IAI
Quality and Innovation

New Controller Series

R-unit

RCON

Positioner Type

RSEL

Program Type

REC

ELECYLINDER Drive Unit

www.intelligentactuator.com

IAI's new controller series

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

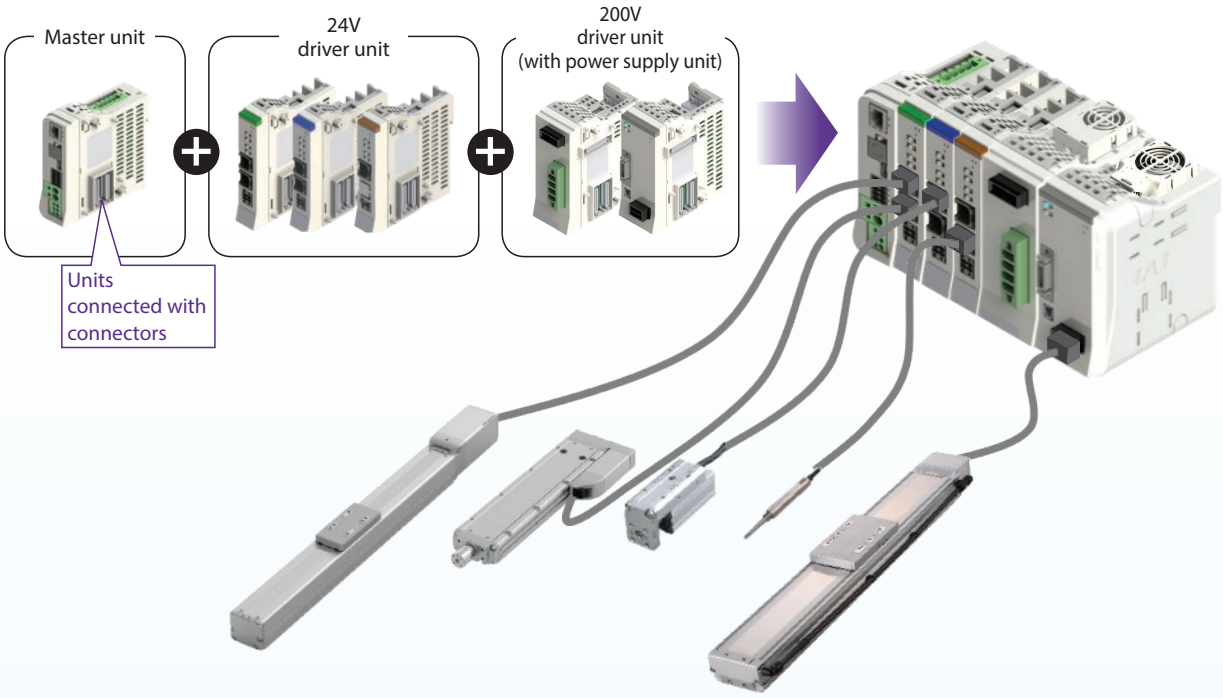
RSEL

ELECYLINDER Drive Unit

REC

Unit-connecting controllers support a wide array of combinations!

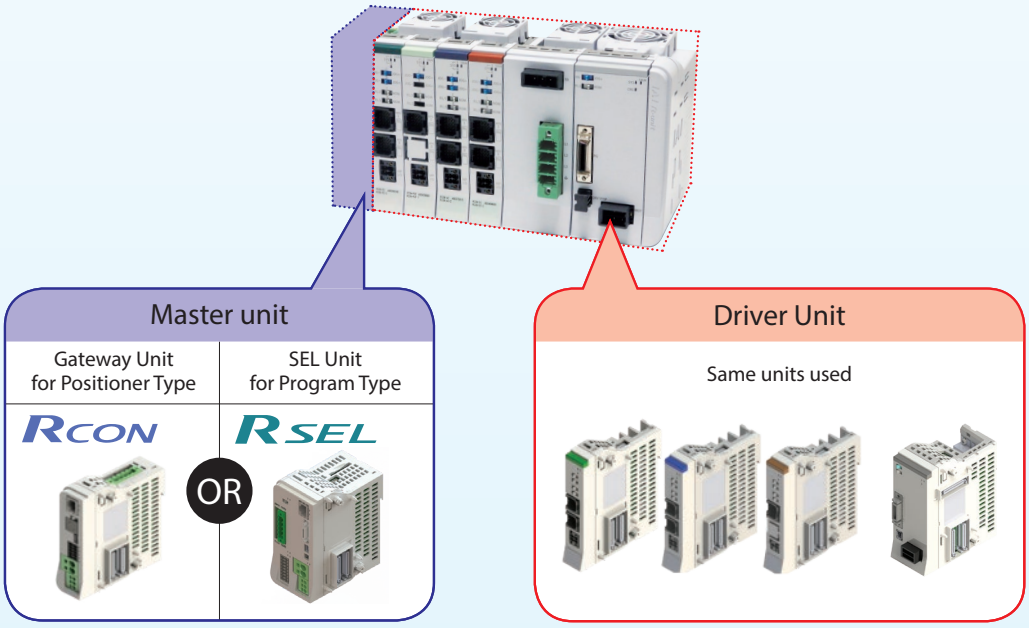
Combine a driver unit with the exact number of required axes for a more compact controller and reduced installation space.
This allows for mixed control of an actuator with both a 24V motor and 200V motor.



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

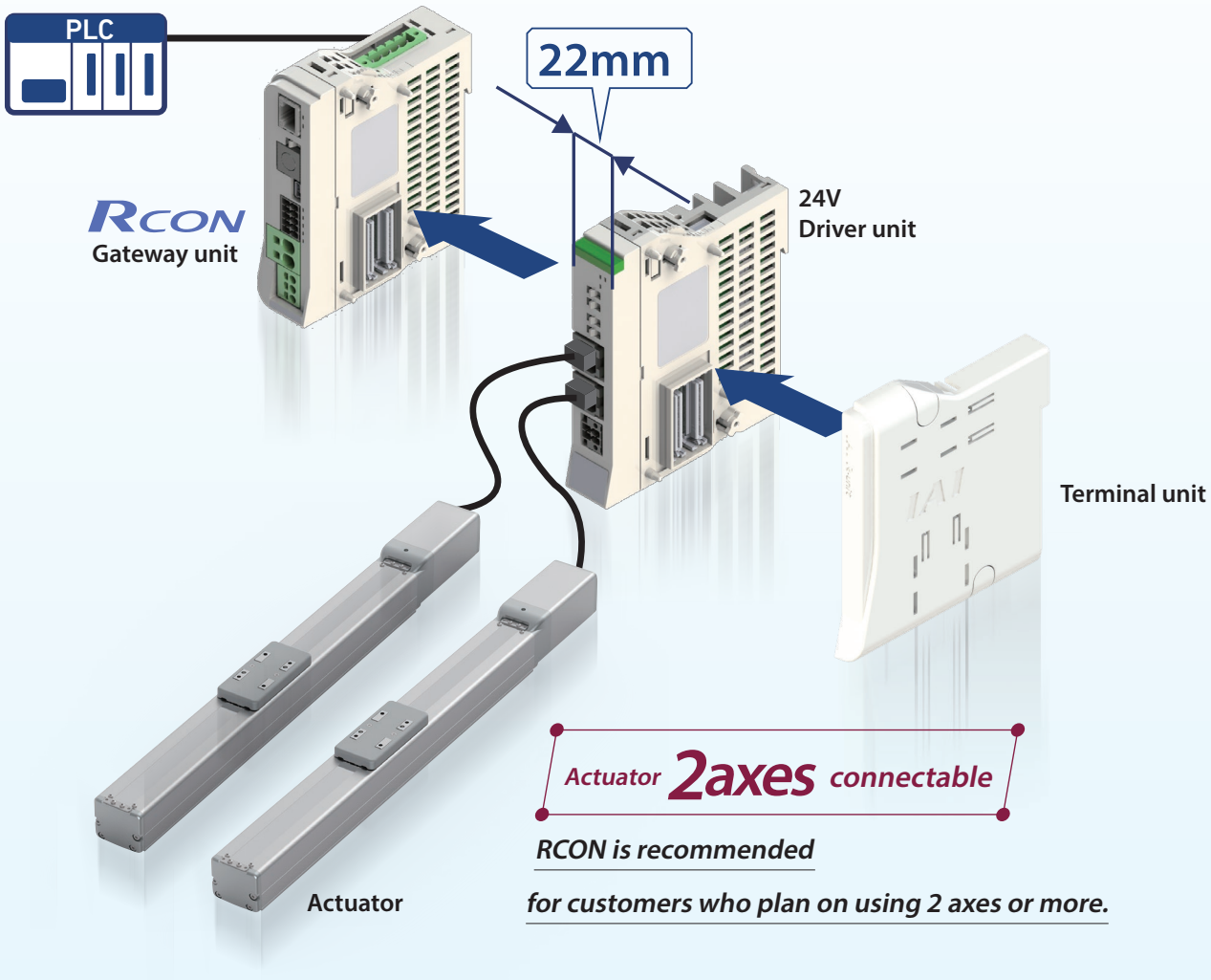


Saves space inside the control panel

RCON

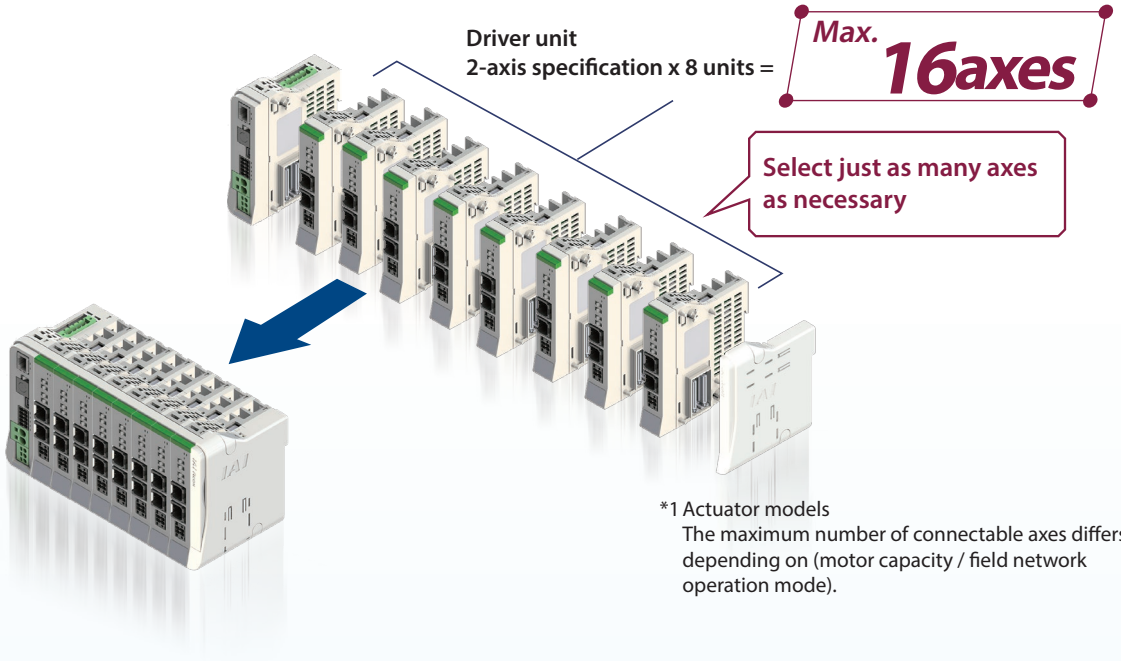
RCON is recommended for actuators with two axes or more.

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).

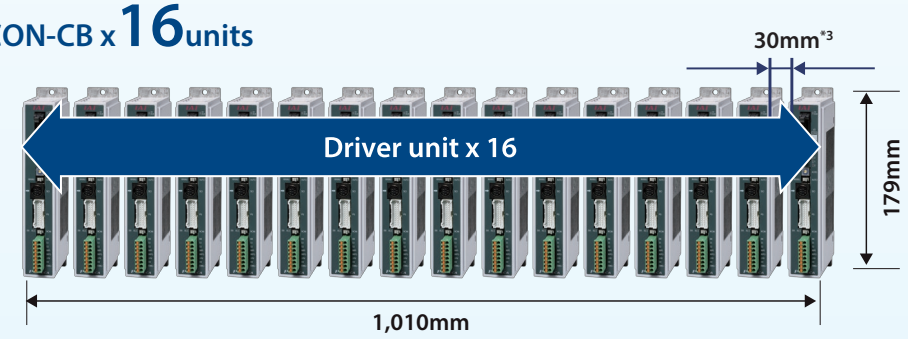
Saves up to 85%[*2] of control panel space and reduces costs by as much as 60%.

*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



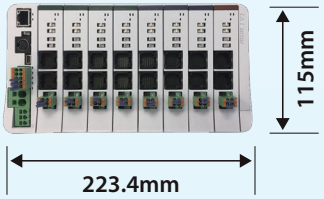
PCON-CB
CC-Link specification x 16 units

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

60% cost reduction

RCON x 16-axis connection specification

85% Space saving

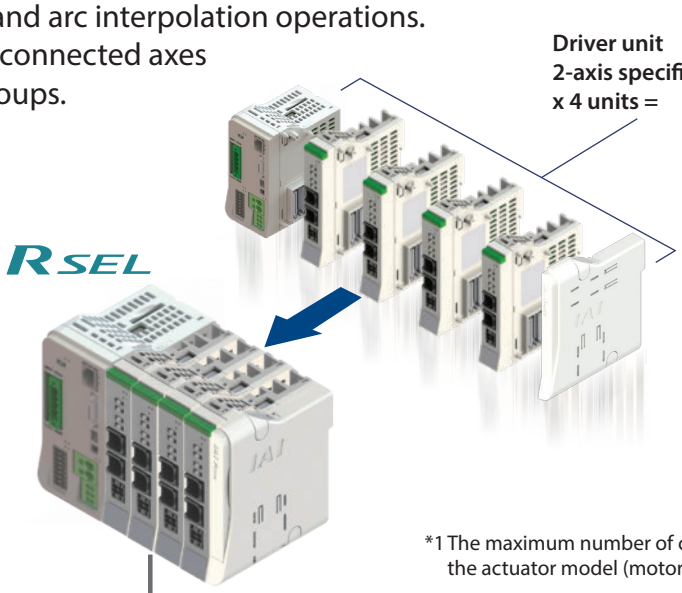


RCON
CC-Link specification
stepper motor 16 axes

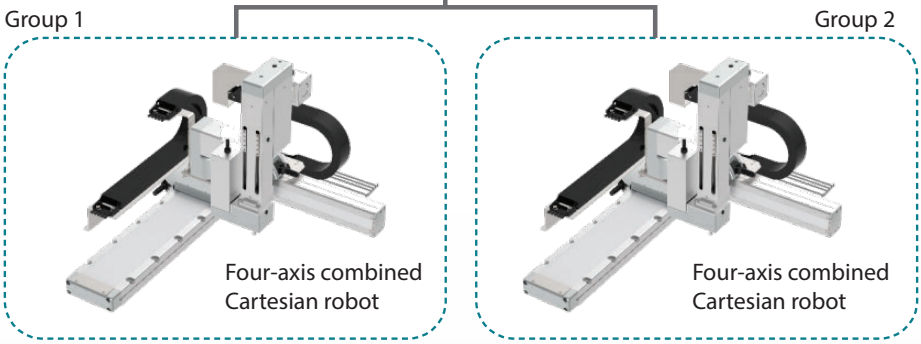
RSEL

Compact program controller that connects up to 8 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).

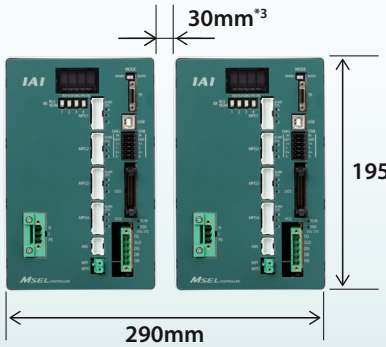


Max. 67%*2 space savings inside the control panel

*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)

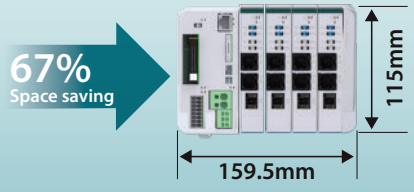


*3 Minimum distance required for natural heat dissipation of the controller

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

44% cost reduction

RSEL x8-axis connection specification

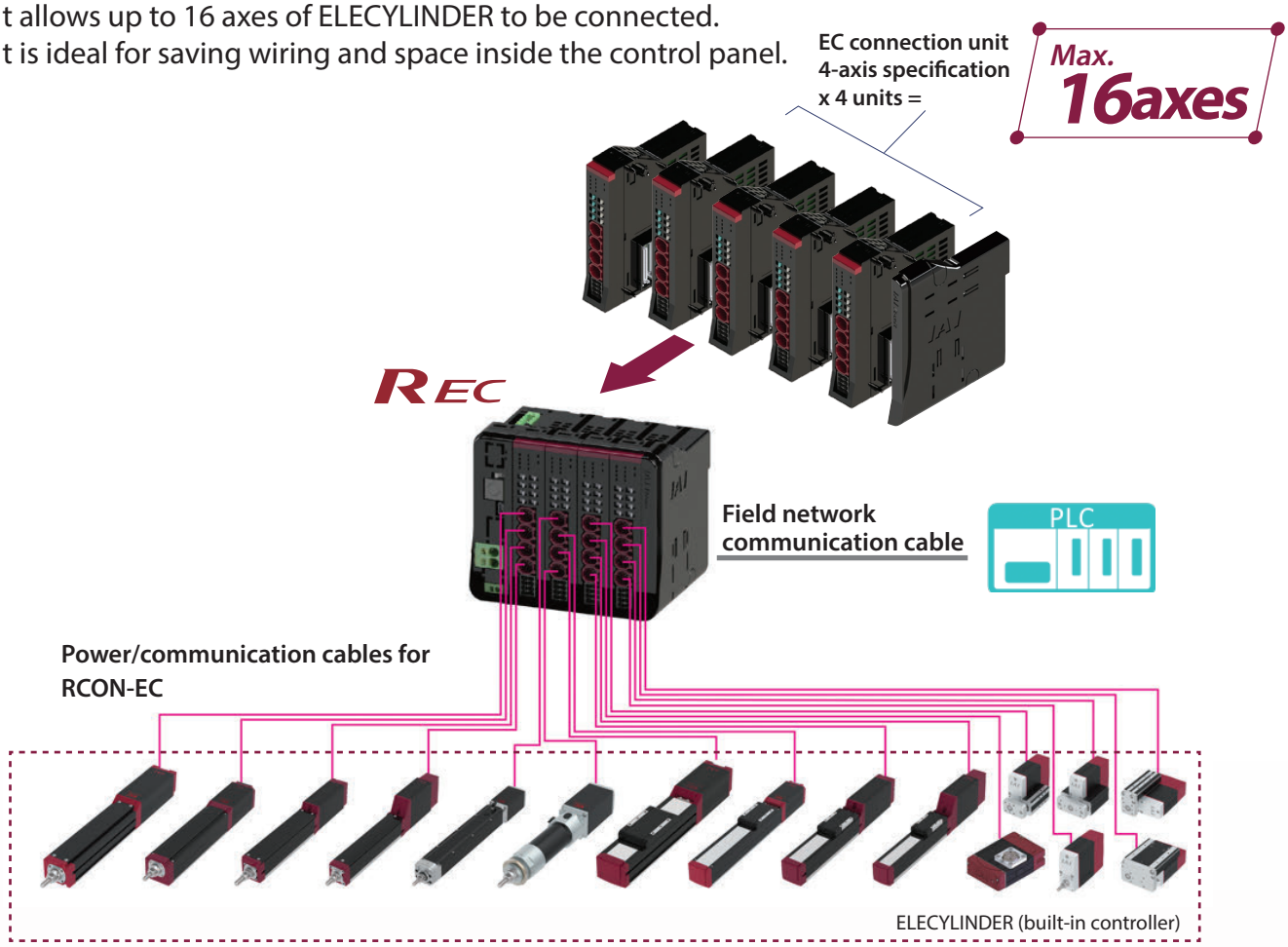


RSEL
CC-Link specification
stepper motor 8 axes

REC

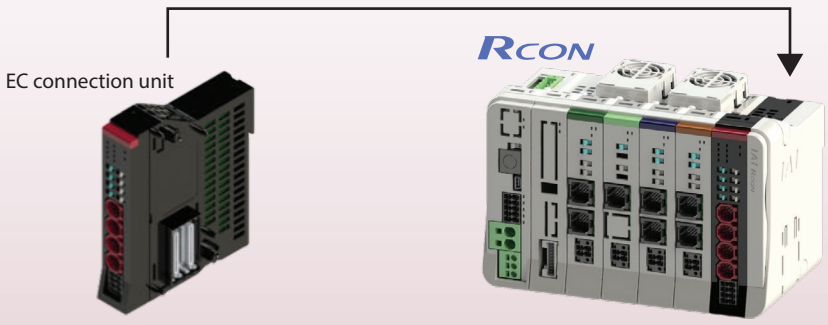
Connect ELECYLINDER to a field network

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

Connect to RCON to allow mixed connections with ROBO Cylinder and single axis robots.



