IAI
Quality and Innovation

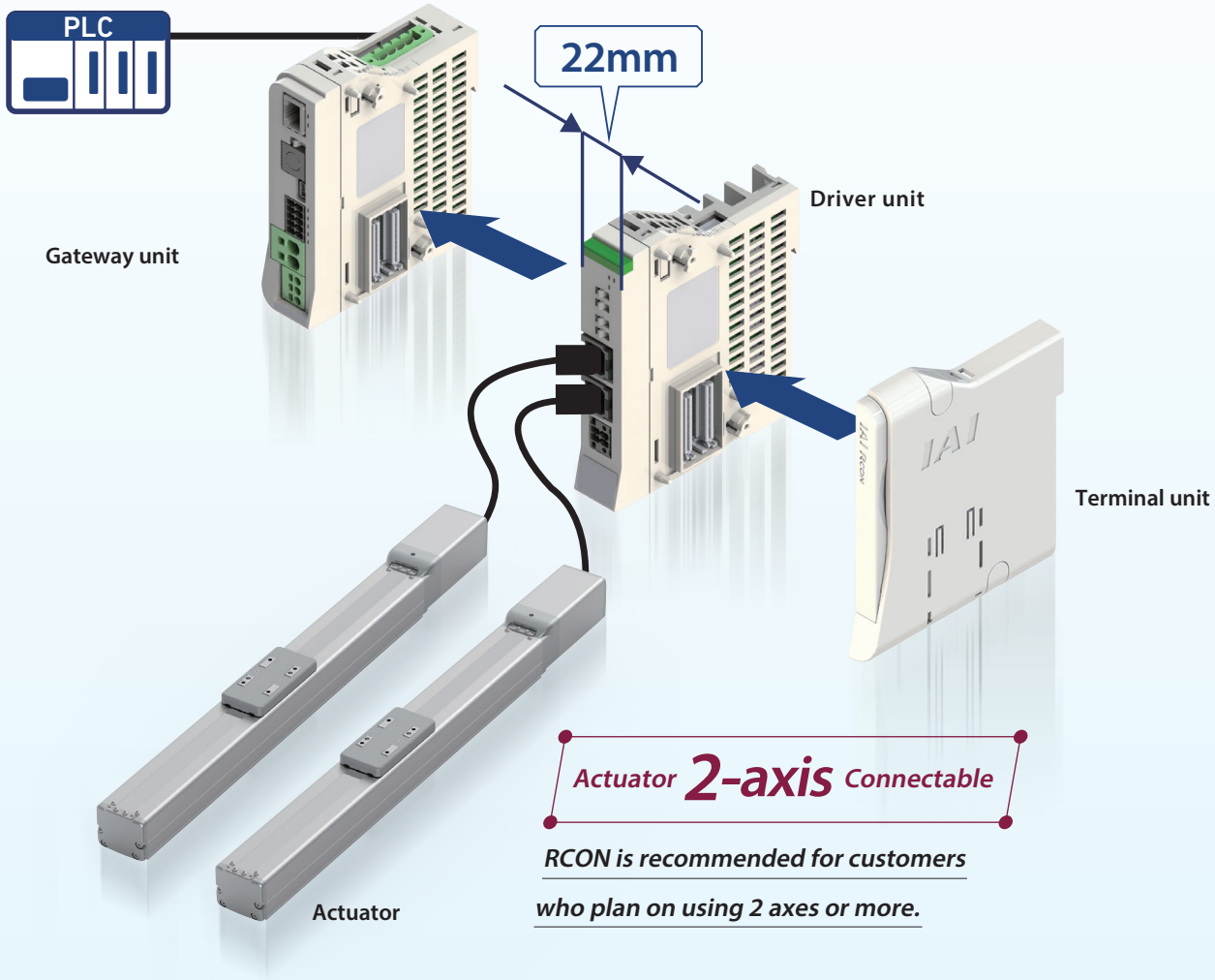
RCON

www.intelligentactuator.com

Saves space inside the control panel

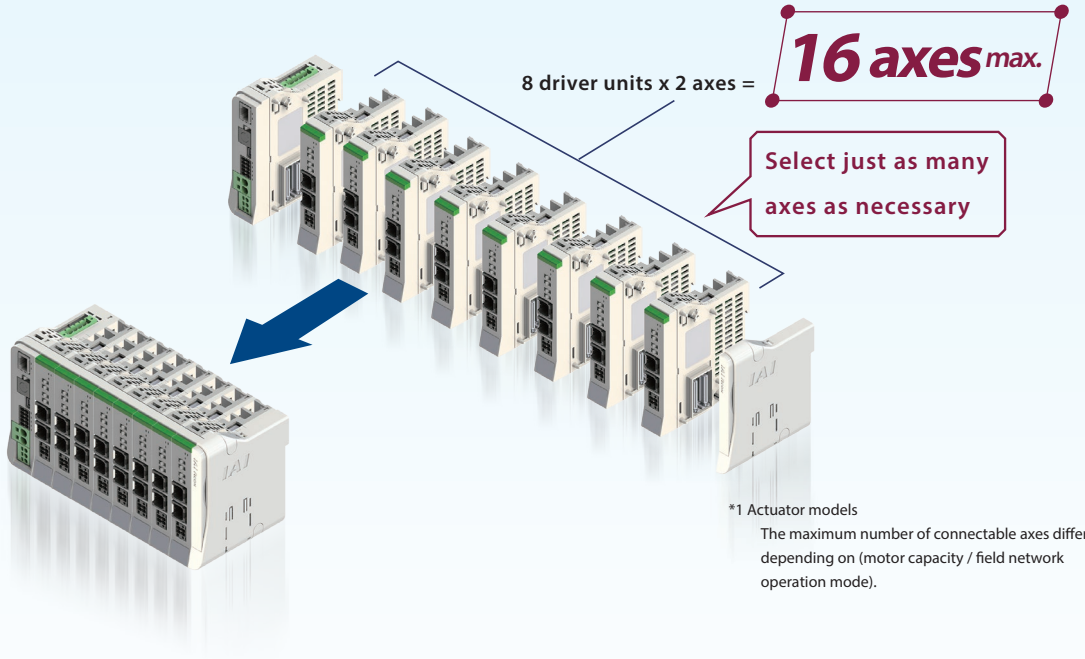
RCON is recommended for actuators with two axes or more.

