of units

Caution: The maximum cable length between devices is 3m. The total cable length is 10m (max.).

(3) When selecting a PIO unit

A PIO unit can be connected to increase the number of PIO IO points. (The maximum number of input points is 144 and maximum number of output points is 144.)
There are 16 input points and 16 output points for a single unit, with a maximum of 8 units connected.
(If connecting a PIO/SIO/SCON expansion unit, the maximum will be 7 units.)

If the number of input points or output points is evenly divisible by 16, order that number of PIO units.
If the number is not evenly divisible, order a number of PIO expansion units equal to the number rounded up to the next whole number.

<Selection example>

In this example, the number of NPN specification IO points is increased by 24 input points and 20 output points.

24 input points ÷ 16 = 1.5 → **2 units**

PIO unit [RCON-NP]

Selection 8

Step 10 Calculation of various unit control power capacities (CP)

Make sure that the total control power capacity of the units connected to RSEL is as follows.

Item	Average current
Control power (CP)	9.0A or less

How to check

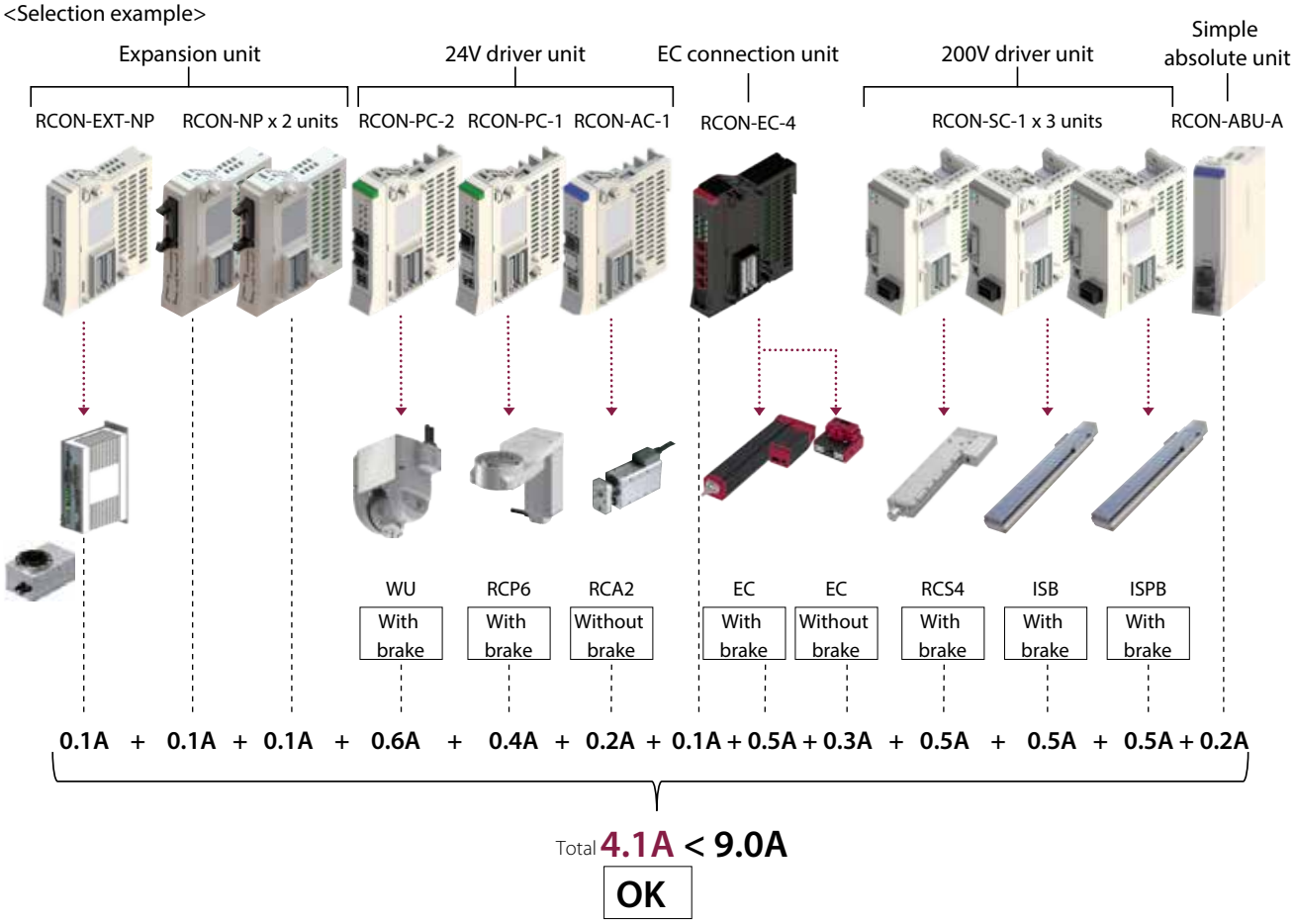
Add up while checking the "Control power capacity list" below.

Control power capacity list

Item	Specification		Power capacity	<Selection example>
Control power capacity (per unit)	Master unit (including terminal unit)	SEL unit	1.2A	
	24V driver unit (common for all types)	Without brake	0.2A	x 1 unit
		With brake (1-axis specification)	0.4A	x 1 unit
		With brake (2-axis specification)	0.6A	x 1 unit
	200V driver unit	Without brake	0.2A	
		With brake	0.5A	x 3 units
	Expansion unit (common for all types)		0.1A	x 3 units
	Simple absolute unit (common to all types)		0.2A	x 1 unit
	EC connection unit (per unit)		0.1A	x 1 unit
	24V specification ELECYLINDER (per axis)	Without brake	0.3A	x 1 unit
		With brake	0.5A	x 1 unit
	200V specification ELECYLINDER (per axis)	Without brake	0.32A	
		With brake: EC-S10□/S10X□	0.54A	
		With brake: EC-S13□/S13X□, EC-S15□/S15X□	1.2A	

* For selection of the unit, power capacity of the master unit is not included in calculation.
However, for 24V power selection, include the master unit power capacity.

<Selection example>



Total **4.1A < 9.0A**

OK

(The total was confirmed to be 9.0A or less. If the value is larger than 9.0A, another SEL unit is required.)

Step 11 Calculation of various unit motor power capacities (MP)

Make sure that the total motor power capacity of the units connected to RSEL is as follows.

Item	Average current
Motor power (MP)	37.5A or less

How to check

Add up while checking the "Motor power capacity list" below.
If the maximum current is listed, add the maximum current.
If not, add the rated current.

● 24V driver unit

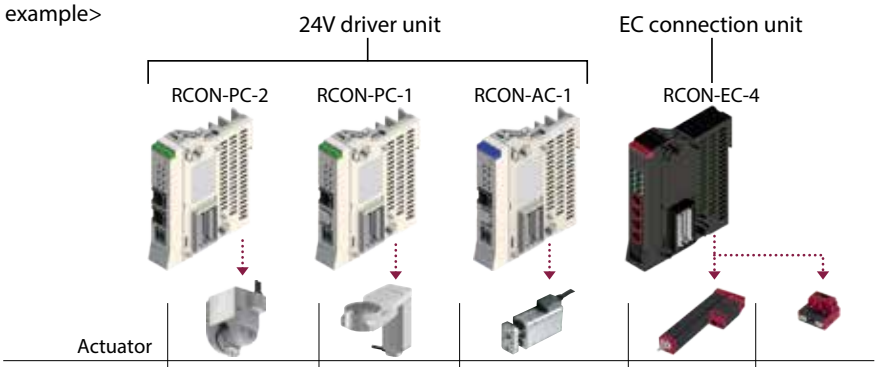
Item	Actuator/driver unit				Rated current	Max. current		<Selection example>
		Series	Motor type			When energy-saving is set		
Motor power capacity (per 1-axis actuator)	Stepper motor /RCON-PC	RCP2 RCP3	20P/20SP/28P	Without PowerCON	0.8A	-	-	
			28P* /35P/42P/56P		1.9A	-	-	
		RCP4 RCP5 RCP6 WU	28P/35P/42P/ 42SP/56P	Without PowerCON	1.9A	-	-	
				With PowerCON	2.3A	-	3.9A	x 3 axes
	Stepper motor /RCON-PCF	RCP2 RCP4 RCP5 RCP6	56SP/60P/86P	Without PowerCON	5.7A	-	-	
	AC servo motor /RCON-AC	RCA RCA2	5W	Standard / Hi-accel./decel.	1.0A	-	3.3A	
			10W	Standard / High accel/decel / Energy saving	1.3A	2.5A	4.4A	
			20W		1.3A	2.5A	4.4A	x 1 axis
			20W(20S)		1.7A	3.4A	5.1A	
			30W		1.3A	2.2A	4.0A	
		RCL	2W	Standard / Hi-accel./decel.	0.8A	-	4.6A	
			5W		1.0A	-	6.4A	
			10W		1.3A	-	6.4A	
	DC brush-less motor /RCON-DC	RCD	3W	Standard	0.7A	-	1.5A	

* Applicable models: RCP2-RA3, RCP2-RGD3

● EC connection unit

Item	Actuator / connection unit				Power source current			<Selection example>
		Series	Motor type	Type	Energy-saving disabled		Energy-saving enabled	
					Power source current	Maximum		
Motor power capacity (per 1-axis actuator)	24V stepper motor	EC	35P/42P/56P	Other than specified below	2.3A	3.9A	1.9A	x 1 axis
			28P	S3□/RR3□	-	-	1.9A	
				RP4/GS4/GW4/TC4/TW4/ RTC9/GRB10/GRB13	-	-	1.7A	x 1 axis
			20P	GRB8	-	-	0.7A	

<Selection example>



(3.9A x 2) + 3.9A + 4.4A + 3.9A + 1.7A = Total 21.7A < 37.5A

OK

(The total was confirmed to be 37.5A or less. If the value is larger than 37.5A, another SEL unit is required.)

It is possible to calculate the control power and motor power capacity as in steps 9/10 (calculation when all axes are simultaneously used at maximum load). The following software can also be used to optimize the power capacity according to the operating conditions.

Step 12 200V motor power limiting

Make sure that the total motor wattage (W) of the actuators connected to RCON-SC is as follows.

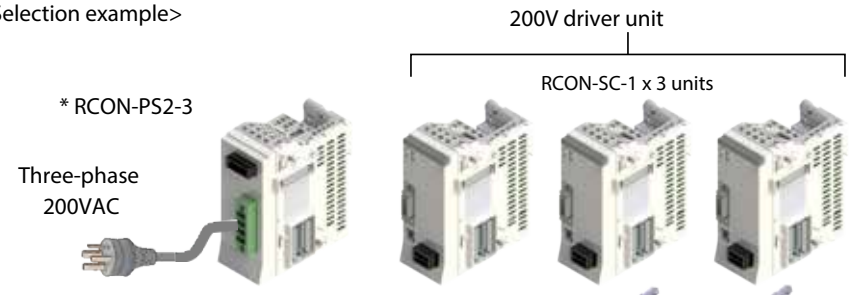
*Some limitations apply. See "Actuators that cannot connect to R-units" (P. 48) for details.

Connected power	Total max. output of connected axes
Three-phase 200VAC	2,400W
Single-phase 200VAC	1,600W

How to check

Confirm the motor wattage (W) in the actuator specifications.
For some models, it is necessary to calculate the power capacity using the "motor wattage for calculation." See P.54 for details

<Selection example>



* Only one RCON-PS2-3 can be used per RCON/RSEL system.

Actuator			
Series	RCS4	ISB	ISPB
motor wattage (W)	400W	400W	400W

Total
= 1,200W < 2,400W
OK

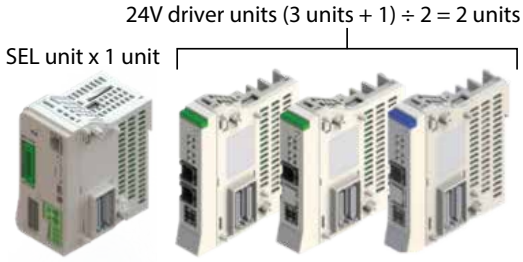
Step 13 Fan unit selection

If the controller installation environment may exceed 40°C, a fan unit will be required. (Up to 55°C.)*

(1) SEL unit and 24V driver unit fan units

A single fan unit can be installed to a SEL unit.
The number of fan units for 24V driver units is the total number of 24V driver units divided by 2.
If the total number of 24V driver units is an odd number, add 1 to the total number and divide it by 2.
When ordering, be sure to specify the number of units for the SEL unit model.

<Selection example>

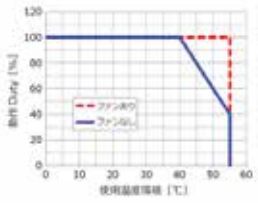


Fan unit [RCON-FU] x 3 units

Selection 9

Note: The ambient operating temperature of the simple absolute unit is within the range of 0~40°C even when a fan unit is installed.

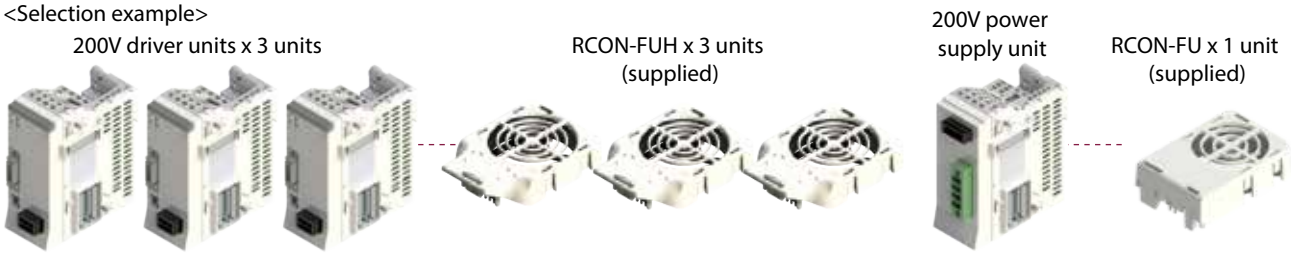
*The operating temperature of the gateway unit/driver unit is within the range of 0~55°C.
However, temperature derating may occur depending on whether a fan unit is installed.
Operation without derating is possible without a fan unit at 0 to 40°C;
however, at 40 to 55°C, actuator operating duty must be reduced by 20% every 5°C.



(2) 200V driver unit and 200V power supply unit fan units

A single fan unit is always included with each installation unit. (There is no need to specify the model.)

<Selection example>



Step 14 Terminal units

Select the terminal unit to connect based on the unit connected to the left of the terminal unit.
(Units are designed to prevent incorrect connections. Confirm the model first before installing a unit.)

Unit connected to left	Terminal unit single product model number	Supplied unit and cautions when ordering
RCON-SC	RCON-GW-TRS	Supplied with 200V power supply unit (select "TRN (no terminal unit)" for the SEL unit option).
Other than RCON-SC	RCON-GW-TR	Supplied with SEL unit.

Selection 10

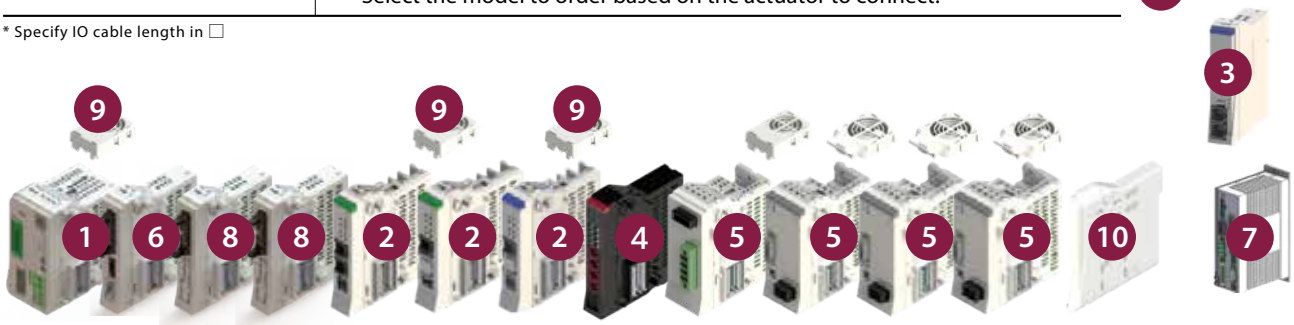
Step 15 Unit models to be ordered

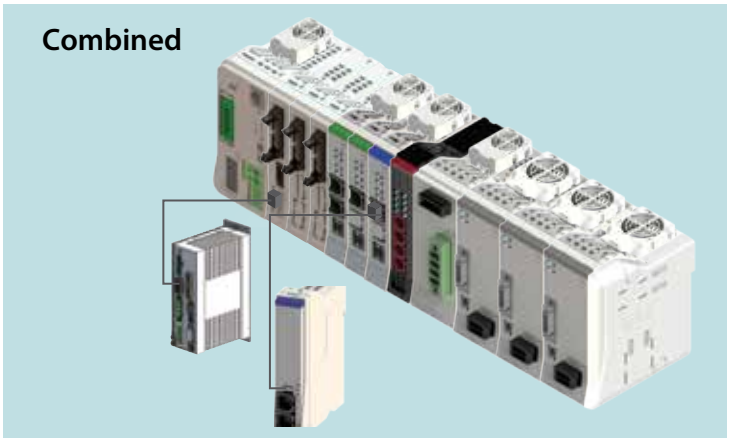
Order using the model name for each unit.

<Selection example>

Order model (x number of units)	Name/specification	
RSEL-G-DV2-FU3-TRN	SEL unit (with 3 fans, without terminal unit)	1 9
RCON-EXT-NP	PIO/SIO/SCON expansion unit	6
RCON-NP x 2 units	PIO unit	8
RCON-PC-2	24V driver unit (RCP Series connection, 2-axis specification)	2
RCON-PC-1	24V driver unit (RCP Series connection, 1-axis specification)	2
RCON-AC-1	24V driver unit (RCA Series connection, 1-axis specification)	2
RCON-ABU-A	Simple absolute unit (for RCA Series connection)	3
RCON-EC-4	EC connection unit	4
RCON-PS2-3	200V power supply unit	5 10
RCON-SC-1 x 3 units	200V driver unit	5
SCON-***-RC	RCON connection specification SCON controller *Select the model to order based on the actuator to connect.	7

* Specify IO cable length in □





Step 1 Select the ELECYLINDER with ACR option to connect. (Up to 16 axes.)

* Make sure to select optional "ACR" as the ELECYLINDER model.

<Selection example>

EC-S6☐AH EC-S7☐AH EC-S3 EC-TC4 EC-GS4 EC-RR6 EC-S13

Step 2 EC gateway unit selection

Select the EC gateway unit model from the network type.

Network type	EC gateway unit model
CC-Link	REC-GW-CC
CC-Link IE Field	REC-GW-CIE
DeviceNet	REC-GW-DV
EtherCAT	REC-GW-EC
EtherNet/IP	REC-GW-EP
PROFIBUS	REC-GW-PR
PROFINET	REC-GW-PRT

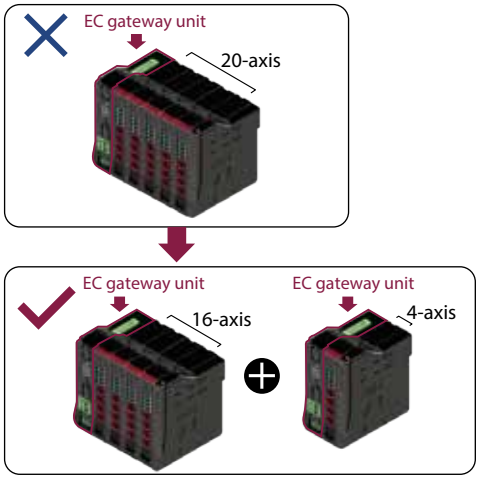
<Selection example>

Selection 1

Caution

Only one EC gateway unit can be connected per system.
Split this among two or more units to connect 17 or more axes or if the power capacity is exceeded.

Example: When connecting 20 axes



Step 3 EC connection unit selection

Up to 4 axes of ELECYLINDER can be connected to one EC connection unit.
Select the required number of EC connection units based on the number of units for connecting ELECYLINDER.

Actuator	EC connection unit			<Selection example>	
Series	External view	Number of axes connected to actuator	Model	Classification	Required units
EC		4-axis specification	RCON-EC-4	 EC Series x 7 axes	2

Selection 2

Step 4 Calculation of control power capacity (CP)

Confirm that the total control power capacity of each unit connected to REC and ELECYLINDER is less than the value specified below.

Item	Average current
Control power (CP)	Less than 9.0A

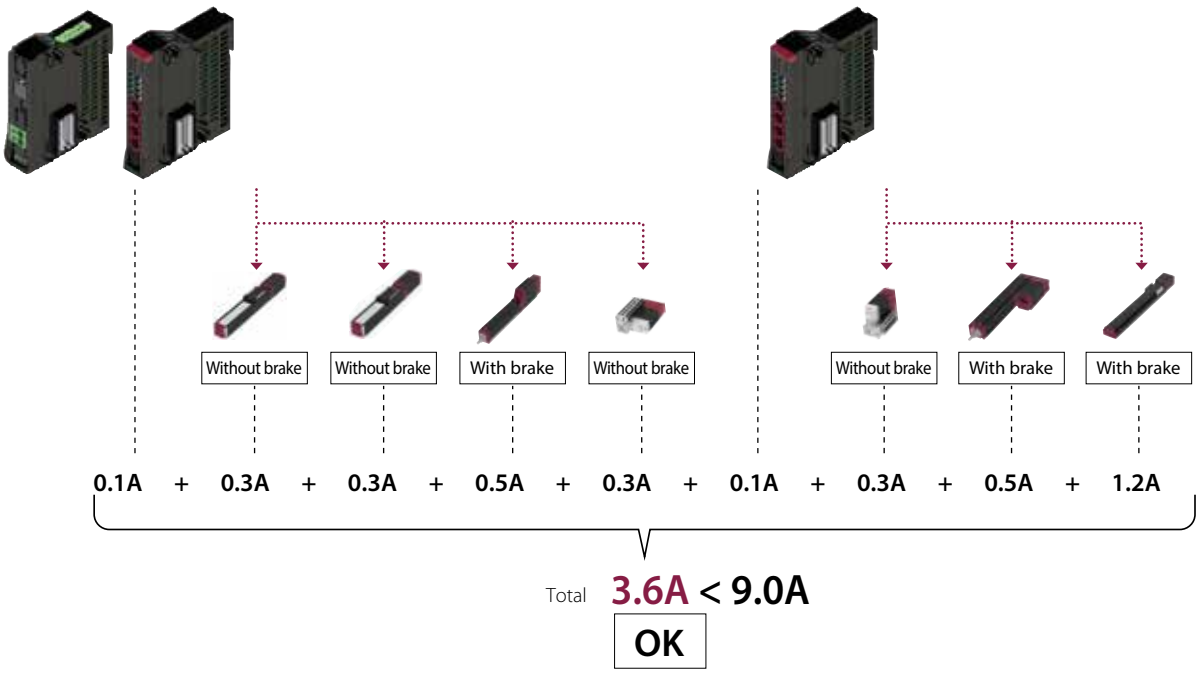
How to check

Add up referring to the "Control power capacity table" below.

Item	Specification			Power source current	
Control power capacity	Master unit			0.8A	
	EC connection unit			0.1A	x 2 axes
	24V specification ELECYLINDER (per unit)	Without brake		0.3A	x 4 axes
		With brake		0.5A	x 2 axes
	200V specification ELECYLINDER (per axis)	Without brake		0.32A	
		With brake	EC-S10□/S10X□	0.54A	
			EC-S13□/S13X□	1.2A	x 1 axis
			EC-S15□/S15X□		

* Power capacity of the master unit is not included in calculation.

<Selection example>



Total **3.6A < 9.0A**

OK

(It is confirmed that the current is less than 9.0A. If it is greater than 0.9A, another gateway unit is needed.)

Step 5 Calculation of motor power capacity (MP)

Make sure that the total motor power capacity of the units connected to REC is as follows.

Item	Average current
Motor power (MP)	37.5A or less

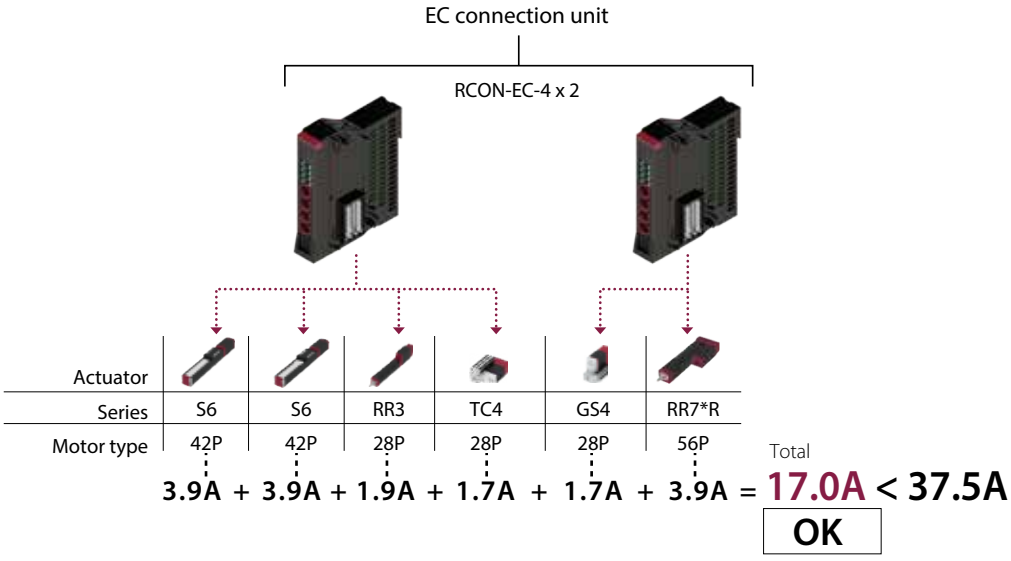
How to check

Add up while checking the "Motor power capacity list" below.
If the maximum current is listed, add the maximum current.
If not, add the rated current.