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

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

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

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

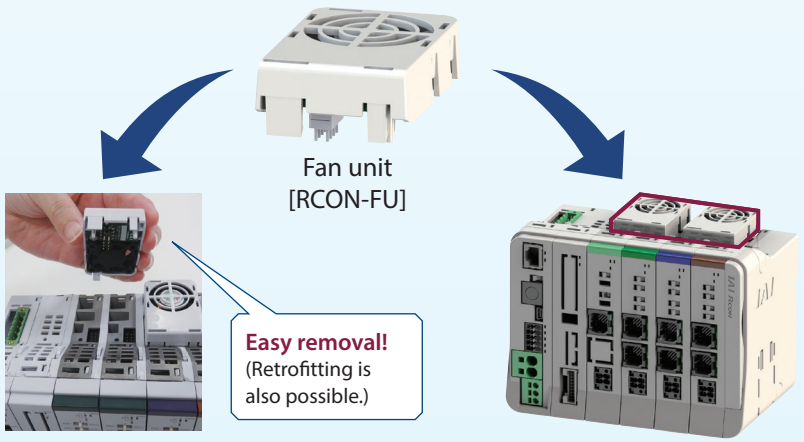
EtherCAT® PROFIBUS® PROFINET®

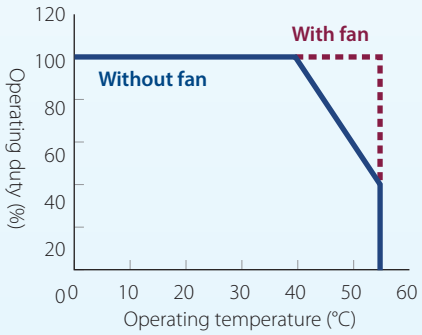
* IAI controllers with field network option only support I/O messaging.
  Ex. EtherNet/IP option cannot be connected to a PLC for explicit messaging.
* CC-link IE Basic is not supported.

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

Install the optional fan unit to enable use in environments of 0~55°C without lowering actuator operating duty. (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.

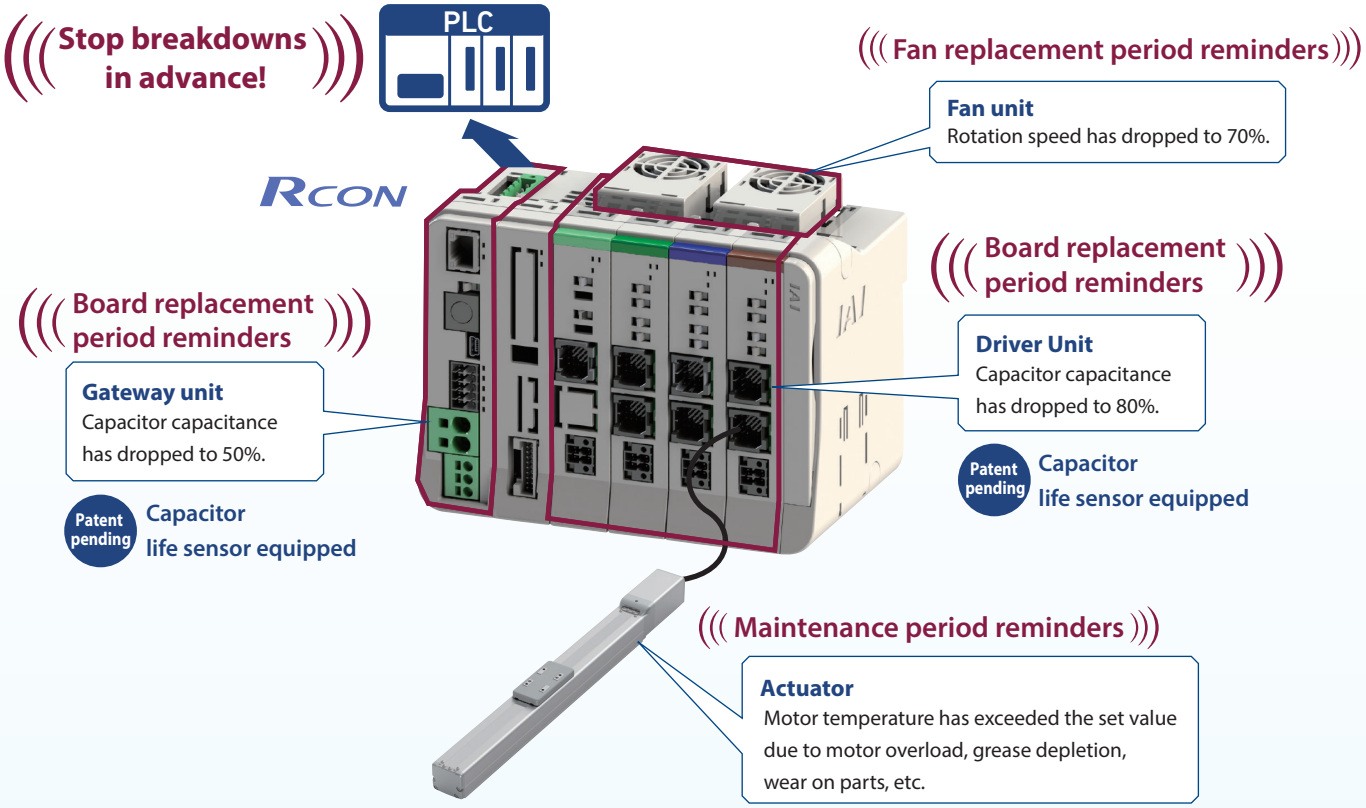
* Simple absolute units support 0~40°C.
  REC supports 55°C without a fan.





High function3 Predictive maintenance/preventative maintenance function

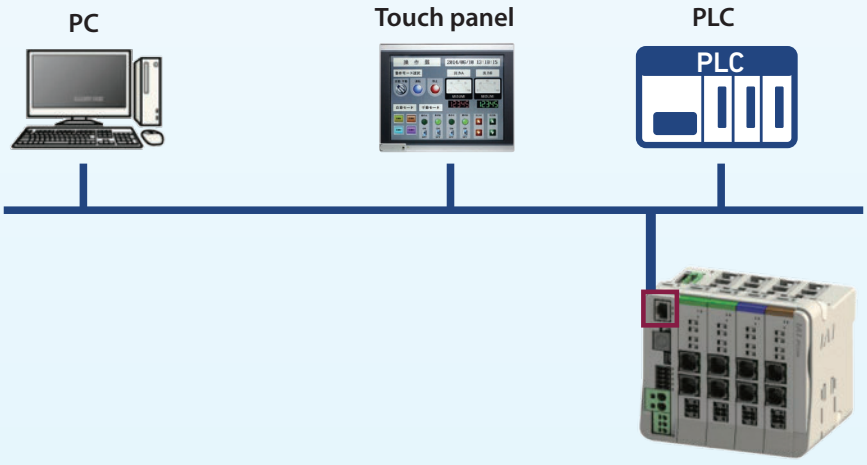
R-units have a preventative maintenance function for the capacitor and a predictive maintenance function for the fan unit and actuator.



High function4 Ethernet-equipped

Supports Ethernet connections. (Excluding REC.)

*Supported as option for RCON.



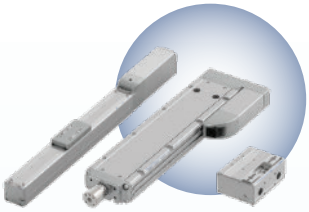
High function5 Highest number of connection actuators in the industry! Can be connected with 947 IAI actuators*

* See P. 42 for connectable actuators.
(As of February 2020.)

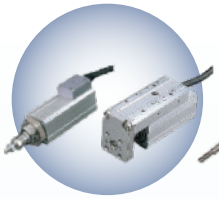
● Models with 24V motors

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

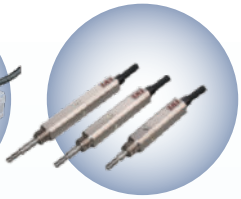
RCP Series



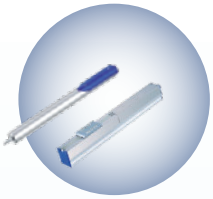
RCA Series



RCD Series



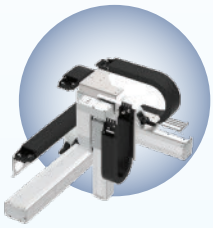
RCL Series



24V driver unit

WU Series

IK Series



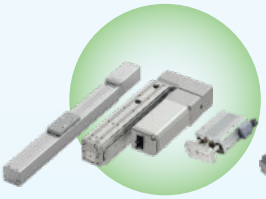
EC Series

EC connection unit

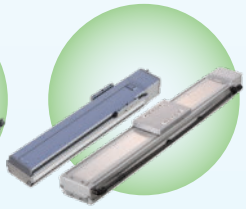
● Models with 200V motors

These products are capable of driving actuators equipped with 200V high capacity motors.
They are compatible with all encoders.

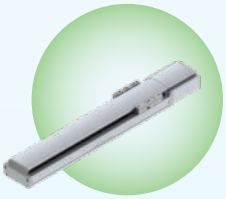
RCS Series



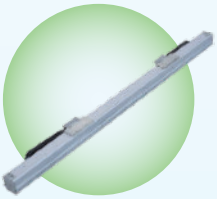
IS(D)B Series



SSPA Series

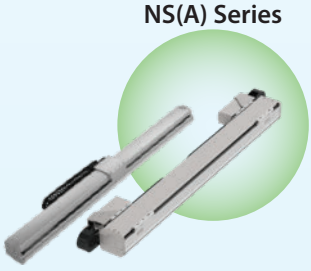


LSA Series

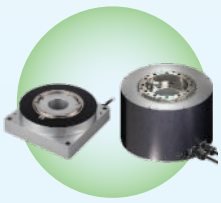


200V driver unit
+ power supply unit

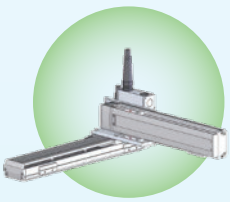
NS(A) Series



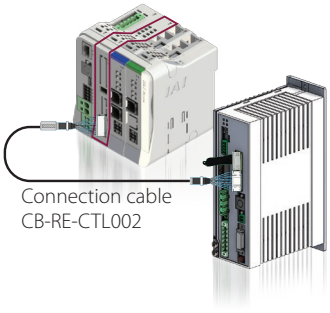
DD(A) Series



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

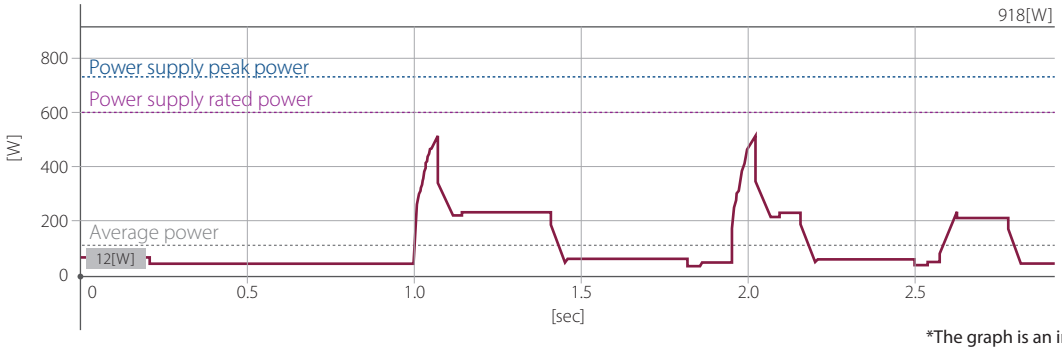
(200V driver unit)
Single-axis driver stop power cutoff terminal

High function7 Helps visualize equipment with 24V power monitor

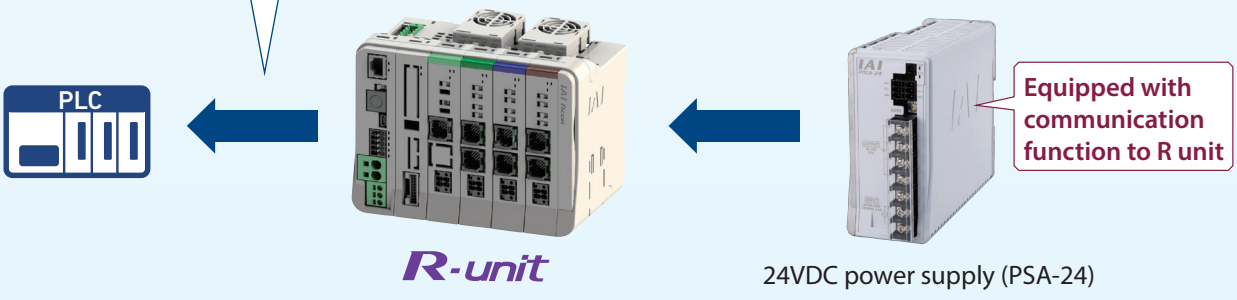
Helps visualize equipment.

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

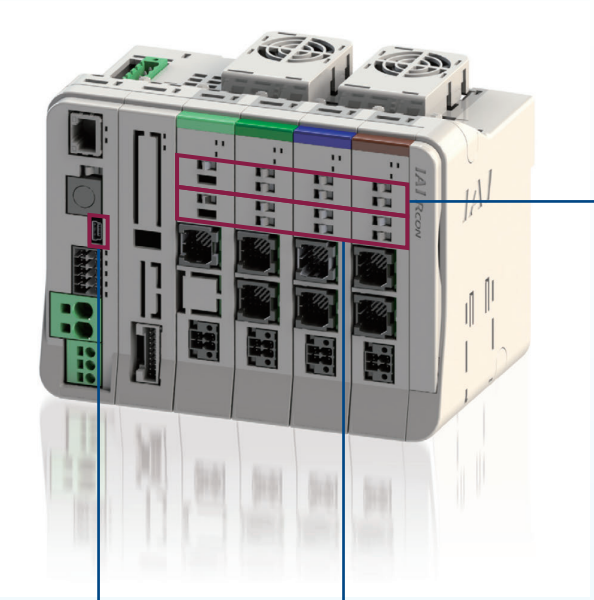


*The graph is an image.

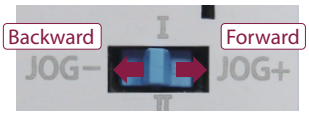


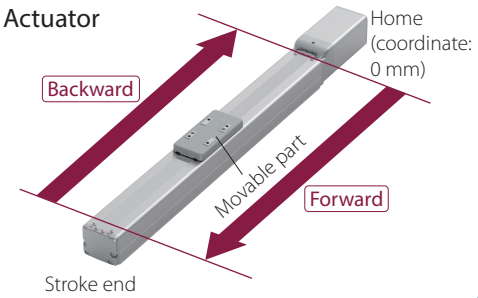
Easy start-up and maintenance.

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



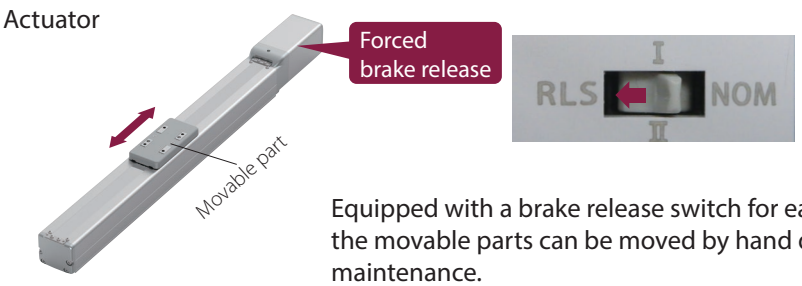
Each axis JOG (+/-) switch





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.

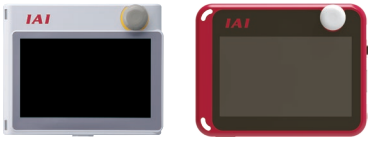
USB port

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

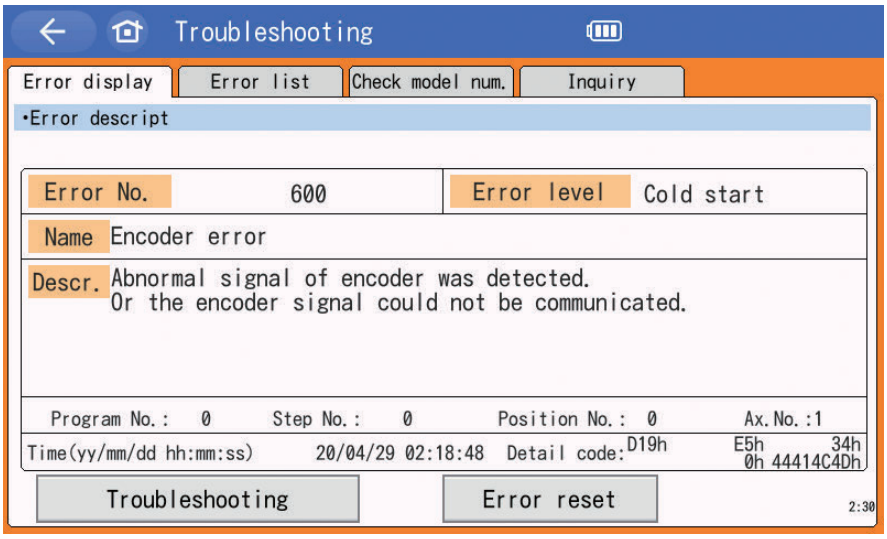
*Compatible with miniUSB (mini-B).

Troubleshooting using the teaching pendant

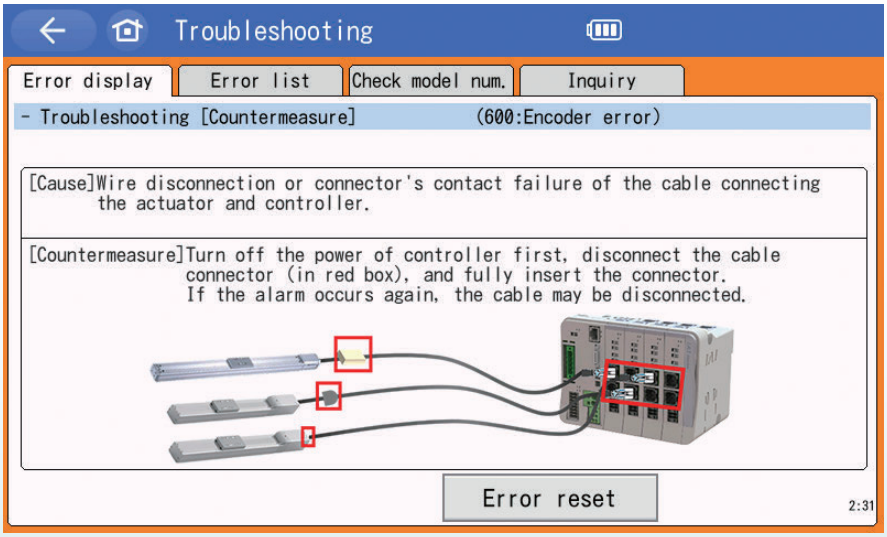
The program controller teaching pendant (TB-02/03)
now offers troubleshooting functionality.
It suggests solutions to problems using a series of YES/NO questions.
(Supported by Ver. 2.70 or later.)



<Error details>



<Solution>



Model 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. 14

Program Type

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

Max. number of connected axes:
8 axes

RSEL

Refer to the selection pages beginning from P. 21

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. 29

RCON Selection Method

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

<Selection example>

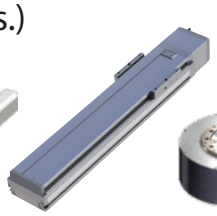

RCD Series


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.