Up to 2 axes of actuators can be connected to one RCON 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 driver units can be added in just the amount necessary.



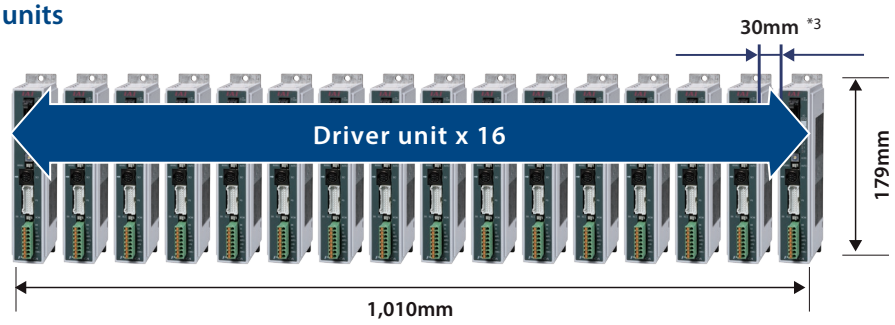
*1 Actuator models
The maximum number of connectable axes differs depending on (motor capacity / field network operation mode).

Saves up to 85%[*2] of control panel space.

*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.

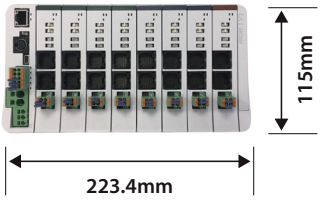
PCON-CB x 16 units



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

RCON x 16-axis connection specification

Saves space by 85%

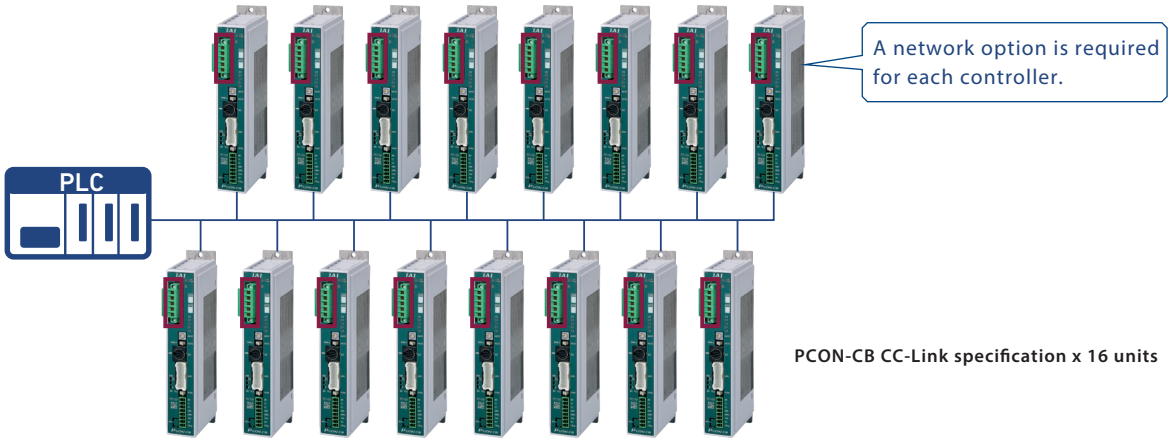


Reduces costs by as much as 60%[*4].

*4 IAI product comparison

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% or so. It is especially recommended when using multiple axes.