Motor power capacity list

Item	Actuator / connection unit				Power source current			<Selection example>
		Series	Motor type	Type	Energy-saving disabled		Energy-saving enabled	
					Rate current	Maximum		
Motor power capacity (per 1-axis actuator)	24V stepper motor	EC	35P/42P/56P	Other than the below	2.3A	3.9A	1.9A	x 3 axes
			28P	S3□/RR3□	-	-	1.9A	x 1 axis
				RP4/GS4/GW4/TC4/ TW4/RTC9/GRB10/GRB13	-	-	1.7A	x 2 axes
			20P	GRB8	-	-	0.7A	

<Selection example>



(The total was confirmed to be 37.5A or less. If the value is larger than 37.5A, another EC gateway unit is required.)

It is possible to calculate the motor power capacity as in step 5 (calculation when all axes are simultaneously used at maximum load).

Step 6 Selection of 200V specification motor power

When connecting a 200V specification ELECYLINDER, determine the number of power supply units for DC motors according to the total motor wattage.

DC power source for driving motors

Connecting power	Max. connectable axes (per power supply unit)	Max. connecting motor wattage
PSA-200-1 (AC100V)	6 axes	800W
PSA-200-2 (AC200V)	6 axes	1,600W

How to check

Confirm the motor wattage from the actuator specification.

<Selection example>

DC power source (AC100V/200V)

Series	EC-S13
Motor wattage	200W

Total

= 200W < 800W (one unit)

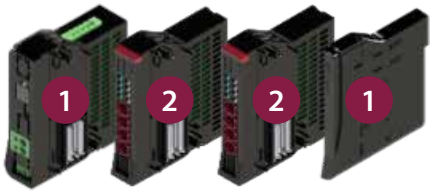
OK

Step 7 Unit models to be ordered

Order using the model name for each unit.

<Selection example>

Order model (x number of units)	Name/specification	
REC-GW-CC	EC gateway unit (with terminal unit)	1
RCON-EC-4 x 2 units	EC connection unit	2



Combined

Model Specification Items

RCON

(1) (3) (2) (4) (6) (2)

(5)

RSEL

(1) (3) (2) (6) (2)

(5)

REC

(1) (4)

(1) Master unit

RCON – [ ] – [ ] – [ ]

Series / Type / I/O type / Options

Type	
GW	Standard type
GWG	Safety category spec type

I/O type	
CC	CC-Link connection specification
CIE	CC-Link IE Field connection specification
DV	DeviceNet connection specification
EC	EtherCAT connection specification
EP	EtherNet/IP connection specification
ECM	EtherCAT motion connection specification
PR	PROFIBUS-DP connection specification
PRT	PROFINET IO connection specification
ML3	MECHATROLINK III connection specification
SSN	SDCNET III/H connection specification

Options	
ET	Ethernet-equipped
FU☐	Fan unit mounting (☐: Specify the number of units, 1 ~ 8)
TRN	Without terminal unit

*· For fan units, this is the number connected to the 24V driver unit.
· A terminal unit is required during operation.
However, when connecting/ordering an RCON-SC, select the "TRN" to connect the terminal unit supplied with the 200V power supply unit.

RSEL – **G** – [ ] – [ ] – [ ]

Series / Type / I/O type / I/O Cable Length / Options

I/O type	
E	Not used
NP	PIO specification (NPN16/16)
PN	PIO specification (PNP16/16)
CC	CC-Link connection specification
CC2	CC-Link connection specification (bifurcated connector supplied)
CIE	CC-Link IE Field connection specification
DV	DeviceNet connection specification
DV2	DeviceNet connection specification (bifurcated connector supplied)
EC	EtherCAT connection specification
EP	EtherNet/IP connection specification
PR	PROFIBUS-DP connection specification
PRT	PROFINET IO connection specification

I/O Cable Length	
0	Without cable
2	2m (Standard)
3	3m
5	5m

*If a specification other than PIO was selected for the I/O type, this will be "0 (without cable)".

Options	
FU☐	Fan unit mounting (☐: Specify the number of units, 1 ~ 5)
TRN	**Without terminal unit**

*· For fan units, this is the number connected to the master unit and 24V driver unit.
· A terminal unit is required during operation.
However, when connecting/ordering an RCON-SC, select the "TRN" to connect the terminal unit supplied with the 200V power supply unit.

REC – **GW** – [ ] – [ ]

Series / Type / I/O type / Options

I/O type	
CC	CC-Link connection specification
CIE	CC-Link IE Field connection specification
DV	DeviceNet connection specification
EC	EtherCAT connection specification
EP	EtherNet/IP connection specification
PR	PROFIBUS-DP connection specification
PRT	PROFINET IO connection specification

Options	
TRN	Without terminal unit

* A terminal unit is required during operation.

(2) Driver unit

RCON – □ – □

Series | Type | Number of Axes

PC	Stepper motor
PCF	High thrust stepper motor
AC	AC servo motor
DC	DC brush-less motor
SC	200V AC servo motor

1	1-axis specification
2	2-axis specification

*Type: Only 1-axis can be selected for PCF and SC.

24V specification

Type: PC 1.2A motor 1 axis 2 axes	20P	20□ stepper motor
	20SP	20□ stepper motor (For RA2AC/RA2BC)
	28P	28□ stepper motor
	35P	35□ stepper motor
	42P	42□ stepper motor
	42SP	42□ stepper motor (For RCP4-RA5C)
	56P	56□ stepper motor
Type: PCF 4A motor 1 axis	56SP	56□ high thrust stepper motor
	60P	60□ high thrust stepper motor
	86P	86□ high thrust stepper motor
Type: AC 2-30W motor 1 axis 2 axes	2	2W servo motor
	5	5W servo motor
	10	10W servo motor
	20	20W servo motor
	20S	20W servo motor (For RCA2-SA4/RCA-RA3)
	30	30W servo motor
Type: DC 3D motor 1 axis 2 axes	3D	2.5W DC brush-less motor

200V specification

Type: SC 60-750W motor 1 axis	30R	30W (for RS)
	60	60W servo motor
	100	100W servo motor
	100S	100W servo motor (for LSA)
	150	150W servo motor
	200	200W servo motor
	200S	200W servo motor (for LSA, DD)
	300S	300W servo motor (for LSA)
	400	400W servo motor
	600	600W servo motor
	750	750W servo motor

(3) Expansion unit

RCON – □ – □

Series | Expansion | I/O Cable Length

EXT	SCON expansion
EXT-NP	PIO/SIO/SCON expansion (NPN specification)
EXT-PN	PIO/SIO/SCON expansion (PNP specification)
NP	PIO (NPN specification)
PN	PIO (PNP specification)

0	No cable
2	2m (Standard)
3	3m
5	5m

*No I/O cable length selection required if SCON expansion (EXT) is selected.

(4) EC connection unit

RCON – EC – 4

Series | Type | Number of Axes

* EC without ACR option cannot be connected to RCON-EC even though the cable for RCON-EC connection is used.

(5) Simple absolute unit

RCON – ABU – □

Series | Absolute Unit | Type

P	Stepper motor
A	AC servo motor

(6) 200V power supply unit

RCON – PS2 – 3 – □

Series | Type | Power supply voltage | Options

3	Three-phase/single-phase 200V

TRN	Without terminal unit

Only one RCON-PS2-3 can be used per RCON/RSEL.

(7) SCON controller (RCON-EXT connection specification)

SCON – □ – □ – □ – □ – **RC** – **0** – □

Type | Motor type | Encoder Type | Options | I/O type | I/O Cable Length | Power supply voltage

Refer to P. 8-215 of the General Catalog 2021 for model selection items.

(1) Master unit

Model		RCON-GW/GWG									
I/O type		Field network									
		CC-Link	CC-Link IE Field	DeviceNet	EtherCAT		EtherNet/IP	PROFIBUS	PROFINET	MECHATROLINK	SSCNETIII/H
		CC-Link connection specification	CC-Link IE Field connection specification	DeviceNet connection specification	EtherCAT connection specification	EtherCAT motion connection specification	EtherNet/IP connection specification	PROFIBUS-DP connection specification	PROFINET IO connection specification	MECHATROLINK-III connection specification	SDCNET III/H connection specification
I/O type model number		CC	CIE	DV	EC	ECM	EP	PR	PRT	ML3	SSN
Without fan		○	○	○	○	○	○	○	○	○	○
With 24V driver fan	FU1	○	○	○	○	○	○	○	○	○	○
	FU2	○	○	○	○	○	○	○	○	○	○
	FU3	○	○	○	○	○	○	○	○	○	○
	FU4	○	○	○	○	○	○	○	○	○	○
	FU5	○	○	○	○	○	○	○	○	○	○
	FU6	○	○	○	○	○	○	○	○	○	○
	FU7	○	○	○	○	○	○	○	○	○	○
	FU8	○	○	○	○	○	○	○	○	○	○

Model		RSEL-G									
I/O type		Not used	PIO connection		Field network						
			NPN specification	PNP specification	CC-Link	CC-Link IE Field	DeviceNet	EtherCAT	EtherNet/IP	PROFIBUS	PROFI NET
					CC-Link connection specification	CC-Link IE Field connection specification	DeviceNet connection specification	EtherCAT connection specification	EtherNet/IP connection specification	PROFIBUS-DP connection specification	PROFI NET connection specification
I/O type model number		E	NP	PN	CC/CC2	CIE	DV/DV2	EC	EP	PR	PRT
Without fan		○	○	○	○	○	○	○	○	○	○
With 24V driver fan	FU1	○	○	○	○	○	○	○	○	○	○
	FU2	○	○	○	○	○	○	○	○	○	○
	FU3	○	○	○	○	○	○	○	○	○	○
	FU4	○	○	○	○	○	○	○	○	○	○
	FU5	○	○	○	○	○	○	○	○	○	○

Model	REC-GW						
I/O type	Field network						
	CC-Link	CC-Link IE Field	DeviceNet	EtherCAT	EtherNet/IP	PROFIBUS	PROFI NET
	CC-Link connection specification	CC-Link IE Field connection specification	DeviceNet connection specification	EtherCAT connection specification	EtherNet/IP connection specification	PROFIBUS-DP connection specification	PROFI NET connection specification
I/O type model number	CC	CIE	DV	EC	EP	PR	PRT

(2) Driver unit

Series code		RCON				
Motor type		24V				200V
		Stepper motor		AC servo motor	DC brush-less motor	AC servo motor
		Standard type	High thrust type			
Type code		PC	PCF	AC	DC	SC
Number of Axes	1	○	○	○	○	○
	2	○	○	○	○	○

(3) Expansion unit

Series code	RCON				
Type name	SCON expansion	PIO/SIO/SCON expansion		PIO	
		NPN specification	PNP specification	NPN specification	PNP specification
Type code	EXT	EXT-NP	EXT-PN	NP	PN

(4) EC connection unit

Series code	RCON
Type name	EC connection unit
Type code	EC-4

(5) Simple absolute unit

Series model	RCON	
Motor type	Stepper motor	AC servo motor
Type code	ABU-PC	ABU-AC

(6) 200V power supply unit

Series code	RCON
Type name	200V power supply unit
Type code	PS2-3

(7) SCON controller (RCON-EXT connection specification)

Model	SCON-CB/CGB	
I/O type	RCON connection specification	
I/O type model number	RC	
Supported encoders	Battery-less absolute Incremental Quasi absolute Index absolute	Absolute Absolute multi-rotation
12~150W	○	○
200W	○	○
(100S/200S/300S)	○	○
300~400W	○	○
600W	○	○
750W	○	○
3000~3300W	○	○

* Refer to the General Catalog 2021 for applicable actuators.

System Configuration

RCON

Options
PC teaching software
(See P. 79)
<Model: RC/EC PC Software>

Options
Teaching pendant
(See P. 79)
<Model: TB-03><Model: TB-02>

PLC

Field network

DeviceNet, CC-Link, CC-Link IE Field, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO, EtherCAT motion, MECHATROLINK-III and SSCNET III/H

Supplied with GWG specification
Dummy plug
(See P. 82)
<Model: DP-5>

Supplied with gateway unit
System I/O connector
(See P. 82)
<Model: DFMC1,5/5-ST-3,5>

Options
Fan unit
(See P. 81)
<Model: RCON-FU>

For RC/EC PC Software: USB cable

For RCM-101-USB: Supplied with PC teaching software

Options
24VDC power supply
(See P. 81)
<Model: PSA-24>

Supplied with SCON-(RC specification)

Supplied with 200V driver unit

Dummy plug
(See P. 82)
<Model: DP-6>

RCON-EXT connection specification SCON controller [I/O type: RC]
(Refer to P. 8-215 of the General Catalog 2021.

Connection cable
(See P. 89)
<Model: CB-RE-CTL002>

Supplied with 24V driver unit

Drive source shutoff connector
(See P. 82)
<Model: DFMC1,5/2-STF-3,5>

Options

Regenerative resistance unit
(See P. 82)
<Model: RESU-2/ RESUD-2>

Note 1

Supplied with power supply unit

Power supply connector
(See P. 82)
<Model: SPC5/4-STF-7,62>

Supplied with simple absolute unit
Connection cable
(See P.85)
<Model: CB-ADPC-MPA050>

Options

Simple absolute unit
(See P. 68)
<Model: RCON-ABU-P (for stepper motor)>
<Model: RCON-ABU-A (for AC servo motor)>

Supplied with EC connection unit
Drive source shutoff connector
(See P. 82)
<Model: DFMC1,5/4-ST-3,5>

Motor power
Three-phase/ single-phase 200VAC

Supplied with expansion unit
Terminal connector
(See P. 82)
<Model: RCON-EXT-TR>

Motor-encoder cables / power/communication cables (EC connection)*1

Connectable actuators

Connection with "expansion unit"

RCS2/3/4 Series
IS(D)B Series
SSPA Series
DD(A) Series
LSA Series

*See P. 48 for actuators that cannot be connected.

Connection with "24V driver unit"

RCP2/3/4/5/6 Series

RCA/2 Series

RCD Series

Connection with "EC connection unit"

EC Series

Connection with "200V driver unit"

(60W~750W equipped actuator)
RCS2/3/4 Series
IS(D)B Series
SSPA Series
DD(A) Series
LSA Series

*See P. 42 for actuators that cannot be connected.

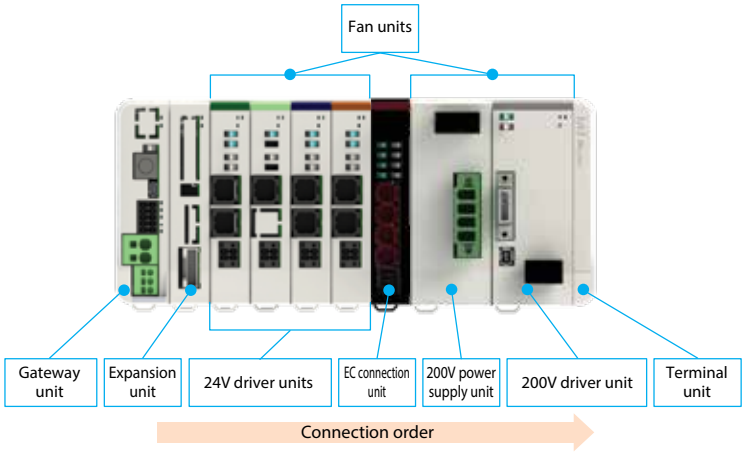
*1 The motor/encoder cable is supplied with the actuator.
The motor/encoder cables are different according to the actuator type to be connected.
Prepare power/communication cables separately for the number of connected axes.
Refer to P. 83 to order a cable alone.

*2 The ELECYLINDER can operate only a double solenoid.
When connecting a 200V specification, a DC power supply for motor deriving is needed. See P. 81 for details.

Note 1: A 60W regenerative resistor is built-in both RCON-SC and RCON-PS2. There is generally no need for regenerative resistance. However, if there is insufficient regenerative resistance, use the external "regenerative resistance unit".

Unit Configuration

RCON has a locking configuration and uses the unit connection method. Units that can be connected will have the same connector.
However, there are restrictions on unit arrangement. Connect each unit with these restrictions in mind.
Connect each prepared unit in order starting from the left, with the gateway unit serving as the standard unit when looking at the front surface.
*The system will not operate normally if units are not connected in the following order.



*RCON-EC for EC ACR connection not compatible.

Unit name	Number of connected units	Additional information
Gateway unit	1	Placed at far left
Expansion unit	1	Placed to right of gateway unit
24V driver unit	(Max.) 16	Can be rearranged within the unit area
EC connection unit	(Max.) 4	
200V power supply unit	1	Make sure to connect to the left of the leftmost connected 200V driver unit
200V driver unit	(Max.) 16	Can be rearranged within the 200V driver unit area
Terminal unit	1	Place at far right (type differs according to driver connected to left)

(Note) Some limitations apply on the number of connectable axes. See P. 48 for details.

■ Unit name and single product model number list

Product name		Model	Reference page
Master unit/gateway unit	CC-Link connection specification	RCON-GW/GWG-CC	P56
	CC-Link IE Field connection specification	RCON-GW/GWG-CIE	P57
	DeviceNet connection specification	RCON-GW/GWG-DV	P55
	EtherCAT connection specification	RCON-GW/GWG-EC	P59
	EtherCAT motion connection specification	RCON-GW/GWG-ECM	P59
	EtherNet/IP connection specification	RCON-GW/GWG-EP	P60
	PROFIBUS-DP connection specification	RCON-GW/GWG-PR	P58
	PROFINET IO connection specification	RCON-GW/GWG-PRT	P61
	MECHATROLINK-III connection specification	RCON-GW/GWG-ML3	P62
	SDCNET III/H connection specification	RCON-GW/GWG-SSN	P63
Expansion unit	SCON expansion	RCON-EXT	P67
24V driver unit	Stepper motor 1-axis specification	RCON-PC-1	P65
	Stepper motor 2-axis specification	RCON-PC-2	
	High thrust stepper motor 1-axis specification	RCON-PCF-1	
	AC servo motor 1-axis specification	RCON-AC-1	
	AC servo motor 2-axis specification	RCON-AC-2	
	DC brush-less motor 1-axis specification	RCON-DC-1	
	DC brush-less motor 2-axis specification	RCON-DC-2	
EC connection unit	EC connection unit 4-axis specification	RCON-EC-4	P68
200V power supply unit	200VAC input power supply	RCON-PS2-3	P66
200V driver unit	AC200V motor 1-axis specification	RCON-SC-1	P66
Terminal unit	For 24V	RCON-GW-TR	P69
	For 200V	RCON-GW-TRS	
Simple absolute unit	For RCON-PC	RCON-ABU-P	P68
	For RCON-AC	RCON-ABU-A	
Fan unit	Other than the below	RCON-FU	P81
	For 200V driver	RCON-FUH	

System Configuration

RSEL

PLC

Options
PC teaching software
(See P. 80)
<Model: XSEL PC Software, IA-101-X>

Options
Teaching pendant
(See P. 79)
<Model: TB-03><Model: TB-02>

SEL unit (NP/PN specification) option
PIO cable
(See P. 89)
<Model: CB-PAC-PIO***>

Supplied with SEL unit
Dummy plug
(See P. 82)
<Model: DP-4S>

Field network
DeviceNet, CC-Link, CC-Link IE Field, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO

Supplied with SEL unit
System I/O connector
(See P. 82)
<Model: DFMC1,5/8-ST-3,5>

Options
Fan unit
(See P. 81)
<Model: RCON-FU(H)>

For XSEL PC Software : USB cable, Ethernet cable

For IA-101-X(A): Supplied with PC teaching software

Options
24VDC power supply
(See P. 81)
<Model: PSA-24>

Supplied with unit
SCON connection, PIO/SIO connection
Expansion SIO port connector
(See P. 82)
<Model: FMC1,5/3-STF-3,5>

Supplied with 200V driver unit
Dummy plug
(See P. 82)
<Model: DP-6>

Supplied with SCON (RC specification)
Connection cable
(See P. 89)
<Model: CB-RE-CTL002>

RCON-EXT connection specification SCON controller [I/O type: RC]
(Refer to P. 8-215 of the General Catalog 2021)

Supplied with 24V driver unit
Drive source shutoff connector
(See P. 82)
<Model: DFMC1,5/2-STF-3,5>

Options
Regenerative resistance unit (Note 1)
(See P. 82)
<Model: RESU-2/ RESUD-2>

Supplied with power supply unit
Power supply connector
(See P. 82)
<Model: SPC5/4-STF-7,62>

Motor power Three-phase/ single-phase 200VAC

Supplied with simple absolute unit
Connection cable
(See P. 91)
<Model: CB-ADPC-MPA050>

Supplied with the EC connection unit
Drive power cutoff connector
(See P. 82)
<Model: DEMC1.5/4-ST-3.5>

Supplied with SCON connection expansion unit
Terminal connector
(See P. 82)
<Model: RCON-EXT-TR>

Options
Simple absolute unit
(See P. 68)
<Model: RCON-ABU-P (for stepper motor)>
<Model: RCON-ABU-A (for AC servo motor)>

Motor-encoder cable/Power and communication cable (EC connection) *1

Connectable actuators

Connection with "expansion unit"
RCS2/3/4 Series
IS(D)B Series
SSPA Series
DD(A) Series
LSA Series
* See P. 48 for actuators that cannot be connected.

Connection with "24V driver unit"
RCP2/3/4/5/6 Series
WU Series
RCA/2 Series
RCD Series

Connection with EC connection unit
EC series
*2

Connection with "200V driver unit"
(60W~750W equipped actuator)
RCS2/3/4 Series
IS(D)B Series
SSPA Series
DD(A) Series
LSA Series
*See P. 42 for actuators that cannot be connected.

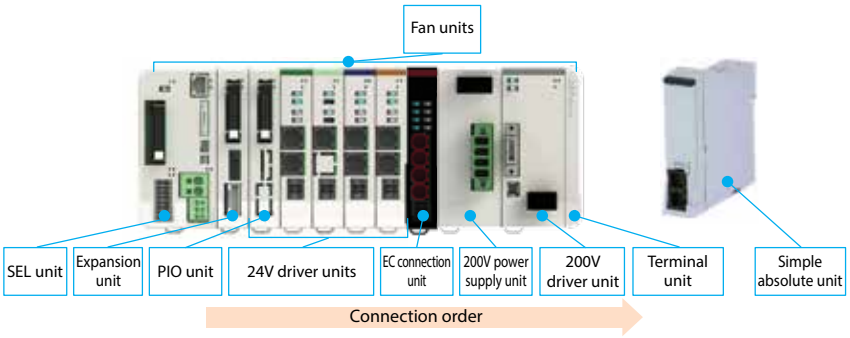
*1 The motor/encoder cable is supplied with the actuator.
The motor/encoder cables are different according to the actuator type to be connected.
See P. 83 when ordering a spare cable.

*2: The ELECYLINDER can control only a double solenoid.
A motor driving power is needed to connect a 200V specification.
See P. 82

Note 1: A 60W regenerative resistor is built-in both RCON-SC and RCON-PS2. There is generally no need for regenerative resistance. However, if there is insufficient regenerative resistance, use the external "regenerative resistance unit".

Unit Configuration

RSEL has a locking configuration and uses the unit connection method. Units that can be connected will have the same connector. However, there are restrictions on unit arrangement. Connect each unit with these restrictions in mind.
Connect each prepared unit in order starting from the left, with the SEL unit serving as the standard unit when looking at the front surface.
* The system will not operate normally if units are not connected in the following order.



Unit name	Number of connected units	Additional information
SEL unit	1	Placed at far left
Expansion unit (SCON connection specification)	1	Select either type
Expansion unit (PIO unit)	(Max.) 8	If connecting a PIO/SIO/SCON expansion unit, the maximum will be 7
24V driver unit	(Max.) 8	Can be rearranged within the 24V driver unit
EC connection unit	(Max.) 4	
200V power supply unit	1	Make sure to connect to the left of the leftmost connected 200V driver unit
200V driver unit	(Max.) 8	Can be rearranged within the 200V driver unit
Terminal unit	1	Place at far right (type differs according to driver connected to left)

(Note) Some limitations apply on the number of connectable axes. Refer to P. 48 for details.