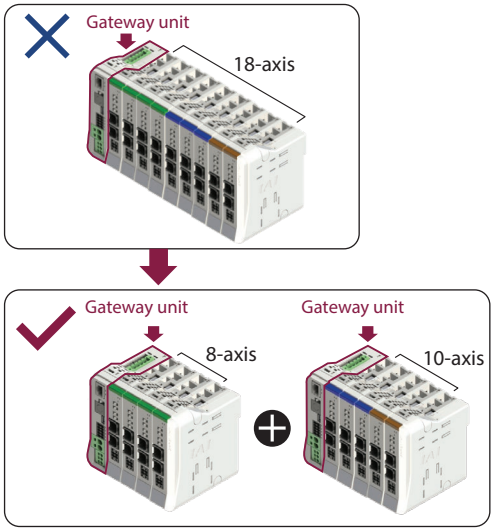
Network type	Gateway unit model
CC-Link	RCON-GW/GWG-CC
CC-Link IE Field	RCON-GW/GWG-CIE
DeviceNet	RCON-GW/GWG-DV
EtherCAT	RCON-GW/GWG-EC
EtherNet/IP	RCON-GW/GWG-EP
PROFIBUS	RCON-GW/GWG-PR
PROFINET	RCON-GW/GWG-PRT

<Selection example>
Selection 1

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

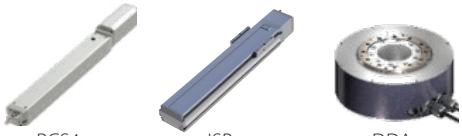
Caution
Only one gateway unit can be connected per system. Split this among two or more units to connect 17 or more axes or if the power capacity is exceeded.

Example: When connecting 18 axes



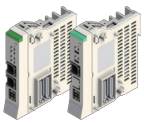
Step 3 Classify actuator types into three categories.

*See P. 42 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	<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

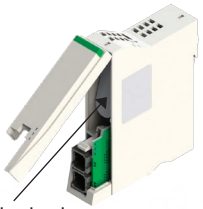
For actuators which are to use the simple absolute specification, select a number of simple absolute units (RCON-ABU-A/P) according to the number of axes.

* 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

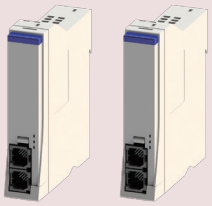
Actuators to be made compatible with simple absolute


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	Specification other than above	 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	Selection 5
200V driver unit		1-axis specification	RCON-SC-1	 RCS4  ISB	2	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

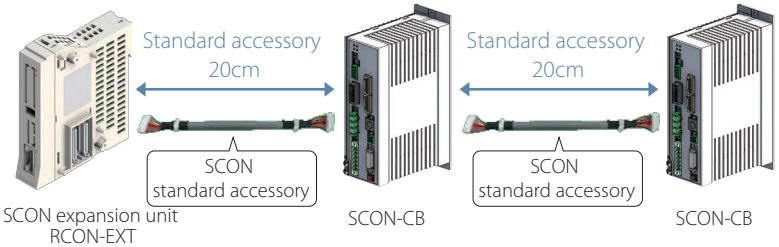
(2) Select a number of controllers (SCON-CB) to connect through the expansion unit according to the number of connected actuators.

*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. 77

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 connected to RCON is as follows.

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

How to check

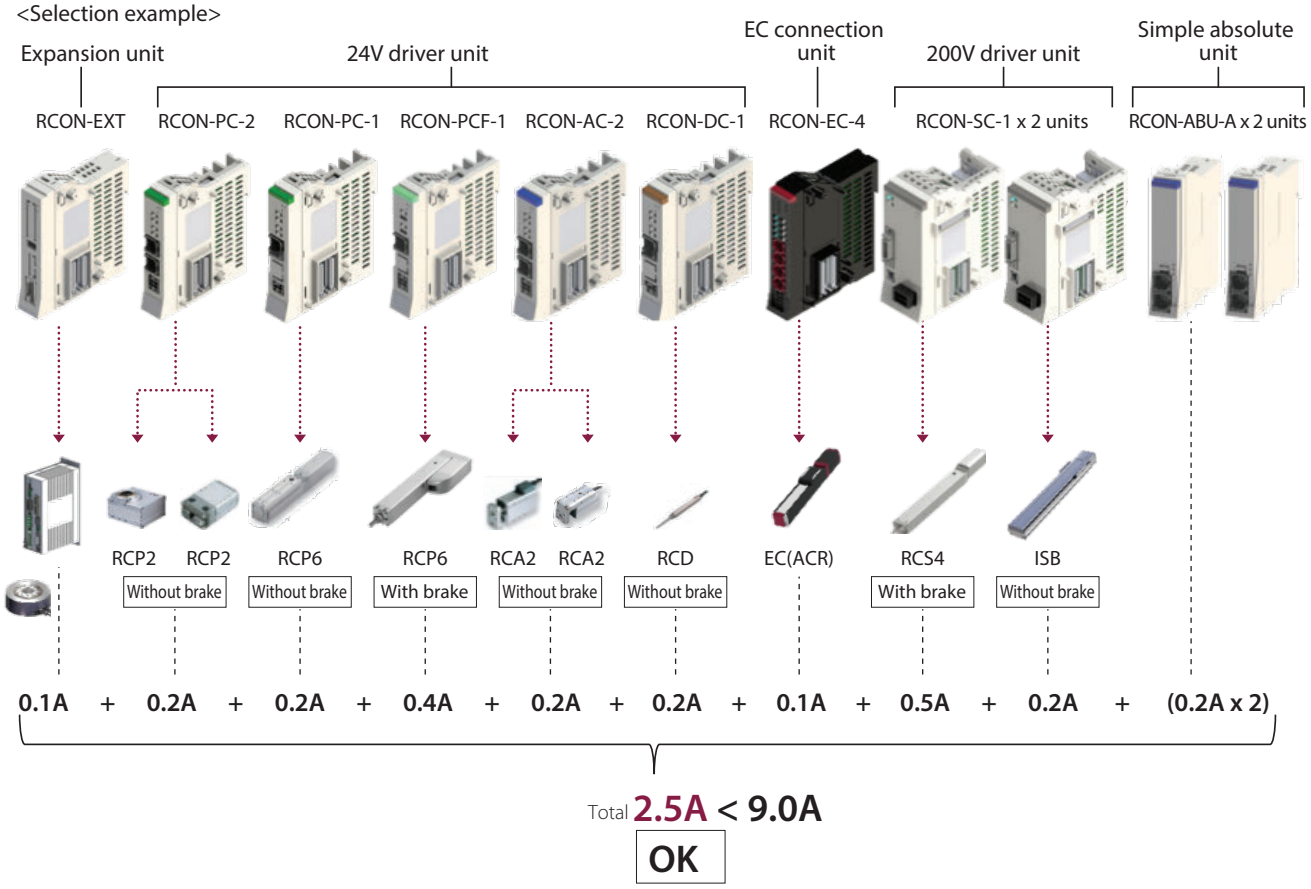
Add up while checking the "Control power capacity list" below.

Control power capacity list

Item	Unit			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 (including 200V power supply 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			0.1A	x 1 unit

*Power capacity of master unit not included in calculation.

<Selection example>



Total **2.5A < 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

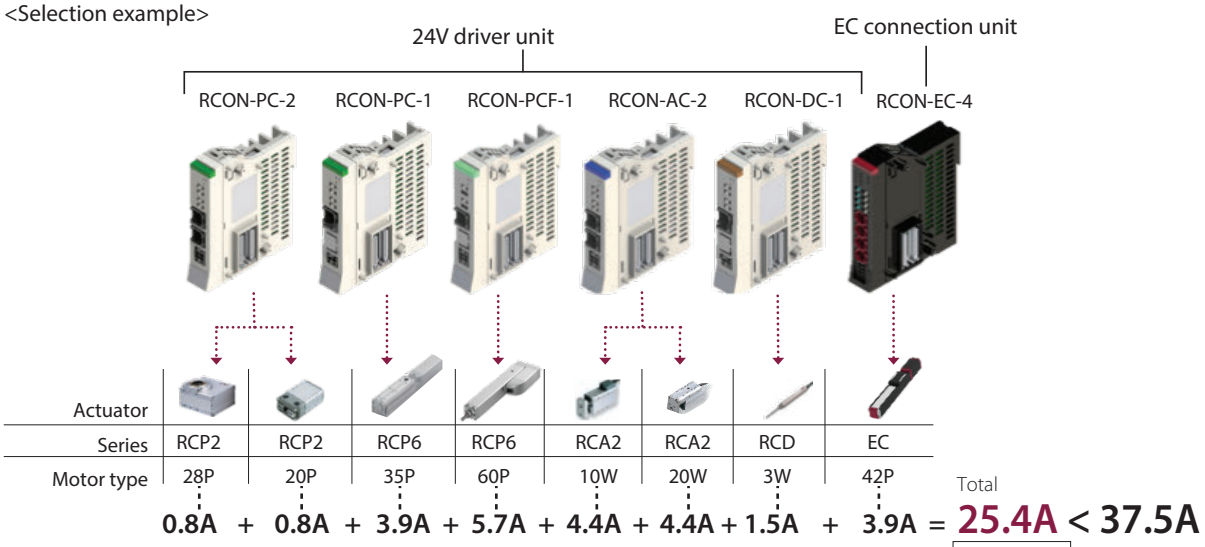
Item	Actuator/driver unit	Series	Motor type		Rated current	Max. current: When energy-saving is set	Max. current	<Selection example>
Motor power capacity (per 1-axis actuator)	Stepper motor /RCON-PC	RCP2 RCP3	20P/20SP/28P	Without PowerCON	0.8A	-	-	x 2 axes
			28P*/35P/42P/56P		1.9A	-	-	
		RCP4 RCP5 RCP6	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	Series	Motor type	Type	Rated current	Max. current: When energy-saving is set	Max. current	
Motor power capacity (per 1-axis actuator)	Stepper motor /RCON-EC	EC	35P/42P/56P	Other than the below	2.3A	2.2A	3.9A	x 1 axis
			28P	S3□/RR3□	-	2.2A	-	
				Mini	-	2.0A	-	

<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.

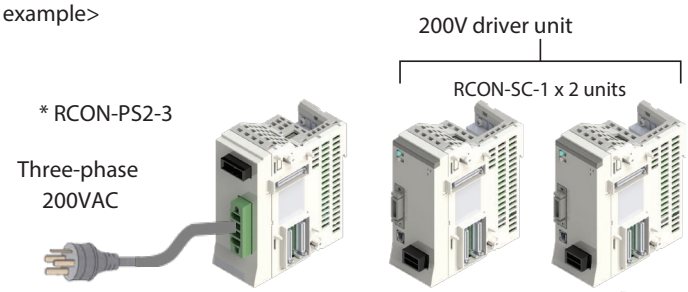
*Some limitations apply. See "Actuators that cannot connect to R-units" (P. 42) for details.

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.

<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>

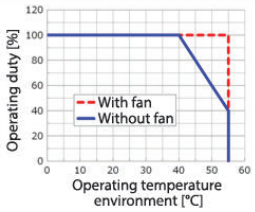
24V driver units (5 units + 1) ÷ 2 = 3 units

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.

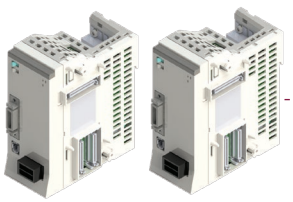


(2) 200V driver unit and power supply unit fan units

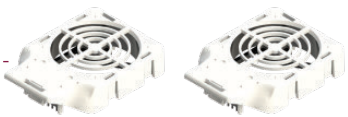
A single fan unit is always included with each installation unit. (There is no need to specify the model.)

<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.)

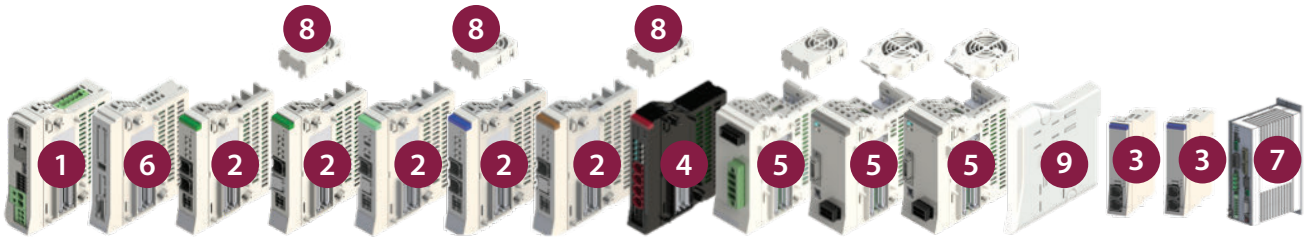
Unit connected to left	Terminal unit single product model number	Supplied unit and cautions when ordering
RCON-SC	RCON-GW-TRS	Supplied with 200V power supply unit (select "TRN (no terminal unit)" for the gateway unit option) ← Selection 9
Other than RCON-SC	RCON-GW-TR	Supplied with gateway unit

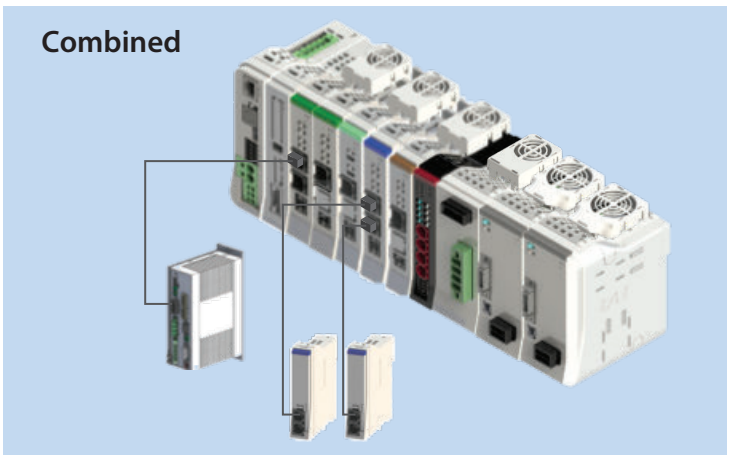
Step 15 Unit models to be ordered

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 8 axes.)

<Selection example>


RCS2 Series


RCA2 Series


RCP6 Series


WU Series


RCS4 Series


IS(P)B Series

Step 2 SEL unit selection

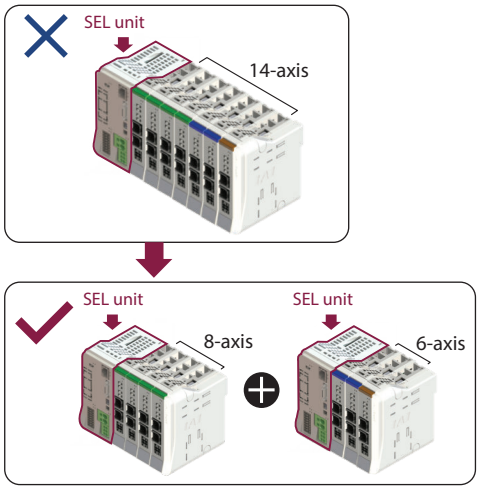
Select the SEL unit model from the following I/O types.

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 9 or more axes or if the power capacity is exceeded.

Example: When connecting 14 axes



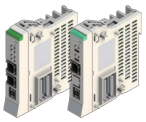
Step 3 Classify actuator types into two categories.

*See P. 42 for actuators that cannot be connected (TTA/SCARA/Servo press/EC/etc).

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

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

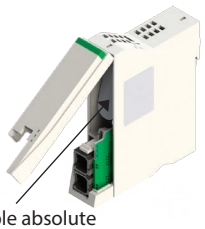
For actuators which are to use the simple absolute specification, select a number of simple absolute units (RCON-ABU-A/P) according to the number of axes.

* 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 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	Specification other than above	 RCS2-RTC8L-I-20

* This is because the 20W specification cannot be connected to RCON-SC.

Step 7 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	Selection 4
200V driver unit		1-axis specification	RCON-SC-1	 RCS4 ISB	3	Selection 4

Step 8 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.)

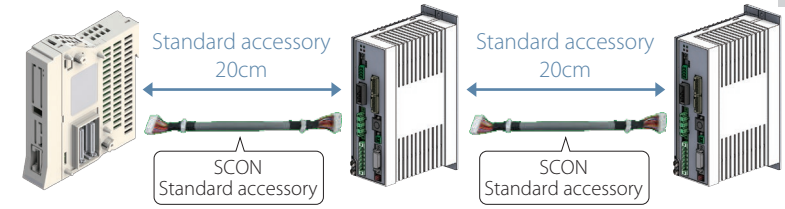
Unit name	External view	Number of axes connected to actuator	Model	<Selection example> Classification	Required units	
SCON expansion unit		Max. 8 axes	RCON-EXT	-	-	
Expansion unit		Max. 8 axes	RCON-EXT-NP/PN	 RCS2-RTC8L-I-20	1	Selection 5

(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	Required units	
SCON-CB/CGB		1-axis specification	SCON-**-RC-*	 RCS2-RTC8L-I-20	1	Selection 6

● 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. 77

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 7

Step 9 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

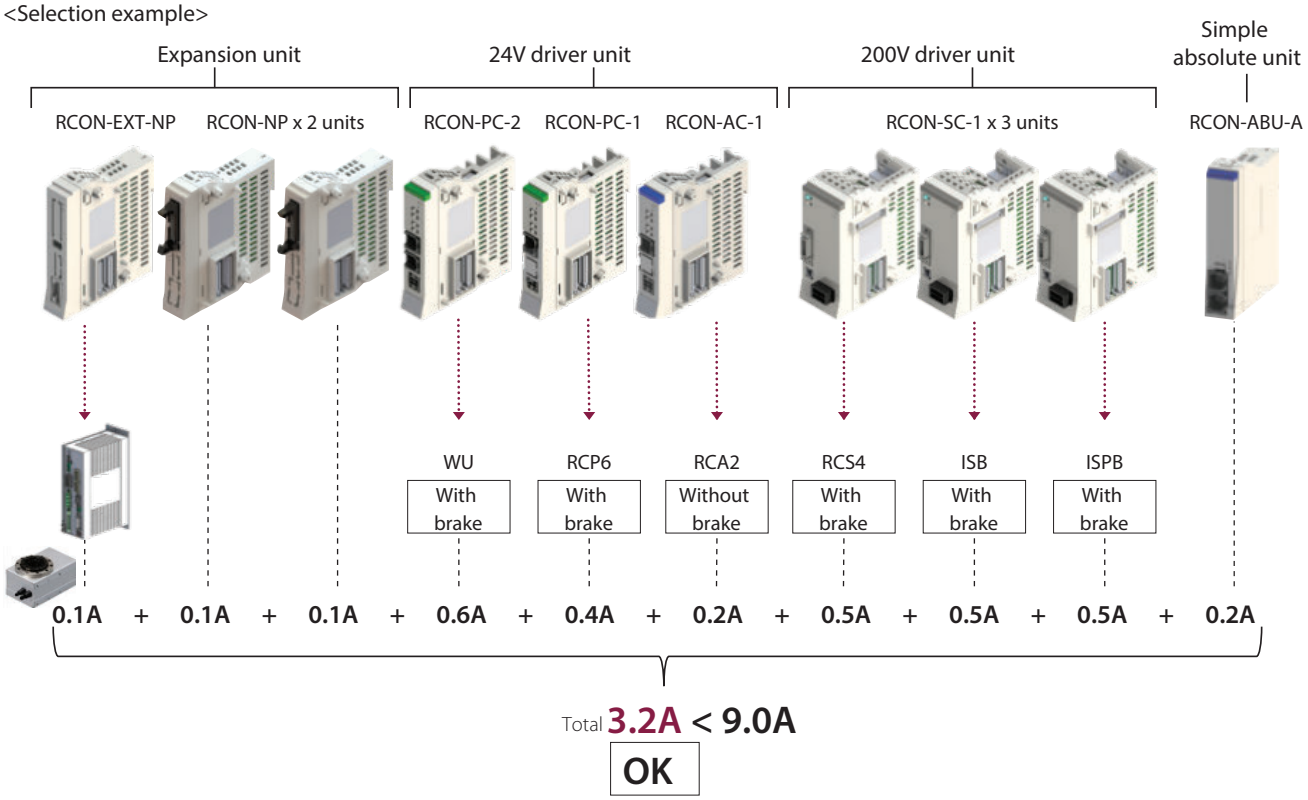
Add up while checking the "Control power capacity list" below.