Comparison example



60% cost reduction

For RCON

RCON

CC-Link specification
high-output stepper
motor 16 axes

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

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

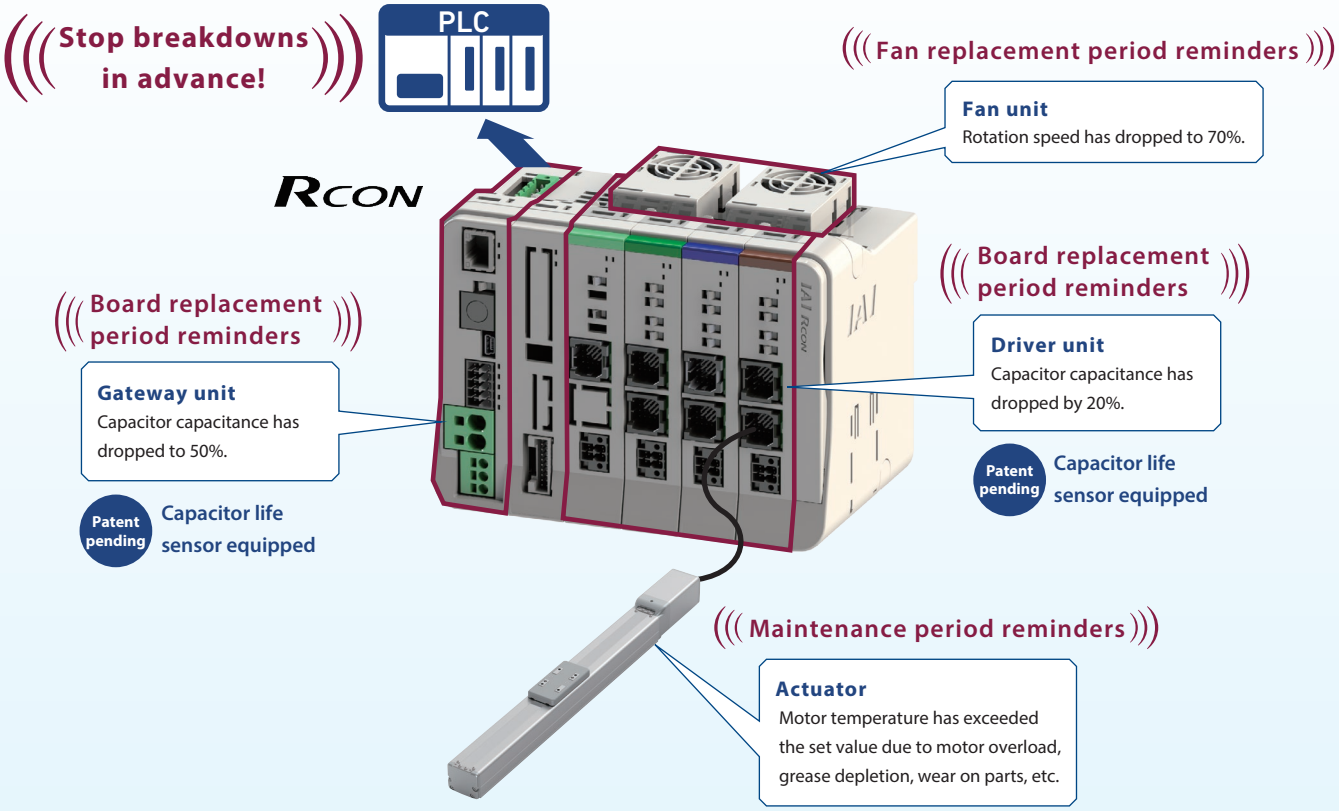
Can be connected to various field networks.

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

EtherCAT®　PROFIBUS®　PROFINET®

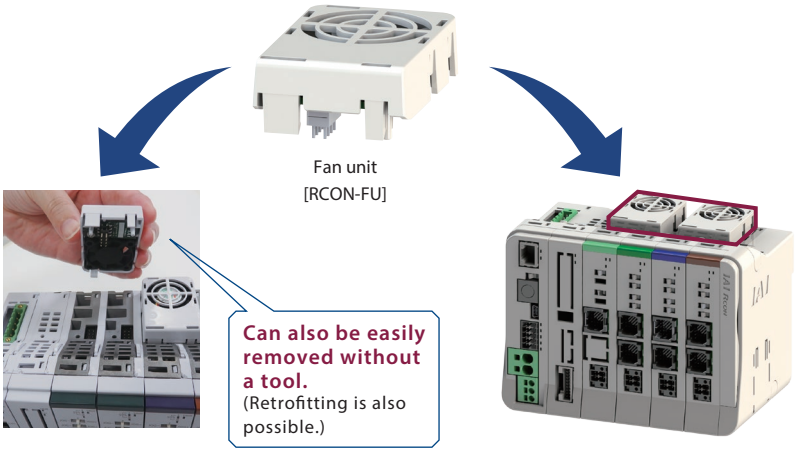
High function 2 Predictive maintenance/preventative maintenance function

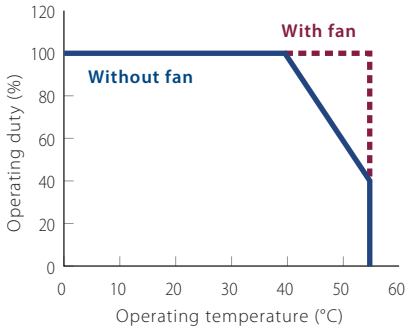
The RCON has a preventative maintenance function for the capacitor and a predictive maintenance function for the fan unit and actuator.