■ Unit name and single product model number list

Product name		Model	Reference page
Master unit/ SEL unit	No IO connection specification	RSEL-G-E	P64
	PIO (NPN) connection specification	RSEL-G-NP	
	PIO (PNP) connection specification	RSEL-G-PN	
	CC-Link connection specification	RSEL-G-CC	P56
	CC-Link connection specification (bifurcated connector supplied)	RSEL-G-CC2	
	CC-Link IE Field connection specification	RSEL-G-CIE	P57
	DeviceNet connection specification	RSEL-G-DV	P55
	DeviceNet connection specification (bifurcated connector supplied)	RSEL-G-DV2	
	EtherCAT connection specification	RSEL-G-EC	P59
	EtherNet/IP connection specification	RSEL-G-EP	P60
	PROFIBUS-DP connection specification	RSEL-G-PR	P58
	PROFINET IO connection specification	RSEL-G-PRT	P61
Expansion unit	SCON expansion	RCON-EXT	P67
	PIO/SIO/SCON expansion (NPN specification)	RCON-EXT-NP	
	PIO/SIO/SCON expansion (PNP specification)	RCON-EXT-PN	
	PIO (NPN specification)	RCON-NP	
	PIO (PNP specification)	RCON-PN	
24V driver unit	Stepper motor 1-axis specification	RCON-PC-1	P65
	Stepper motor 2-axis specification	RCON-PC-2	
	High thrust stepper motor 1-axis specification	RCON-PCF-1	
	AC servo motor 1-axis specification	RCON-AC-1	
	AC servo motor 2-axis specification	RCON-AC-2	
	DC brush-less motor 1-axis specification	RCON-DC-1	
	DC brush-less motor 2-axis specification	RCON-DC-2	
EC connection unit	EC connection unit 4-axis specification	RCON-EC-4	P68
200V power supply unit	200VAC input power supply	RCON-PS2-3	P66
200V driver unit	AC200V motor 1-axis specification	RCON-SC-1	P66
Terminal unit	For 24V	RCON-GW-TR	P69
	For 200V	RCON-GW-TRS	
Simple absolute unit	For RCON-PC	RCON-ABU-P	P68
	For RCON-AC	RCON-ABU-A	
Fan unit	Other than the below	RCON-FU	P81
	For 200V driver	RCON-FUH	

System Configuration

REC

Options
PC teaching software
(See P. 67)
<Model: RCM-101-USB>

Options
Teaching pendant
(See P. 67)
<Model: TB-03><Model: TB-02>

PLC

Field network

DeviceNet, CC-Link, CC-Link IE Field, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO

* The power/communication cable is supplied with the actuator. See P. 83 for information on ordering single cables.

Supplied with the EC connection unit

Drive source shutoff connector
(See P. 82)
<Mode: DEMC1.5/4-ST-3.5>

Power/ communication cable

For RC/EC PC Software: USB cable

For RCM-101-USB: Supplied with PC teaching software

Connect with "EC connection unit" *2

EC Series (24V specification)

EC Series (200V specification)

Options
24VDC power supply
(See P. 69)
<Model: PSA-24>

Options
DC power supply for driving motor
(See P. 81)
<Model: PSA-200>

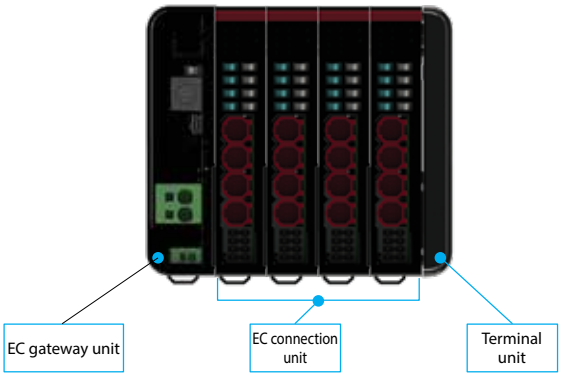
* Make sure to use a noise filter when connecting the power.
<Recommendable models>
NF2010A-UP (manufacturer: Soshin Electric)
NAC-10-472 (manufacturer: COSEL)

Supplied with the actuator
Motor power cable
(See P. 90)
<Model: CB-EC-PW□□□-RB>

*2 The ELECYLINDER can control only a double solenoid.
A motor driving power is needed to connect a 200V specification.
See P. 81 for details.

Unit Configuration

The REC has a unit-connecting configuration. Every unit has the same connector and locking configuration.
However, there are restrictions on unit arrangement. Connect each unit with these restrictions in mind.
Connect each prepared unit in order starting from the left, with the EC gateway unit serving as the standard unit when looking at the front surface.
* The system will not operate normally if units are not connected in the following order.



Unit name	Number of connected units	Additional information
EC gateway unit	1	Placed at far left
EC connection unit	(Max.) 4	Can be rearranged within the unit area (max. number of connectable axes is 16 axes)
Terminal unit	1	Placed at far right

(Note) Some limitations apply on the number of connectable axes. See P. 48 for details.

Product name		Model	Reference page
Master unit/ EC gateway unit	CC-Link connection specification	REC-GW-CC	P56
	CC-Link IE Field connection specification	REC-GW-CIE	P57
	DeviceNet connection specification	REC-GW-DV	P55
	EtherCAT connection specification	REC-GW-EC	P59
	EtherNet/IP connection specification	REC-GW-EP	P60
	PROFIBUS-DP connection specification	REC-GW-PR	P58
	PROFINET IO connection specification	REC-GW-PRT	P61
EC connection unit	EC connection unit 4-axis specification	RCON-EC-4	P68
Terminal unit	For REC	RCON-GW-TRE	P69

■Actuators not connectable to the R-unit.

Master unit		Driver unit		Expansion unit	EC connection unit (RCON-EC)
	Unit	24V driver unit (RCON-PC/PCF/AC/DC)	200V driver unit (RCON-SC)	SCON expansion unit/POI/SIO/ SCON expansion unit (RCON-EXT)	
	Actuator	24V stepper motor/ 24V AC servo motor/ actuator equipped with DC brush-less motor	Actuator equipped with 200V AC servo motor		ELECYLINDER
RCON (Note 1)		Wrist unit: WU Table top: TT(A) SCARA robot: IXP Pulse press: RCP6 <Actuators to meet the following specifications> Actuators equipped with an absolute encoder	Servo press: RCS2/RCS3 Linear servo: LSA-W21H LSA-W21S (single-phase power supply) SCARA robot: IX/IXA ROBO Cylinder: RCS3-CT8C/CTZ5C (single-phase power supply) Single-axis robot: ZR Rotary: DD/DDA (single phase power supply) <Actuators to meet the following specifications> * Actuators equipped with less than 60W and more than 750W motors. (Except RS-30) * Actuators equipped with an absolute encoder and multi-rotation absolute.	Servo press: RCS2/RCS3 Linear servo: LSA-W21H SCARA robot: IX/IXA Single-axis robot: ZR * RCON cannot connect to PIO/ SIO/SCON expansion unit.	ELECYLINDER without "ACR" option model
RSEL		Table top: TT(A) SCARA robot: IXP Pulse press: RCP6 <Actuators to meet the following specifications> Actuators equipped with an absolute encoder			
REC		Not connectable	Not connectable	Not connectable	

(Note1) Motion network specification cannot connect to some actuators.

Actuator (unit)	Motion network		
	ECM	ML3	SSN
Rotary index mode	×	×	×
LSAS actuator	○	○	×
ELECYLINDER (RCON-EC)	×	×	×

■Limitations on connection

Some limitations apply on the number of connectable actuator axes in each type. Select so that the following conditions are met.

[RCON]

* Make sure that the total number of the connected actuators is less than 16 axes. A multi-slider is calculated as two axes.
* Only the EC connection unit cannot be connected.
  Make sure to include the 24V/200V driver unit or a SCON-CB ROCON specification in the connection.
* The number of maximum connectable axes differs depending on the operation mode.
  Refer to the number of maximum connectable axes (on P. 71).
* The following actuators have limit on the number of max. connectable axes by the 200V power supply unit (only three-phase specification is connectable).
  When connecting more than the maximum number of connectable actuators specified in the table below, use the SCON-DB RCON specification connected with an expansion unit.
  When using actuators other than specified below, select an appropriate one by calculating the power supply capacity (P. 53).

Actuator model	Max. number of connections
DD(A)-LT18(C)□/T18□	8 axes
DD(A)-LH18(C)□/H18□	2 axes
RCS3-CTZ5C	8 axes
RCS3-CT8C	3 axes

[RSEL]

* Make sure that the total number of the connected actuators is less than 16 axes. A multi-slider is calculated as two axes.
  However, the total number of the connected actuators for the 24V/200V driver unit or an expansion unit (SCON connection specification) is up to 8 axes.
* The following actuators have limit on the number of max. connectable axes by the 200V power supply unit (only three-phase specification is connectable).
  When connecting more than the maximum number of connectable actuators specified in the table below, use the SCON-DB RCON specification connected with an expansion unit..
  When using actuators other than specified below, select an appropriate one by calculating the power supply capacity (P. 53).

Actuator model	Max. number of connections
DD(A)-LT18(C)□/T18□	8 axes
DD(A)-LH18(C)□/H18□	2 axes
RCS3-CTZ5C	8 axes
RCS3-CT8C	3 axes

[REC]

* Make sure that the total number of the connected actuators is less than 16 axes.

■Recognition of connections

The recognition order of the actuators connected to the R-unit is as specified in the right table. When the connection is over the connectable limitation, actuators of low priority cannot be recognized.

Priority order	Unit name
High ↓ Low	24V driver unit
	200V driver unit
	Expansion unit (SCON connection specification)
	EC connection unit

■ General specifications

■ RCON

Item			Specifications						
Power supply voltage			24VDC ± 10% 200VAC~230VAC ±10% (power supply unit)						
Power supply current			Differs with system configuration						
Number of axes controlled			1 to 16 axes *Some limitations apply on the number of connectable axes depending on the actuators and types. Refer to the "Connection limitations" (P. 48) and the "Max. number of connectable axes" (P. 71).						
Supported encoders		24V series	Incremental (including ABZ parallel) Battery-less absolute *1						
		200V series	Incremental (including ABZ parallel), battery-less absolute, quasi absolute, index absolute (SCON connection specification) absolute, absolute multi-rotation						
Supported field networks			CC-Link, CC-Link IE Field, DeviceNet, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO, EtherCAT motion, MECHATROLINK- Ⅲ , SSCNET Ⅲ /H						
Configuration units			Gateway unit, driver unit, SCON expansion unit, EC connection unit, power supply unit, fan unit, terminal unit, simple absolute unit.						
SIO interface	Teaching port		Communication method	RS485					
			Communication speed	9.6/19.2/38.4/57.6/115.2/230.4kbps					
	USB port		Communication method	USB					
			Communication speed	12Mbps					
Emergency stop/enable operation			Collective system support with gateway unit STOP signal input, equipped with connectors capable of shutting off the drive power supply to individual axes of each driver unit						
Data recording device			FRAM 256kbit (gateway unit, 24V driver unit) SRAM 4Mbit (200V driver unit)						
Data input method	Teaching port		Touch panel teaching pendant						
	USB		PC teaching software						
Ethernet (optional)			10/100BASE-T (RJ-45 connector)						
			XSEL serial communication protocol (format B) *1						
Calendar function	Retention function		Approx. 10 days						
	Charging time		Approx. 100 hours						
Safety category compliance			B (the safety category specification supports up to 4 external circuits)						
Protection functionality			Overcurrent, abnormal humidity, encoder disconnection, overload						
Preventative/predictive maintenance function			Low electrolytic capacitor capacity and low fan rotation speed						
Ambient operating temperature			(Without fan) 0~40°C, (with fan) 0~55°C *0~40°C for simple absolute units						
Ambient operating humidity			5%RH to 85%RH (non-condensing or freezing)						
Operating atmosphere			Avoid corrosive gas and excessive dust						
Vibration resistance			Frequency: 10~57Hz / Amplitude: 0.075mm, Frequency: 57~150Hz / Acceleration: 9.8m/s^2 XYZ directions Sweep time: 10 minutes Number of sweeps: 10 times						
Shock resistance			Drop height: 800mm 1 corner, 3 edges, 6 faces						
Electric shock protection mechanism		24V	Class III						
		200V	Class I						
Degree of protection			IP20						
Insulation withstanding voltage			500VDC 10MΩ						
Cooling method			Natural cooling and forced cooling by fan unit (option)						
Connections between each unit			Unit connection method						
Installation/mounting method			DIN rail (35mm) mounting						
Regulations/standards	Unit name		Gateway unit	24V driver unit	200V driver unit	200V power supply unit	Simple absolute unit	SCON expansion unit	EC connection unit
	CE Marking		○	○	○	○	○	○	○
	UL		○	○	○	○	○	○	○

*1 In the case of field network (SSN), the RCP5 (encoder resolution 800) is considered incremental for setting.

■ **RSEL-G**

Item		Specifications							
Power supply voltage		24VDC ±10% 200VAC~230VAC ±10% (power supply unit)							
Power supply current		Differs with system configuration							
Number of axes controlled		1 to 16 axes *Some limitations apply on the number of connectable axes depending on the actuators and types. Refer to the "Connection limitations" (P. 48).							
Supported encoders	24V series	Incremental (including ABZ parallel) Battery-less absolute							
	200V series	Incremental (including ABZ parallel), battery-less absolute, quasi absolute, index absolute (SCON connection specification) absolute, absolute multi-rotation							
Supported field networks		CC-Link, CC-Link IE Field, DeviceNet, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO							
Configuration units		SEL unit, driver unit, SCON expansion unit, PIO/SIO/SCON expansion unit, PIO unit, power supply unit, fan unit, terminal unit, simple absolute unit, EC connection unit							
Serial communication function	Teaching port	Communication method	RS232C						
		Communication speed	Max. 115.2kbps						
	USB port	Communication method	USB						
		Communication speed	12Mbps full speed						
		Ethernet (RJ-45), PSA-24 communication							
Emergency stop/Enable operation		Collective system support with SEL unit STOP signal input							
Data recording device		Flash ROM + non-volatile RAM (FRAM) *No battery required							
Safety category compliance		B (the safety category specification supports up to 4 external circuits)							
Safety circuit configuration		Duplication allowed							
Emergency stop input		B contact input (external power supply, duplication possible, can be selected from internal power supply)							
Enable input		B contact input (external power supply, duplication possible, can be selected from internal power supply)							
Speed setting		From 1mm/s upper limit depends on the actuator specification							
Acceleration/deceleration setting		From 0.01G upper limit depends on the actuator specification							
Number of axis groups		2 (max. 8 axes per group)							
Programming language		Super SEL language							
No. of programs		512 (up to 99 [BCD specification] or 255 [binary specification] can be selected by input signal)							
Number of programmable steps		20,000 steps							
Multi-tasking programs		16 programs							
Number of positions		36,000 positions (varies based on number of axis groups)							
Data input method	Teaching port	Touch panel teaching pendant, PC teaching software							
	USB	PC teaching software							
	Ethernet								
Standard input/output (when selecting PIO specification)		(I/O slot selection) Input 16 points/output 16 points							
Expansion I/O		Up to 8 PIO units can be connected							
Ethernet		10/100BASE-T (RJ-45 connector)							
		XSEL serial communication protocol (format B)*1							
USB		USB 2.0 (Mini-B), XSEL serial communication protocol (format B)*1							
Clock function	Retention time	Approx. 10 days							
	Charging time	Approx. 100 hours							
SD card		SD/SDHC (used only for update function)							
Protection functionality		Overcurrent, abnormal temperature, encoder disconnection, overload							
Preventative/predictive maintenance function		Low electrolytic capacitor capacity and low fan rotation speed							
Ambient operating temperature		(Without fan) 0~40°C, (with fan) 0~55°C *0~40°C for simple absolute units							
Ambient operating humidity		5%RH to 85%RH (non-condensing or freezing)							
Operating atmosphere		Avoid corrosive gas and excessive dust							
Vibration resistance		Frequency: 10~57Hz/Amplitude: 0.075mm, Frequency: 57~150Hz/Acceleration: 9.8m/s^2 XYZ directions Sweep time: 10 minutes Number of sweeps: 10 times							
Shock resistance		Drop height: 800mm 1 corner, 3 edges, 6 faces							
Electric shock protection mechanism	24V	Class III							
	200V	Class I							
Degree of protection		IP20							
Insulation withstanding voltage		500VDC 10MΩ							
Cooling method		Natural cooling and forced cooling by fan unit (option)							
Connections between each unit		Unit connection method							
Installation/mounting method		DIN rail (35mm) mounting							
Regulations/standards	Unit name	SEL unit	24V driver unit	200V driver unit	200V power supply unit	Simple absolute unit	SCON expansion unit	PIO/SIO/SCON expansion unit	PIO unit
	CE Marking	○	○	○	○	○	○	○	○
	UL	○	○	○	○	○	○	○	○

*1 XSEL serial communication protocol (format B) can communicate only with 1 port.
The order of priority is teaching port (high priority), USB, then Ethernet (low priority), with no response for low priority.

■ **REC-GW**

Item		Specifications	
Power supply voltage		24VDC ±10%	
Power supply current		Differs with system configuration	
Number of axes controlled		1~16-axis	
Supported encoders	EC connection	ELECYLINDER connection only Incremental, battery-less absolute	
Supported field networks		CC-Link, CC-Link IE Field, DeviceNet, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO	
Configuration units		EC gateway unit, EC connection unit, terminal unit	
Data input method		Teaching port	Touch panel teaching pendant
		USB	PC teaching software
Serial communication function	Teaching port	Communication method	RS485
		Communication speed	9.6/19.2/38.4/57.6/115.2/230.4kbps
	USB port	Communication method	USB
		Communication speed	12Mbps full speed
Emergency stop/Enable operation		Equipped with connectors capable of shutting off the drive power supply to individual axes of the EC connection unit	
Safety category compliance		Not supported	
Ambient operating temperature		0~55°C	
Ambient operating humidity		5%RH to 85%RH (non-condensing or freezing)	
Operating atmosphere		Avoid corrosive gas and excessive dust	
Vibration resistance		Frequency: 10~57Hz / Amplitude: 0.075mm, Frequency: 57~150Hz / Acceleration: 9.8m/s^2 XYZ directions Sweep time: 10 minutes Number of sweeps: 10 times	
Shock resistance		Drop height: 800mm 1 corner, 3 edges, 6 faces	
Electric shock protection mechanism		Class III	
Degree of protection		IP20	
Insulation withstanding voltage		500VDC 10MΩ	
Cooling method		Natural cooling	
Connections between each unit		Unit connection method	
Installation/mounting method		DIN rail (35mm) mounting	
Regulations/standards	Unit name	EC gateway unit	EC connection unit
	CE Marking	○	○
	UL	○	○

Encoder resolution

Item	Motor type	Model		Encoder type	Value [pulse/r]
24V driver unit	Stepper motor	RCP6		Battery-less Absolute	8192
		RCP5/RCP4/RCP3/RCP2		Battery-less Absolute	800
				Incremental	
		WU		Battery-less Absolute	8192
	AC servo motor	RCA		Battery-less Absolute	16384
				Incremental	800
		RCA2	☐☐N/NA Other than the above	Incremental	1048 800
	DC brush-less motor	RCD	RA1R/GRSN RA1DA/GRSNA	Incremental	480
200V driver unit	AC servo motor	RCS4/RCS3		Battery-less Absolute	16384
				Incremental	
		RCS2	☐☐5N	Incremental	1600
			SR☐7BD	Incremental	3072
			Models other than the above	Incremental	16384
				Battery-less Absolute	
		ISB/ISDB		Battery-less Absolute	131072
				Incremental	16384
		ISDBCR/SSPA/ISA/ISDA/IF/FS		Battery-less Absolute	131072
				Incremental	16384
		NSA		Battery-less Absolute	131072
		NS	S☐	Incremental	2400
			Models other than the above		16384
		LSA/LSAS		Incremental	Resolution 0.001mm
		DD/DDA	☐18S	Index absolute/multi-rotation	131072
			☐18P	Index absolute/multi-rotation	1048576
EC connection unit	Stepper motor	EC		Battery-less Absolute Incremental	800
	AC servo motor			Battery-less Absolute	16384

Generated heat (per unit)

Unit name	Unit model	Type	Value
24V driver unit	RCON-PC	PowerCON: No	5.0W
		PowerCON: Yes	8.0W
	RCON-PCF	PowerCON: No	19.2W
	RCON-AC	Standard / High accel/decel / Energy saving	4.5W
	RCON-DC	Standard	3.0W
200V driver unit	RCON-SC		54W
Power supply unit	RCON-PS2		42W

Inrush current

Unit name	Unit model	Type	Value
24V driver unit	RCON-PC		8.3A
	RCON-PCF		10A
	RCON-AC		10A
	RCON-DC		10A
200V driver unit	RCON-SC		25A
EC connection unit	RCON-EC	(For 4-axis connection)	40A

Power capacity

For R-units, make sure for each unit that the calculated results for control power and motor power do not exceed the current limit value for selection calculation, based on the connection configuration. When selecting a 200V driver unit, ensure that the total motor wattage (W) does not exceed the total wattage (W) for the maximum number of connectable axes. Only one RCON-PS2-3 can be used per RCON/RSEL system.

***The maximum number of connectable axes varies by series.**

Current limit value

Item	Current limit value
Control power	9.0A or less
Motor power	37.5A or less

Total motor wattage (W)

Item		Total wattage (W) for max. number of connectable axes
Motor power	Single-phase 200VAC	1,600W
	Three-phase 200VAC	2,400W

DC power supply for driving motor

Connected power supply	Max. number of connected axes (per power supply unit)	Max. number of connected motor wattage
AC100V	6-axis	800W
AC200V	6-axis	1,600W

Power supply capacity

<Control power>

Item	unit			Power capacity
Control power capacity (per unit)	Master unit (including terminal unit)	Gateway unit	Without Ethernet	0.8A
			With Ethernet	1.0A
		SEL unit		1.2A
		EC gateway unit		0.8A
	24V driver unit (common for all types)	Without brake		0.2A
		With brake (1-axis specification)		0.4A
		With brake (2-axis specification)		0.6A
	200V driver unit (including 200V power supply unit)	Without brake		0.2A
		With brake		0.5A
	Expansion unit (common for each unit)			0.1A
	Simple absolute unit (common to all types)			0.2A
	EC connection unit (per unit)			0.1A
	24V specification ELECYLINDER (per axis)	Without brake		0.3A
		With brake		0.5A
	200V specification ELECYLINDER (per axis)	Without brake		0.32A
		With brake	EC-S10□, EC-S10X□	0.54A
			EC-S13□, EC-S13X□	1.2A
			EC-S15□, EC-S15X□	

* Calculate all the axes of connected ELECYLINDERs.

(Note) When selecting a unit, do not include the power supply capacity of the master unit for calculation. Since the 24V input power current of the 200V power supply is minimal, it is negligible for calculation. However, include input power current of the master unit when selecting a 24V power supply.

<Motor power>

● 24V driver unit

Item	Actuator/driver unit				Rated current	Max. current	
		Series	Motor type			When energy-saving is set	
Motor power capacity (per 1-axis actuator)	Stepper motor /RCON-PC	RCP2 RCP3	20P/20SP/28P	Without PowerCON	0.8A	-	-
			28P*/35P/42P/56P		1.9A	-	-
		RCP4 RCP5 RCP6	28P/35P/42P/ 42SP/56P	Without PowerCON	1.9A	-	-
				With PowerCON	2.3A	-	3.9A
	Stepper motor /RCON-PCF	RCP2 RCP4 RCP5 RCP6	56SP/60P/86P	Without PowerCON	5.7A	-	-
	AC servo motor /RCON-AC	RCA RCA2	5W	Standard / Hi-accel./decel.	1.0A	-	3.3A
			10W	Standard / High accel./decel. Energy saving	1.3A	2.5A	4.4A
			20W		1.3A	2.5A	4.4A
			20W (20S)		1.7A	3.4A	5.1A
			30W		1.3A	2.2A	4.0A
		RCL	2W	Standard / Hi-accel./decel.	0.8A	-	4.6A
			5W		1.0A	-	6.4A
			10W		1.3A	-	6.4A
	DC brush-less motor /RCON-DC	RCD	3W	Standard	0.7A	-	1.5A

* Applicable models: RCP2-RA3, RCP2-RGD3

● 200V driver unit

Actuator motor wattage	Motor power capacity [VA]	Max. instantaneous motor power capacity [VA]
30R (for RS)	138	414
60	138	414
60 (RCS3-CTZ5)	197	591
100	234	702
100S (LSA)	283	851
150	328	984
200	421	1263
200S (DD)	503	1509
200S (other than LSA (S)-N15H)	486	1458
200S (LSA(S)-N15H)	773	2319
300S (LSA)	662	1986
400	920	2760
400 (RCS3-CT8)	1230	3690
600	1164	2328
600 (DD)	1462	4386
750	1521	3042

Calculate the power capacity of the following actuators using the "motor wattage for calculation."

Item	Actuator motor wattage	Motor wattage for calculation	
		Single phase	Three-phase
RCS3-CTZ5C	60W	-	120W
RCS3-CT8C	400W	-	800W
LSA-S6S□/S8S□/S8H□/N10S□, LSAS-N10S□	100W	300W/one slider	100W/one slider
LSA-S10S□/S10H□/H8S□/H8H□/L15S□/N15S□, LSAS-N15S□/N15H□	200W	600W/one slider	200W/one slider
LSA-N19S□	300W	600W/one slider	300W/one slider
LSA-W21S□	400W	-	400W/one slider

* Specify S (single slider) or M (multi slider) in the □ of the actuator model.
The motor wattage for calculation represents one slider. For the multi-slider, use the value of two sliders for calculation.

● EC connection unit (24V specification ELECYLINDER)

Item	Actuator/connection unit				Power supply current		
		Series	Motor type	Type	Energy-saving disabled		Energy-saving enabled
					Rated current	Max.	
Motor power capacity (per 1-axis actuator)	24V stepper motor	EC	35P/42P/56P	Other than the below	2.2A	3.9A	1.9A
			28P	S3□/RR3□	-	-	1.9A
				RP4/GS4/GW4/TC4/TW4/ RTC9/GRB10/GRB13	-	-	1.7A
			20P	GRB8	-	-	0.7A

(200V specification ELECYLINDER)

Item	Actuator motor wattage	Motor wattage	Motor power capacity [VA]	Max. instantaneous motor power capacity [VA]
Motor power capacity (per one axis of actuator)	EC-S10□, EC-S10X□	100	238	714
	EC-S13□, EC-S13X□	200	402	1206
	EC-S15□, EC-S15X□	400	772	2316

Caution

- When acceleration/deceleration of all the axes are operated with the duty ratio of 100%, it is necessary to calculate the motor power using the maximum current value. (If the max. current value is not specified, use the rated current for calculation.)
- Use the "calculator" software if motor power supply is to be calculated more accurately. The required power capacity can be calculated automatically.