Control power capacity list

Item	Unit		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 (including 200V power supply 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

*Power capacity of master unit not included in calculation.

<Selection example>



Total **3.2A < 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 10 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

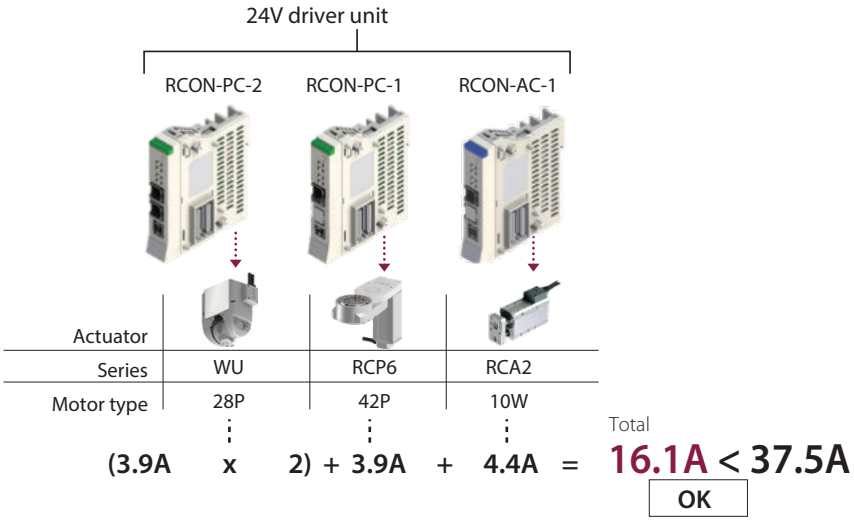
Add up while checking the "Motor power capacity list" below.
If the maximum current is listed, add the maximum current.
If not, add the rated current.

● 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	x 1 axis
			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

<Selection example>



(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).

Step 11 200V motor power limiting

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

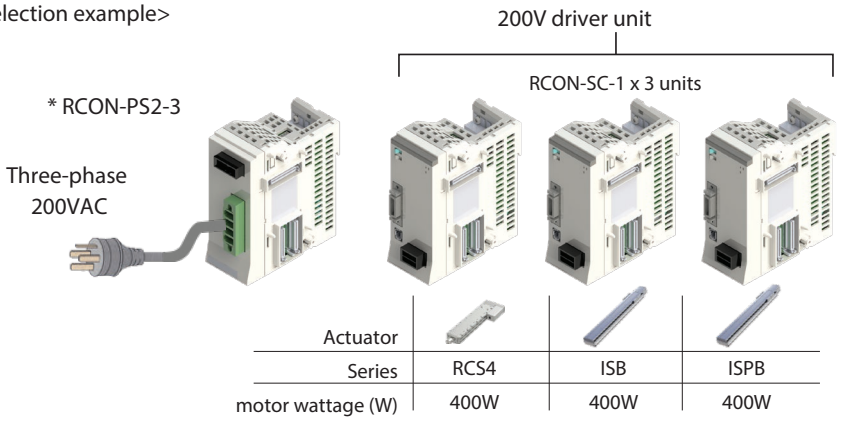
*Some limitations apply. See "Actuators that cannot connect to R-units" (P. 42) for details.

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.

<Selection example>



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

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

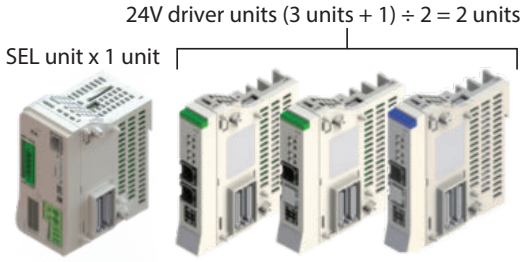
Step 12 Fan unit selection

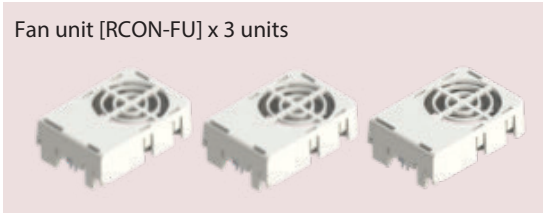
If the controller installation environment may exceed 40°C, a fan unit will be required. (Up to 55°C.)*

(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.

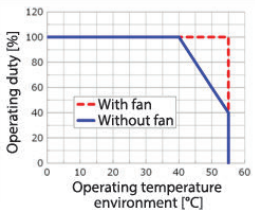
<Selection example>





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 13 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.)

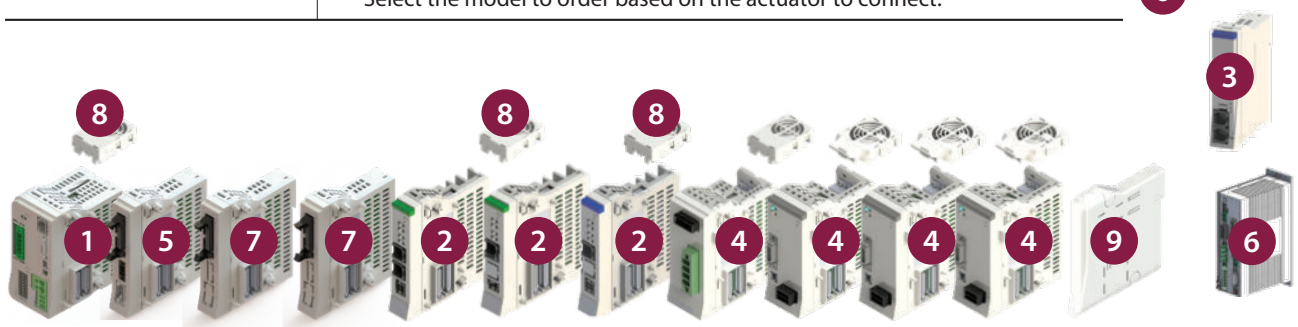
Unit connected to left	Terminal unit single product model number	Supplied unit and cautions when ordering
RCON-SC	RCON-GW-TRS	Supplied with 200V power supply unit (select "TRN (no terminal unit)" for the SEL unit option). ← Selection 9
Other than RCON-SC	RCON-GW-TR	Supplied with SEL unit.

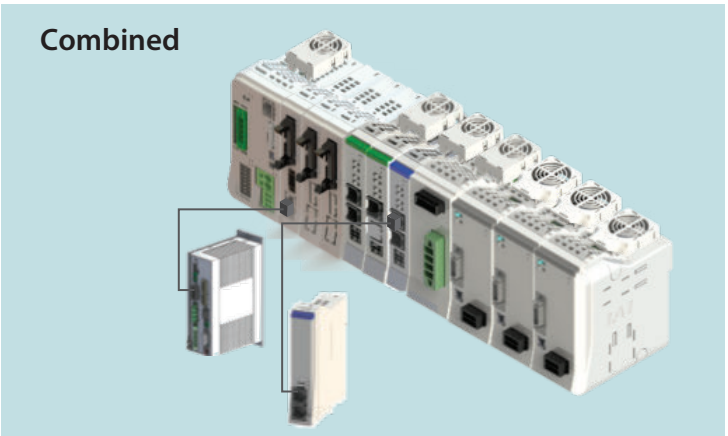
Step 14 Unit models to be ordered

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 8
RCON-EXT-NP	PIO/SIO/SCON expansion unit	5
RCON-NP x 2 units	PIO unit	7
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-PS2-3	200V power supply unit	4 9
RCON-SC-1 x 3 units	200V driver unit	4
SCON-***-RC	RCON connection specification SCON controller *Select the model to order based on the actuator to connect.	6





MEMO

REC Selection Method

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

<Selection example>

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

* only EC with ACR option can be connected to RCON-EC unit.

Step 2 EC gateway unit selection

Select the EC gateway unit model from the network type.

Network type	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

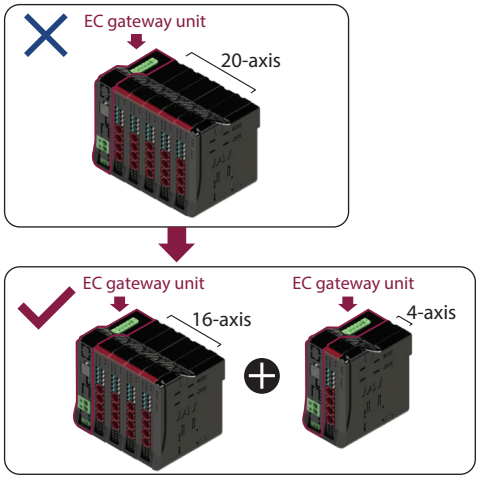
<Selection example>

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	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 Series x 7 axes	2

Selection 2

Step 4 Calculation of EC connection unit motor power capacities (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

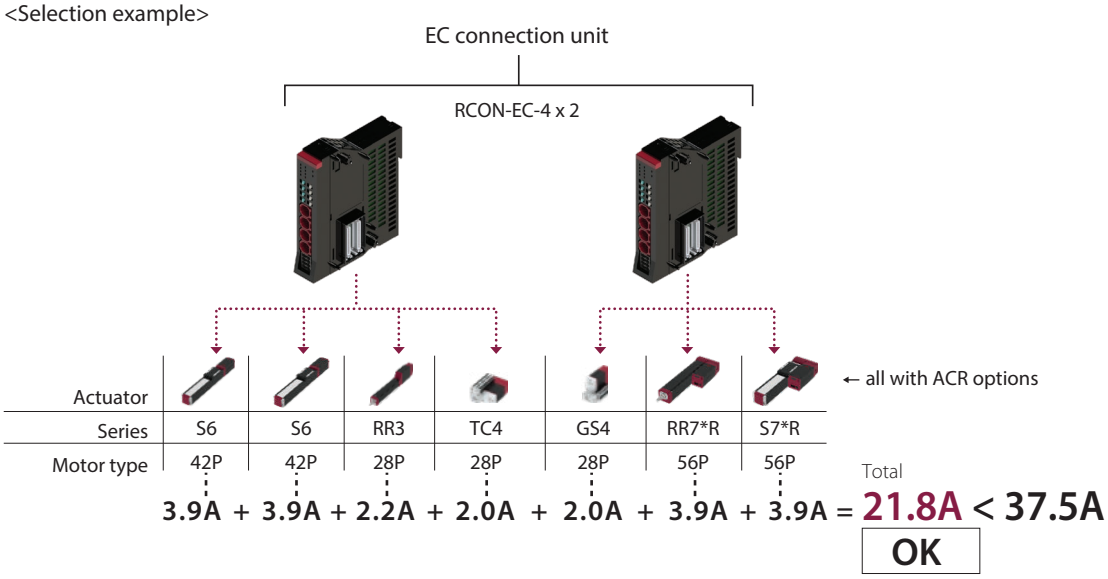
How to check

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/EC connection unit				Rated current	Max. current		<Selection example>
		Series	Motor type	Type		When energy-saving is set		
Motor power capacity (per 1-axis actuator)	Stepper motor/ RCON-EC	EC (ACR)	35P/42P/56P	Other than the below	2.3A	2.2A	3.9A	x 4 axes
			28P	S3□/RR3□	-	2.2A	-	x 1 axis
				Mini	-	2.0A	-	x 2 axes

<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.)

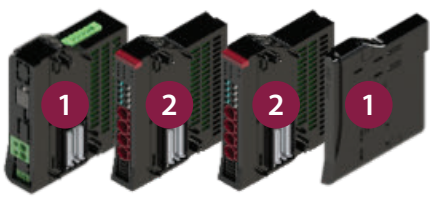
It is possible to calculate the motor power capacity as in step 4 (calculation when all axes are simultaneously used at maximum load).

Step 5 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

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
PR	PROFIBUS-DP connection specification
PRT	PROFINET IO 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, 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, 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

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	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

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

System Configuration

RCON

Options
PC teaching software
(See P. 67)
<Model: RC/EC PC Software>

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

Supplied with GWG specification
Dummy plug
(See P. 69)
<Model: DP-5>

Supplied with gateway unit
System I/O connector
(See P. 70)
<Model: DFMC1,5/5-ST-3,5>

Options
Fan unit
(See P. 69)
<Model: RCON-FU(H)>

For RC/EC PC Software: USB cable

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

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

Supplied with 200V driver unit
Dummy plug
(See P. 69)
<Model: DP-6>

Supplied with SCON-(RC specification)

Connection cable
(See P. 77)
<Model: CB-RE-CTL002>

RCON-EXT connection specification SCON controller [I/O type: RC]

Supplied with 24V driver unit
Drive source shutoff connector
(See P. 70)
<Model: DFMC1,5/2-STF-3,5>

Options
Regenerative resistance unit
(See P. 70)
<Model: RESU-2/ RESUD-2>
Note 1

Supplied with power supply unit
Power supply connector
(See P. 70)
<Model: SPC5/4-STF-7,62>

Supplied with simple absolute unit
Connection cable
(See P. 73)
<Model: CB-ADPC-MPA050>

Supplied with expansion unit
Terminal connector
(See P. 70)
<Model: RCON-EXT-TR>

Options
Simple absolute unit
(See P. 56)
<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. 70)
<Model: DFMC1,5/4-ST-3,5>

Motor power
Three-phase/ single-phase 200VAC

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

Connectable actuators

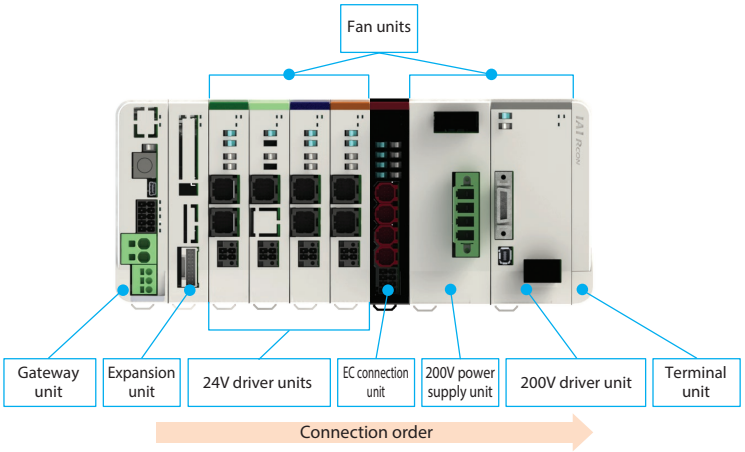
Connection with "expansion unit"	Connection with "24V driver unit"			Connection with "EC connection unit"	Connection with "200V driver unit"
RCS2/3/4 Series IS(D)B Series SSPA Series DD(A) Series LSA Series	RCP2/3/4/5/6 Series	RCA/2 Series	RCD Series	EC Series	(60W~750W equipped actuator) RCS2/3/4 Series IS(D)B Series SSPA Series DD(A) Series LSA Series
*See P. 42 for actuators that cannot be connected.					*See P. 42 for actuators that cannot be connected.

* 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.
See P. 71 for information on ordering single cables.

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)

*· Ensure that there are 16 or less total axes to connect.
· The maximum number of connectable axes varies depending on the operation mode.
See "Maximum number of connectable axes (P. 59)".

■ 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	P46
	CC-Link IE Field connection specification	RCON-GW/GWG-CIE	P47
	DeviceNet connection specification	RCON-GW/GWG-DV	P45
	EtherCAT connection specification	RCON-GW/GWG-EC	P49
	EtherNet/IP connection specification	RCON-GW/GWG-EP	P50
	PROFIBUS-DP connection specification	RCON-GW/GWG-PR	P48
	PROFINET IO connection specification	RCON-GW/GWG-PRT	P51
Expansion unit	SCON expansion	RCON-EXT	P55
24V driver unit	Stepper motor 1-axis specification	RCON-PC-1	P53
	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	P56
200V power supply unit	200VAC input power supply	RCON-PS2-3	P54
200V driver unit	AC200V motor 1-axis specification	RCON-SC-1	P54
Terminal unit	For 24V	RCON-GW-TR	P57
	For 200V	RCON-GW-TRS	
Simple absolute unit	For RCON-PC	RCON-ABU-P	P56
	For RCON-AC	RCON-ABU-A	
Fan unit	Other than the below	RCON-FU	P69
	For 200V driver	RCON-FUH	

System Configuration

RSEL

PLC

Options
PC teaching software
(See P. 68)
<Model: XSEL PC Software, IA-101-X>

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

SEL unit (NP/PN specification) option

Field network

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

PIO cable
(See P. 78)
<Model: CB-PAC-PIO***>

Supplied with SEL unit
Dummy plug
(See P. 69)
<Model: DP-4S>

Supplied with SEL unit
System I/O connector
(See P. 70)
<Model: DFMC1,5/8-ST-3,5>

Options
Fan unit
(See P. 69)
<Model: RCON-FU(H)>

For XSEL PC Software : USB cable, Ethernet cable

For IA-101-X: Supplied with PC teaching software

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

Supplied with unit
SCON connection, PIO/SIO connection
Expansion SIO port connector
(See P. 70)
<Model: FMC1,5/3-STF-3,5>

Supplied with 200V driver unit
Dummy plug
(See P. 69)
<Model: DP-6>

Supplied with SCON (RC specification)
Connection cable
(See P. 77)
<Model: CB-RE-CTL002>

RCON-EXT connection specification SCON controller [I/O type: RC]

Supplied with 24V driver unit
Drive source shutoff connector
(See P. 70)
<Model: DFMC1,5/2-STF-3,5>

Options
Regenerative resistance unit
(See P. 70)
<Model: RESU-2/ RESUD-2>
(Note 1)

Supplied with simple absolute unit
Connection cable
(See P. 73)
<Model: CB-ADPC-MPA050>

Supplied with power supply unit
Power supply connector
(See P. 70)
<Model: SPC5/4-STF-7,62>

Motor power
Three-phase/ single-phase 200VAC

Supplied with SCON connection expansion unit
Terminal connector
(See P. 70)
<Model: RCON-EXT-TR>

Options
Simple absolute unit
(See P. 56)
<Model: RCON-ABU-P (for stepper motor)>
<Model: RCON-ABU-A (for AC servo motor)>

Motor/encoder cable*

Connectable actuators

Connection with "expansion unit"
RCS2/3/4 Series
IS(D)B Series
SSPA Series
DD(A) Series
LSA Series
* See P. 42 for actuators that cannot be connected.

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

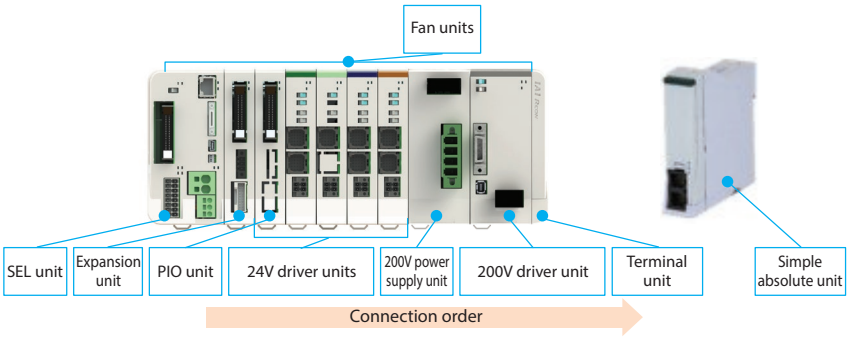
Connection with "200V driver unit"
(60W~750W equipped actuator)
RCS2/3/4 Series
IS(D)B Series
SSPA Series
DD(A) Series
LSA Series
*See P. 42 for actuators that cannot be connected.

* 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. 71 if conversion cables need to be prepared.

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.