High function 3 Supports controller installation environment temperatures of 0 to 55°C

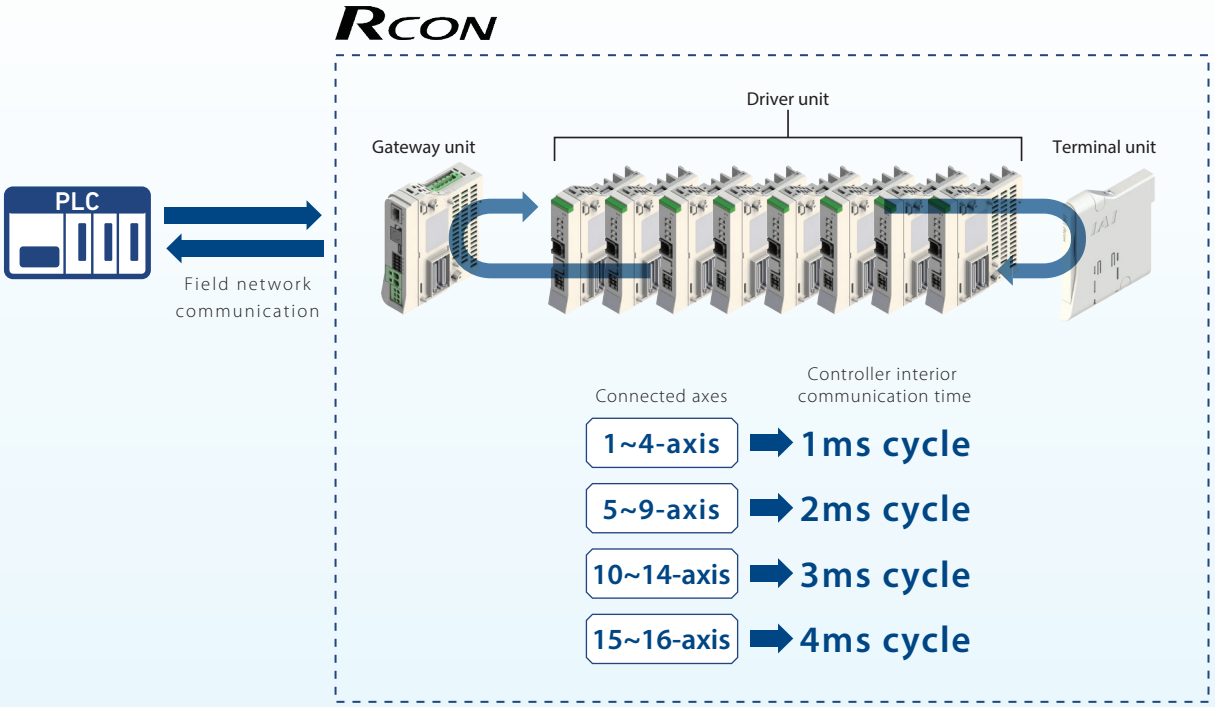
Install the optional fan unit to enable use in environments of 0 to 55°C without lowering actuator operating duty.
(one fan unit can be mounted across a driver unit and a terminal unit)





High function 4 Controller interior communication time is 4ms cycle

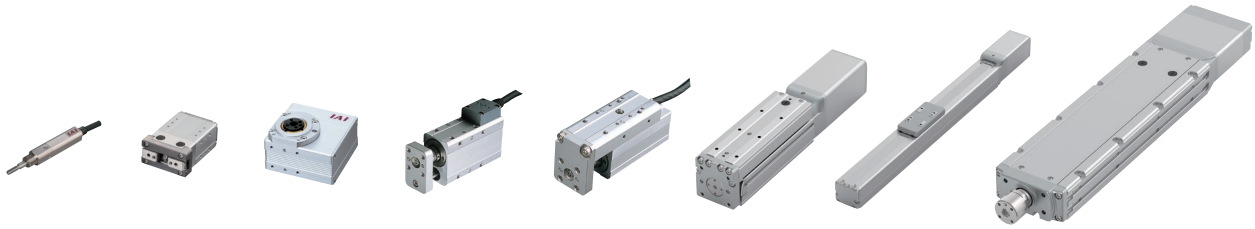
Controller interior communication time is 4ms even when 16 actuators are connected.



High function 5 No. 1 in the industry for number of supported actuators (332 IAI actuator models*).

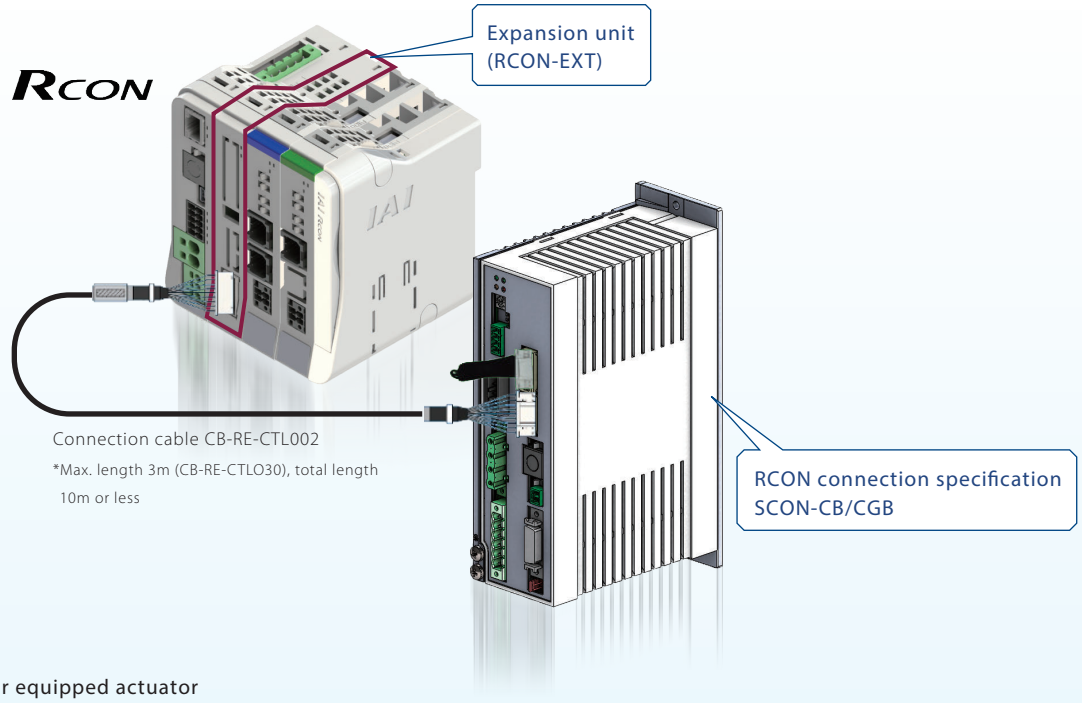
Compatible with RCP2/3/4/5/6, RCA/2, RCD, RCL Series