Free calculator software can be downloaded from IAI website.

IAI Calculator "Calculator" Search

Master unit

Features This unit is used in order to connect to the field network.
It connects a 24VDC power supply and teaching.
(A terminal unit is supplied.)
These models have no options.

DeviceNet connection specification

RCON

Model: **RCON-GW/GWG-DV**

RSEL

Model: **RSEL-G-DV/DV2**

REC

Model: **REC-GW-DV**

Specifications

	RCON	RSEL	REC
Operation type	Positioner Type	Program Type	Positioner Type
Power supply input voltage	24VDC ± 10%		
Power supply current	0.8A (with Ethernet: 1.0A)	1.2A	0.8A
Ambient operating temperature & humidity	0~55°C#, 5%RH to 85%RH (non-condensing or freezing)		
Operating atmosphere	Avoid corrosive gas and excessive dust		
Safety category compliance	GWG specification: 4 compatible	4 compatible	-
Degree of protection	IP20		
Mass	167g	270g	135g
Accessories	(GWG specification) Dummy plug DP-5	Dummy plug DP-4S	-
External dimensions	W30mm×H115mm×D95mm	W56.6mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RCM-101-USB	IA-101-N/X-*	RCM-101-USB
Teaching pendant	TB-02/TB-03		

A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

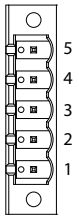
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	MSTB2,5/5-STF-5,08 AUM	Standard accessories
		TMSTBP2,5/5-STF-5,08 AUM (bifurcated) *For DV2	Standard accessories
	Controller side	MSTB2,5/5-GF-5,08 AU	

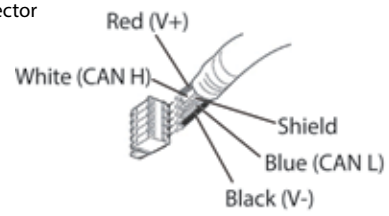
Network connection cable

Pin No.	Signal name (color scheme)	Description	Compatible wire diameter
1(6)	V- (black)	Power supply cable - side	DeviceNet dedicated cable
2(7)	CAN L (blue)	Signal data Low side	
3(8)	-	Drain (shield)	
4(9)	CAN H (white)	Signal data High side	
5(10)	V+ (red)	Power supply cable + side	

*() indicates the bifurcated connector specification

Network connector





CC-Link connection specification

RCON

Model: **RCON-GW/GWG-CC**

RSEL

Model: **RSEL-G-CC/CC2**

REC

Model: **REC-GW-CC**

Specifications

	RCON	RSEL	REC
Operation type	Positioner Type	Program Type	Positioner Type
Power supply input voltage	24VDC ± 10%		
Power supply current	0.8A (with Ethernet: 1.0A)	1.2A	0.8A
Ambient operating temperature & humidity	0~55°C#, 5%RH to 85%RH (non-condensing or freezing)		
Operating atmosphere	Avoid corrosive gas and excessive dust		
Safety category compliance	GWG specification: 4 compatible	4 compatible	-
Degree of protection	IP20		
Mass	167g	270g	135g
Accessories	(GWG specification) Dummy plug DP-5	Dummy plug DP-4S	-
External dimensions	W30mm×H115mm×D95mm	W56.6mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RCM-101-USB	IA-101-N/X-*	RCM-101-USB
Teaching pendant	TB-02/TB-03		

A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

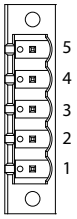
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	MSTB2,5/5-STF-5,08 AU With 110Ω/130Ω terminal resistor	Standard accessories
		TMSTBP2,5/5-STF-5,08 AU *For CC2 With 110Ω/130Ω terminal resistor	Standard accessories
	Controller side	MSTB2,5/5-GF-5,08 AU	

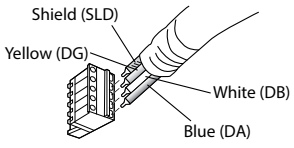
Network connection cable

Pin No.	Signal name (color scheme)	Description	Compatible wire diameter
1(6)	DA (blue)	Signal line A	CC-Link dedicated cable
2(7)	DB (white)	Signal line B	
3(8)	DG (yellow)	Digital ground	
4(9)	SLD	Connects the shield of shielded cables (5-pin FG and control power connector 1-pin FG connected internally)	
5	FG	Frame ground (4-pin SLD and control power connector 1-pin FG connected internally)	

*() indicates the bifurcated connector specification

Network connector





CC-Link IE Field connection specification

RCON

Model: **RCON-GW/GWG-CIE**

RSEL

Model: **RSEL-G-CIE**

REC

Model: **REC-GW-CIE**

Specifications

	RCON	RSEL	REC
Operation type	Positioner Type	Program Type	Positioner Type
Power supply input voltage	24VDC ± 10%		
Power supply current	0.8A (with Ethernet: 1.0A)	1.2A	0.8A
Ambient operating temperature & humidity	0~55℃#, 5%RH to 85%RH (non-condensing or freezing)		
Operating atmosphere	Avoid corrosive gas and excessive dust		
Safety category compliance	GWG specification: 4 compatible	4 compatible	-
Degree of protection	IP20		
Mass	167g	270g	135g
Accessories	(GWG specification) Dummy plug DP-5	Dummy plug DP-4S	-
External dimensions	W30mm×H115mm×D95mm	W56.6mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RCM-101-USB	IA-101-N/X-*	RCM-101-USB
Teaching pendant	TB-02/TB-03		

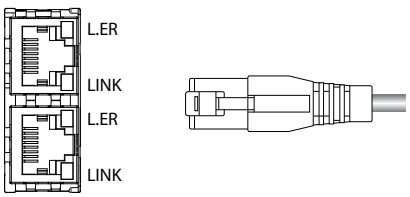
A fan unit must be attached during use in environments exceeding 40℃ (excluding REC)
CC-link IE Basic is not supported.

Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	Ethernet ANSI/TIA/EIA-568-B Category 5e or higher shielded 8P8C modular plug (RJ45)	To be prepared by the customer
	Controller side	Ethernet ANSI/TIA/EIA-568-B Category 5e or higher shielded 8P8C modular plug (RJ45)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	TP0+	Data 0+	For the Ethernet cable, use a straight STP cable of Category 5e or higher.
2	TP0 -	Data 0-	
3	TP1 +	Data 1+	
4	TP2 +	Data 2+	
5	TP2-	Data 2-	
6	TP1-	Data 1-	
7	TP3 +	Data 3+	
8	TP3 -	Data 3-	

Network connector



PROFIBUS-DP connection specification

RCON

Model: **RCON-GW/GWG-PR**

RSEL

Model: **RSEL-G-PR**

REC

Model: **REC-GW-PR**

Specifications

	RCON	RSEL	REC
Operation type	Positioner Type	Program Type	Positioner Type
Power supply input voltage	24VDC ± 10%		
Power supply current	0.8A (with Ethernet: 1.0A)	1.2A	0.8A
Ambient operating temperature & humidity	0~55°C#, 5%RH to 85%RH (non-condensing or freezing)		
Operating atmosphere	Avoid corrosive gas and excessive dust		
Safety category compliance	GWG specification: 4 compatible	4 compatible	-
Degree of protection	IP20		
Mass	167g	270g	135g
Accessories	(GWG specification) Dummy plug DP-5	Dummy plug DP-4S	-
External dimensions	W30mm×H115mm×D95mm	W56.6mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RCM-101-USB	IA-101-N/X-*	RCM-101-USB
Teaching pendant	TB-02/TB-03		

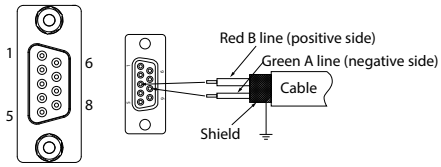
A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	9-pin D sub connector (male)	To be prepared by the customer
	Controller side	9-pin D sub connector (female)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	NC	Not connected	PROFIBUS-DP dedicated cable (type A: EN5017)
2	NC	Not connected	
3	B-Line	Signal line B (RS-485)	
4	RTS	Transmission request	
5	GND	Signal GND (insulation)	
6	+5V	+5 V output (isolated)	
7	NC	Not connected	
8	A-Line	Signal line A (RS-485)	
9	NC	Not connected	

Network connector



EtherCAT/EtherCAT motion connection specification

RCON

Model: **RCON-GW/GWG-EC/ECM**

RSEL

Model: **RSEL-G-EC**

REC

Model: **REC-GW-EC**

Specifications

	RCON	RSEL	REC
Operation type	Positioner Type	Program Type	Positioner Type
Power supply input voltage	24VDC ± 10%		
Power supply current	0.8A (with Ethernet: 1.0A)	1.2A	0.8A
Ambient operating temperature & humidity	0~55°C#, 5%RH to 85%RH (non-condensing or freezing)		
Operating atmosphere	Avoid corrosive gas and excessive dust		
Safety category compliance	GWG specification: 4 compatible	4 compatible	-
Degree of protection	IP20		
Mass	167g	270g	135g
Accessories	(GWG specification) Dummy plug DP-5	Dummy plug DP-4S	-
External dimensions	W30mm×H115mm×D95mm	W56.6mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RCM-101-USB	IA-101-N/X-*	RCM-101-USB
Teaching pendant	TB-02/TB-03		

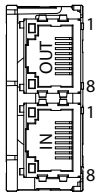
A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

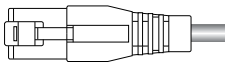
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher shielded 8P8C modular plug (RJ45)	To be prepared by the customer
	Controller side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher shielded 8P8C modular jack (RJ45)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	TD +	Transmit data +	For the Ethernet cable, use a straight STP cable of Category 5 or higher.
2	TD -	Transmit data -	
3	RD +	Receive data +	
4	-	Not used	
5	-	Not used	
6	RD -	Receive data -	
7	-	Not used	
8	-	Not used	

Network connector





EtherNet/IP connection specification

RCON

Model: **RCON-GW/GWG-EP**

RSEL

Model: **RSEL-G-EP**

REC

Model: **REC-GW-EP**

Specifications

	RCON	RSEL	REC
Operation type	Positioner Type	Program Type	Positioner Type
Power supply input voltage	24VDC ± 10%		
Power supply current	0.8A (with Ethernet: 1.0A)	1.2A	0.8A
Ambient operating temperature & humidity	0~55°C#, 5%RH to 85%RH (non-condensing or freezing)		
Operating atmosphere	Avoid corrosive gas and excessive dust		
Safety category compliance	GWG specification: 4 compatible	4 compatible	-
Degree of protection	IP20		
Mass	167g	270g	135g
Accessories	(GWG specification) Dummy plug DP-5	Dummy plug DP-4S	-
External dimensions	W30mm×H115mm×D95mm	W56.6mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RCM-101-USB	IA-101-N/X-*	RCM-101-USB
Teaching pendant	TB-02/TB-03		

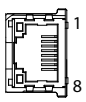
A fan unit must be attached during use in environments exceeding 40°C (excluding REC)
Explicit messaging is not supported. (Implicit messaging only).

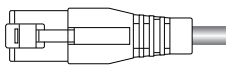
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher shielded 8P8C modular plug (RJ45)	To be prepared by the customer
	Controller side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher shielded 8P8C modular jack (RJ45)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	TD +	Transmit data +	For the Ethernet cable, use a straight STP cable of Category 5 or higher.
2	TD -	Transmit data -	
3	RD +	Receive data +	
4	-	Not used	
5	-	Not used	
6	RD -	Receive data -	
7	-	Not used	
8	-	Not used	

Network connector





PROFINET IO connection specification

RCON

Model: **RCON-GW/GWG-PRT**

RSEL

Model: **RSEL-G-PRT**

REC

Model: **REC-GW-PRT**

Specifications

	RCON	RSEL	REC
Operation type	Positioner Type	Program Type	Positioner Type
Power supply input voltage	24VDC ± 10%		
Power supply current	0.8A (with Ethernet: 1.0A)	1.2A	0.8A
Ambient operating temperature & humidity	0~55℃#, 5%RH to 85%RH (non-condensing or freezing)		
Operating atmosphere	Avoid corrosive gas and excessive dust		
Safety category compliance	GWG specification: 4 compatible	4 compatible	-
Degree of protection	IP20		
Mass	167g	270g	135g
Accessories	(GWG specification) Dummy plug DP-5	Dummy plug DP-4S	-
External dimensions	W30mm×H115mm×D95mm	W56.6mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RCM-101-USB	IA-101-N/X-*	RCM-101-USB
Teaching pendant	TB-02/TB-03		

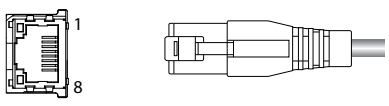
A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher shielded 8P8C modular plug (RJ45)	To be prepared by the customer
	Controller side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher shielded 8P8C modular jack (RJ45)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	TD +	Transmit data +	For the Ethernet cable, use a straight STP cable of Category 5 or higher.
2	TD -	Transmit data -	
3	RD +	Receive data +	
4	-	Not used	
5	-	Not used	
6	RD -	Receive data -	
7	-	Not used	
8	-	Not used	

Network connector



RCON

Model: **RCON-GW/GWG-ML3**

Specifications

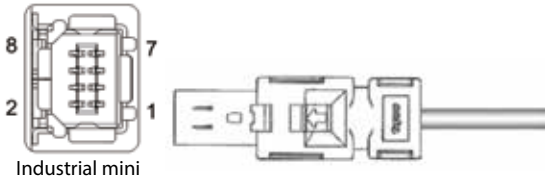
	RCON
Operation type	Positioner Type
Power supply input voltage	24VDC ± 10%
Power supply current	0.8A (with Ethernet: 1.0A)
Ambient operating temperature & humidity	0~55℃#, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Safety category compliance	GWG specification: 4
Degree of protection	IP20
Mass	167g
Accessories	(GWG specification) Dummy plug DP-5
External dimensions	W30mm×H115mm×D95mm
PC software	IA-OS(-C)
Teaching pendant	TB-02/TB-03

* When using in an environment of above 40 ℃, make sure to use a fan unit.

Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
Network	Cable side	Industrial mini I/O plug	To be prepared by the customer
	Controller side	Industrial mini I/O receptacle	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	TD +	Transmit data +	Use a cable for MECHATROLINK- III.
2	TD -	Transmit data -	
3	RD +	Receive data +	
4	-	Not used	
5	-	Not used	
6	RD -	Receive data -	
7	-	Not used	
8	-	Not used	



Industrial mini I/O connector (controller side)

RCON

Model: **RCON-GW/GWG-SSN**

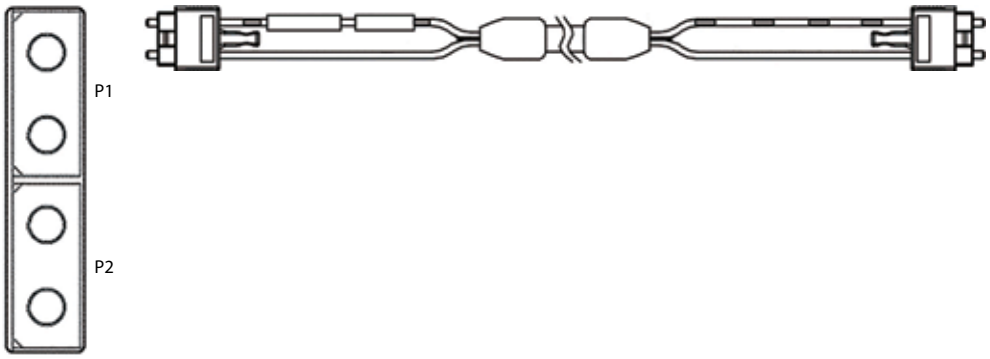
Specifications

	RCON
Operation type	Positioner Type
Power supply input voltage	24VDC ± 10%
Power supply current	0.8A (with Ethernet: 1.0A)
Ambient operating temperature & humidity	0~55℃#, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Safety category compliance	GWG specification: 4
Degree of protection	IP20
Mass	167g
Accessories	(GWG specification) Dummy plug DP-5
External dimensions	W30mm×H115mm×D95mm
PC software	IA-OS(-C)
Teaching pendant	TB-02/TB-03

* When using in an environment of above 40 °C, make sure to use a fan unit.

Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
Network	Cable side	PF-2D103(JAE)	To be prepared by the customer
	Controller side	DC9510(HITACHI)	

Connector for network



No I/O connection specification

Model: **RSEL-G-E**

Specifications

	RSEL
Operation type	Program Type
Power supply input voltage	24VDC ± 10%
Power supply current	1.2A
Ambient operating temperature & humidity	0~55°C#, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Safety category compliance	4 compatible
Degree of protection	IP20
Mass	270g
Accessory	(GWG specification) Dummy plug DP-5
External dimensions	W56.6mm×H115mm×D95mm
PC teaching software	IA-101-N/X-*
Teaching pendant	TB-02/TB-03

A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

Connector		Cable connector model (manufacturer)	Remarks
System IO	Cable side	DFMC1,5/8-ST-3,5 (Phoenix Contact)	

NPN/PNP connection specification

Model: **RSEL-G-NP/PN**

Specifications

	RSEL
Operation type	Program Type
Power supply input voltage	24VDC ± 10%
Power supply current	1.2A
Ambient operating temperature & humidity	0~55°C#, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Safety category compliance	4 compatible
Degree of protection	IP20
Mass	270g
External dimensions	W56.6mm×H115mm×D95mm
PC teaching software	IA-101-N/X-*
Teaching pendant	TB-02/TB-03

A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

Connector		Cable connector model (manufacturer)	Remarks
System IO	Cable side	DFMC1,5/8-ST-3,5 (Phoenix Contact)	
IO slot	Cable side	HIF6-40PA-1,27R*	Options
	Controller side	HIF6-40PA-1,27DS(71)	

*Connect an IO cable (CB-PAC-PIO□□□)

Refer to P. 70 for PIO signal table and internal circuit

Driver Unit

Features A controller unit for actuator control.

24V driver unit for RCP series connection

A driver unit for stepper motor connection.
Can be connected to all RCP series actuators.

Model	Type	Compatible motor capacity
RCON-PC-1	1-axis connection	1.2A (□20/28/35/42/56)
RCON-PC-2	2-axis connection	
RCON-PCF-1	1-axis connection *For high thrust	4A (□56/60/86)

Specifications

Power	24VDC ± 10%
Control power	(Without brake) 0.2A (With brake, 1-axis specification) 0.4A (With brake, 2-axis specification) 0.6A
Ambient operating temperature & humidity	(Without fan) 0~40°C (With fan) 0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	(1-axis specification) 175g (2-axis specification) 180g
External dimensions	W22.6mm × H115mm × D95mm
Accessories	Drive source shutoff connector (DFMC1,5/2-STF-3,5)
Compatible Type	RCON/RSEL

24V driver unit for RCA series connection

A driver unit for AC servo motor connection.
Can be connected to all RCA series actuators.

Model	Type	Compatible motor capacity
RCON-AC-1	1-axis connection	2W - 30W
RCON-AC-2	2-axis connection	

Specifications

Power	24VDC ± 10%
Control power	(Without brake) 0.2A (With brake, 1-axis specification) 0.4A (With brake, 2-axis specification) 0.6A
Ambient operating temperature & humidity	(Without fan) 0~40°C (With fan) 0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	(1-axis specification) 175g (2-axis specification) 180g
External dimensions	W22.6mm × H115mm × D95mm
Accessories	Drive source shutoff connector (DFMC1,5/2-STF-3,5)
Compatible Type	RCON/RSEL

24V driver unit for RCD series connection

A driver unit for DC brush-less motor connection.
Can be connected to all RCD series actuators.

Model	Type	Compatible motor capacity
RCON-DC-1	1-axis connection	3W
RCON-DC-2	2-axis connection	

Specifications

Power	24VDC ± 10%
Control power	(Without brake) 0.2A (With brake, 1-axis specification) 0.4A (With brake, 2-axis specification) 0.6A
Ambient operating temperature & humidity	(Without fan) 0~40°C (With fan) 0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	(1-axis specification) 175g (2-axis specification) 180g
External dimensions	W22.6mm × H115mm × D95mm
Accessories	Drive source shutoff connector (DFMC1,5/2-STF-3,5)
Compatible Type	RCON/RSEL

200V driver unit

200V AC motor-equipped actuator connection

This driver unit connects 200VAC servo actuators from 60W to 750W.

Model	Type	Compatible motor capacity
RCON-SC-1	1-axis connection	60W/100W/150W/200W 300W/400W/600W/750W

Specifications

Control power input specification	24VDC ±10%
Control power	(Without brake) 0.2A (With brake) 0.5A
Ambient operating temperature & humidity	(With fan) 0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	438g
External dimensions	W45.2mm×H115mm×D95mm
Accessories	Fan unit RCON-FU, Dummy plug DP-6
Compatible Type	RCON/RSEL

Example: With 3-pharse 200VAC power supply (max 2400W), 6 axes of 400W types can be connected with 6 units of RCON-SC-1 and 1unit of RCON-PS2-3.

200V power supply unit

This power supply unit is for 200VAC input only.
A 200V driver unit must be connected.

Model
RCON-PS2-3

*A terminal unit is supplied (RCON-GW-TRS).

Specifications

Motor power input voltage	Single-phase/three-phase 200VAC~230VAC ±10%
Maximum power capacity	(Single phase) 1,600W, (three-phase) 2,400W
Ambient operating temperature & humidity	(With fan) 0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	393g
External dimensions	W45.2mm×H115mm×D95mm
Accessories	Fan unit RCON-FU, Power supply connector SPC5/4-STF-7,62
Compatible Type	RCON/RSEL

* A noise filter is installed inside.

Other Units

SCON expansion unit

SCON-CB/CGB can be connected to operate an actuator with 200V motor.

RCON RSEL

Model
RCON-EXT

Specifications

Power	24VDC ± 10%
Control power	0.1A
Ambient operating temperature & humidity	0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	99g
External dimensions	W22.6mm × H115mm × D95mm
Accessories	Terminal connector RCON-EXT-TR
Compatible Type	RCON/RSEL

PIO/SIO/SCON expansion unit

This specification model allows PIO/SIO to be connected to an expansion unit for connecting SCON-CB/CGB.

RSEL

Model
RCON-EXT-NP (NPN specification)
RCON-EXT-PN (PNP specification)

Specifications

Power	24VDC ± 10%
Control power	0.1A
Input Output	Input 16 points, Output 16 points
Ambient operating temperature & humidity	0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	110g
External dimensions	W22.6mm×H115mm×D95mm
Accessories	Expansion SIO port connector FMC1,5/3-STF-3,5 Terminal connector RCON-EXT-TR PIO cable CB-PAC-PIO*** (In case the cable length model other than "0" is specified)
Compatible Type	RSEL

* Refer to P. 70 for PIO signal table and internal circuit

PIO unit

This unit is for PIO expansion.

RSEL

Model
RCON-NP (NPN specification)
RCON-PN (PNP specification)

Specifications

Power	24VDC ± 10%
Control power	0.1A
Input Output	Input 16 points, Output 16 points
Ambient operating temperature & humidity	0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	105g
External dimensions	W22.6mm×H115mm×D95mm
Accessories	PIO cable CB-PAC-PIO*** (In case the cable length model other than "0" is specified)
Compatible Type	RSEL

* Refer to P. 70 for PIO signal table and internal circuit

■ EC connection unit

This unit allows up to 4 axes of ELECYLINDER with ACR option to be connected.

RCON RSEL REC

Model
RCON-EC-4

Specifications

Power	24VDC ± 10%
Control power	0.1A
Ambient operating temperature & humidity	0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	123g
External dimensions	W22.6mm×H115mm×D95mm
Accessories	Drive source shutoff connector (DFMC1,5/4-ST-3,5 (REC))
Compatible Type	RCON/REC

Simple absolute unit

*For 24V driver connection

This unit is to be connected when using an actuator with incremental specification as absolute specification.

RCON RSEL

Model	Type	Compatible motor
RCON-ABU-P	For RCP series connection	Stepper motor
RCON-ABU-A	For RCA series connection	AC servo motor

Specifications

Power	24VDC ± 10%
Control power	0.2A
Absolute battery model	AB-7
Battery voltage	3.6V
Charging time	Approx. 72 hours
Ambient operating temperature & humidity	0~40°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	271g (including 173g for absolute battery)
External dimensions	W22.6mm×H115mm×D95mm
Accessories	Cable (CB-ADPC-MPA005)
Compatible Type	RCON/RSEL

Terminal unit

A terminal resistor for returning RCON/RSEL serial communication and input/output signals. (Supplied with purchase of gateway unit.)

RCON RSEL

Model
RCON-GW-TR

Specifications

Power	24VDC ± 10%
Ambient operating temperature & humidity	0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	48g
External dimensions	W12.6mm × H115mm × D95mm
Compatible Type	RCON without RCON-PS2-3 RSEL without RCON-PS2-3

200V terminal unit

This terminal resistor is for connecting a 200VAC driver unit. (Supplied with purchase of power supply unit.)

RCON RSEL

Model
RCON-GW-TRS

Specifications

Power	24VDC ± 10%
Ambient operating temperature & humidity	0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	40g
External dimensions	W12.6mm×H115mm×D95mm
Compatible Type	RCON with RCON-PS2-3 RSEL with RCON-PS2-3

REC terminal unit

This terminal resistor is for connecting an EC module only. (Supplied with purchase of gateway unit.)