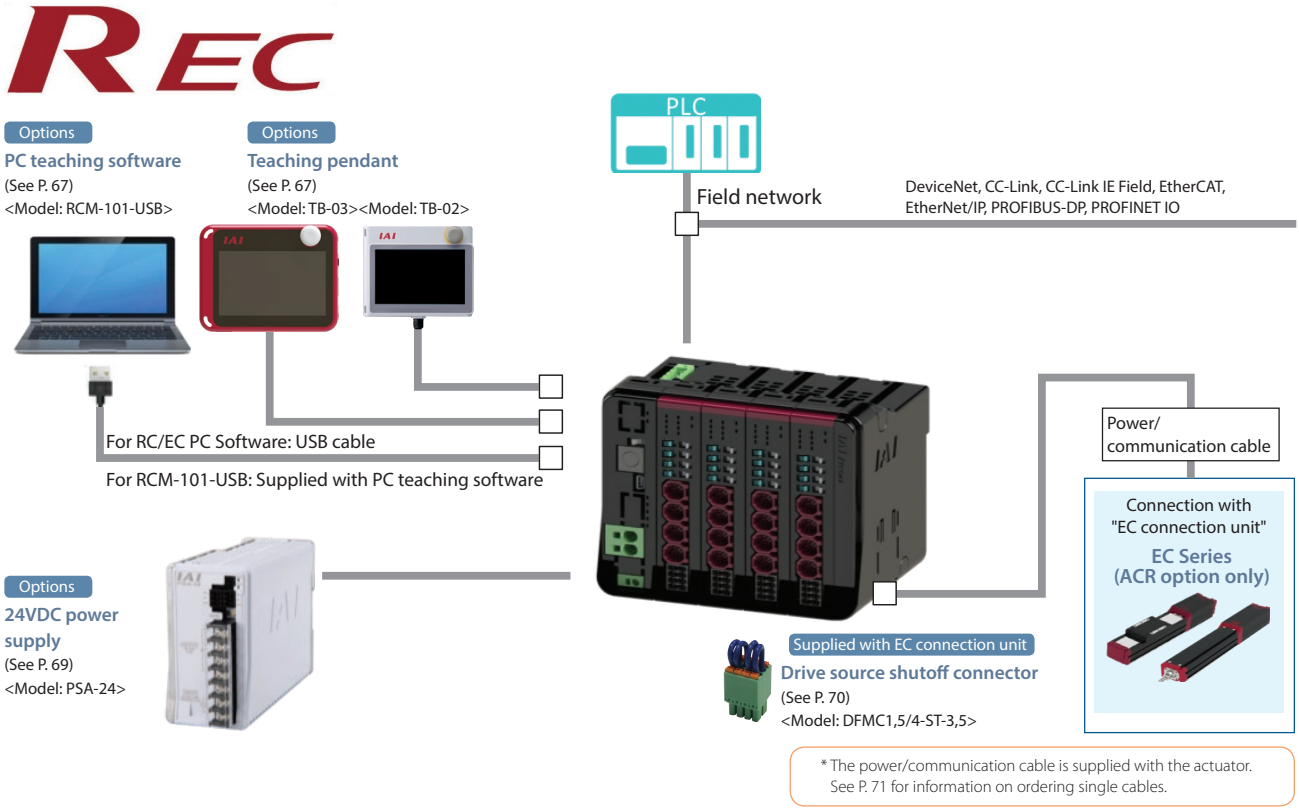
Unit name	Number of connected units	Additional information
SEL unit	1	Placed at far left
Expansion unit (SCON connection specification)	1*	Select either type
Expansion unit (PIO unit)	(Max.) 8	If connecting a PIO/SIO/SCON expansion unit, the maximum will be 7
24V driver unit	(Max.) 8*	Can be rearranged within the 24V driver unit
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)

*· Ensure that there are 8 or less total axes to connect.

■ Unit name and single product model number list

Product name		Model	Reference page
Master unit/ SEL unit	No IO connection specification	RSEL-G-E	P52
	PIO (NPN) connection specification	RSEL-G-NP	
	PIO (PNP) connection specification	RSEL-G-PN	
	CC-Link connection specification	RSEL-G-CC	P46
	CC-Link connection specification (bifurcated connector supplied)	RSEL-G-CC2	
	CC-Link IE Field connection specification	RSEL-G-CIE	P47
	DeviceNet connection specification	RSEL-G-DV	P45
	DeviceNet connection specification (bifurcated connector supplied)	RSEL-G-DV2	
	EtherCAT connection specification	RSEL-G-EC	P49
	EtherNet/IP connection specification	RSEL-G-EP	P50
	PROFIBUS-DP connection specification	RSEL-G-PR	P48
	PROFINET IO connection specification	RSEL-G-PRT	P51
Expansion unit	SCON expansion	RCON-EXT	P55
	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	P53
	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	
200V power supply unit	200VAC input power supply	RCON-PS2-3	P54
200V driver unit	AC200V motor 1-axis specification	RCON-SC-1	P54
Terminal unit	For 24V	RCON-GW-TR	P57
	For 200V	RCON-GW-TRS	
Simple absolute unit	For RCON-PC	RCON-ABU-P	P56
	For RCON-AC	RCON-ABU-A	
Fan unit	Other than the below	RCON-FU	P69
	For 200V driver	RCON-FUH	

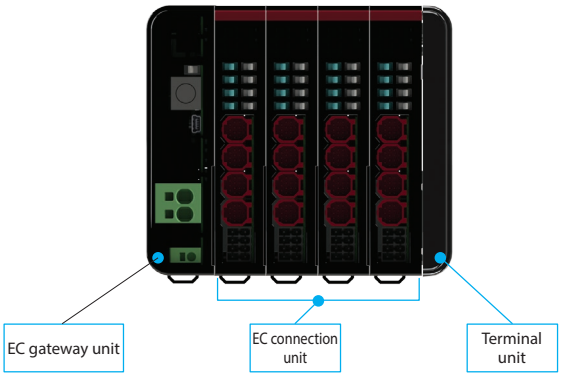
System Configuration



* The power/communication cable is supplied with the actuator.
See P. 71 for information on ordering single cables.

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

Product name		Model	Reference page
Master unit/ EC gateway unit	CC-Link connection specification	REC-GW-CC	P46
	CC-Link IE Field connection specification	REC-GW-CIE	P47
	DeviceNet connection specification	REC-GW-DV	P45
	EtherCAT connection specification	REC-GW-EC	P49
	EtherNet/IP connection specification	REC-GW-EP	P50
	PROFIBUS-DP connection specification	REC-GW-PR	P48
	PROFINET IO connection specification	REC-GW-PRT	P51
EC connection unit	EC connection unit 4-axis specification	RCON-EC-4	P56
Terminal unit	For REC	RCON-GW-TRE	P57

■ 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 *For maximum axes, see "Maximum number of connectable axes" (P. 59)						
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			Gateway unit, driver unit, 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						
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			85% RH or less, non-condensing						
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		○	○	- (to be acquired)	- (to be acquired)	○	○	- (to be acquired)
	UL		○	○	- (to be acquired)	- (to be acquired)	○	○	- (to be acquired)

(Note: ○= Yes)

■ 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		1~8-axis	
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, expansion unit, power supply unit fan unit, terminal unit, simple absolute 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 I/O		(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		85% RH or less, non-condensing	
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	○	○	- (to be acquired)	- (to be acquired)	○	○	- (to be acquired)	- (to be acquired)
	UL	- (to be acquired)	○	- (to be acquired)	- (to be acquired)	○	○	- (to be acquired)	- (to be acquired)

(Note: ○= Yes)

*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		B (the safety category specification supports up to 4 external circuits)	
Ambient operating temperature		0~55°C	
Ambient operating humidity		85% RH or less, non-condensing	
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	- (to be acquired)	- (to be acquired)
	UL	- (to be acquired)	- (to be acquired)

■ Actuators that cannot be connected to R-units

Master unit	Unit	Driver Unit		Expansion unit	EC connection unit (RCON-EC)
		24V driver unit (RCON-PC/PCF/AC/DC)	200V driver unit (RCON-SC)	SCON expansion unit/ PIO/SIO/SCON expansion unit (RCON-EXT)	
	Actuator	24V stepper motor/ 24V AC servo motor/ DC brush-less motor-equipped actuator	200V AC servo motor-equipped actuator		ELECYLINDER (Only w/ACR option)
RCON		Wrist unit: WU Tabletop: TT(A) SCARA robot: IXP	Servo press: RCS2/RCS3 Linear servo: LSA-W21H LSA-W21S (single-phase power) SCARA robot: IX/IXA High-speed Cartesian robot: CT4 Single axis robot: ZR Rotary: DD/DDA (single-phase power) (Actuators corresponding to following specifications) · Actuators equipped with motors below 60W or above 750W · Actuators equipped with absolute encoders or absolute multi-rotation	Servo press: RCS2/RCS3 Linear servo: LSA-W21H SCARA robot: IX/IXA High-speed Cartesian robot: CT4 Single axis robot: ZR	-
RSEL		Tabletop: TT(A) SCARA robot: IXP			Cannot be connected
REC		Cannot be connected	Cannot be connected	Cannot be connected	-

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	131072
			☐18P	Index absolute	1048576
EC connection unit	Stepper motor	EC		Battery-less Absolute Incremental	800

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

Power supply capacity by unit

<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			0.1A

<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

● EC connection unit

Item	Actuator/connection unit				Rated current	Max. current	
		Series	Motor type	Type		When energy-saving is set	
Motor power capacity (per 1-axis actuator)	EC stepper motor/ RCON-EC	EC	35P/42P/56P	Other than the below	2.3A	2.2A	3.9A
			28P	S3□/RR3□	-	2.2A	-
				Mini	-	2.0A	-

Caution

· For operation patterns where acceleration/deceleration operation is performed simultaneously on all axes, and where operating duty is 100%
Motor power must be calculated at the maximum current value. (If the maximum current is not listed, calculate with the rated current.)

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.)

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#, 85% RH or less, non-condensing		
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
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)

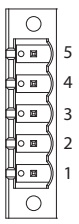
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	MSTB2,5/5-STF-5,08 AUM	Standard accessories
		TMSTBP2,5/5-STF-5,08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

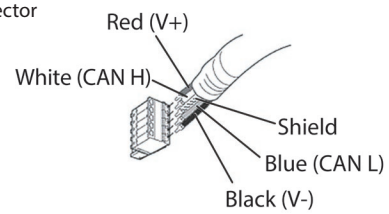
Network connection cable

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#, 85% RH or less, non-condensing		
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
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)

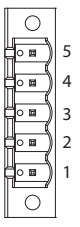
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	MSTB2,5/5-STF-5,08 AU With 110Ω/130Ω terminal resistor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

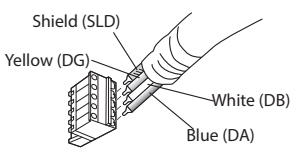
Network connection cable

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°C#, 85% RH or less, non-condensing		
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
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		

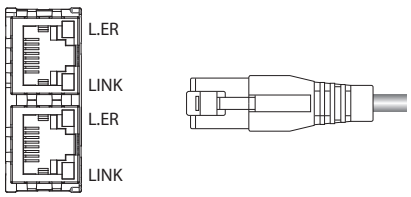
A fan unit must be attached during use in environments exceeding 40°C (excluding REC)
CC-link IE Basic is not supported.

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#, 85% RH or less, non-condensing		
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
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		

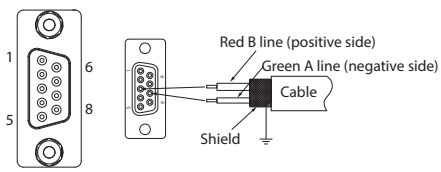
A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

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 connection specification

RCON

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

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#, 85% RH or less, non-condensing		
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
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		

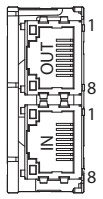
A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

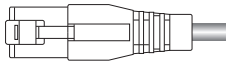
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON) DFMC1,5/5-ST-3,5	Standard accessories
		(RSEL) DFMC1,5/8-ST-3,5	Standard accessories
Drive-source cutoff	Cable side	(REC) DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher 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 RSEL REC

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

Model: **RSEL-G-EP**

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#, 85% RH or less, non-condensing		
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
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		

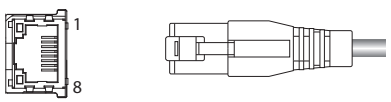
A fan unit must be attached during use in environments exceeding 40°C (excluding REC)
Explicit messaging is not supported. (Implicit messaging only).

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°C#, 85% RH or less, non-condensing		
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
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		

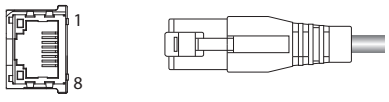
A fan unit must be attached during use in environments exceeding 40°C (excluding REC)

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



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#, 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)	

NPN/PNP connection specification

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

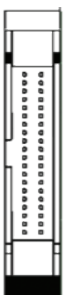
Specifications

	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□□□)

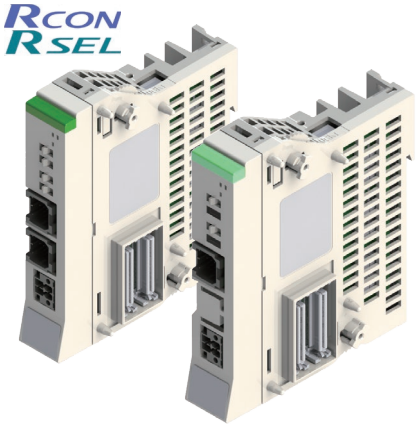


Driver Unit

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.



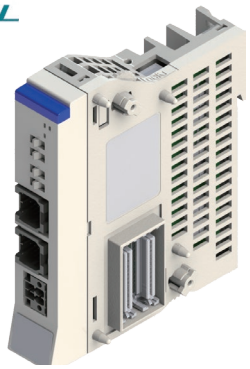
Model	Type	Compatible motor capacity
RCON-PC-1	1-axis connection	1.2A (□20/28/35/42/56)
RCON-PC-2	2-axis connection	
RCON-PCF-1	1-axis connection *For high thrust	4A (□56/60/86)

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, 85% RH or less, non-condensing
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.



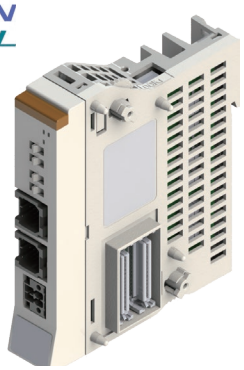
Model	Type	Compatible motor capacity
RCON-AC-1	1-axis connection	2W - 30W
RCON-AC-2	2-axis connection	

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, 85% RH or less, non-condensing
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, 85% RH or less, non-condensing
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-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, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	438g
External dimensions	W45.2mm×H115mm×D95mm
Accessories	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	1,600W (1-phase 200VAC) 2,400W (3-phase 200VAC)
Ambient operating temperature & humidity	(With fan) 0~55°C, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	393g
External dimensions	W45.2mm×H115mm×D95mm
Accessories	Power supply connector SPC5/4-STF-7,62
Compatible Type	RCON/RSEL

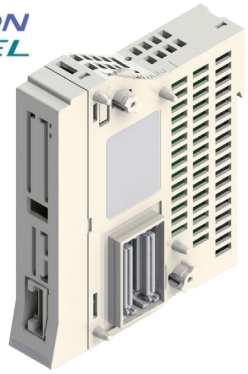
Only one RCON-PS2-3 can be used per RCON/RSEL system.

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, 85% RH or less, non-condensing
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
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
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 (when a cable length other than "0" is specified for the model)
Compatible Type	RSEL

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
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	105g
External dimensions	W22.6mm×H115mm×D95mm
Accessories	PIO cable (when a cable length other than "0" is specified for the model)
Compatible Type	RSEL

EC connection unit

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

RCON REC

Model
RCON-EC

Specifications

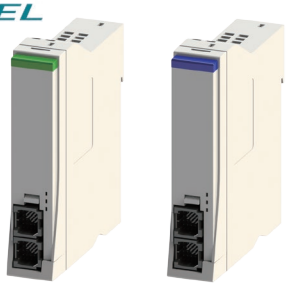
Power	24VDC ± 10%
Control power	0.1A
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	123g
External dimensions	W22.6mm×H115mm×D95mm
Accessories	Drive source shutoff connector (DFMC1,5/4-ST-3,5 (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, 85% RH or less, non-condensing
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 serial communication and input/output signals. (Supplied with purchase of gateway unit.)

Model
RCON-GW-TR

Specifications

Power	24VDC ± 10%
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
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.)

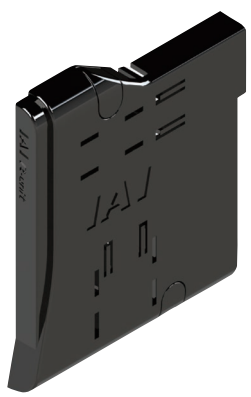
Model
RCON-GW-TRS

Specifications

Power	24VDC ± 10%
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
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.)



Model
RCON-GW-TRE

Specifications

Power	24VDC ± 10%
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
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

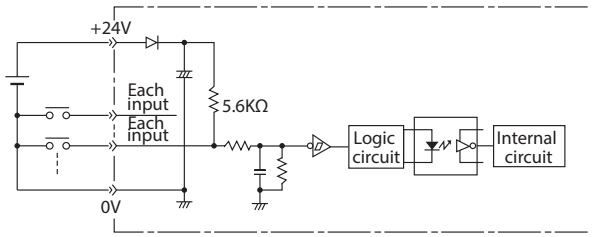
* The same assignment will be applied to each unit even for an expansion unit (PIO specification).

I/O internal circuit

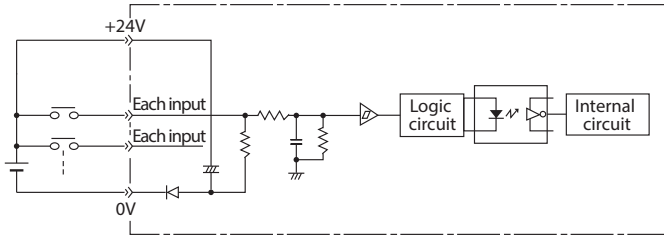
[Input]

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]



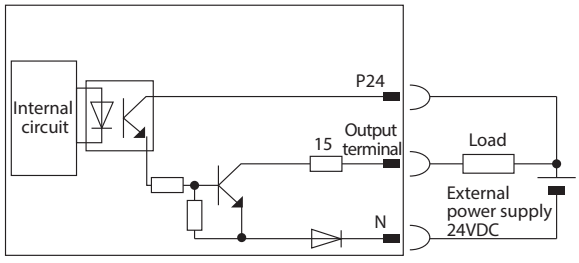
[PNP specification]



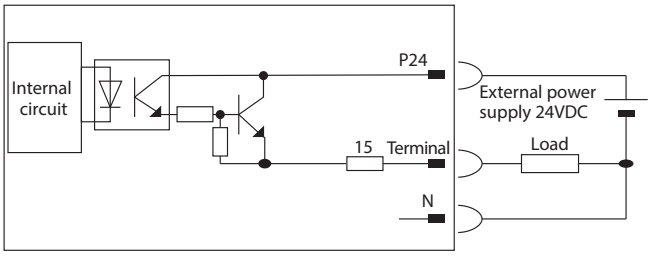
[Output]

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

[NPN specification]

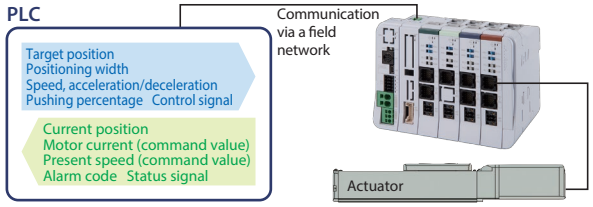
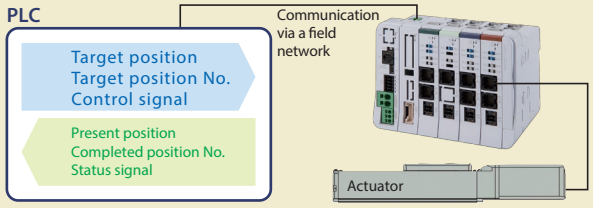
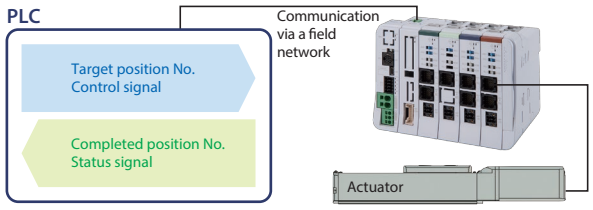
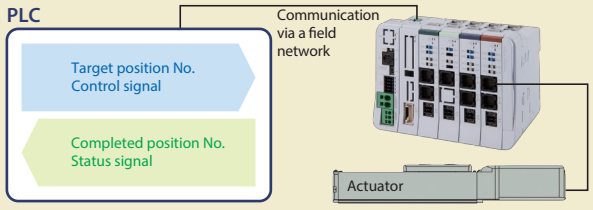
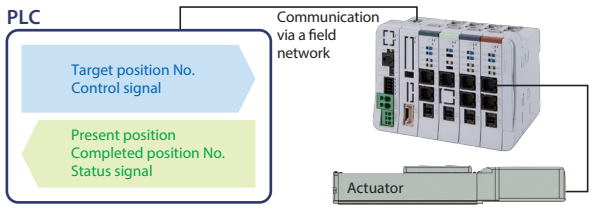


[PNP specification]



Field Network Operation Mode

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.