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

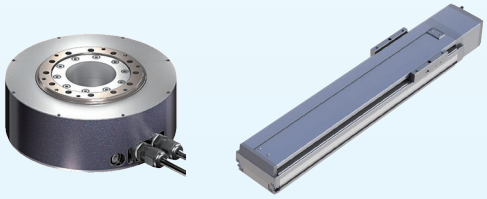


Compatible with RCS2/3/4, IS(D)B, SSPA, LSA, NS, DDA Series

When the SCON's RCON connection specification option (-RC) is selected, it can be connected to the RCON expansion unit (RCON-EXT) to operate an actuator equipped with a large-capacity motor.
One RCON-EXT can connect to multiple SCON-CB controllers.



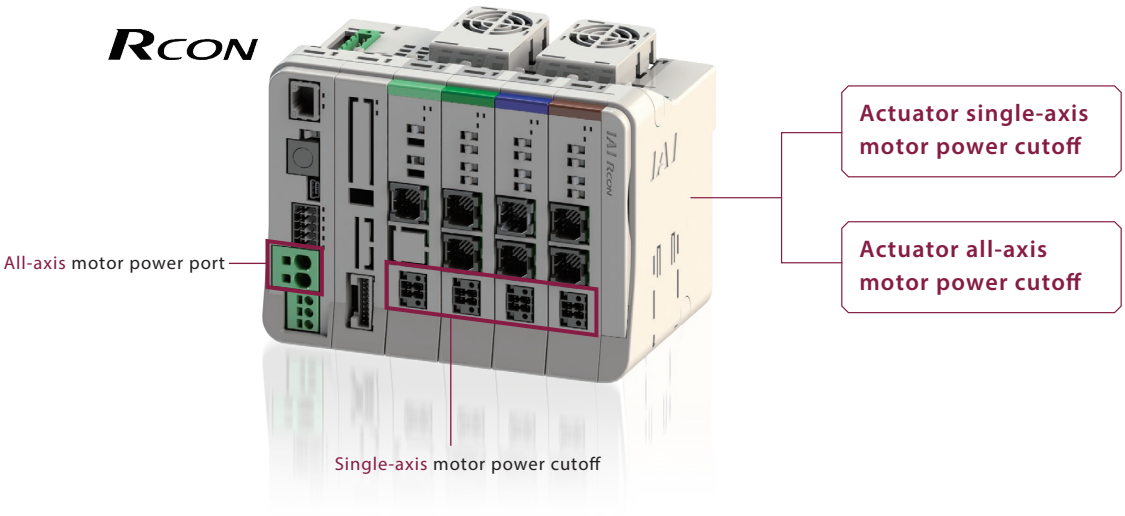
■ Large-capacity motor equipped actuator



* IAI General Catalog product series / type model
Note that servo press actuator models, LSA-W21H, EC Series, SCARA robots, TTA, ZR units and Wrist Units are not supported.
* As of December 2018

High function 6 Motor power cutoff method can be selected.