REC

Model
RCON-GW-TRE

Specifications

Power	24VDC ± 10%
Ambient operating temperature & humidity	0~55°C, 5%RH to 85%RH (non-condensing or freezing)
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	48g
External dimensions	W12.6mm×H115mm×D95mm
Compatible Type	REC

PIO Signal Chart

Standard PIO connector, expansion PIO connector pin layout

Pin No.	Category	Assignment	Pin No.	Category	Assignment
1A	24V	P24	1B	Output	OUT0
2A	24V	P24	2B		OUT1
3A	-	-	3B		OUT2
4A	-	-	4B		OUT3
5A	Input	IN0	5B		OUT4
6A		IN1	6B		OUT5
7A		IN2	7B		OUT6
8A		IN3	8B		OUT7
9A		IN4	9B		OUT8
10A		IN5	10B		OUT9
11A		IN6	11B		OUT10
12A		IN7	12B		OUT11
13A		IN8	13B		OUT12
14A		IN9	14B		OUT13
15A		IN10	15B		OUT14
16A		IN11	16B		OUT15
17A		IN12	17B	-	-
18A		IN13	18B	-	-
19A		IN14	19B	0V	N
20A		IN15	20B	0V	N

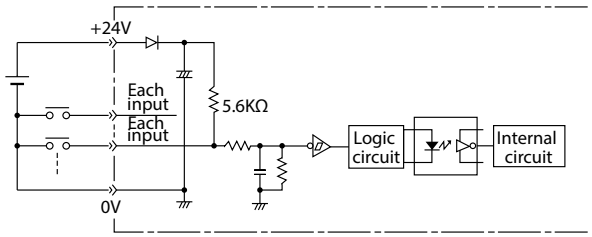
* The same assignment will be applied to each unit even for an expansion unit (PIO specification).

I/O internal circuit

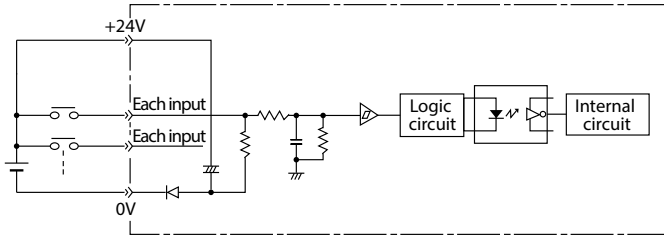
[Input]

Item	Specifications
Number of input	16 points
Input voltage	24VDC ± 10%
Input current	4mA/1 circuit
On/off voltage	On voltage: Min. 18VDC (3.5mA) Off voltage: Max. 6VDC (1mA)
Isolation method	Photocoupler

[NPN specification]



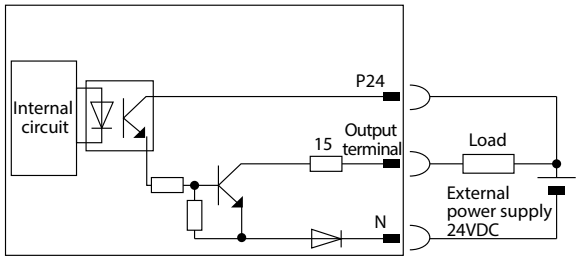
[PNP specification]



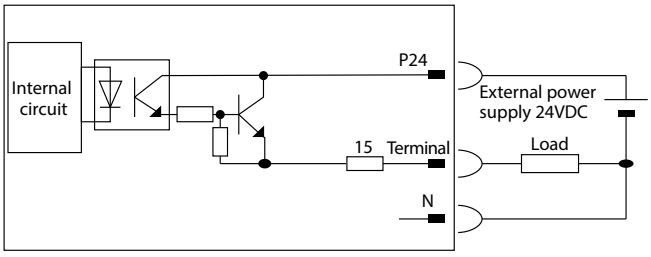
[Output]

Item	Specifications
Output current	16 points
Rated load voltage	24VDC ± 10%
Max. current	50mA/1 circuit
Isolation method	Photocoupler

[NPN specification]



[PNP specification]



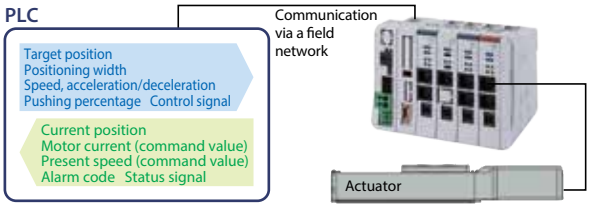
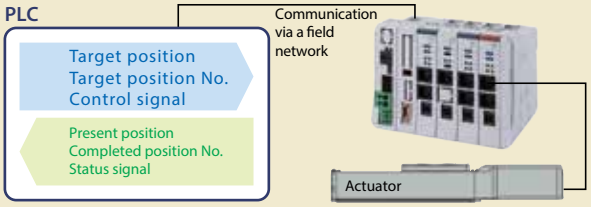
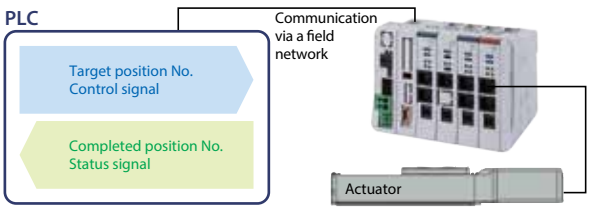
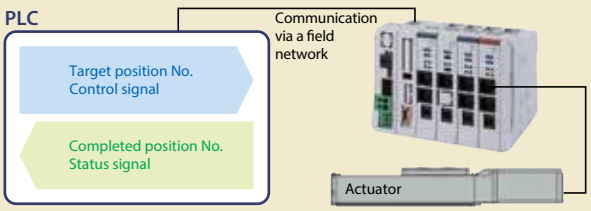
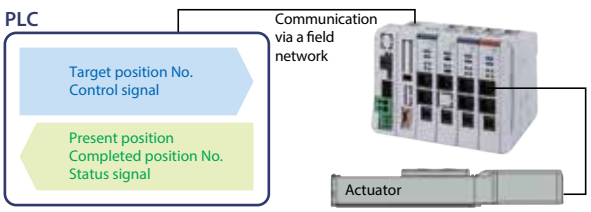
Maximum connectable axes by RCON-GW operation mode

The max. number of connectable axes when all the axes operate in the same operation mode.
* If different operation modes exist, confirm using the model selection software.

Field network \ Operation mode	Remote I/O						Motion network
	Direct numerical control mode	Simple direct mode	Positioner mode 1	Positioner mode 2	Positioner mode 3	Positioner mode 5	
DeviceNet	8 axes	16 axes	16 axes	16 axes	16 axes	16 axes	-
CC-Link	16 axes	16 axes	16 axes	16 axes	16 axes	16 axes	-
CC-Link IE Field	16 axes	16 axes	16 axes	16 axes	16 axes	16 axes	-
PROFIBUS-DP	8 axes	16 axes	16 axes	16 axes	16 axes	16 axes	-
EtherCAT	8 axes	16 axes	16 axes	16 axes	16 axes	16 axes	-
EtherNet/IP	8 axes	16 axes	16 axes	16 axes	16 axes	16 axes	-
PROFINET IO	8 axes	16 axes	16 axes	16 axes	16 axes	16 axes	
EtherCAT motion	-	-	-	-	-	-	8 axes
MECHATROLINK-Ⅲ	-	-	-	-	-	-	8 axes
SSCNET Ⅲ/H	-	-	-	-	-	-	8 axes

Field Network Operation Mode (EtherCAT motion, MECHATOROLINK-Ⅲ and SSCNET Ⅲ/H are excluded)

The RCON-GW field network control operation mode can be selected from the following control modes.
Data required for operation (target position, speed, acceleration, push current value, etc.) are written by a connected PLC or other host controller into the specified addresses. * The EC connection unit is not supported.

Operation mode	Description	Overview
Direct numerical control mode	This mode allows designating the target position, speed, acceleration/deceleration, and current limit value for pushing numerically. Also, it is capable of monitoring the present position, present speed, and the command current value with 0.01mm increments.	
Simple direct value mode	Can modify any of the stored target positions by numerical value. Also allows monitoring of the present position numerically with 0.01mm increments.	
Positioner 1 mode	Can store up to 128 points of position data, and can move to the stored position. Also allows monitoring of the present position numerically with 0.01mm increments.	
Positioner 2 mode	Can store up to 128 points of position data, and can move to the stored position. This mode does not allow monitoring of the present position. This mode has less in/out data transfer volume than the Positioner 1 mode.	
Positioner 3 mode	Can store up to 128 points of position data, and can move to the stored position. This mode does not allow monitoring of the present position. This mode has less in/out data transfer volume than the Positioner 2 mode, and controls travel with the minimum of signals.	
Positioner 5 mode	Can store up to 16 points of position data, and can move to the stored position. This mode has less in/out data transfer volume and fewer positioning tables than the Positioner 2 mode, and allows monitoring of the present position numerically with 0.1mm increments.	

List of Functions by Operation Mode

* The EC connection unit is not supported.

	Direct numerical control mode	Simple direct value mode	Positioner 1 mode	Positioner 2 mode	Positioner 3 mode	Positioner 5 mode
Number of positioning points	Unlimited	128 points	128 points	128 points	128 points	16 points
Home return motion	○	○	○	○	○	○
Positioning operation	○	○	△	△	△	△
Speed, acceleration/ deceleration settings	○	△	△	△	△	△
Different acceleration and deceleration settings	×	△	△	△	△	△
Pitch feed (incremental)	○	△ (Note 1)	△	△	×	△
JOG operation	△	△	△	△	×	△
Position data writing	×	×	○	○	×	×
Push-motion operation	○	△	△	△	△	△
Speed changes while traveling	○	△	△	△	△	△
Pausing	○	○	○	○	○	○
Zone signal output	△(2 points)	△(2 points)	△(2 points)	△(2 points)	△(1 point)	△(2 points)
Position zone signal output	×	△	△	△	×	×
Overload warning output	○	○	○	○	×	○
Vibration control (Note 2)	×	△	△	△	△	△
Collision detection function (Note 3)	×	△	△	△	△	△
Current position reading (Note 4) (resolution)	○(0.01mm)	○(0.01mm)	○(0.01mm)	×	×	○ (Note 5) (0.1mm)

* ○: Direct setting is possible, △: Position data or parameter input is required, ×: The operation is not supported.

Note 1: Up to 128 points of position data can be set.

Note 2: This function is limited to the AC servo motor specification.

Note 3: This function is limited to the stepper motor specification.

Note 4: The resolution to control a DD motor is 0.001 degree (0.01 degree for positioner 5 mode only).

Note 5: The maximum output value in positioner 5 mode is 3,276.7mm (327.67 degrees for DD motor).
To control the actuator in an operation range exceeding the maximum value, select a different operation mode.

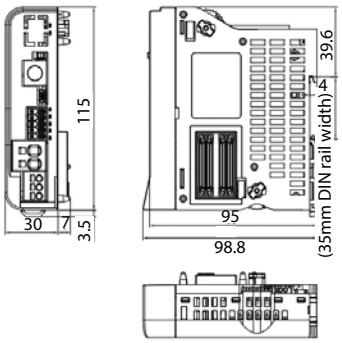
ELECYLINDER I/O signal table

Pin assignment of the power supply and I/O connector			
Pin No.	**Connector decal**	**Signal abbreviation**	**Function description**
B3	Backward	STO	Backward command
B4	Forward	ST1	Forward command
B5	Alarm cancel	RES	Alarm cancel
A3	Backward complete	LSO/PEO	Backward complete/Push complete
A4	Forward complete	LS1/PE1	Forward complete/Push complete
A5	Alarm	*ALM	Alarm detection (b-contact)
B2	Brake release	BKRLS	Brake forced release (in case of with brake specification)
B1	24V	24V	24V input
A1	0V	0V	0V input
A2	(24V)	(24V)	24V input

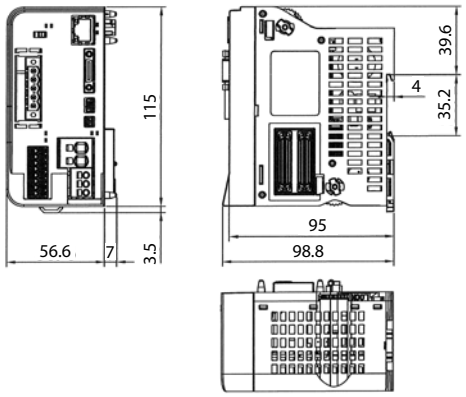
External dimensions

Master unit

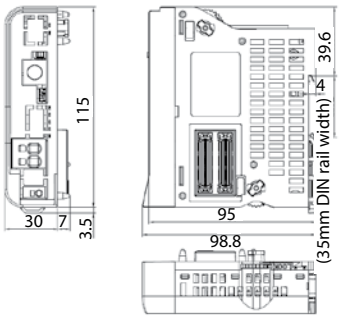
RCON



RSEL

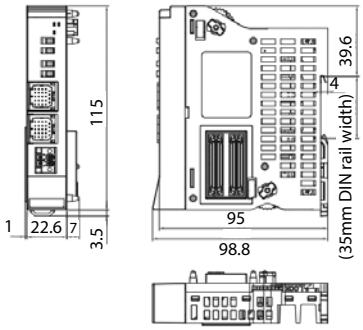


REC

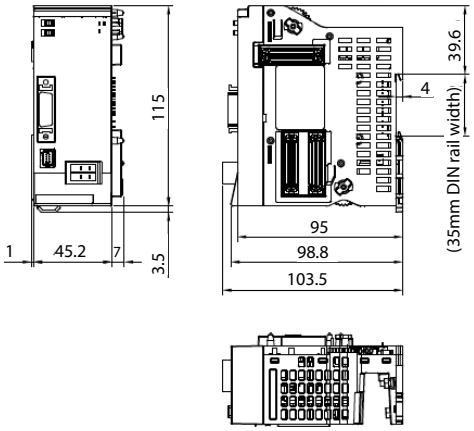


Driver Unit

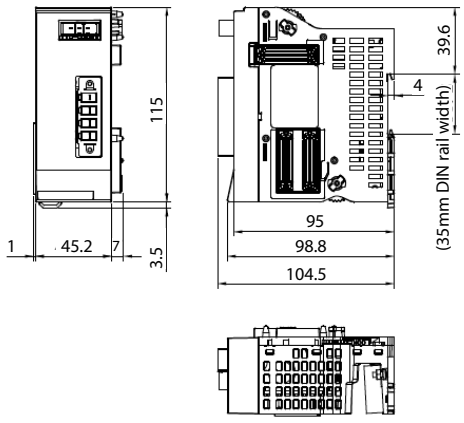
24V



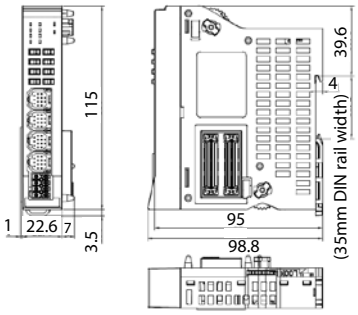
200V



200V power supply unit

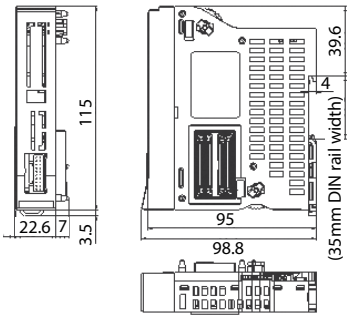


EC connection unit

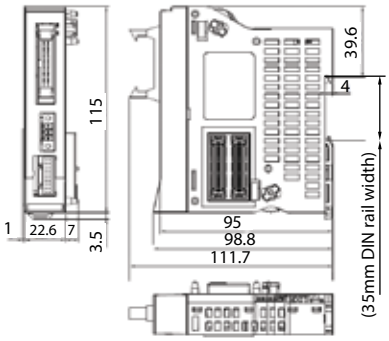


Expansion unit

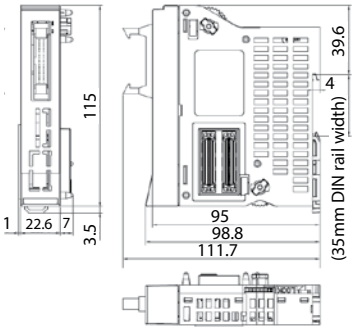
SCON expansion



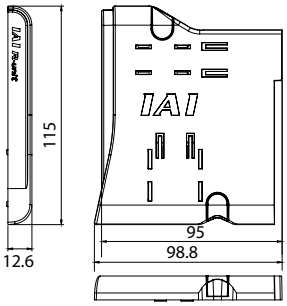
PIO/SIO/SCON expansion



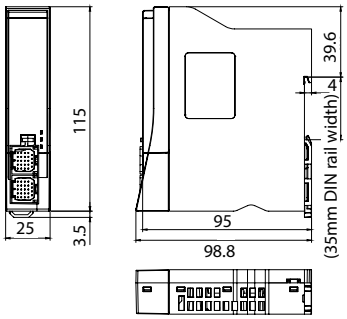
PIO



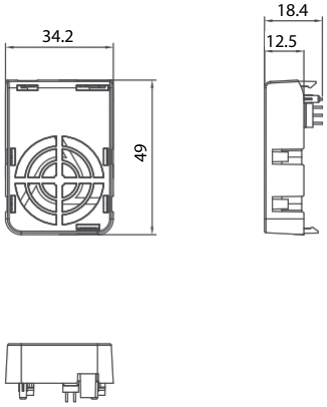
Terminal unit



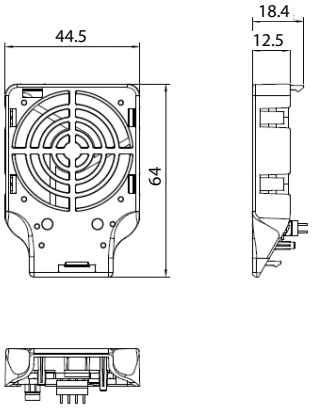
Simple absolute unit



Fan unit

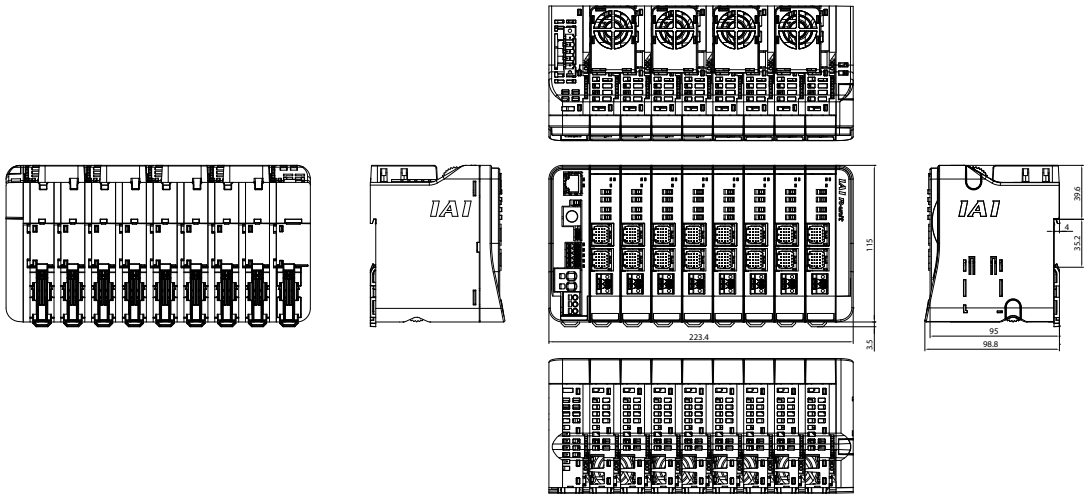


For 200V driver



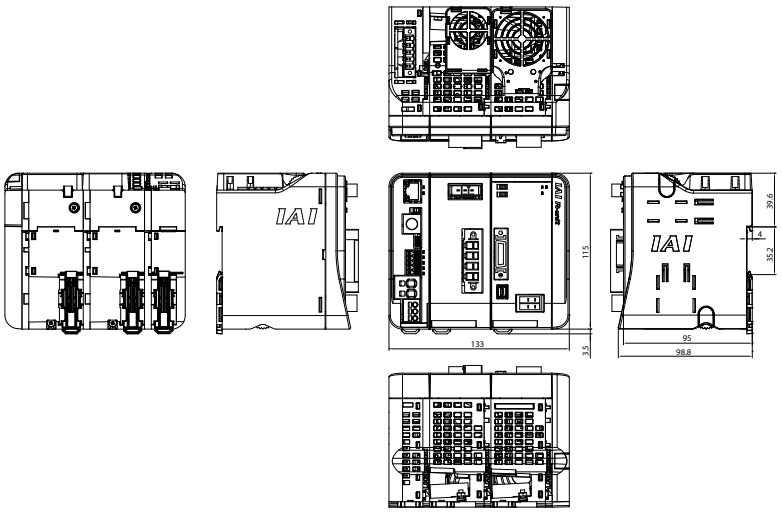
RCON

8 24V driver units (16 axes)
With fan



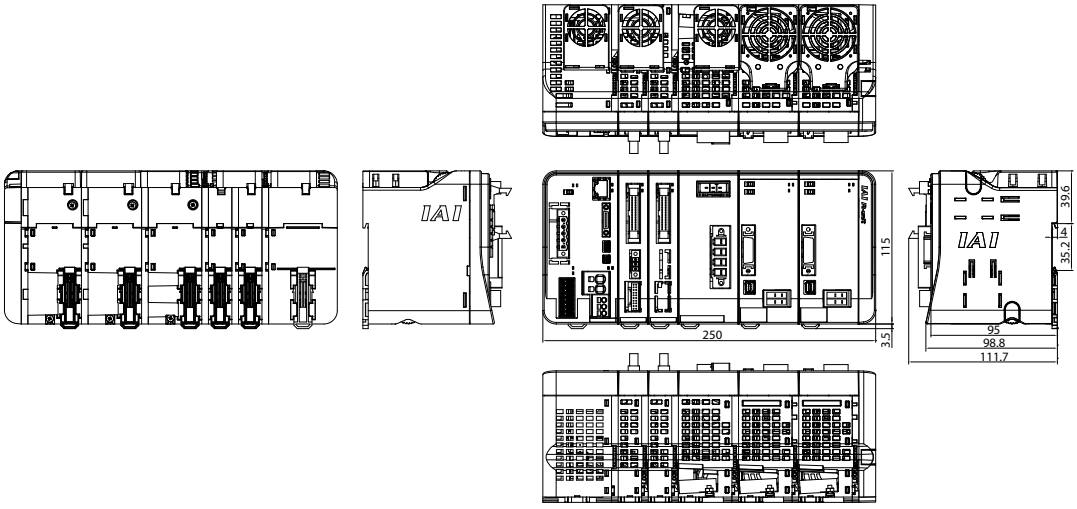
RCON

1 200V driver unit (1 axis)



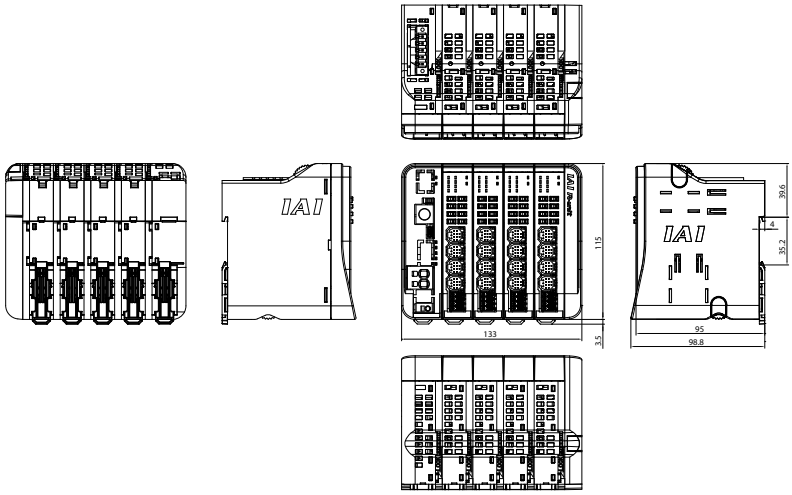
RSEL

Expansion unit (SCON connection, PIO unit)
2 200V drivers (2 axes)
With fan



REC

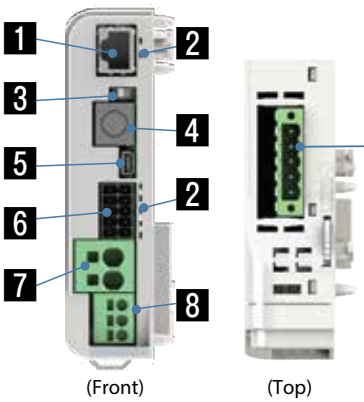
For 4 EC connection units (16 axes)



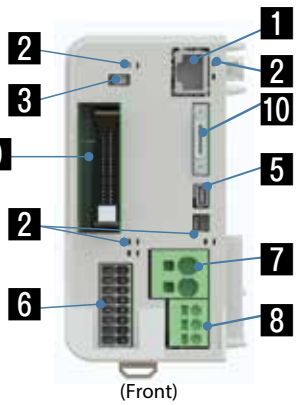
Name of Each Component

Master unit

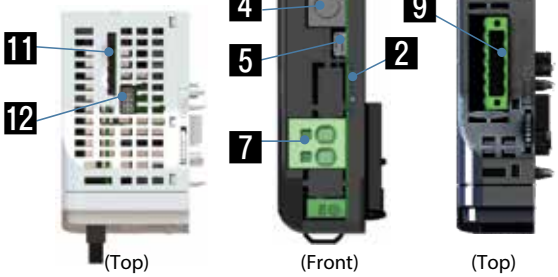
RCON-GW/GWG



RSEL-G



REC-GW



1 EtherNet connector
A connector for connecting to EtherNet.
(Selected as option for RCON.)

2 Status LED
Represents the state of the controller.

3 AUTO/MANU switch
A switch for automatic/manual operation.

4 SIO connector
A connector for connecting the teaching pendant and PC teaching software cable.

5 USB connector
A connector for connecting the PC teaching software cable.

6 System I/O connector
A connector with a serial communication line for STOP input and PSA-24.
Allows for external AUTO/MANU switching input for RCON.