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.	

RCON-GW maximum number of connectable axes

Field network* \ Operation mode	Direct numerical control mode	Simple direct value mode	Positioner 1 mode	Positioner 2 mode	Positioner 3 mode	Positioner 5 mode
CC-Link	16-axis	16-axis	16-axis	16-axis	16-axis	16-axis
CC-Link IE Field**	16-axis	16-axis	16-axis	16-axis	16-axis	16-axis
DeviceNet	8-axis	16-axis	16-axis	16-axis	16-axis	16-axis
EtherCAT	8-axis	16-axis	16-axis	16-axis	16-axis	16-axis
EtherNet/IP***	8-axis	16-axis	16-axis	16-axis	16-axis	16-axis
PROFIBUS-DP	8-axis	16-axis	16-axis	16-axis	16-axis	16-axis
PROFINET IO	8-axis	16-axis	16-axis	16-axis	16-axis	16-axis

* I/O messaging only.

** CC-link IE Basic is not supported.

*** Implicit messaging only. (No explicit messaging type).

List of Functions by Operation Mode

	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	○	△ (Note 1)	△	△	△	△
Different acceleration and deceleration settings	×	△	△	△	△	△
Pitch feed (incremental)	○	△	△	△	×	△
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.

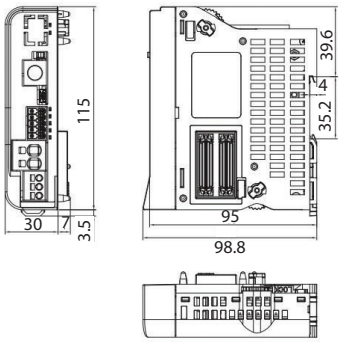
Note 4: The resolution to control a DD motor is 0.001 degree (0.01 degree for positioner 5 mode only).

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.

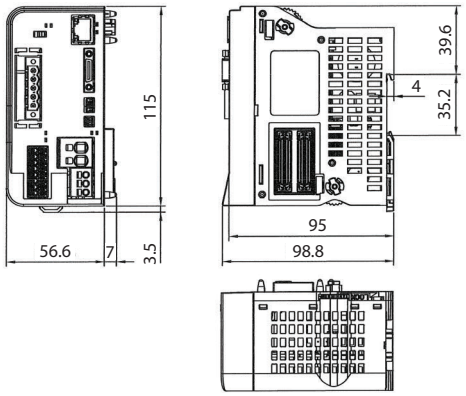
External dimensions

Master unit

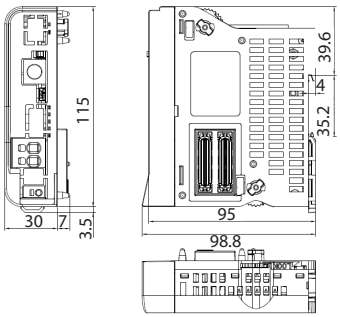
RCON



RSEL

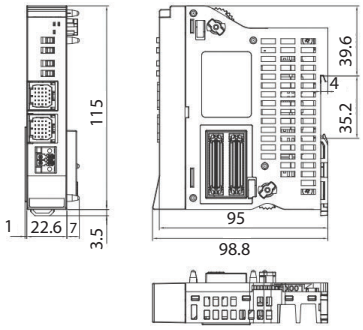


REC

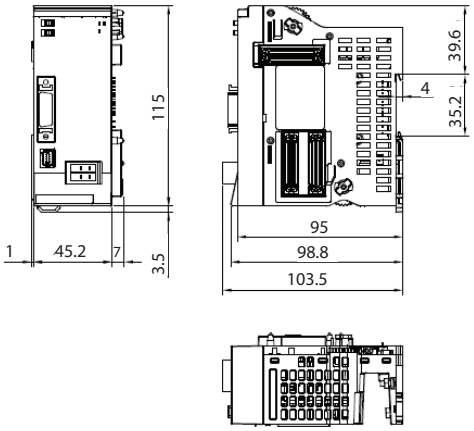


Driver Unit

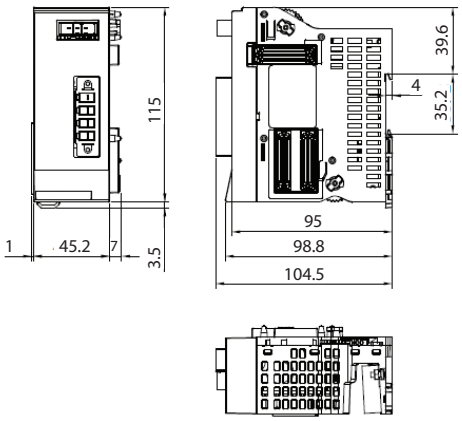
24V



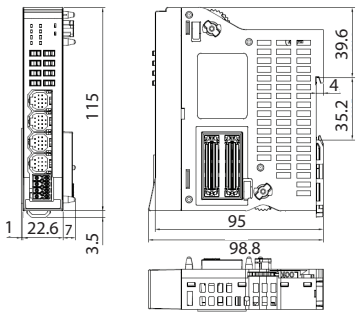
200V



200V power supply unit



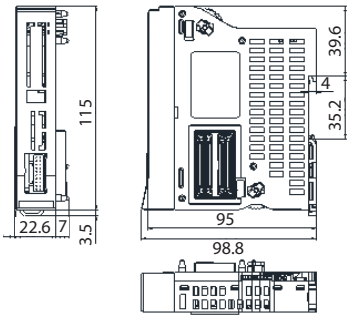
EC connection unit



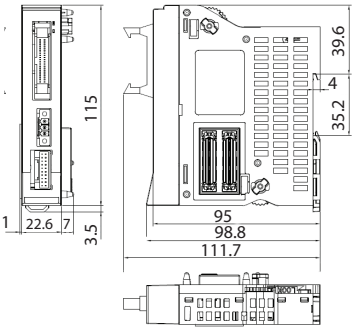
External dimensions

Expansion unit

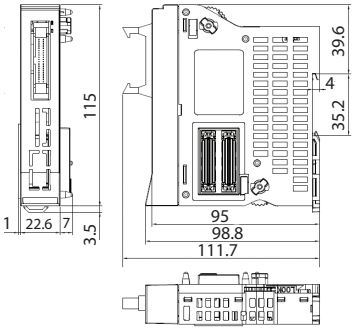
SCON expansion



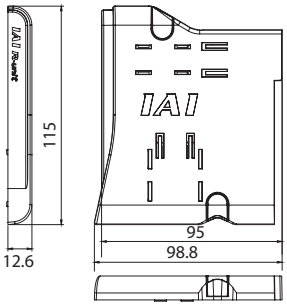
PIO/SIO/SCON expansion



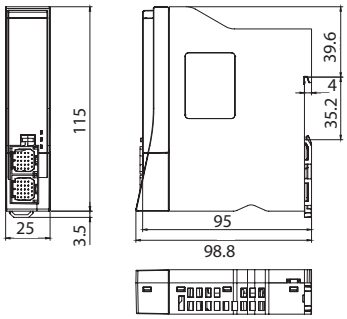
PIO



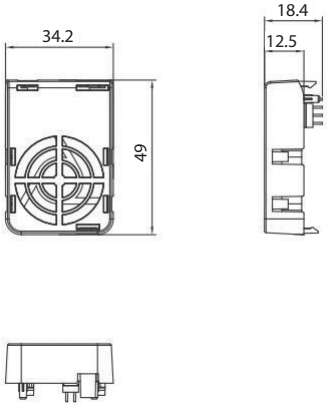
Terminal unit



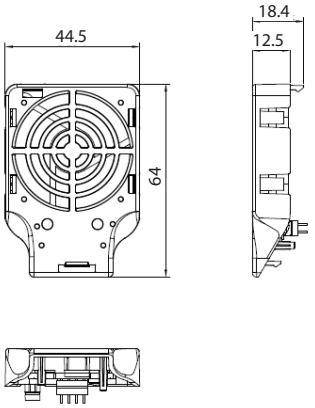
Simple absolute unit



Fan unit

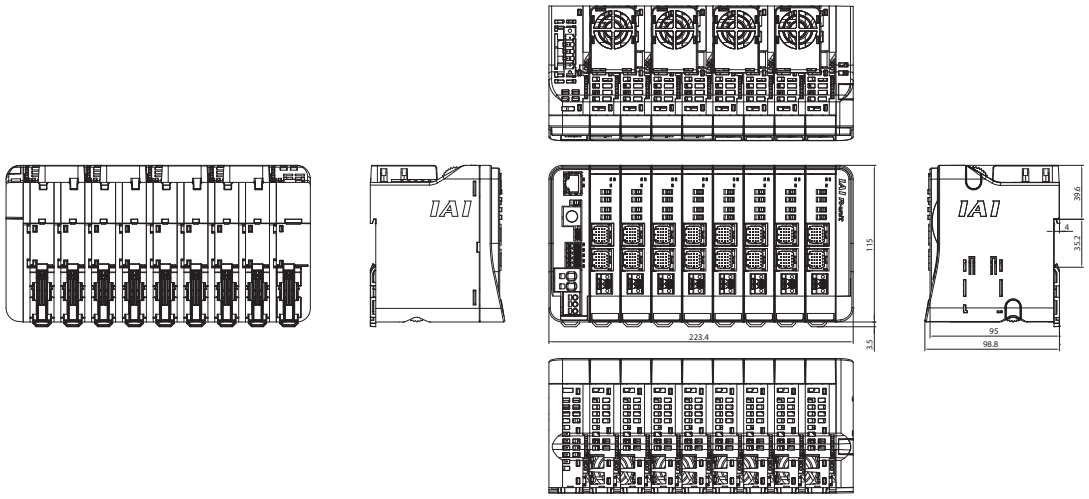


For 200V driver



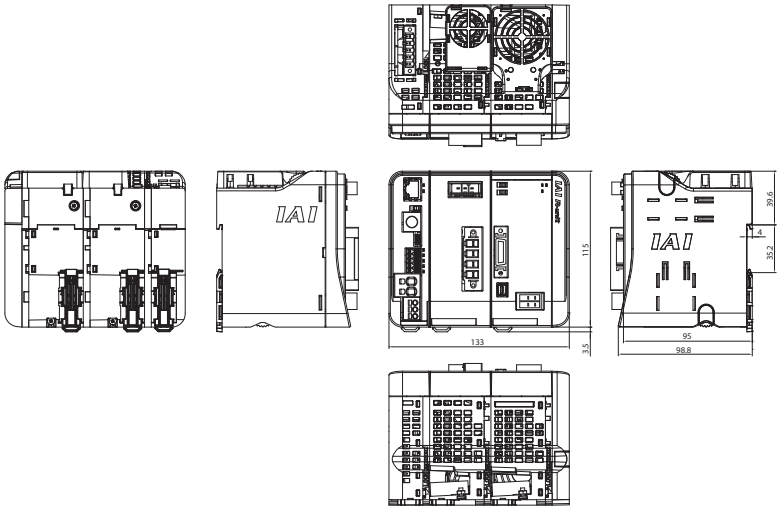
RCON

8 24V driver units (16 axes)
With fan



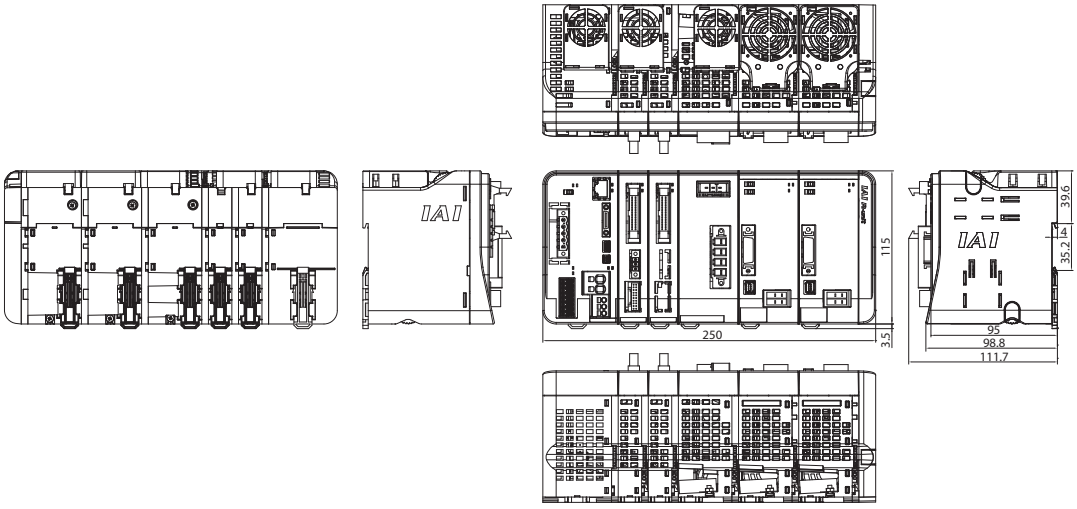
RCON

1 200V driver unit (1 axis)



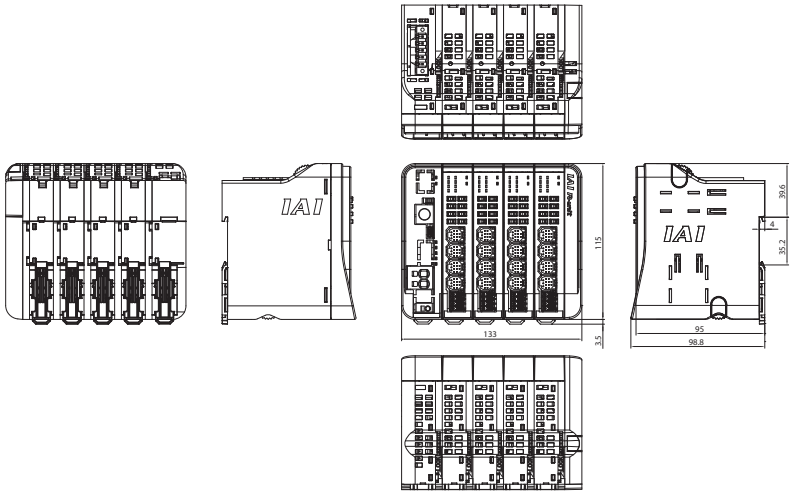
RSEL

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



REC

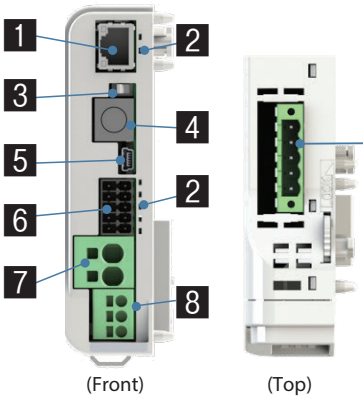
For 4 EC connection units (16 axes)



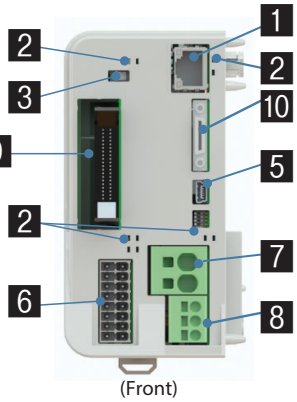
Name of Each Component

Master unit

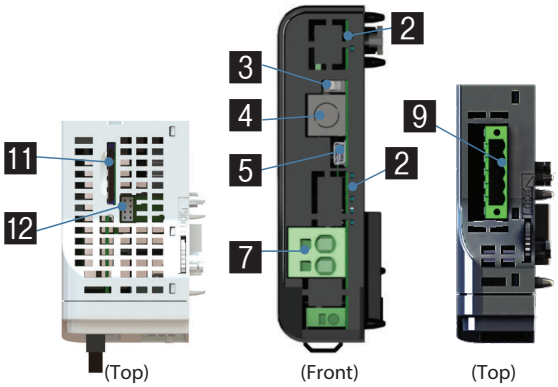
RCON-GW/GWG



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.

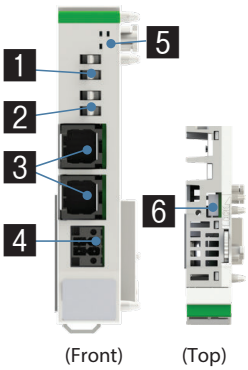
10 Teaching connector
A connector for connecting the teaching pendant.

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

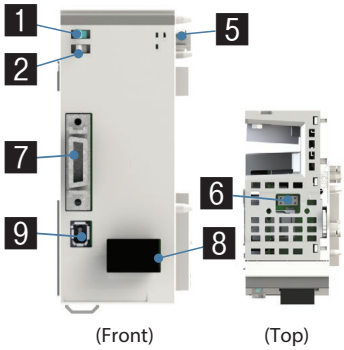
12 Fan connector
A connector to attach the fan unit.

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.

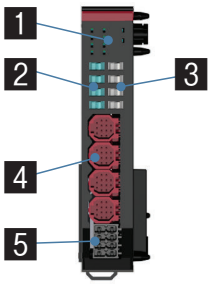
6 Fan connector
A connector to attach the fan unit.

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.

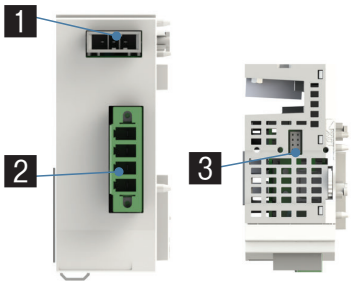
2 Jog switch
A switch used for jog operations.

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

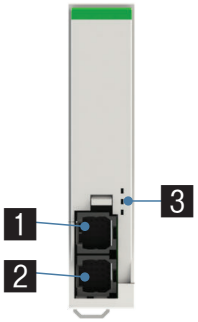
RCON-EXT-NP/PN RCON-NP/PN RCON-EXT

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.

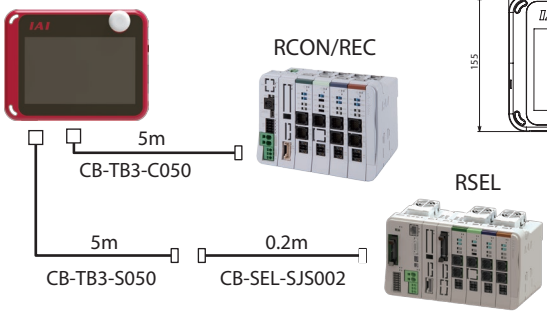
Options

Touch panel teaching pendant

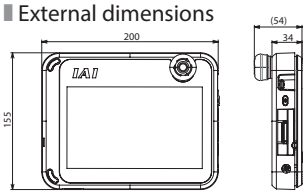
Features A teaching device equipped with functions such as position teaching, trial operation, and monitoring.

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

Configuration



External dimensions

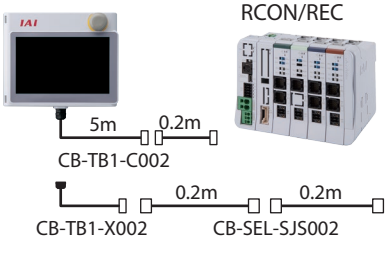


Specifications

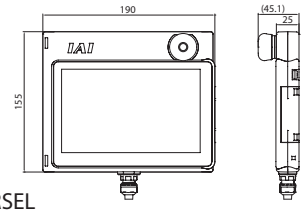
Rated voltage	24VDC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0~40°C
Ambient operating humidity	20~85% RH (non-condensing)
Environmental resistance	IPX0
Mass	670g (TB-03 unit only)
Charging method	Wired connection with dedicated AC adapter/ controller
Wireless connection	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	20~85% RH (non-condensing)
Environmental resistance	IP20
Mass	470g (TB-02 unit only)

PC Teaching Software (Windows only)

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

For RCON/REC

RC/EC PC Software Please contact IAI for the current supported versions.