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

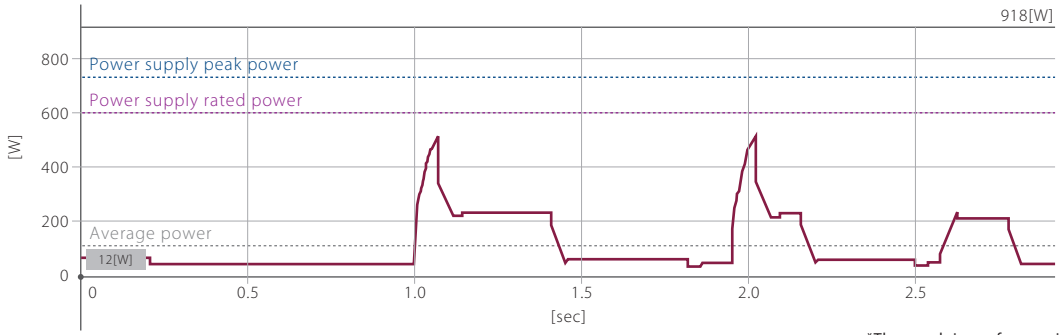


High function 7 Helps visualize equipment with 24V power monitor

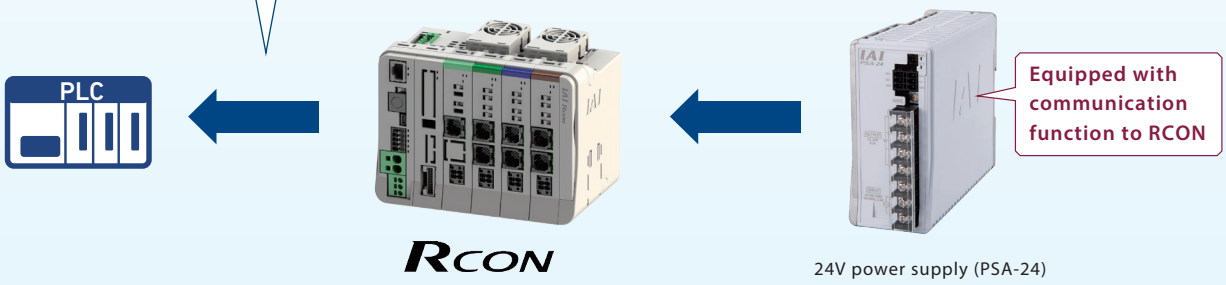
Visualize power consumption

The following IAI 24V power supply (PSA-24) monitoring can be output to a PLC via RCON.

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



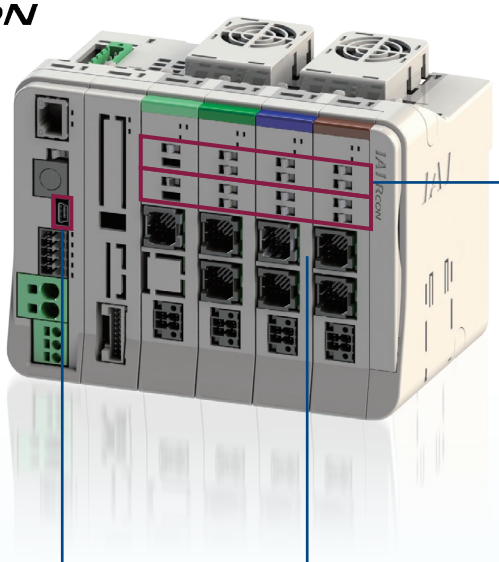
*The graph is a reference image.



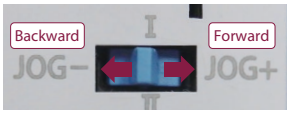
Enables easy start-up and maintenance.

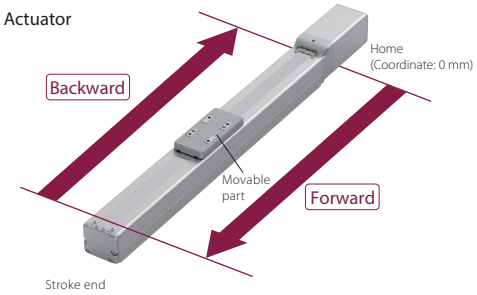
Even without a teaching pendant or PC teaching software, each axis can be moved forward/backward.

RCON



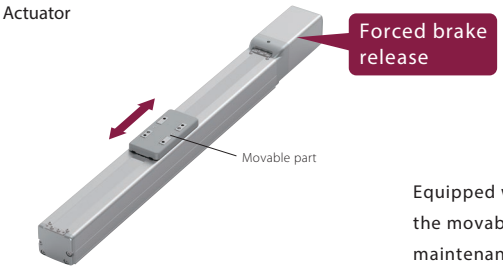
Each axis JOG (+/-) switch

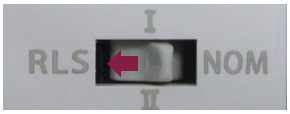




JOG switch enabled in manual mode, with PC software/ teaching pendant manual operation windows closed.

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).

Selection Method

Step 1 Actuator selection

<Selection example>


RCD Series

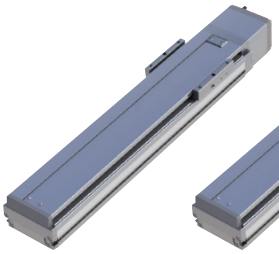

RCP4 Series

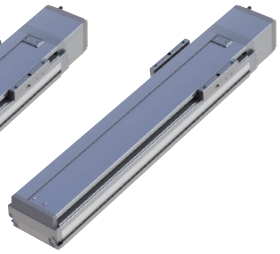

RCP2 Series


RCA2 Series

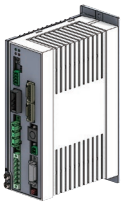
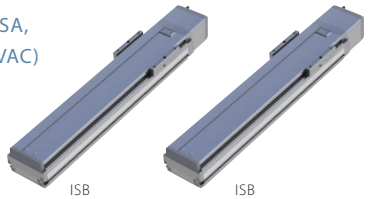

RCA2 Series


RCP6 Series


ISB Series


ISB Series

The actuator series are classified into two categories according to the table below.

Controller	Actuator
RCON  <24VDC>	RCP2/3/4/5/6, RCA/2, RCD, RCL Series (24VDC) <Selection example>  RCD, RCP4, RCP2, RCA2, RCA2, RCP6
SCON-CB  <100/200VAC>	RCS2/3/4, IS(D)B, SSPA, LSA, NS, DDA Series (100/200VAC) <Selection example>  ISB, ISB

Two categories

*Note that servo press actuator models, LSA-W21H, EC Series, SCARA robots, TTA, ZR units and Wrist Units cannot be connected.

Step 2 Gateway unit selection

Select the gateway unit model from the network type.