7 Motor power connector
Motor power +24V supply connector.

8 Control power connector
A connector for connecting control power +24V and FG.

9 Fieldbus connector/IO connector
A connector for connecting the fieldbus connector selected in I/O type.

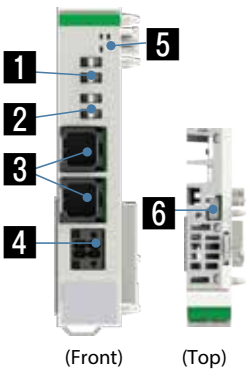
10 Teaching connector
A connector for connecting the teaching pendant and PC dedicated software via RS232.

11 Memory card slot
Insert an SD/SDHC card to perform updates.

12 Fan connector
A connector to attach the fan unit.

Driver Unit

24V series



200V series

1 Jog switch
A switch used for jog operations.

2 Brake release switch
The forced brake release switch.
(On NOM side during normal operation.)

3 MPG connector
A connector to connect the motor encoder cable for actuators equipped with a 24V stepper motor, AC servo motor, or DC brush-less motor.

4 Drive source shutoff connector
A connector that allows for drive power shutoff input for each actuator.

5 Status LED
Represents the state of the controller.

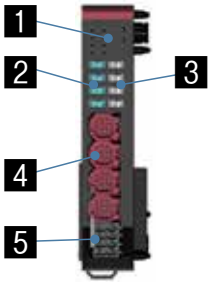
6 Fan connector
A connector to attach the fan unit.

7 Encoder connector
Connects the 200V actuator encoder cable.

8 Motor connector
Connects the 200V actuator motor cable.

9 Driver stop connector
Shuts off power supply to the motor in the internal circuit.

EC connection unit



1 Status LED
Represents the state of the controller.

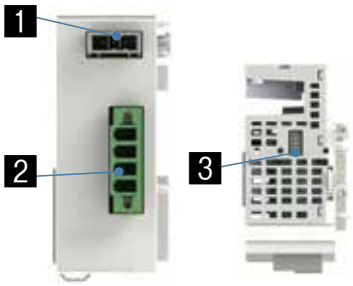
2 Jog switch
A switch used for jog operations.

3 Brake release switch
The forced brake release switch. (On NOM side during normal operation.)

4 EC connector
A connector to connect to ELECYLINDER. (with ACR option only.)

5 Drive source shutoff connector
A connector that allows for drive power shutoff input for each actuator.

Power supply unit



(Front) (Top)

1 External regenerative resistance connector
A connector to connect to an external regenerative resistance unit.

2 200VAC input connector
A connector for three-phase/single-phase 200VAC.

3 Fan connector
A connector to connect the fan unit.

Expansion unit

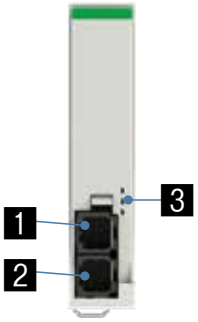
RCON-EXT-NP/PN **RCON-NP/PN** **RCON-EXT**

1 PIO cable connector
A connector for expansion PIO.
*One RCON/RSEL system can include both NPN type IO (RCON).

2 SIO cable connector
A connector for expansion communication.

3 SCON cable connector
A connector to connect an interface cable to connect to SCON.

Simple absolute unit



1 Actuator cable connector
A connector to connect to the actuator.

2 Driver cable connector
A connector to connect to the driver unit.

3 Status LED
Represents the state of the battery.

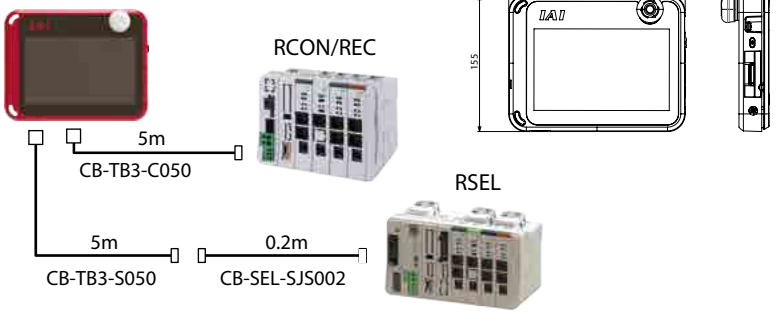
Options

Touch panel teaching pendant

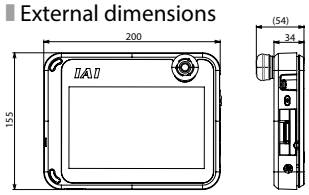
Features A teaching device equipped with functions such as position teaching, trial operation, and monitoring.

Model **TB-03-□** Please contact IAI for the current supported versions.

Configuration



External dimensions

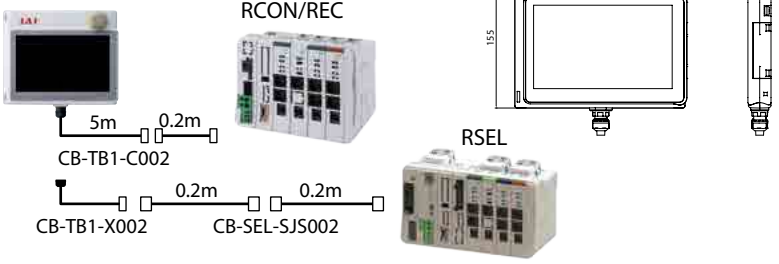


Specifications

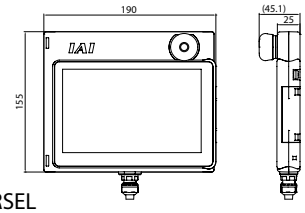
Rated voltage	24VDC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0~40°C
Ambient operating humidity	5~85% RH (non-condensing)
Environmental resistance	IPX0
Mass	670g (TB-03 unit only)
Charging method	Wired connection with dedicated AC adapter/ controller
Wireless connection	Bluetooth4.2 class2

Model **TB-02(D)-□** Please contact IAI for the current supported versions.

Configuration



External dimensions



Specifications

Rated voltage	24VDC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0~40°C
Ambient operating humidity	5~85% RH (non-condensing)
Environmental resistance	IP20
Mass	470g (TB-02 unit only)

PC Teaching Software (Windows only)

Supported Windows versions: 7/10

or PC Software downloaded link

Features Start-up support software which comes equipped with functions such as position/program teaching, trial operation, and monitoring.

For RCON/REC

Model **IA-OS** Please contact IAI for the current supported versions.

* Please purchase through your distributor and a download link will be sent to your valid email address.

Configuration

PC teaching software (Download Only)

USB mini-B cable (to be prepared by the user)

Supported Windows versions: 7/10

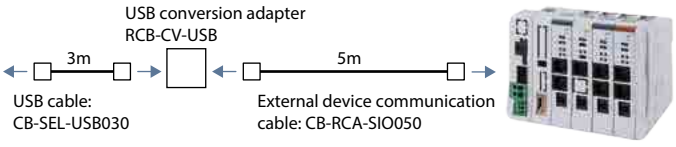
Model **IA-OS-C** Please contact IAI for the current supported versions.

(with an external device communication cable + USB conversion adapter + USB cable)

* Please purchase through your distributor and a download link will be sent to your valid email address.

Configuration

PC teaching software (Download Only)



XSEL PC dedicated teaching software for RSEL

Model **IA-101-N** (Software only)

* Please purchase through your distributor and a download link will be sent to your valid email address.

Features PC teaching software (Download Only) only.
If you want to connect both the controller and PC side with your USB cable or Ethernet cable, only the software needs to be purchased. A cable that meet the following specifications is to be prepared by the customer.

Notes
When operating the actuator by USB connection, be sure to connect the stop switch to the system I/O connector.

Configuration Please contact IAI for the current supported versions.

	Controller side connector	Maximum cable length
USB cable specification	USB Mini-B	5m
Ethernet cable specification*	10/100/1000BASE-T (RJ-45)	100m

Supported Windows versions: 7/10

Software Download Link will be provided.

PC teaching software (Download Only)

USB cable (to be prepared by the user)

*Ethernet cable (to be prepared by the user)

* In order to use EtherNet cable, parameters need to be set by other cables of IA-101-X-MW-JS or USB mini-B.

DP-4S Dummy Plug (included to the RSEL-G, or supplied by customer)

Model **IA-101-X-MW-JS** (including RS232C cable + connector conversion cable)

* Please purchase through your distributor and a download link will be sent to your valid email address.

Supported Windows versions: 7/10

Configuration Please contact IAI for the current supported versions.

PC teaching software (Download Only)

5m
RS232C cable
CB-ST-E1MW050-EB

0.2m
Connector conversion cable
CB-SEL-SJS002

CB-ST-E1MW050-EB cannot be used "when building an enable system using an external power supply using the system I/O connector" or "when building a duplex safety circuit". (The use of CB-ST-A2MW050-EB is required.)

Model **IA-101-XA-MW** (including RS232C cable * Compliant with safety category 4)

* Please purchase through your distributor and a download link will be sent to your valid email address.

Supported Windows versions: 7/10

Configuration Please contact IAI for the current supported versions.

PC teaching software (Download Only)

5m
RS232C cable
CB-ST-A2MW050-EB

0.2m

Connector adapter cable CB-SEL-SJS002 is required, but not included with this model.
*Please order it if needed.

24 VDC power supply

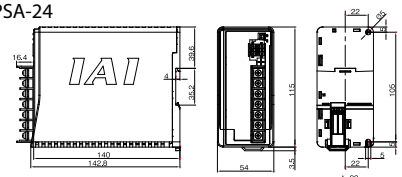
Overview The recommended power supply for connection to R-units. The power supply is the same height as RCON and can be easily installed on control panels. It can also be connected to R-units to monitor power status.

Model **PSA-24 (without fan)**

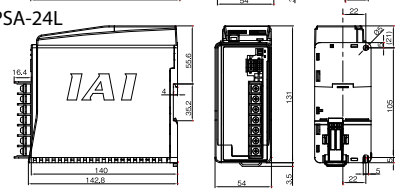
Model **PSA-24L (with fan)**

External dimensions

PSA-24



PSA-24L



Specifications Table

Item	Specification	
	100VAC input	200VAC input
Power input voltage range	100VAC~230VAC ±10%	
Input power supply current	3.9A or less	1.9A or less
Power capacity	Without fan: 250VA With fan: 390VA	Without fan: 280VA With fan: 380VA
Inrush current*1	Without fan: 17A (typ) With fan: 27.4A (typ)	Without fan: 34A (typ) With fan: 54.8A (typ)
Generated heat	28.6W	20.4W
Output voltage range*2	24V ±10%	
Continuous rated output	Without fan: 8.5A (204W), with fan: 13.8A (330W)	
Peak output	17A(408W)	
Efficiency	86% or more	90% or more
Parallel connection*3	Max.: 5 units	

*1 The pulse width of flowing inrush current is less than 5ms.
*2 In order to enable parallel operation, this power supply can vary the output voltage according to the load. Therefore, the power supply unit is dedicated for IAI controllers.
*3 Parallel connection cannot be used under the following conditions.
- Parallel connection of PSA-24 (specification without fan) and PSA-24L (specification with fan)
- Parallel connection with a power supply unit other than this power supply
- Parallel connection with PS-24

DC power supply for driving motors

Features This unit supplies DC power for driving the 200V specification ELECYLINDER. One unit can supply power for up to 6 axes. (Within the max. connectable wattage)

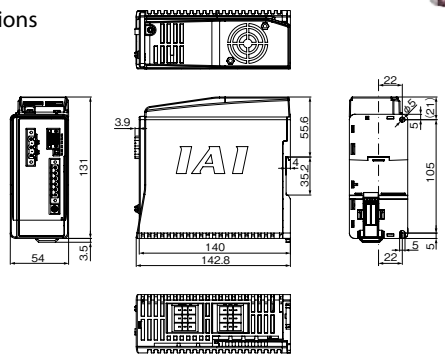
Model **PSA-200-1**

(Input voltage: Single phase AC100V, Max. 800W connectable)

PSA-200-2

(Input voltage: Single phase AC200V, Max. 1600W connectable)

External dimensions



Specifications

Power input voltage range		Single phase AC100V specification: AC100 - 115V ±10% Single phase AC200V specification: AC200 - 230V ±10%
Input frequency range		50/60Hz ±5%
Rush current (Note 1)	55°C	Control power: 60A Motor power: 70A
Output voltage		DC280V typ
Max. motor connectable wattage		Input voltage: Single phase AC100V, Max. 800W Input voltage: Single phase AC200V, Max. 1600W
Max. number of drivable axes		6 axes
Momentary power failure resistance		50Hz: 20ms, 60Hz: 16ms
Withstand voltage		AC1500V between primary and FG, for 1 minute
Insulation resistance		DC500V between secondary and FG, 10Ω or higher
Leak current		Total 3.1 mA (when a recommended noise filter is used and 6 axes are connected)
Electric shock protection mechanism		Class 1 Basic insulation

(Note 1) Rush current flows for approx. 20ms after turning on the power. Be aware that the rush current varies according to the power line impedance and internal element temperature (thermistor).

Maintenance Parts

Fan unit

Overview This is an option to forcibly cool down the driver unit.

Model **RCON-FU**

For 200V driver

Model **RCON-FUH**

Connector conversion cable

Features Converts a touch panel teaching pendant or RS232C cable D-sub 25-pin connector to an RSEL teaching connector. (TB-02/TB-03-S, IA-101-X-MW-JS accessory.)

Model **CB-SEL-SJS002**

Dummy plug

For RCON-GWG
- Model **DP-5**

For 200V driver
- Model **DP-6**

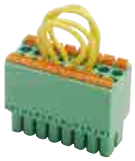
For RSEL
- Model **DP-4S**

System I/O connector

- Overview A connector for emergency stop input, operation mode switching input from exterior, etc.

For RCON-GW(G)
- Model **DFMC1,5/5-ST-3,5**

For RSEL
- Model **DFMC1,5/8-ST-3,5 (RSEL)**



Drive source shutoff connector

- Overview A drive source shutoff input connector.

For 24V driver
- Model **DFMC1,5/2-STF-3,5**

For EC connection unit
- Model **DFMC1,5/4-ST-3,5 (REC)**

200V power supply connector

For 200V power supply
- Model **SPC5/4-STF-7,62**

Terminal connector

- Overview Required as a terminal resistor when connecting SCON.
- Model **RCON-EXT-TR**

Expansion SIO port connector

For PIO/SIO/SCON connection
- Model **FMC1,5/3-STF-3,5**

Replacement battery

- Overview A replacement battery for the simple absolute unit.
- Model **AB-7**

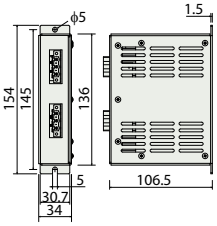
Regenerative resistance unit

- Overview A unit that converts to heat the regenerative current generated when the motor decelerates. The 200V driver unit and 200V power supply unit are equipped with regenerative resistance inside. However, when energy generates at the same time, external regenerative resistance units are necessary.

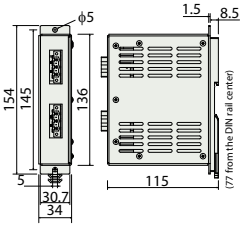
- Model **RESU-2** (standard specification)/ **RESUD-2** (DIN rail mounting specification)

- External dimensions

<RESU-2>



<RESUD-2>



Specifications

Model	RESU-2	RESUD-2
Mass	approx. 0.4kg	
Internal regenerative resistance value	235Ω 80W	
Mounting method	Screw mount	DIN rail mount
Supplied cable	CB-SC-REU010	

*When two regenerative units are required, please use one RESU-2 and one RESU-1 (Refer to the General Catalog 2021).

Maintenance Parts (Cables)

When placing an order for a replacement cable, please use the model name shown below.

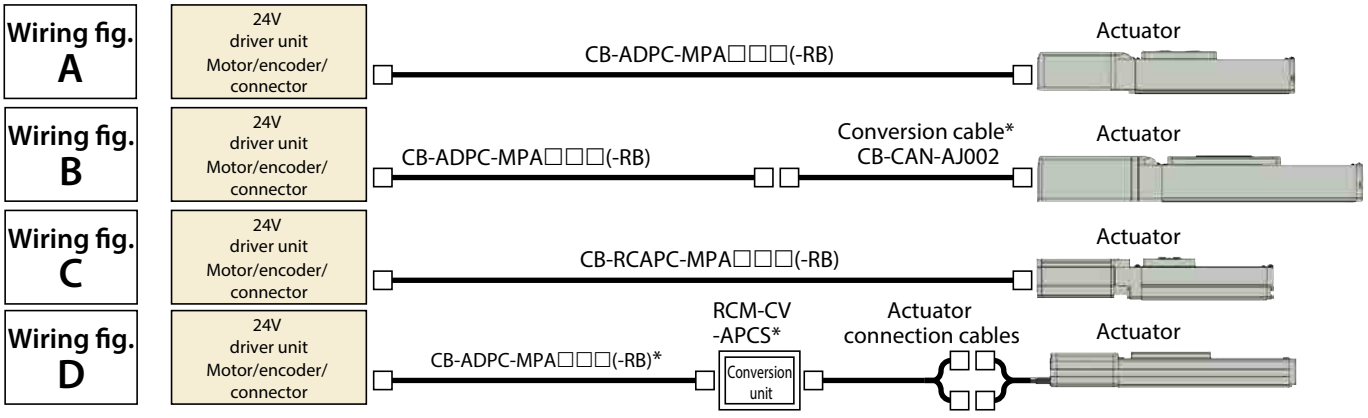
Table of compatible cables

Cable model name search system is recommendable!
URL:https://www.iai-robot.co.jp/cablesearch/search.aspx

Motor encoder cable for 24V driver connection

No.	Actuator		Applicable controller symbol	Max. cable length	Connection cable(Note 2)	Conversion unit	Wiring fig.
	Series	Type			Integrated motor-encoder cable (-RB: Robot cable) [Actuator connection cables]		
(1)	RCP6 RCP6CR RCP6W RCP5 RCP5CR RCP5W	Other than high thrust type(Note 1)	P5	20m	CB-ADPC-MPA□□□(-RB)	-	A
(2)		High thrust type(Note 1)	P6	20m	CB-ADPC-MPA□□□(-RB) CB-CAN-AJ002 (conversion cable)	-	B
(3)	RCP4 RCP4CR RCP4W	Gripper (GR*), ST4525E, SA3/RA3	P5	20m	CB-ADPC-MPA□□□(-RB)	-	A
(4)		High thrust type(Note 1)	P6	20m	CB-ADPC-MPA□□□(-RB) CB-CAN-AJ002 (conversion cable)	-	B
(5)		Other than (3), (4)	P5	20m	CB-ADPC-MPA□□□(-RB) CB-CAN-AJ002 (conversion cable)	-	B
(6)	RCP3			20m	CB-RCAPC-MPA□□□(-RB)	-	C
(7)	RCP2 RCP2CR RCP2W	RCP2 (standard type) rotary compact type RCP2-RTBS/RTBSL/RTCS/RTCSL	P5	20m	CB-ADPC-MPA□□□(-RB) [CB-RPSEP-MPA□□□]	Required	D
(8)		RCP2CR (clean room type), RCP2W (dust-proof/splash-proof type) Rotary (RT*) of above types GRS/GRM/GR3SS/GR3SM of above types	P5	20m	CB-ADPC-MPA□□□(-RB)	-	A
(9)		GRSS/GRLS/GRST/GRHM/GRHB of all types (standard / clean room / dust-proof/ splash-proof) Short type (RCP2 only) RCP2-SRA4R/SRGS4R/SRGD4R	P5	20m	CB-RCAPC-MPA□□□(-RB)	-	C
(10)		High thrust type(Note 1)	P6	20m	CB-ADPC-MPA□□□(-RB) [CB-CFA-MPA□□□(-RB)]	Required	D
(11)		Other than (7)~(10)	P5	20m	CB-ADPC-MPA□□□(-RB) [CB-PSEP-MPA□□□]	Required	D
(12)	RCA2/RCA2CR/RCA2W, RCL		A6	20m	CB-RCAPC-MPA□□□(-RB)	-	C
(13)	RCA2/RCA2CR/RCA2W small connector specification (CNS option)		A6	20m	CB-ADPC-MPA□□□(-RB)	-	A
(14)	RCA RCACR RCAW	Short type (RCA only) RCA-SRA4R/SRGS4R/SRGD4R	A6	20m	CB-RCAPC-MPA□□□(-RB)	-	C
(15)		Other than (14)	A6	20m	CB-ADPC-MPA□□□(-RB) [CB-ASEP2-MPA□□□]	Required	D
(16)	RCD	RCD-RA1DA, RCD-GRSNA	D6	20m	CB-ADPC-MPA□□□(-RB)	-	A
(17)	WU		PM2	20m	CB-ADPC-MPA□□□(-RB)	-	A

Note 1: An actuator that uses a high thrust stepper motor (56SP, 60P, 86P)
Note 2: Up to 20m from each driver unit to the actuator, with or without the conversion unit.
Note that the maximum length from the driver unit to the RCD actuator will be 10m.



* Not supplied even if the cable length is specified in the actuator model name. Must be prepared even if the model name is specified separately.

Motor encoder cable for 200V driver connection

No.	Actuator		Applicable controller code	Max. cable length	Connection cable (Note 3)			
	Series	Type			Motor cable	Motor robot cable	Encoder cable	Encoder robot cable
(1)	RCS4 RCS4CR		T4	20m	CB-RCC1-MA□□□	CB-X2-MA□□□	-	CB-X1-PA□□□
(2)	RCS3(P) RCS3(P)CR	CTZ5C CT8C	T4	20m	CB-RCC1-MA□□□	CB-X2-MA□□□	-	CB-X1-PA□□□
(3)		Other than (2)	T4	20m	CB-RCC1-MA□□□	CB-X2-MA□□□	CB-RCS2-PA□□□	CB-X3-PA□□□
(4)	RCS2 RCS2CR RCS2W	RTC□L RT6	T4	20m	CB-RCC1-MA□□□	CB-X2-MA□□□	CB-RCS2-PLA□□□	CB-X2-PLA□□□
(5)		Other than (4)	T4	20m	CB-RCC1-MA□□□	CB-X2-MA□□□	CB-RCS2-PA□□□	CB-X3-PA□□□
(6)	RCS2 (No load cell)	RA13R	T4	20m	CB-RCC1-MA□□□	CB-X2-MA□□□	CB-RCS2-PLA□□□	CB-X2-PLA□□□
(7)		RA13R with brake (with brake box)					[Actuator to brake box] CB-RCS2-PLA□□□ [Brake box to controller] CB-RCS2-PLA□□□	[Actuator to brake box] CB-X2-PLA□□□ [Brake box to controller] CB-X2-PLA□□□
(8)		RA13R with brake (without brake box)					[Actuator to brake box] CB-RCS2-PLA□□□	[Actuator to brake box] CB-X2-PLA□□□
(9)	IS(P)B IS(P)DB IS(P)DBCR	Other than (10)	T4	30m	-	CB-X2-MA□□□	-	CB-X1-PA□□□ *Use the following cable for a cable length of 21m or greater CB-X1-PA□□□-AWG24
(10)		(Option: When limit switch was selected)	T4	30m	-	CB-X2-MA□□□	-	CB-X1-PLA□□□ *Use the following cable for a cable length of 21m or greater CB-X1-PLA□□□-AWG24
(11)	IS(P)A IS(P)DA IS(P)DACR SSPA SSPDACR IF FS RS	Other than (12)	T4	30m	-	CB-X2-MA□□□	-	CB-X1-PA□□□
(12)		(Option: When limit switch was selected)	T4	30m	-	CB-X2-MA□□□	-	CB-X1-PLA□□□
(13)	NSA		T4	30m	-	CB-X2-MA□□□	-	CB-X1-PA□□□
(14)	NS	Other than (15)	T4	30m	-	CB-X2-MA□□□	-	CB-X3-PA□□□
(15)		(Option: When limit switch was selected)	T4	30m	-	CB-X2-MA□□□	-	CB-X2-PLA□□□
(16)	DD DDCR DDW DDA DDACR	T18□ LT18□	T4	30m	-	CB-X2-MA□□□	-	CB-X3-PA□□□
(17)		H18□ LH18□	T4	30m	-	CB-XMC1-MA□□□	-	CB-X3-PA□□□
(18)	LSA	W□□□	T4	20m	-	CB-XMC1-MA□□□	-	CB-X2-PLA□□□
(19)		Other than (18)	T4	20m	-	CB-X2-MA□□□	-	CB-X3-PA□□□
(20)	LSAS		T4	20m	-	CB-X2-MA□□□	-	CB-X1-PA□□□
(21)	ISWA ISPWA		T4	30m	-	CB-XEU1-MA□□□	-	CB-X1-PA□□□-WC

Note 3: The max. cable length between each driver and actuator differs depending on the series.
Refer to the cable length table in respective actuator pages for details.