Supported Windows versions: 7/10

or PC Software downloaded link

Configuration

PC teaching software (CD)

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

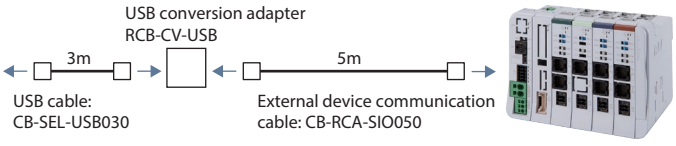
Model **RCM-101-USB** Please contact IAI for the current supported versions.

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

Supported Windows versions: 7/8/8.1/10

Configuration

PC teaching software (CD)



Model XSEL PC Software

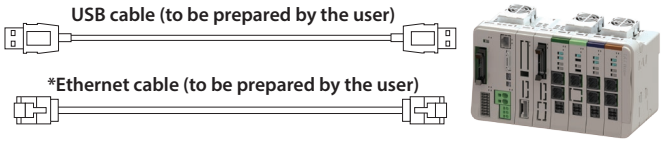
Features PC teaching software (DVD) only.
If you want to connect both the controller and PC side with a USB cable or Ethernet cable, only the software needs to be purchased. A cable that meet the following specifications is to be prepared by the customer.

Notes
When operating the actuator by USB connection, be sure to connect the stop switch to the system I/O connector.
If an emergency switch is not available, use the emergency stop-equipped model "IA-101-X-USBMW".

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)	5m

PC teaching software (DVD)



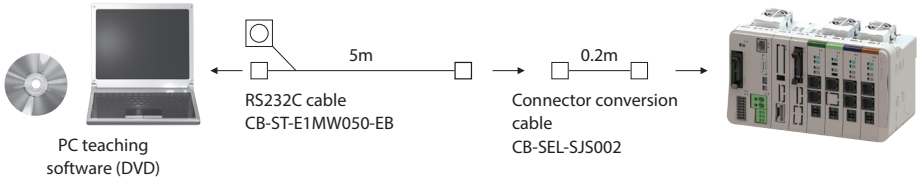
* In order to use EtherNet cable, parameters need to be set by other cables of IA-101-X-MW-JS or USB mini-B.

Supported Windows versions: 7/8/8.1/10

or PC Software downloaded link

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

Configuration Please contact IAI for the current supported versions.



PC teaching software (DVD)

Supported Windows versions: 7/8/8.1/10

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.)

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)**

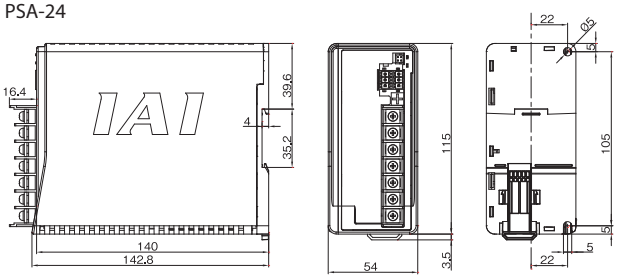
Specifications Table

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	

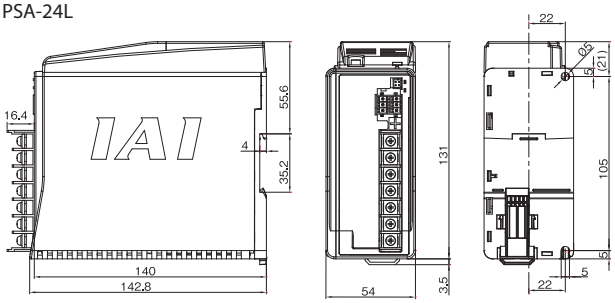
*1 The pulse width of flowing inrush current is less than 5ms.
*2 In order to enable parallel operation, this power supply can vary the output voltage according to the load. Therefore, the power supply unit is dedicated for IAI controllers.
*3 Parallel connection cannot be used under the following conditions.
- 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

External dimensions

PSA-24



PSA-24L



Maintenance Parts

Fan unit

Overview An option for forced cooling of the driver unit.

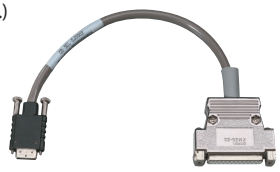
Model **RCON-FU**

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-SJ, IA-101-X-MW-JS accessory.)

Model **CB-SEL-SJS002**



Dummy plug

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

For RSEL
Model **DP-4S**

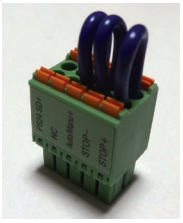
For 200V driver
Model **DP-6**

System I/O connector

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

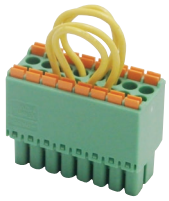
For RCON-GW(G)

Model **DFMC1,5/5-ST-3,5**



For RSEL

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

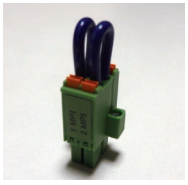


Drive source shutoff connector

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 Unit that converts the regenerative current generated during motor deceleration to heat.
A regenerative resistor is built-in to the 200V driver unit and 200V power supply unit.
However, external regenerative resistance will be required if the timing at which energy is generated due to deceleration is the same.

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

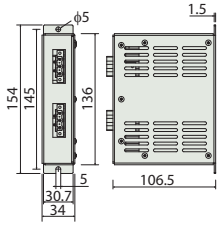
Specifications

Model	RESU-2	RESUD-2
Unit weight	About 0.4kg	
Built-in regenerative resistance value	235Ω 80W	
Unit mounting method	Screw mount	DIN rail mount
Attached cable	CB-SC-REU010	

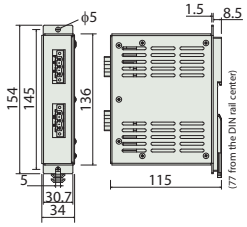
*When two regenerative units are required, please use one RESU-2 and one RESU-1 (please contact IAI for the details).

External Dimensions

<RESU-2>



<RESUD-2>



Maintenance Parts (Cables)

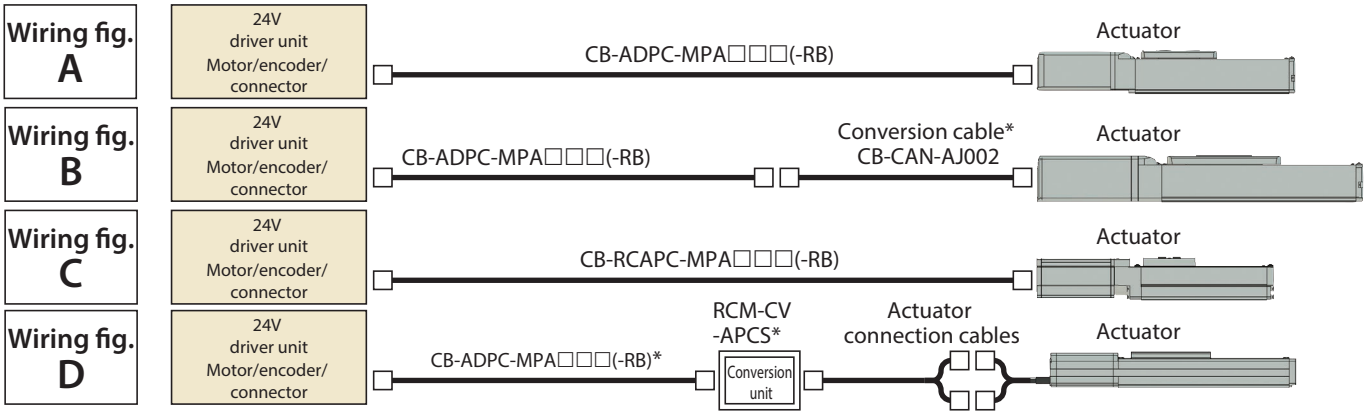
When placing an order for a replacement cable, please use the model name shown below.

Table of compatible cables

Motor encoder cable for 24V driver connection

No.	Actuator		Applicable controller symbol	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	CB-ADPC-MPA□□□(-RB)	-	A
(2)		High thrust type(Note 1)	P6	CB-ADPC-MPA□□□(-RB) CB-CAN-AJ002 (conversion cable)	-	B
(3)	RCP4 RCP4CR RCP4W	Gripper (GR*), ST4525E, SA3/RA3	P5	CB-ADPC-MPA□□□(-RB)	-	A
(4)		High thrust type(Note 1)	P6	CB-ADPC-MPA□□□(-RB) CB-CAN-AJ002 (conversion cable)	-	B
(5)		Other than (3), (4)	P5	CB-ADPC-MPA□□□(-RB) CB-CAN-AJ002 (conversion cable)	-	B
(6)	RCP3		P5	CB-RCAPC-MPA□□□(-RB)	-	C
(7)	RCP2 RCP2CR RCP2W	RCP2 (standard type) rotary compact type RCP2-RTBS/RTBSL/RTCS/RTCSL	P5	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	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	CB-RCAPC-MPA□□□(-RB)	-	C
(10)		High thrust type(Note 1)	P6	CB-ADPC-MPA□□□(-RB) [CB-CFA-MPA□□□(-RB)]	Required	D
(11)		Other than (7)~(10)	P5	CB-ADPC-MPA□□□(-RB) [CB-PSEP-MPA□□□]	Required	D
(12)	RCA2/RCA2CR/RCA2W, RCL		A6	CB-RCAPC-MPA□□□(-RB)	-	C
(13)	RCA2/RCA2CR/RCA2W (CNS option)		A6	CB-ADPC-MPA□□□(-RB)	-	A
(14)	RCA RCACR RCAW	Short type (RCA only) RCA-SRA4R/SRGS4R/SRGD4R	A6	CB-RCAPC-MPA□□□(-RB)	-	C
(15)		Other than (14)	A6	CB-ADPC-MPA□□□(-RB) [CB-ASEP2-MPA□□□]	Required	D
(16)	RCD	RCD-RA1DA, RCD-GRSNA	D6	CB-ADPC-MPA□□□(-RB)	-	A
(17)	WU		PM2	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

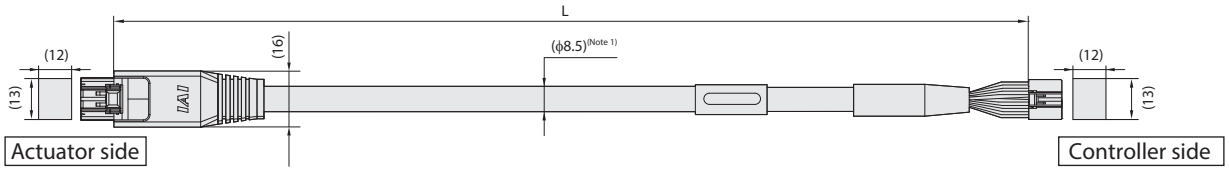
No.	Actuator			Applicable controller code	Connection cable (Note 3)			
	Series		Type		Motor cable	Motor robot cable	Encoder cable	Encoder robot cable
(1)	RCS4 RCS4CR			T4	CB-RCC1-MA□□□	CB-X2-MA□□□	-	CB-X1-PA□□□
(2)	RCS3(P) RCS3(P)CR		CTZ5C CT8C	T4	CB-RCC1-MA□□□	CB-X2-MA□□□	-	CB-X1-PA□□□
(3)			Other than (2)	T4	CB-RCC1-MA□□□	CB-X2-MA□□□	CB-RCS2-PA□□□	CB-X3-PA□□□
(4)	RCS2 RCS2CR RCS2W		RTC□L RT6	T4	CB-RCC1-MA□□□	CB-X2-MA□□□	CB-RCS2-PLA□□□	CB-X2-PLA□□□
(5)			Other than (4)	T4	CB-RCC1-MA□□□	CB-X2-MA□□□	CB-RCS2-PA□□□	CB-X3-PA□□□
(6)	RCS2	No load cell	RA13R	T4	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	-	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	-	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	-	CB-X2-MA□□□	-	CB-X1-PA□□□
(12)			(Option: When limit switch was selected)	T4	-	CB-X2-MA□□□	-	CB-X1-PLA□□□
(13)	NSA			T4	-	CB-X2-MA□□□	-	CB-X1-PA□□□
(14)	NS		Other than (15)	T4	-	CB-X2-MA□□□	-	CB-X3-PA□□□
(15)			(Option: When limit switch was selected)	T4	-	CB-X2-MA□□□	-	CB-X2-PLA□□□
(16)	DD DDCR DDW DDA DDACR		T18□ LT18□	T4	-	CB-X2-MA□□□	-	CB-X3-PA□□□
(17)			H18□ LH18□	T4	-	CB-XMC1-MA□□□	-	CB-X3-PA□□□
(18)	LSA		W□□□	T4	-	CB-XMC1-MA□□□	-	CB-X2-PLA□□□
(19)			Other than (18)	T4	-	CB-X2-MA□□□	-	CB-X3-PA□□□
(20)	LSAS			T4	-	CB-X2-MA□□□	-	CB-X1-PA□□□
(21)	ISWA ISPWA			T4	-	CB-XEU1-MA□□□	-	CB-X1-PA□□□-WC

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

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.
	DC	AC	PC	
Blue (AWG22/19)	U	U	ϕA	3
Orange (AWG22/19)	V	V	VMM	5
Brown (AWG22/19)	-	-	ϕB	10
Gray (AWG22/19)	-	-	VMM	9
Green (AWG22/19)	W	W	ϕ_A	4
Red (AWG22/19)	-	-	ϕ_B	15
Light blue (AWG26)	A+	A+	SA[mABS]	12
Orange (AWG26)	A-	A-	SB[mABS]	17
Green (AWG26)	B+	B+	A+	1
Brown (AWG26)	B-	B-	A-	6
Gray (AWG26)	HS1_IN	Z+/SA[mABS]	B+	11
Red (AWG26)	HS2_IN	Z-/SB[mABS]	B-	16
Black (AWG26)	-	VPS/BAT-	VPS	18
Yellow (AWG26)	-	BK+	LS+	8
Light blue (AWG26)	-	LS+	BK+	20
Orange (AWG26)	-	LS-	BK-	2
Gray (AWG26)	VCC	VCC	VCC	21
Red (AWG26)	GND	GND	GND	7
Brown (AWG26)	-	BK-	LS-	14
Green (AWG26)	HS3_IN	LS_GND	LS_GND	13
-	-	-	-	19
Pink (AWG26)	-	BAT+	CF_VCC	22
-	-	-	-	23
Black (AWG26)	FG	FG	FG	24

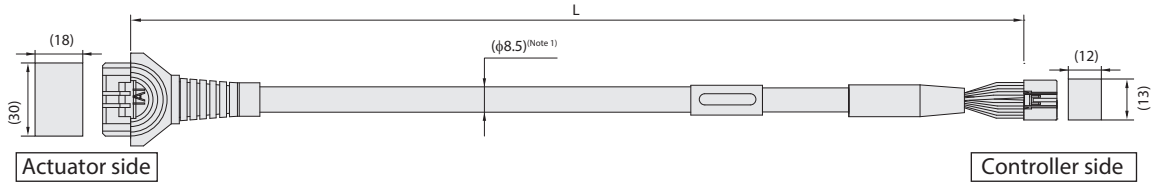
Purple (AWG26)

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

Pin No.	Signal name			Color
	PC	AC	DC	
3	ϕA	U	U	Blue (AWG22/19)
5	VMM	V	V	Orange (AWG22/19)
10	ϕB	-	-	Brown (AWG22/19)
9	VMM	-	-	Gray (AWG22/19)
4	ϕ_A	W	W	Green (AWG22/19)
15	ϕ_B	-	-	Red (AWG22/19)
12	SA[mABS]	A+	A+	Light blue (AWG26)
17	SB[mABS]	A-	A-	Orange (AWG26)
1	A+	B+	B+	Green (AWG26)
6	A-	B-	B-	Brown (AWG26)
11	B+	Z+/SA[mABS]	HS1_IN	Gray (AWG26)
16	B-	Z-/SB[mABS]	HS2_IN	Red (AWG26)
18	VPS	VPS/BAT-	-	Black (AWG26)
8	LS+	BK+	-	Yellow (AWG26)
20	BK+	LS+	-	Light blue (AWG26)
2	BK-	LS-	-	Orange (AWG26)
21	VCC	VCC	VCC	Gray (AWG26)
7	GND	GND	GND	Red (AWG26)
14	LS-	BK-	-	Brown (AWG26)
13	LS_GND	LS_GND	HS3_IN	Green (AWG26)
19	-	-	-	-
22	CF_VCC	BAT+	-	Pink (AWG26)
23	-	-	-	-
24	FG	FG	FG	Black (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.
	DC	AC	PC	
Blue (AWG22/19)	U	U	ϕA	A1
Orange (AWG22/19)	V	V	VMM	B1
Brown (AWG22/19)	-	-	ϕB	B2
Gray (AWG22/19)	-	-	VMM	A3
Green (AWG22/19)	W	W	ϕ_A	A2
Red (AWG22/19)	-	-	ϕ_B	B3
Light blue (AWG26)	A+	A+	SA[mABS]	A6
Orange (AWG26)	A-	A-	SB[mABS]	B6
Green (AWG26)	B+	B+	A+	A7
Brown (AWG26)	B-	B-	A-	B7
Gray (AWG26)	HS1_IN	Z+/SA[mABS]	B+	A8
Red (AWG26)	HS2_IN	Z-/SB[mABS]	B-	B8
Black (AWG26)	-	VPS/BAT-	VPS	B9
Yellow (AWG26)	-	BK+	LS+	A4
Light blue (AWG26)	-	LS+	BK+	A5
Orange (AWG26)	-	LS-	BK-	B5
Gray (AWG26)	VCC	VCC	VCC	A10
Red (AWG26)	GND	GND	GND	B10
Brown (AWG26)	-	BK-	LS-	B4
Green (AWG26)	HS3_IN	LS_GND	LS_GND	A9
-	-	-	-	A11
-	-	-	-	-
-	-	-	-	-
Black (AWG26)	FG	FG	FG	B11

Purple (AWG26)
Pink (AWG26)

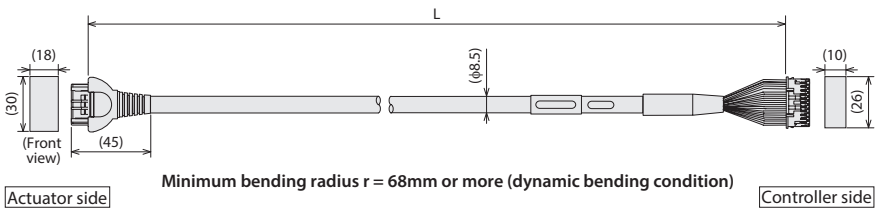
DF62DL-24S-2.2C (HIROSE ELECTRIC CO., LTD.)

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

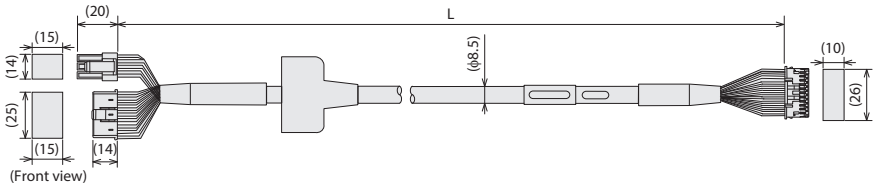
Actuator side — Controller side

Actuator side D-1100D 1-1827863-1 (AMP) Terminal number		Controller side PADP-24V-1-S (J.S.T. Mfg. Co.,Ltd.) Terminal number
A1	Black [ϕA]	1
B1	White [VMM]	2
A2	Brown [ϕ/A]	5
B2	Green [ϕB]	3
A3	Yellow [VMM]	4
B3	Red [ϕ/B]	6
A6	Orange [LS+]	7
B6	Gray [LS-]	8
A7	Red [A+]	13
B7	Green [A-]	14
A8	Black [B+]	15
B8	Brown [B-]	16
A4	NC	-
B4	NC	-
A5	Black (identification tape) [BK+]	9
B5	Brown (identification tape) [BK-]	10
A9	Green (identification tape) [GNDLS]	20
B9	Red (identification tape) [VPS]	18
A10	White (identification tape) [VCC]	17
B10	Yellow (identification tape) [GND]	19
A11	NC	21
B11	Shield [FG] (FG)	24
	NC	22
	NC	23

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

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

If the cable length is over 3m, ϕ9.1 cable diameter applies for a non-robot cable and ϕ10 for a robot cable.