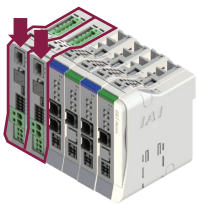
Network type	Gateway unit model
DeviceNet	RCON-GW/GWG-DV
CC-Link	RCON-GW/GWG-CC
CC-Link IE Field	RCON-GW/GWG-CIE
PROFIBUS	RCON-GW/GWG-PR
EtherCAT	RCON-GW/GWG-EC
EtherNet/IP	RCON-GW/GWG-EP
PROFINET	RCON-GW/GWG-PRT

<Selection example>
Select 1

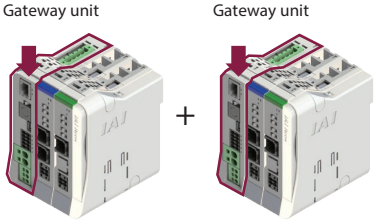
* GW: Gateway unit of standard specifications
GWG: Gateway unit of safety category type.
Contact IAI for additional safety category items (teaching pendant/TP adapter/dummy plug/cable, etc.)

Caution

Only one gateway unit can be connected per system.
When using two units or more, divide it into two.

× Gateway unit 

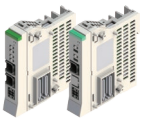
One gateway per system

○ Gateway unit + Gateway unit 

16 axes of actuators can be connected to one gateway unit.

Step 3 Driver unit selection

Select the driver unit model number and required number of units according to the series name and motor type of the actuator(s) to be connected to the RCON.

Actuator		RCON 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	 RCP4 RCP2	1	Select 2
			1-axis specification	RCON-PC-1	 RCP6	1	Select 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	 RCA2 RCA2	1	Select 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	1	Select 2

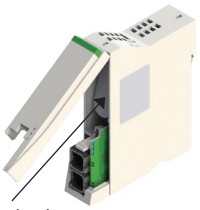
Step 4 Simple absolute unit selection

For actuators with simple absolute specification, select simple absolute units (RCON-ABU-A/P) for the required number of axes.

*Connect to the RCON controller using 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.
* One simple absolute unit required per axis.

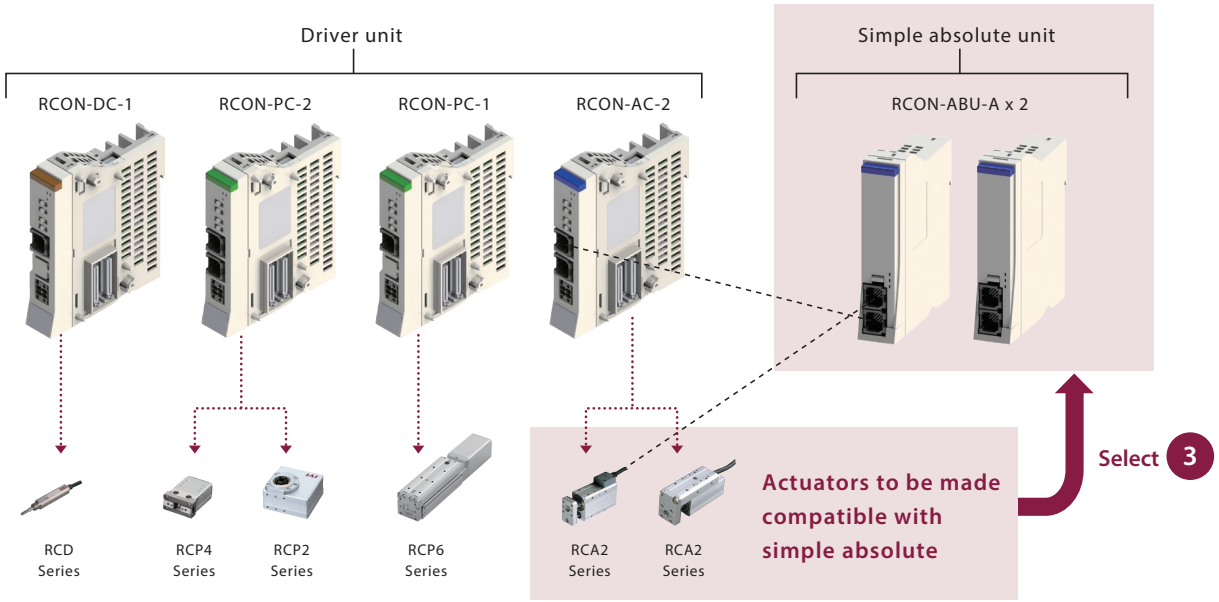

RCON-ABU-A


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.



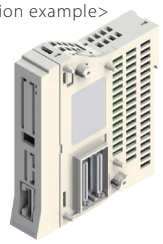
Step 5 Expansion unit selection

For actuators to be connected to SCON-CB, select (1) to (3) below.

(1) Expansion unit (Model: RCON-EXT)

When connecting SCON-CB and RCON, **one expansion unit** is required. One unit can connect to multiple SCON-CB RC controllers.