Communication cable

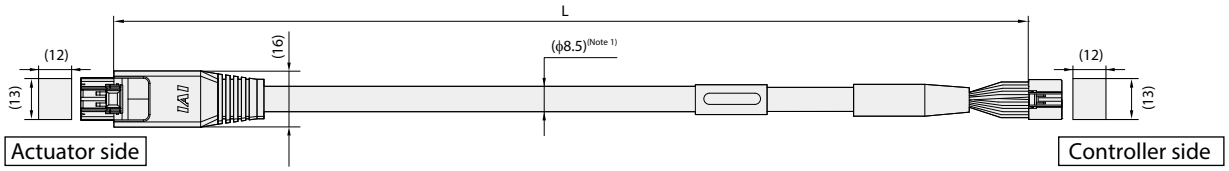
Name	Model
SCON connection cable (for RCON-EXT connection)	CB-RE-CTL□□□
PIO flat cable (for RSEL, expansion PIO connection)	CB-PAC-PIO□□□
Power/communication cables for RCON-EC	CB-REC-PWBIO□□□-RB
Power/communication cables for RCON-EC (4-way connector)	CB-REC2-PWBIO□□□-RB

Motor power cable for 200V specification ELECYLINDER

Name	Model
Motor power cable	CB-EC-PW□□□-RB

Model **CB-ADPC-MPA□□□/CB-ADPC-MPA□□□-RB**

*Please indicate the cable length (L) in □□□,
e.g.) 030 = 3m, maximum 20m



Minimum bending radius R **5m or less** **r= 68mm or more (Dynamic bending condition)**
More than 5m **r= 73mm or more (Dynamic bending condition)**

* The robot cable is designed for flex-resistance: Please use the robot cable if the cable needs to be installed through the cable track.

(Note 1) If the cable length is over 5m, ϕ9.1 cable diameter applies.

DF62DL-24S-2.2C (HIROSE ELECTRIC CO., LTD.)

Color		Signal name			Pin No.
Standard cable	Robot cable	DC	AC	PC	
Blue (AWG22/19)	Black (AWG22/19)	U	U	ϕA	3
Orange (AWG22/19)	White (AWG22/19)	V	V	VMM	5
Brown (AWG22/19)	Green (AWG22/19)	-	-	ϕB	10
Gray (AWG22/19)	Yellow (AWG22/19)	-	-	VMM	9
Green (AWG22/19)	Brown (AWG22/19)	W	W	ϕ_A	4
Red (AWG22/19)	Red (AWG22/19)	-	-	ϕ_B	15
Light blue (AWG26)	White (AWG26)	A+	A+	SA[mABS]	12
Orange (AWG26)	Yellow (AWG26)	A-	A-	SB[mABS]	17
Green (AWG26)	Red (AWG26)	B+	B+	A+	1
Brown (AWG26)	Green (AWG26)	B-	B-	A-	6
Gray (AWG26)	Black (AWG26)	HS1_IN	Z+/SA[mABS]	B+	11
Red (AWG26)	Brown (AWG26)	HS2_IN	Z-/SB[mABS]	B-	16
Black (AWG26)	Blue (AWG26)	-	VPS/BAT-	VPS	18
Yellow (AWG26)	Pink (AWG26)	-	BK+	LS+	8
Light blue (AWG26)	Black (AWG26)	-	LS+	BK+	20
Orange (AWG26)	Brown (AWG26)	-	LS-	BK-	2
Gray (AWG26)	White (AWG26)	VCC	VCC	VCC	21
Red (AWG26)	Yellow (AWG26)	GND	GND	GND	7
Brown (AWG26)	Red (AWG26)	-	BK-	LS-	14
Green (AWG26)	Green (AWG26)	HS3_IN	LS_GND	LS_GND	13
-	-	-	-	-	19
Pink (AWG26)	Orange (AWG26)	-	BAT+	CF_VCC	22
-	-	-	-	-	23
Black (AWG26)	Green (AWG26)	FG	FG	FG	24

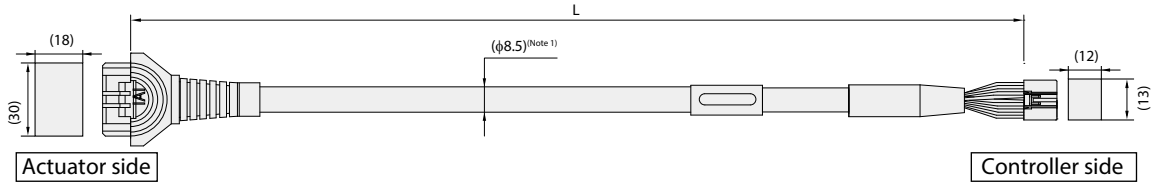
Purple (AWG26)

DF62DL-24S-2.2C (HIROSE ELECTRIC CO., LTD.)

Pin No.	Signal name			Color	
	PC	AC	DC	Standard cable	Robot cable
3	ϕA	U	U	Blue (AWG22/19)	Black (AWG22/19)
5	VMM	V	V	Orange (AWG22/19)	White (AWG22/19)
10	ϕB	-	-	Brown (AWG22/19)	Green (AWG22/19)
9	VMM	-	-	Gray (AWG22/19)	Yellow (AWG22/19)
4	ϕ_A	W	W	Green (AWG22/19)	Brown (AWG22/19)
15	ϕ_B	-	-	Red (AWG22/19)	Red (AWG22/19)
12	SA[mABS]	A+	A+	Light blue (AWG26)	White (AWG26)
17	SB[mABS]	A-	A-	Orange (AWG26)	Yellow (AWG26)
1	A+	B+	B+	Green (AWG26)	Red (AWG26)
6	A-	B-	B-	Brown (AWG26)	Green (AWG26)
11	B+	Z+/SA[mABS]	HS1_IN	Gray (AWG26)	Black (AWG26)
16	B-	Z-/SB[mABS]	HS2_IN	Red (AWG26)	Brown (AWG26)
18	VPS	VPS/BAT-	-	Black (AWG26)	Blue (AWG26)
8	LS+	BK+	-	Yellow (AWG26)	Pink (AWG26)
20	BK+	LS+	-	Light blue (AWG26)	Black (AWG26)
2	BK-	LS-	-	Orange (AWG26)	Brown (AWG26)
21	VCC	VCC	VCC	Gray (AWG26)	White (AWG26)
7	GND	GND	GND	Red (AWG26)	Yellow (AWG26)
14	LS-	BK-	-	Brown (AWG26)	Red (AWG26)
13	LS_GND	LS_GND	HS3_IN	Green (AWG26)	Green (AWG26)
19	-	-	-	-	-
22	CF_VCC	BAT+	-	Pink (AWG26)	Orange (AWG26)
23	-	-	-	-	-
24	FG	FG	FG	Black (AWG26)	Green (AWG26)

Model **CB-RCAPC-MPA□□□/CB-RCAPC-MPA□□□-RB**

*Please indicate the cable length (L) in □□□,
e.g.) 030 = 3m, maximum 20m



Minimum bending radius R **3m or less** **r= 68mm or more (Dynamic bending condition)**
More than 3m **r= 73mm or more (Dynamic bending condition)**

* The robot cable is designed for flex-resistance: Please use the robot cable if the cable needs to be installed through the cable track.

(Note 1) If the cable length is over 3m, ϕ9.1 cable diameter applies.

1-1827863-1(AMP)

Color		Signal name			Pin No.
Standard cable	Robot cable	DC	AC	PC	
Blue (AWG22/19)	Black (AWG22/19)	U	U	ϕA	A1
Orange (AWG22/19)	White (AWG22/19)	V	V	VMM	B1
Brown (AWG22/19)	Green (AWG22/19)	-	-	ϕB	B2
Gray (AWG22/19)	Yellow (AWG22/19)	-	-	VMM	A3
Green (AWG22/19)	Brown (AWG22/19)	W	W	ϕ_A	A2
Red (AWG22/19)	Red (AWG22/19)	-	-	ϕ_B	B3
Light blue (AWG26)	White (AWG26)	A+	A+	SA[mABS]	A6
Orange (AWG26)	Yellow (AWG26)	A-	A-	SB[mABS]	B6
Green (AWG26)	Red (AWG26)	B+	B+	A+	A7
Brown (AWG26)	Green (AWG26)	B-	B-	A-	B7
Gray (AWG26)	Black (AWG26)	HS1_IN	Z+/SA[mABS]	B+	A8
Red (AWG26)	Brown (AWG26)	HS2_IN	Z-/SB[mABS]	B-	B8
Black (AWG26)	Blue (AWG26)	-	VPS/BAT-	VPS	B9
Yellow (AWG26)	Pink (AWG26)	-	BK+	LS+	A4
Light blue (AWG26)	Black (AWG26)	-	LS+	BK+	A5
Orange (AWG26)	Brown (AWG26)	-	LS-	BK-	B5
Gray (AWG26)	White (AWG26)	VCC	VCC	VCC	A10
Red (AWG26)	Yellow (AWG26)	GND	GND	GND	B10
Brown (AWG26)	Red (AWG26)	-	BK-	LS-	B4
Green (AWG26)	Green (AWG26)	HS3_IN	LS_GND	LS_GND	A9
-	-	-	-	-	A11
-	-	-	-	-	-
-	-	-	-	-	-
Black (AWG26)	Green (AWG26)	FG	FG	FG	B11

Purple (AWG26)
Pink (AWG26)

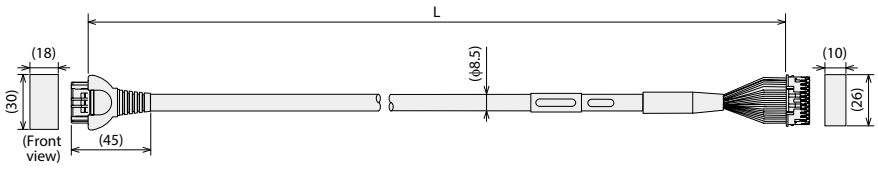
DF62DL-24S-2.2C (HIROSE ELECTRIC CO., LTD.)

Pin No.	Signal name			Color	
	PC	AC	DC	Standard cable	Robot cable
3	ϕA	U	U	Blue (AWG22/19)	Black (AWG22/19)
5	VMM	V	V	Orange (AWG22/19)	White (AWG22/19)
10	ϕB	-	-	Brown (AWG22/19)	Green (AWG22/19)
9	VMM	-	-	Gray (AWG22/19)	Yellow (AWG22/19)
4	ϕ_A	W	W	Green (AWG22/19)	Brown (AWG22/19)
15	ϕ_B	-	-	Red (AWG22/19)	Red (AWG22/19)
12	SA[mABS]	A+	A+	Light blue (AWG26)	White (AWG26)
17	SB[mABS]	A-	A-	Orange (AWG26)	Yellow (AWG26)
1	A+	B+	B+	Green (AWG26)	Red (AWG26)
6	A-	B-	B-	Brown (AWG26)	Green (AWG26)
11	B+	Z+/SA[mABS]	HS1_IN	Gray (AWG26)	Black (AWG26)
16	B-	Z-/SB[mABS]	HS2_IN	Red (AWG26)	Brown (AWG26)
18	VPS	VPS/BAT-	-	Black (AWG26)	Blue (AWG26)
8	LS+	BK+	-	Yellow (AWG26)	Pink (AWG26)
20	BK+	LS+	-	Light blue (AWG26)	Black (AWG26)
2	BK-	LS-	-	Orange (AWG26)	Brown (AWG26)
21	VCC	VCC	VCC	Gray (AWG26)	White (AWG26)
7	GND	GND	GND	Red (AWG26)	Yellow (AWG26)
14	LS-	BK-	-	Brown (AWG26)	Red (AWG26)
13	LS-GND	LS-GND	HS3_IN	Green (AWG26)	Green (AWG26)
19	-	-	-	-	-
22	CF_VCC	BAT+	-	Gray (AWG26)	White (AWG26)
23	-	-	-	-	-
24	FG	FG	FG	Black (AWG26)	Green (AWG26)

Model **CB-RPSEP-MPA□□□**

* Only the robot cable is available for this model.

* Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 20m



Minimum bending radius r = 68mm or more (dynamic bending condition)

Actuator side — Controller side

1-1827863-1 (AMP)

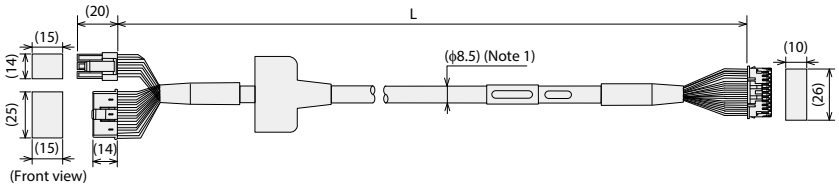
Color	Signal	Pin No.
Black (AWG22)	ϕA	A1
White (AWG22)	VMM	B1
Brown (AWG22)	ϕ_A	A2
Green (AWG22)	ϕB	B2
Yellow(AWG22)	VMM	A3
Red (AWG22)	ϕ_B	B3
Orange (AWG26)	LS+	A6
Gray (AWG26)	LS-	B6
Red (AWG26)	A+	A7
Green (AWG26)	A-	B7
Black (AWG26)	B+	A8
Brown (AWG26)	B-	B8
-	-	B4
-	-	A11
Black (AWG26)	BK+	A5
Brown (AWG26)	BK-	B5
Green (AWG26)	LS_GND	A9
Red (AWG26)	VPS	B9
White (AWG26)	VCC	A10
Yellow (AWG26)	GND	B10
-	-	A4
Shield	FG	B11

PADP-24V-1-S (JST)

Pin No.	Signal	Color
1	ϕA	Blue (AWG22)
2	VMM	Orange (AWG22)
5	ϕ_A	Green (AWG22)
3	ϕB	Brown (AWG22)
4	VMM	Gray (AWG22)
6	ϕ_B	Red (AWG22)
7	LS+	Light blue (AWG26)
8	LS-	Orange (AWG26)
13	A+	Green (AWG26)
14	A-	Brown (AWG26)
15	B+	Gray (AWG26)
16	B-	Red (AWG26)
11	-	Black (AWG26)
12	-	Yellow (AWG26)
9	BK+	Light blue (AWG26)
10	BK-	Orange (AWG26)
20	LS_GND	Green (AWG26)
18	VPS	Brown (AWG26)
17	VCC	Gray (AWG26)
19	GND	Red (AWG26)
21	-	-
22	-	-
23		
24	FG	Shield

Model **CB-CFA-MPA□□□/CB-CFA-MPA□□□-RB**

* Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 20m



Actuator side — Controller side

Minimum bending radius r = 80mm or more (dynamic bending condition)

* The robot cable is designed for flex-resistance:
Please use the robot cable if the cable needs to be installed through the cable track.

(Note 1) ϕ9.1 when the cable length is longer than 3m.

SLP-06V (JST)

Color		Signal	Pin No.
Standard cable	Robot cable		
Blue(AWG22/19)	Blue (AWG22/19)	ϕA	1
Orange (AWG22/19)	Orange (AWG22/19)	VMM	2
Brown (AWG22/19)	Brown (AWG22/19)	ϕB	4
Gray (AWG22/19)	Gray (AWG22/19)	VMM	5
Green (AWG22/19)	Green (AWG22/19)	ϕ/A	3
Red (AWG22/19)	Red (AWG22/19)	ϕ/B	6

XMP-18V (JST)

Light blue (AWG26)	-	NC	5
Orange (AWG26)	-	NC	6
Green (AWG26)	Green (AWG26)	LS+	1
Brown (AWG26)	Brown (AWG26)	LS-	2
Gray (AWG26)	Gray (AWG26)	A+	3
Red (AWG26)	Red (AWG26)	A-	4
Black (AWG26)	Black (AWG26)	B+	11
Yellow (AWG26)	Yellow (AWG26)	B-	13
Light blue (AWG26)	Light blue (AWG26)	BK+	16
Orange (AWG26)	Orange (AWG26)	BK-	17
(Green (AWG26))	(Green (AWG26))	(LS_GND)	10
Brown (AWG26)	Brown (AWG26)	LS-	14
Gray (AWG26)	Gray (AWG26)	VCC	12
Red (AWG26)	Red (AWG26)	GND	9
Black	Shield	FG	18
-	-	NC	15
-	-	NC	7
-	-	NC	8

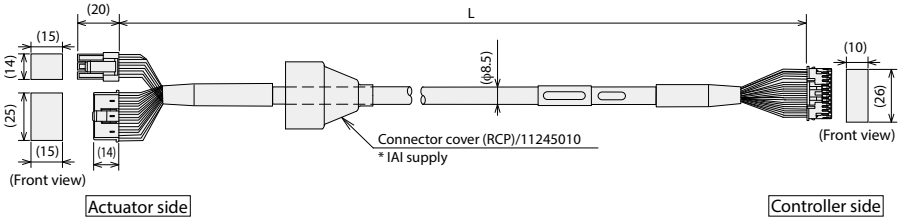
PADP-24V-1-S (JST)

Pin No.	Signal	Color	
		Standard cable	Robot cable
1	ϕA	Blue (AWG22/19)	Blue (AWG22/19)
2	VMM	Orange (AWG22/19)	Orange (AWG22/19)
3	ϕB	Brown (AWG22/19)	Brown (AWG22/19)
4	VMM	Gray (AWG22/19)	Gray (AWG22/19)
5	ϕ/A	Green (AWG22/19)	Green (AWG22/19)
6	ϕ/B	Red (AWG22/19)	Red (AWG22/19)
11	NC	(Light blue (AWG26))	-
12	NC	(Orange (AWG26))	-
13	LS+	Green (AWG26)	Green (AWG26)
14	LS-	Brown (AWG26)	Brown (AWG26)
15	A+	Gray (AWG26)	Gray (AWG26)
16	A-	Red (AWG26)	Red (AWG26)
18	B+	Black (AWG26)	Black (AWG26)
7	B-	Yellow (AWG26)	Yellow (AWG26)
9	BK+	Light blue (AWG26)	Light blue (AWG26)
10	BK-	Orange (AWG26)	Orange (AWG26)
20	(LS_GND)	(Green (AWG26))	(Green (AWG26))
8	LS-	Brown (AWG26)	Brown (AWG26)
21	VCC	Gray (AWG26)	Gray (AWG26)
19	GND	Red (AWG26)	Red(AWG26)
24	FG	Black	Shield
17	NC	-	-
22	NC	-	-
23	NC	-	-

Model **CB-PSEP-MPA□□□**

* Only the robot cable is available for this model.

* Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 20m



Actuator side — Controller side

Minimum bending radius r = 68mm or more (dynamic bending condition)

SLP-06V (JST)

Color	Signal	Pin No.
Black(AWG22)	ϕA	1
White (AWG22)	VMM	2
Brown (AWG22)	ϕ/A	3
Red (AWG22)	ϕB	4
Green (AWG22)	VMM	5
Yellow (AWG22)	ϕ/B	6

XMP-18V (JST)

Color	Signal	Pin No.
White (AWG25)	A+	1
Yellow (AWG25)	A-	2
Red(AWG25)	B+	3
Green (AWG25)	B-	4
	N.C	5
	N.C.	6
	N.C.	7
	N.C.	8
Red (AWG25)	GND	9
White (AWG25)	VCC	10
Yellow (AWG25)	VPS	11
Green (AWG25)	(reserve)	12
Black (AWG25)	LS+	13
Brown (AWG25)	LS-	14
	N.C.	15
Orange (AWG25)	BK+	16
Gray (AWG25)	BK-	17
Shield (AWG25)	F.G	18

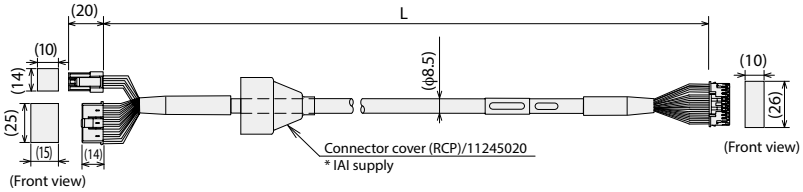
PADP-24V-1-S (JST)

Pin No.	Signal	Color
1	ϕA	Black (AWG22)
2	VMM	White (AWG22)
3	ϕB	Red (AWG22)
4	VMM	Green (AWG22)
5	ϕ/A	Brown (AWG22)
6	ϕ/B	Yellow (AWG22)
7	LS+	Black (AWG25)
8	LS-	Brown (AWG25)
9	BK+	Orange (AWG25)
10	BK-	Gray (AWG25)
11	N.C.	
12	N.C.	
13	A+	White (AWG25)
14	A-	Yellow (AWG25)
15	B+	Red (AWG25)
16	B-	Green (AWG25)
17	VCC	White (AWG25)
18	VPS	Yellow (AWG25)
19	GND	Red (AWG25)
20	(reserve)	Green (AWG25)
21	N.C.	
22	N.C.	
23	N.C.	
24	FG	Shield (AWG25)

Model **CB-ASEP2-MPA□□□**

* Only the robot cable is available for this model.

*Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 20m



Actuator side — Controller side

Minimum bending radius r = 68mm or more (dynamic bending condition)

SLP-03V (JST)

Color	Signal	Pin No.
Red (AWG22)	U	1
Yellow (AWG22)	V	2
Black (AWG22)	W	3

MP-18V (JST)

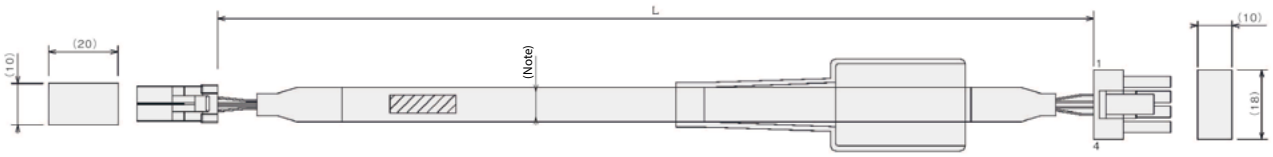
Color	Signal	Pin No.
White (AWG25)	A+	1
Yellow (AWG25)	A-	2
Red (AWG25)	B+	3
Green (AWG25)	B-	4
	N.C.	5
Green (AWG25)	(reserve)	6
Black (AWG25)	LS+	7
	N.C.	8
Shield (AWG25)	F.G	9
Black (AWG25)	Z+/SD+	10
Brown (AWG25)	Z-/SD-	11
White (AWG22)	BAT+	12
Red (AWG25)	VPS/BAT-	13
White (AWG25)	VCC	14
Yellow (AWG25)	GND	15
Brown (AWG25)	LS-	16
Gray (AWG25)	BK-	17
Orange (AWG25)	BK+	18

PADP-24V-1-S (JST)

Pin No.	Signal	Color
1	U	Red (AWG22)
2	V	Yellow (AWG22)
3	N.C.	
4	N.C.	
5	W	Black (AWG22)
6	N.C.	
7	BK+	Orange (AWG25)
8	BK-	Gray (AWG25)
9	LS+	Black (AWG25)
10	LS-	Brown (AWG25)
11	A+	White (AWG25)
12	A-	Yellow (AWG25)
13	B+	Red (AWG25)
14	B-	Green (AWG25)
15	Z+/SD+	Black (AWG25)
16	Z-/SD-	Brown (AWG25)
17	VCC	White (AWG25)
18	VPS/BAT-	Red (AWG25)
19	GND	Yellow (AWG25)
20	(reserve)	Green (AWG25)
21	BAT+	White (AWG22)
22	N.C.	
23	N.C.	
24	F.G	Shield (AWG25)

Model **CB-RCC1-MA□□□/CB-X2-MA□□□**

*Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 30m



Controller side

Minimum bending radius r = 51mm or more (Dynamic bending condition)

Actuator side

*** Please use the robot cable if the cable needs to be installed through the cable track.**

**(Note) Non-robot cables are ϕ7.
Robot cables are ϕ8.5.**

F35FDC-04V-K (J.S.T. Mfg. Co., Ltd.)

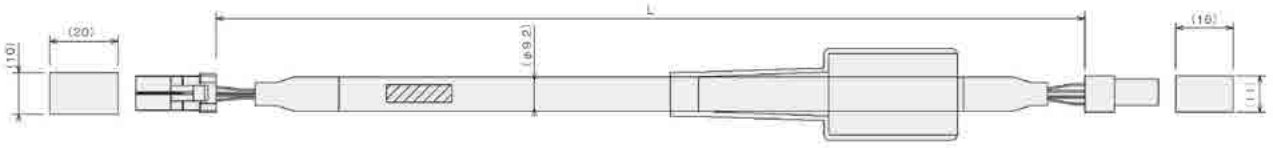
Wiring	Color	Signal	No.
0.75sq (crimped)	Red	U	B1
	White	V	B2
	Black	W	A1
	Green	PE	A2

SLP-04V (J.S.T. Mfg. Co., Ltd.)

No.	Signal	Color	Wiring
1	U	Red	0.75sq (crimped)
2	V	White	
3	W	Black	
4	PE	Green	

Model **CB-XMC1-MA□□□**

*Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 30m



Controller side

Minimum bending radius r = 55mm or more (Dynamic bending condition)

Actuator side

* Only the robot cable is available for this model.

F35FDC-04V-K (J.S.T. Mfg. Co., Ltd.)

Wiring	Color	Signal	No.
1.25sq (crimped)	Red	U	B1
	White	V	B2
	Black	W	A1
	Green	PE	A2

SLP-04V

No.	Signal	Color	Wiring
1	U	Red	1.25sq (crimped)
2	V	White	
3	W	Black	
4	PE	Green	

Model **CB-XEU1-MA□□□**

*Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 30m

Controller side

Minimum bending radius r = 48mm or more (Dynamic bending condition)

Actuator side

* Only the robot cable is available for this model.

F35FDC-04V-K (J.S.T. Mfg. Co., Ltd.)