Actuator side — Controller side

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

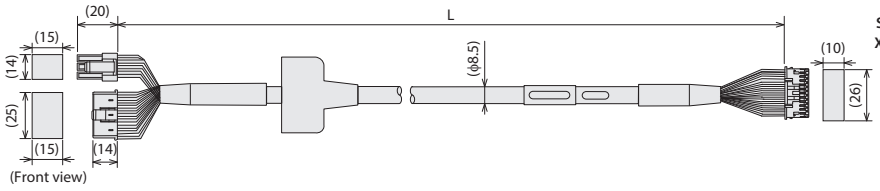
* The robot cable is designed for flex-resistance:
Please use the robot cable if the cable needs to be installed through the cable track.

Actuator side SLP-06V (J.S.T. Mfg. Co.,Ltd.) XMP-18V (J.S.T. Mfg. Co.,Ltd.) Pin No.	Signal name	Controller side PADP-24V-1-S (J.S.T. Mfg. Co.,Ltd.) Pin No.	Signal name
1	ϕA	1	ϕA
2	VMM	2	VMM
4	ϕB	3	ϕB
5	VMM	4	VMM
3	ϕ/A	5	ϕ/A
6	ϕ/B	6	ϕ/B
		11	NC
5	NC	12	NC
6	NC	7	LS+
13	LS+	8	LS-
14	LS-	13	A+
1	A+	14	A-
2	A-	15	B+
3	B+	16	B-
4	B-	9	BK+
16	BK+	10	BK-
17	BK-	21	VCC
12	VCC	19	GND
9	GND	18	VPS
11	VPS	20	NC
10	NC	24	FG
18	FG	17	NC
15	NC	22	NC
7	NC	23	NC
8	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

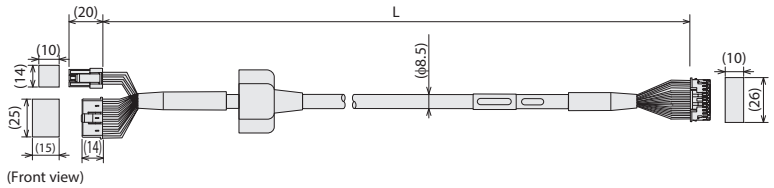
Minimum bending radius r = 68mm or more (dynamic bending condition)

Actuator side SLP-06V (J.S.T. Mfg. Co.,Ltd.) XMP-18V (J.S.T. Mfg. Co.,Ltd.) Terminal number		Controller side PADP-24V-1-S (J.S.T. Mfg. Co.,Ltd.) Terminal number
1	Black [ϕA]	1
2	White [VMM]	2
4	Red [ϕB]	3
5	Green [VMM]	4
3	Brown [ϕ/A]	5
6	Yellow [ϕ/B]	6
16	Orange [BK+]	9
17	Gray [BK-]	10
5	NC	11
6	NC	12
13	Black [LS+]	7
14	Brown [LS-]	8
1	White [A+]	13
2	Yellow [A-]	14
3	Red [B+]	15
4	Green [B-]	16
10	White (identification tape) [VCC]	17
11	Yellow (identification tape) [VPS]	18
9	Red (identification tape) [GND]	19
12	Green (identification tape) [(reserve)]	20
15	NC	21
7	NC	22
8	NC	23
18	Shield [FG]	24

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



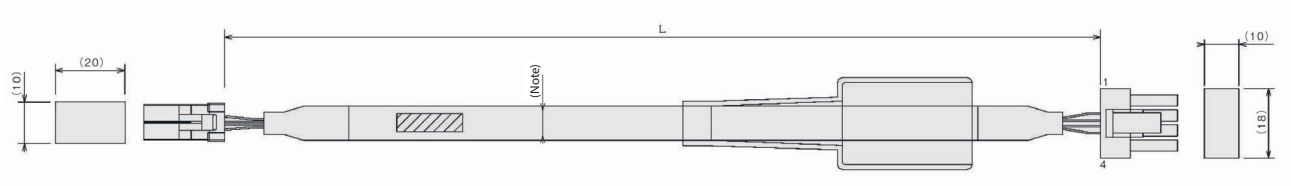
Actuator side — Controller side

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

Actuator side SLP-06V (J.S.T. Mfg. Co.,Ltd.) XMP-18V (J.S.T. Mfg. Co.,Ltd.) Terminal number		Controller side PADP-24V-1-S (J.S.T. Mfg. Co.,Ltd.) Terminal number
1	Red [U]	1
2	Yellow [V]	2
	NC	3
	NC	4
3	Black [W]	5
	NC	6
18	Orange [BK+]	7
17	Gray [BK-]	8
7	Black [LS+]	9
16	Brown [LS-]	10
1	White [A+]	11
2	Yellow [A-]	12
3	Red [B+]	13
4	Green [B-]	14
10	Black (identification tape) [Z+]	15
11	Brown (identification tape) [Z-]	16
14	White (identification tape) [VCC]	17
15	Yellow (identification tape) [GND]	19
13	Red (identification tape) [VPS/BAT-]	18
6	Green (identification tape) [(reserve)]	20
12	White [BAT+]	21
5	NC	22
8	NC	23
9	Shield [FG]	24

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)

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

Actuator side

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

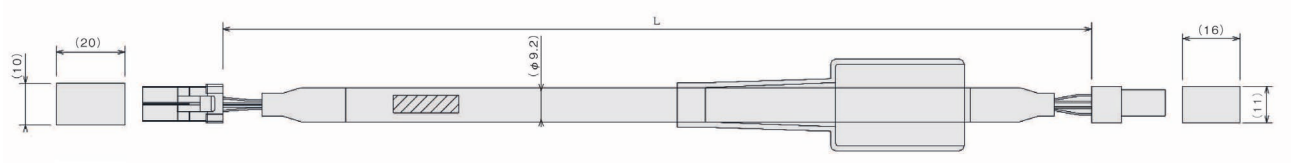
Wiring	Color	Signal	No.
0.75sq (crimped)	Red	U	B1
	White	V	B2
	Black	W	A1
	Green	PE	A2

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)

* Only the robot cable is available for this model.

Actuator side

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

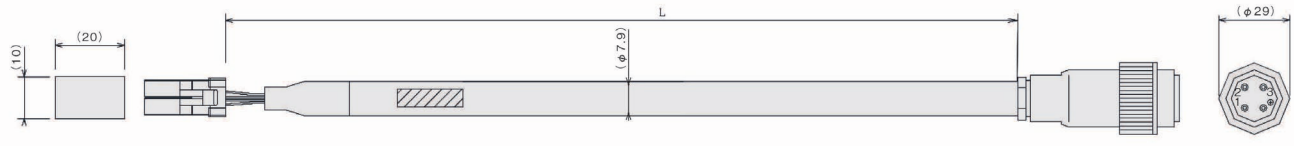
Wiring	Color	Signal	No.
1.25sq (crimped)	Red	U	B1
	White	V	B2
	Black	W	A1
	Green	PE	A2

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)

* Only the robot cable is available for this model.

Actuator side

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

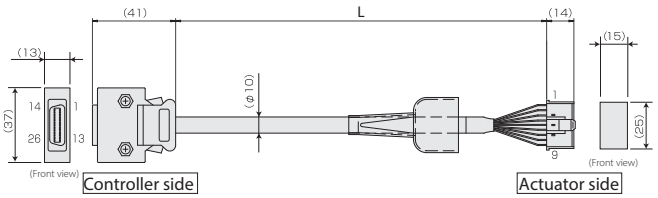
Wiring	Color	Signal	No.
0.75sq (crimped)	1 with white character in black	U	B1
	2 with white character in black	V	B2
	3 with white character in black	W	A1
	Green/yellow	PE	A2

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	

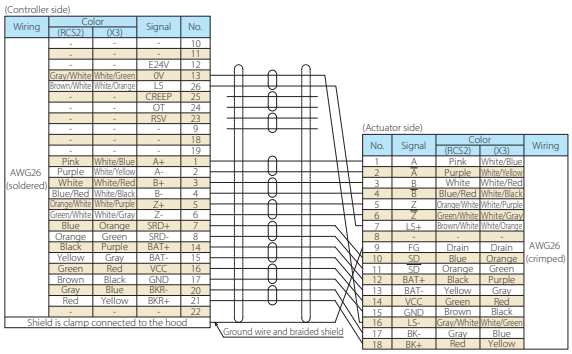
Model **CB-RCS2-PA□□□**

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



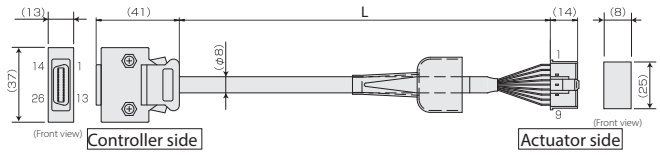
Minimum bending radius r = 58mm or more (Dynamic bending condition)

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



Model **CB-X1-PA□□□**

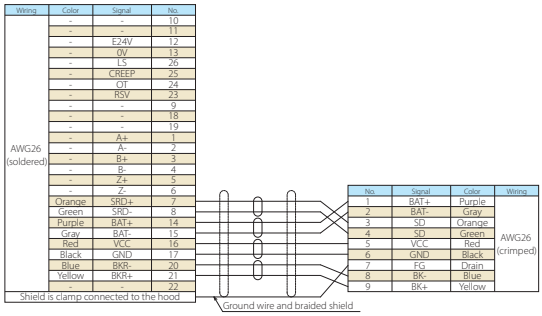
*Please indicate the cable length (L) in □□□, e.g.) 080 = 8m, maximum 20m



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

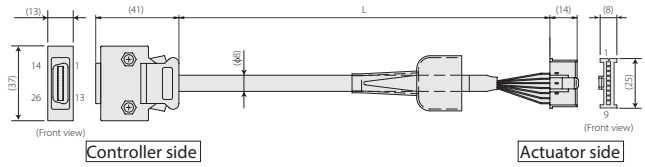
* Only the robot cable is available for this model.

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



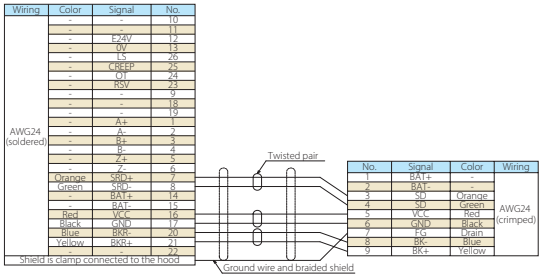
Model **CB-X1-PA□□□-AWG24**

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



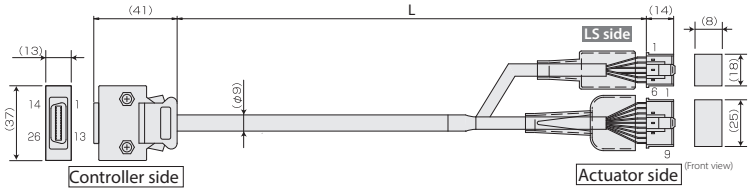
Minimum bending radius r = 44mm or more (Dynamic bending condition)

* Only the robot cable is available for this model.



Model **CB-X1-PLA□□□**

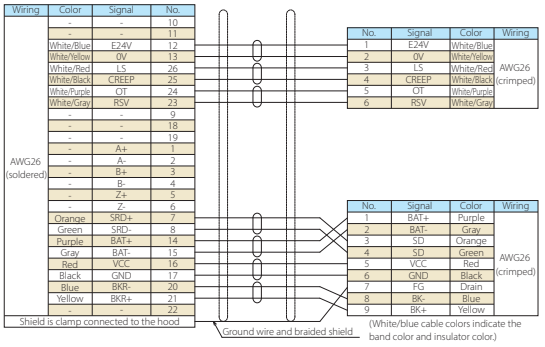
*Please indicate the cable length (L) in □□□, e.g.) 080 = 8m, maximum 30m



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

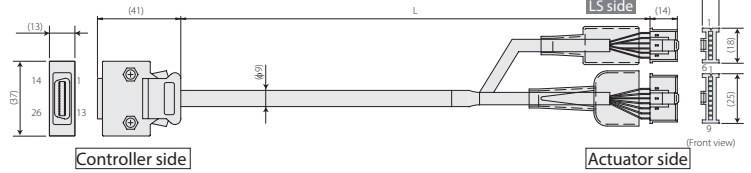
* Only the robot cable is available for this model.

*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.



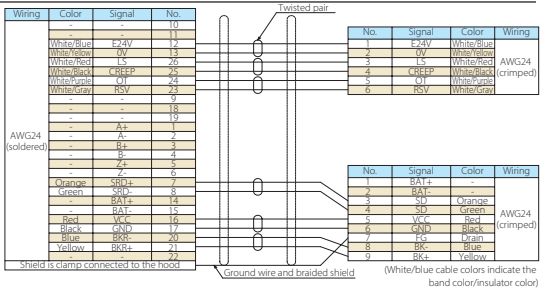
Model **CB-X1-PLA□□□-AWG24**

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



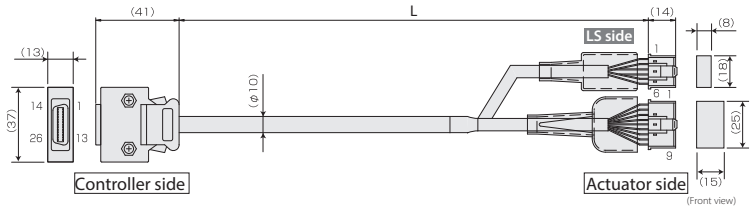
Minimum bending radius r = 54mm or more (Dynamic bending condition)

* Only the robot cable is available for this model.



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.

(Controller side)

Wiring	Color (RCS2)	Color (X2)	Signal	No.
	-	-	-	10
	-	-	-	11
	Brown/White	White/Orange	E24V	12
	Gray/White	White/Green	0V	13
	Red/White	Brown/Blue	LS	26
	Black/White	Brown/Yellow	CREEP	25
	Yellow/Black	Brown/Red	OT	24
	Pink/Black	Brown/Black	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

Ground wire and braided shield

(Actuator side)

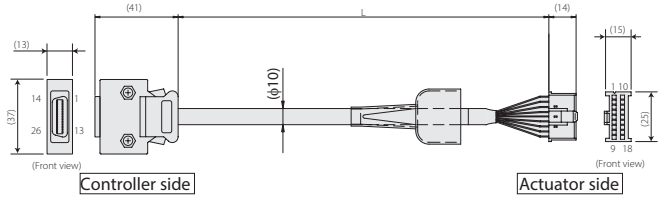
No.	Signal	Color (RCS2)	Color (X2)	Wiring
1	E24V	Brown/White	White/Orange	AWG26 (crimped)
2	0V	Gray/White	White/Green	
3	LS	Red/White	Brown/Blue	
4	CREEP	Black/White	Brown/Yellow	
5	OT	Yellow/Black	Brown/Red	
6	RSV	Pink/Black	Brown/Black	

No.	Signal	Color (RCS2)	Color (X2)	Wiring
1	A+	Pink	White/Blue	AWG26 (crimped)
2	A-	Purple	White/Yellow	
3	B+	White	White/Red	
4	B-	Blue/Red	White/Black	
5	Z+	Orange/White	White/Purple	
6	Z-	Green/White	White/Gray	
7	-	-	-	
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	-	-	-	
17	BK-	Gray	Blue	
18	BK+	Red	Yellow	

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

Model **CB-X3-PA□□□**

*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.

(Controller side)

Wiring	Color (RCS2)	Color (X3)	Signal	No.
	-	-	-	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

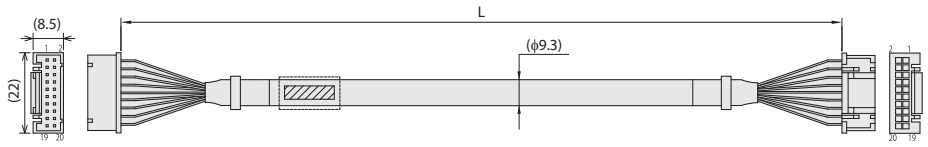
Ground wire and braided shield

(Actuator side)

No.	Signal	Color (RCS2)	Color (X3)	Wiring
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-RE-CTL□□□**

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



Wiring fig.

PUDP-20V-S

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

PUDP-20V-S

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)

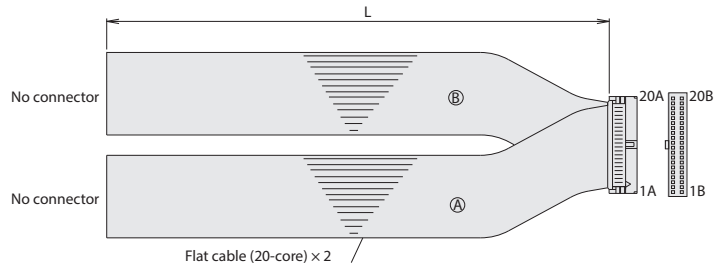
UL1061 AWG26 (Black)

UL1061 AWG26 (Black)

Ground wire and braided shield

Model **CB-PAC-PIO□□□**

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



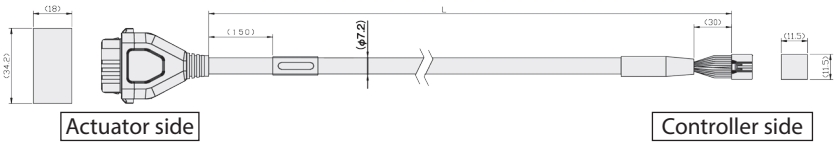
HIF6-40D-1. 27R

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



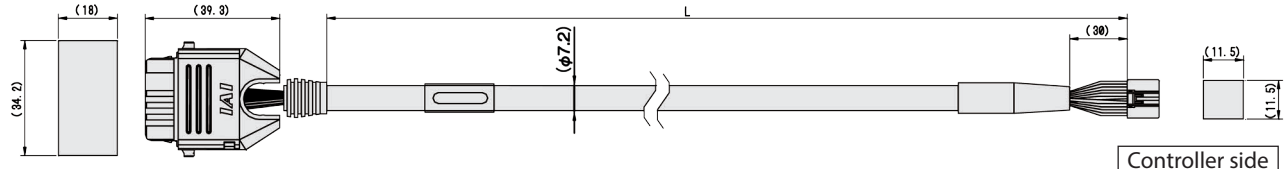
Minimum bending radius r = 58mm or more (Dynamic bending condition)
* Only the robot cable is available for this model.

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

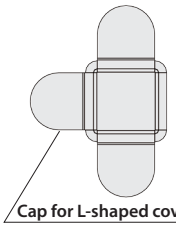
Pin No.	Signal name	Color
2	0V	Black (AWG18)
1	24V(MP)	Red (AWG18)
12	24V(CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Pink (AWG26)
10	SD-	White (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

Model **CB-REC2-PWBIO□□□-RB**

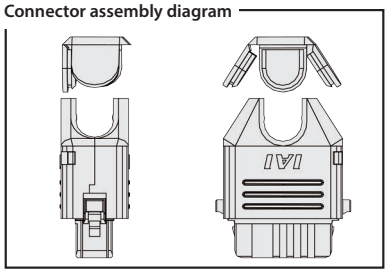
*Please indicate the cable length (L) in □□□,
e.g.) 030 = 3m, maximum 10m



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



Connector assembly diagram



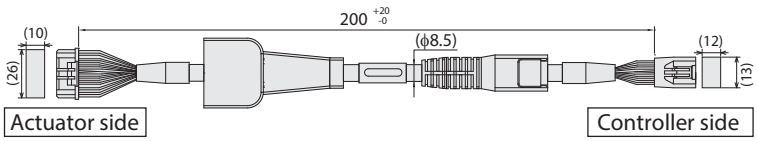
1-1871946-6

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-CAN-AJ002**



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

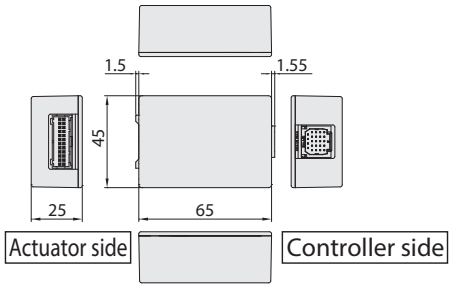
1-1827863-1 (AMP)

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

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

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

Model **RCM-CV-APCS**



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