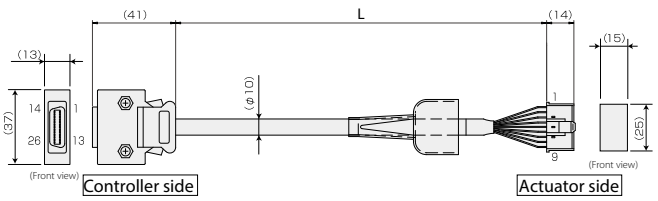
Wiring	Color	Signal	No.
0.75sq (crimped)	1 with white character in black	U	B1
	2 with white character in black	V	B2
	3 with white character in black	W	A1
	Green/yellow	PE	A2

99-4222-00-04(binder)

No.	Signal	Color	Wiring
1	U	1 with white character in black	0.75sq (crimped)
2	V	2 with white character in black	
3	W	3 with white character in black	
⊕	PE	Green/yellow	

Model C B-RCS2-PA□□□/CB-X3-PA□□□

*Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 30m



Minimum bending radius r = 58mm or more (Dynamic bending condition)

* Please use the robot cable if the cable needs to be installed through the cable track.

10126-3000PE (Sumitomo 3M)

Wiring	Color		Signal	No.
	Standard cable	Robot cable		
	-	-	-	10
	-	-	-	11
	-	-	E24V	12
	Gray/White	White/Green	0V	13
	Brown/White	White/Orange	LS	26
	-	-	CREEP	25
	-	-	OT	24
	-	-	RSV	23
	-	-	-	9
	-	-	-	18
	-	-	-	19
	Pink	White/Blue	A+	1
AWG26 (soldered)	Purple	White/Yellow	A-	2
	White	White/Red	B+	3
	Blue/Red	White/Black	B-	4
	Orange/White	White/Purple	Z+	5
	Green/White	White/Gray	Z-	6
	Blue	Orange	SRD+	7
	Orange	Green	SRD-	8
	Black	Purple	BAT+	14
	Yellow	Gray	BAT-	15
	Green	Red	VCC	16
	Brown	Black	GND	17
	Gray	Blue	BKR-	20
	Red	Yellow	BKR+	21
	-	-	-	22

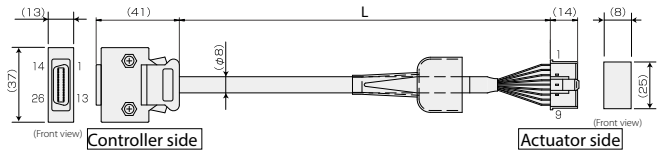
Shield is clamp connected to the hood

XMP-18V (JST)

No.	Signal	Color		Wiring
		Standard cable	Robot cable	
1	A	Pink	White/Blue	AWG26 (crimped)
2	$\overline{A}$	Purple	White/Yellow	
3	B	White	White/Red	
4	$\overline{B}$	Blue/Red	White/Black	
5	Z	Orange/White	White/Purple	
6	$\overline{Z}$	Green/White	White/Gray	
7	LS+	Brown/White	White/Orange	
8	-			
9	FG	Drain	Drain	
10	SD	Blue	Orange	
11	SD	Orange	Green	
12	BAT+	Black	Purple	
13	BAT-	Yellow	Gray	
14	VCC	Green	Red	
15	GND	Brown	Black	
16	LS-	Gray/White	White/Green	
17	BK-	Gray	Blue	
18	BK+	Red	Yellow	

Model CB-X1-PA□□□

*Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 20m



Minimum bending radius r = 44mm or more (Dynamic bending condition)

* Only the robot cable is available for this model.

*If you require a cable 21m or longer for ISB/ISDB/ISDBCR/NSA (encoder type is battery-less absolute), select CB-X1-PA□□□-AWG24.

10126-3000PE (Sumitomo 3M)

Wiring	Color	Signal	No.
	-	-	10
	-	-	11
	-	E24V	12
	-	0V	13
	-	LS	26
	-	CREEP	25
	-	OT	24
	-	RSV	23
	-	-	9
	-	-	18
	-	-	19
	-	A+	1
AWG26 (soldered)	-	A-	2
	-	B+	3
	-	B-	4
	-	Z+	5
	-	Z-	6
	Orange	SRD+	7
	Green	SRD-	8
	Purple	BAT+	14
	Gray	BAT-	15
	Red	VCC	16
	Black	GND	17
	Blue	BKR-	20
	Yellow	BKR+	21
	-	-	22

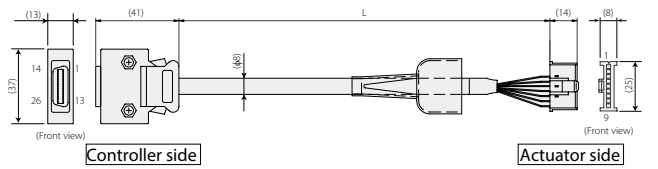
Shield is clamp connected to the hood

XMP-09V (JST)

No.	Signal	Color	Wiring
1	BAT+	Purple	AWG26 (crimped)
2	BAT-	Gray	
3	SD	Orange	
4	SD	Green	
5	VCC	Red	
6	GND	Black	
7	FG	Drain	
8	BK-	Blue	
9	BK+	Yellow	

Model CB-X1-PA□□□-AWG24

*Please indicate the cable length (L) in □□□,
e.g.) 210 = 21m, maximum 30m



Minimum bending radius r = 44mm or more (Dynamic bending condition)

* Only the robot cable is available for this model.

10126-3000PE (Sumitomo 3M)

Wiring	Color	Signal	No.
	—	—	10
	—	—	11
	—	E24V	12
	—	0V	13
	—	LS	26
	—	CREEP	25
	—	OT	24
	—	RSV	23
	—	—	9
	—	—	18
	—	-	19
	—	A+	1
AWG24 (soldered)	—	A-	2
	—	B+	3
	—	B-	4
	—	Z+	5
	—	Z-	6
	Orange	SRD+	7
	Green	SRD-	8
	Purple	BAT+	14
	Gray	BAT-	15
	Red	VCC	16
	Black	GND	17
	Blue	BKR-	20
	Yellow	BKR+	21
	—	—	22

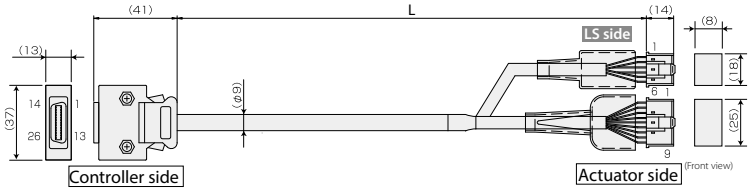
Shield is clamp connected to the hood

XMP-09V (JST)

No.	Signal	Color	Wiring
1	BAT+	Purple	AWG24 (crimped)
2	BAT-	Gray	
3	SD	Orange	
4	SD	Green	
5	VCC	Red	
6	GND	Black	
7	FG	Drain	
8	BK-	Blue	
9	BK+	Yellow	

Model CB-X1-PLA□□□

*Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 30m



Minimum bending radius r = 54mm or more (Dynamic bending condition)

* Only the robot cable is available for this model.

*If you require ISB/ISDB/ISDBCR (encoder type is battery-less absolute) with the cable of 21m or more, select the CB-X1-PLA□□□-AWG24.

10126-3000PE (Sumitomo 3M)

Wiring	Color	Signal	No.
	-	-	10
	-	-	11
	White/Blue	E24V	12
	White/Yellow	0V	13
	White/Red	LS	26
	White/Black	CREEP	25
	White/Purple	OT	24
	White/Gray	RSV	23
	-	-	9
	-	-	18
	-	-	19
	-	A+	1
AWG26 (soldered)	-	A-	2
	-	B+	3
	-	B-	4
	-	Z+	5
	-	Z-	6
	Orange	SRD+	7
	Green	SRD-	8
	Purple	BAT+	14
	Gray	BAT-	15
	Red	VCC	16
	Black	GND	17
	Blue	BKR-	20
	Yellow	BKR+	21
	-	-	22

Shield is clamp connected to the hood

XMP-06V (JST)

No.	Signal	Color	Wiring
1	E24V	White/Blue	AWG26 (crimped)
2	0V	White/Yellow	
3	LS	White/Red	
4	CREEP	White/Black	
5	OT	White/Purple	
6	RSV	White/Gray	

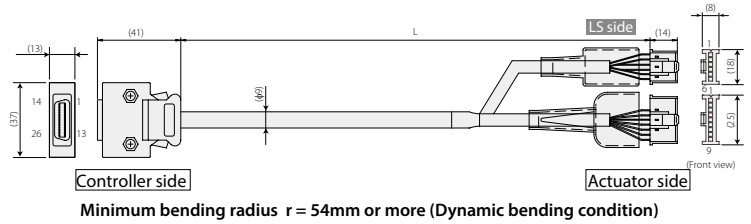
XMP-09V (JST)

No.	Signal	Color	Wiring
1	BAT+	Purple	AWG26 (crimped)
2	BAT-	Gray	
3	SD	Orange	
4	SD	Green	
5	VCC	Red	
6	GND	Black	
7	FG	Drain	
8	BK-	Blue	
9	BK+	Yellow	

(White/blue cable colors indicate the band color and insulator color.)

Model CB-X1-PLA□□□-AWG24

*Please indicate the cable length (L) in □□□,
e.g.) 210 = 21m, maximum 30m



Minimum bending radius r = 54mm or more (Dynamic bending condition)

* Only the robot cable is available for this model.

10126-3000PE (Sumitomo 3M)

Wiring	Color	Signal	No.
	-	-	10
	-	-	11
	White/Blue	E24V	12
	White/Yellow	0V	13
	White/Red	LS	26
	White/Black	CREEP	25
	White/Purple	OT	24
	White/Gray	RSV	23
	-	-	9
	-	-	18
	-	-	19
	-	A+	1
AWG24 (soldered)	-	A-	2
	-	B+	3
	-	B-	4
	-	Z+	5
	-	Z-	6
	Orange	SRD+	7
	Green	SRD-	8
	-	BAT+	14
	-	BAT-	15
	Red	VCC	16
	Black	GND	17
	Blue	BKR-	20
	Yellow	BKR+	21
	-	-	22

Shield is clamp connected to the hood

Twisted pair

XMP-06V (JST)

No.	Signal	Color	Wiring
1	E24V	White/Blue	AWG24 (crimped)
2	0V	White/Yellow	
3	LS	White/Red	
4	CREEP	White/Black	
5	OT	White/Purple	
6	RSV	White/Gray	

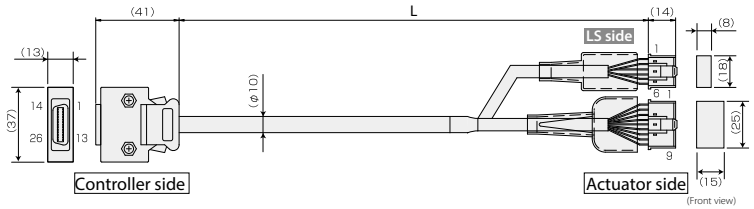
XMP-09V (JST)

No.	Signal	Color	Wiring
1	BAT+	-	AWG24 (crimped)
2	BAT-	-	
3	SD	Orange	
4	SD	Green	
5	VCC	Red	
6	GND	Black	
7	FG	Drain	
8	BK-	Blue	
9	BK+	Yellow	

(White/blue cable colors indicate the band color/insulator color)

Model **CB-X2-PLA□□□**

*Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 30m



Minimum bending radius r = 50mm or more (Dynamic bending condition)
*Please use the robot cable if the cable needs to be installed through the cable track.

10126-3000PE (Sumitomo 3M)

Wiring	Color	Signal	No.
AWG26 (soldered)	-	—	10
	-	—	11
	White/Orange	E24V	12
	White/Green	0V	13
	Brown/Blue	LS	26
	Brown/Yellow	CREEP	25
	Brown/Red	OT	24
	Brown/Black	RSV	23
	-	—	9
	-	—	18
	-	—	19
	White/Blue	A+	1
	White/Yellow	A−	2
	White/Red	B+	3
	White/Black	B−	4
	White/Purple	Z+	5
	White/Gray	Z−	6
	Orange	SRD+	7
	Green	SRD−	8
	Purple	BAT+	14
	Gray	BAT−	15
	Red	VCC	16
	Black	GND	17
	Blue	BKR−	20
	Yellow	BKR+	21
	-	—	22

Shield is clamp-connected to the hood.

(White/Blue color indicates band color/insulation color)

XMP-06V (JST)

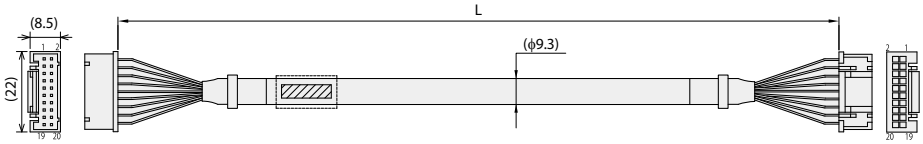
No.	Signal	Color	Wiring
1	E24V	White/Orange	AWG26 (crimped)
2	0V	White/Green	
3	LS	Brown/Blue	
4	CREEP	Brown/Yellow	
5	OT	Brow/Red	
6	RSV	Brown/Black	

XMP-18V (JST)

No.	Signal	Color	Wiring
1	A	White/Blue	AWG26 (crimped)
2	Ā	White/Yellow	
3	B	White/Red	
4	B̄	White/Black	
5	Z	White/Purple	
6	Z̄	White/Gray	
7	—	-	
8	—	-	
9	FG	Drain	
10	SD	Orange	
11	SD	Green	
12	BAT+	Purple	
13	BAT−	Grey	
14	VCC	Red	
15	GND	Black	
16	—	-	
17	BK−	Blue	
18	BK+	Yellow	

Model **CB-RE-CTL□□□**

* Please indicate the cable length (L) in □□□,
e.g.) 030 = 3m, maximum 3m



Wiring fig.

PUDP-20V-S (JST)

Wiring	Color	Signal	No.
7 to 12 pins AWG26 (crimped)	Black	24V	1
	Yellow	0V	2
	Pink	DRV_DY	3
	White	DRV_RA	4
	Purple	DRV_DZ	5
	Blue/Red	DRV_RB	6
	Orange/White 1 series dot	AM_SD+	7
	Green/White	AM_SD-	8
	Brown/White	ACT_PULSE+	9
	Gray/White	ACT_PULSE-	10
	Red/White	SYNC_PULSE+	11
	Black/White	SYNC_PULSE-	12
	Yellow/Black	RTC_1Hz	13
	Pink/Black	CONE_IN	14
	Purple/White	STOP	15
	White/Blue	ENABLE	16
	-	-	17
	Orange/White 2 series dot	GW_RESET_IN	18
	Drain	FG	19
	-	-	20

UL1061 AWG26 (Black)

PUDP-20V-S (JST)

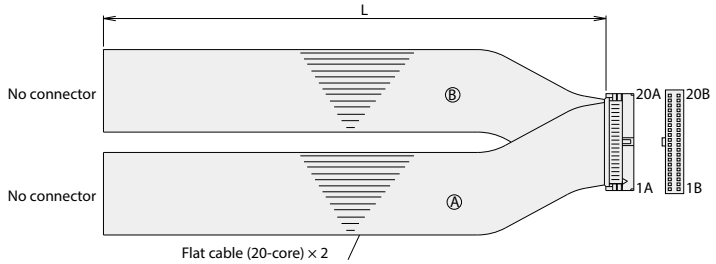
No.	Signal	Color	Wiring
1	24V	Black	7 to 12 pins AWG26 (crimped)
2	0V	Yellow	
3	DRV_DY	Pink	
4	DRV_RA	White	
5	DRV_DZ	Purple	
6	DRV_RB	Blue/Red	
7	AM_SD+	Orange/White 1 series dot	
8	AM_SD-	Green/White	
9	ACT_PULSE+	Brown/White	
10	ACT_PULSE-	Gray/White	
11	SYNC_PULSE+	Red/White	
12	SYNC_PULSE-	Black/White	
13	RTC_1Hz	Yellow/Black	
14	CONE_IN	Pink/Black	
15	STOP	Purple/White	
16	ENABLE	White/Blue	
17	-	-	
18	GW_RESET_IN	Orange/White 2 series dot	
19	FG	Drain	
20	-	-	

(The line color blue/red indicates insulator color/dot mark color)

UL1061 AWG26 (Black)

Model **CB-PAC-PIO□□□**

*Please indicate the cable length (L) in □□□,
e.g.) 080 = 8m, maximum 10m



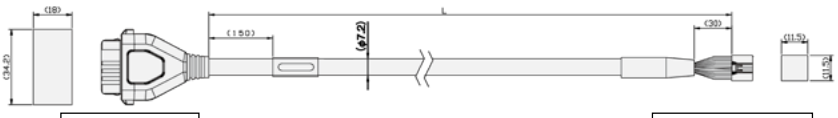
HIF6-40D-1. 27R

No.	Signal name	Cable color	Wiring
1A	24V	Brown-1	Flat cable Ⓐ (pressure-welded)
2A	24V	Red-1	
3A	-	Orange-1	
4A		Yellow-1	
5A	IN0	Green-1	
6A	IN1	Blue-1	
7A	IN2	Purple-1	
8A	IN3	Gray-1	
9A	IN4	White-1	
10A	IN5	Black-1	
11A	IN6	Brown-2	
12A	IN7	Red-2	
13A	IN8	Orange-2	
14A	IN9	Yellow-2	
15A	IN10	Green-2	
16A	IN11	Blue-2	
17A	IN12	Purple-2	
18A	IN13	Gray-2	
19A	IN14	White-2	
20A	IN15	Black-2	

No.	Signal name	Cable color	Wiring
1B	OUT0	Brown-3	Flat cable Ⓑ (pressure-welded) AWG28
2B	OUT1	Red-3	
3B	OUT2	Orange-3	
4B	OUT3	Yellow-3	
5B	OUT4	Green-3	
6B	OUT5	Blue-3	
7B	OUT6	Purple-3	
8B	OUT7	Gray-3	
9B	OUT8	White-3	
10B	OUT9	Black-3	
11B	OUT10	Brown-4	
12B	OUT11	Red-4	
13B	OUT12	Orange-4	
14B	OUT13	Yellow-4	
15B	OUT14	Green-4	
16B	OUT15	Blue-4	
17B	-	Purple-4	
18B		Gray-4	
19B	0V	White-4	
20B	0V	Black-4	

Model **CB-REC-PWBIO□□□-RB**

*Please indicate the cable length (L) in □□□, e.g.) 030 = 3m, maximum 10m



Actuator side

Controller side

Minimum bending radius r = 58mm or more (Dynamic bending condition)
* Only the robot cable is available for this model.

3-1871946-6

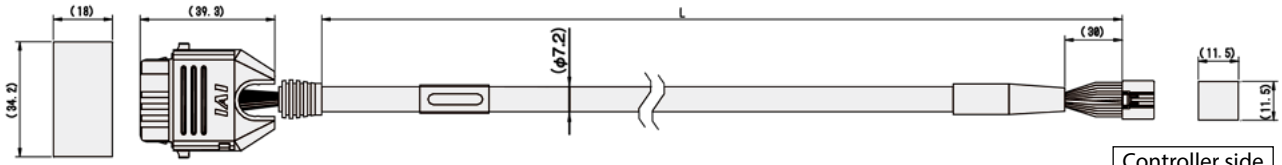
Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V(MP)	B1
Light blue (AWG22)	24V(CP)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	SD+	B6
White (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

DF62C-13S-2.2C(18)

Pin No.	Signal name	Color
2	0V	Black (AWG18)
1	24V(MP)	Red (AWG18)
12	24V(CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Pink (AWG26)
10	SD-	White (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

Model **CB-REC2-PWBIO□□□-RB**

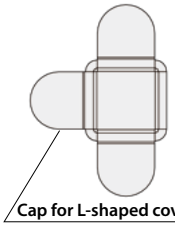
*Please indicate the cable length (L) in □□□, e.g.) 030 = 3m, maximum 10m



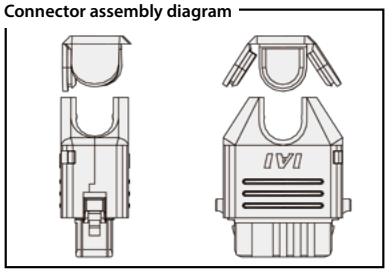
Actuator side

Controller side

Minimum bending radius r = 58mm or more (Dynamic bending condition)
* Only the robot cable is available for this model.



Connector assembly diagram



1-1871946-6

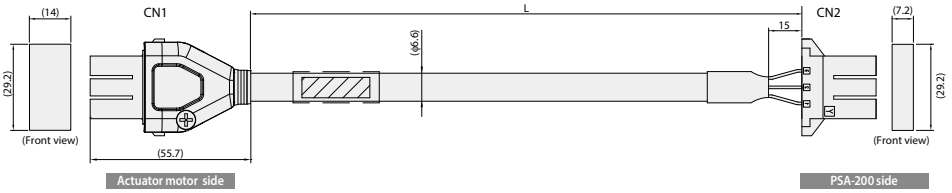
Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V(MP)	B1
Light blue (AWG22)	24V(CP)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Yellow-Green (AWG26)	SD+	B6
Light gray (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

DF62C-13S-2C(18)

Pin No.	Signal name	Color
2	0V	Black (AWG22)
1	24V(MP)	Red (AWG22)
12	24V(CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Yellow-Green (AWG26)
10	SD-	Light gray (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

Model **CB-EC-PW□□□-RB**

*Please indicate the cable length (L) in □□□, e.g.) 030 = 3m, maximum 10m

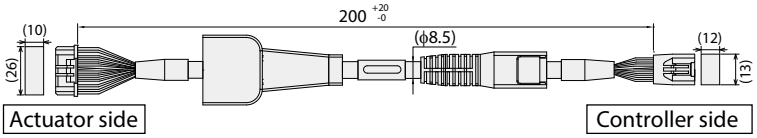


Color	Signal name	Pin No.
Red (AWG18)	MP	1
Black (AWG18)	MN	2
Green/Yellow (AWG18)	PE	3

Pin No.	Signal name	Color
1	MP	Red (AWG18)
2	MN	Black (AWG18)
3	PE	Green/Yellow (AWG18)

Minimum bending radius r = 40mm or more (Dynamic bending condition)
* Only the robot cable is available for this model.

Model **CB-CAN-AJ002**



Actuator side

Controller side

Minimum bending radius R 3m or less r= 68mm or more (Dynamic bending condition)

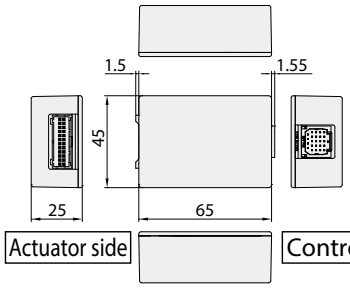
1-1827863-1 (AMP)

Color	Signal name			Pin No.
	PC	AC	DC	
Black (AWG22)	φA	U	U	A1
White (AWG22)	VMM	V	V	B1
Green (AWG22)	φB	-	-	B2
Yellow (AWG22)	VMM	-	-	A3
Brown (AWG22)	ϕ_A	W	W	A2
Red (AWG22)	ϕ_B	-	-	B3
White (AWG26)	SA[mABS]	A+	A+	A6
Yellow (AWG26)	SB[mABS]	A-	A-	B6
Red (AWG26)	A+	B+	B+	A7
Green (AWG26)	A-	B-	B-	B7
Black (AWG26)	B+	Z+/SA[mABS]	HS1_IN	A8
Brown (AWG26)	B-	Z-/SB[mABS]	HS2_IN	B8
Blue (AWG26)	VPS	VPS/BAT-	-	B9
Pink (AWG26)	LS+	BK+	-	A4
Black (AWG26)	BK+	LS+	-	A5
Brown (AWG26)	BK-	LS-	-	B5
White (AWG26)	VCC	VCC	VCC	A10
Yellow (AWG26)	GND	GND	GND	B10
Red (AWG26)	LS-	BK	-	B4
Green (AWG26)	LS_GND	LS_GND	HS3_IN	A9
-	-	-	-	A11
Green (AWG26)	FG	FG	FG	B11

DF62B-24EP-2.2C (HIROSE ELECTRIC CO., LTD.)

Pin No.	Signal name			Color
	PC	AC	DC	
3	φA	U	U	Black (AWG22)
5	VMM	V	V	White (AWG22)
10	φB	-	-	Green (AWG22)
9	VMM	-	-	Yellow (AWG22)
4	ϕ_A	W	W	Brown (AWG22)
15	ϕ_B	-	-	Red (AWG22)
12	SA[mABS]	A+	A+	White (AWG26)
17	SB[mABS]	A-	A-	Yellow (AWG26)
1	A+	B+	B+	Red (AWG26)
6	A-	B-	B-	Green (AWG26)
11	B+	Z+/SA[mABS]	HS1_IN	Black (AWG26)
16	B-	Z-/SB[mABS]	HS2_IN	Brown (AWG26)
18	VPS	VPS/BAT-	-	Blue (AWG26)
8	LS+	BK+	-	Pink (AWG26)
20	BK+	LS+	-	Black (AWG26)
2	BK-	LS-	-	Brown (AWG26)
21	VCC	VCC	VCC	White (AWG26)
7	GND	GND	GND	Yellow (AWG26)
14	LS-	BK	-	Red (AWG26)
13	LS_GND	LS_GND	HS3_IN	Green (AWG26)
19	-	-	-	-
22	CF_VCC	BAT+	-	White (AWG26)
23	-	-	-	-
24	FG	FG	FG	Green (AWG26)

Model **RCM-CV-APCS**



Actuator side

Controller side

Catalog No. CE0272-2.15A (2022MAR)

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