<Selection example>



x 1 unit ← Select 4

(2) RCON connection specification SCON-CB

Required **for the number of actuator axes to be connected to SCON*.**

<Selection example>

I/O type

Model: SCON- * - * * * - RC - *

RCON connection specification selected

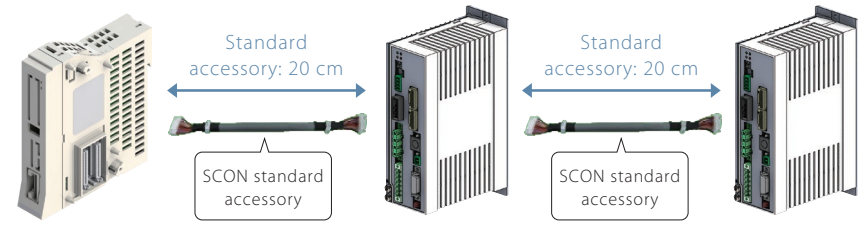
x 2 units ← Select 5

* 16 axes max.

* 100/200 VAC power supply for each SCON-CB RC

(3) RCON expansion unit to SCON-CB connection cable

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



Must be **separately purchased only when 20 cm is too short.**

Model: CB-RE-CTL□□□ max length 3m (030)

See P. 37

x Required number of units

Total cable length may not exceed 10m

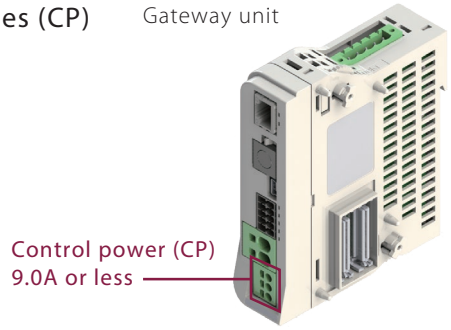
Step 6 Calculating various unit control power capacities (CP)

Make sure that the total control power capacity of the various units selected so far is within 9.0A.

How to check

Add up while checking the "Control Power Capacity List" below.

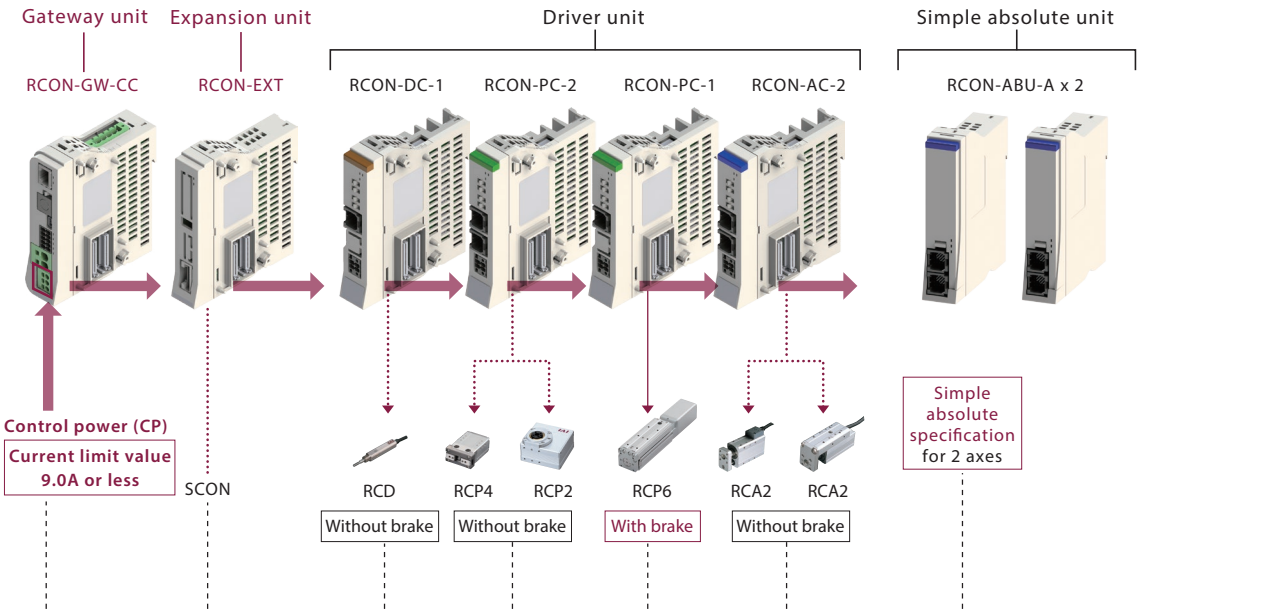
Gateway unit



Control Power Capacity List

Item	Specifications			
Power supply voltage	24VDC±10%			<Selection example>
Control power capacity (CP) (Per driver unit)	Gateway unit (includes terminal unit)		0.8A	x 1 unit
	Driver unit (common for all types)	Brake: No	0.2A	
		Brake: Yes (1-axis specification)	0.4A	x 1 unit
		Brake: Yes (2-axis specification)	0.6A	
	Expansion unit		0.1A	x 1 unit
	Simple absolute unit (common to all types)		0.2A	x 2 axes

<Selection example>



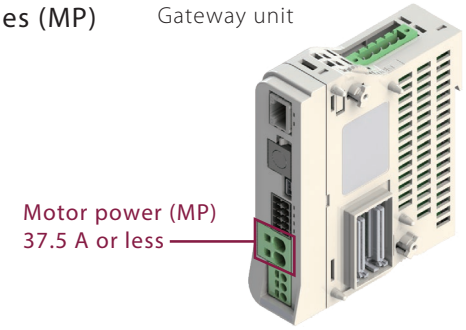
0.8A + 0.1A + 0.2A + 0.2A + 0.4A + 0.2A + (0.2A x 2 axes) = 2.3A < 9.0A

OK

(Confirmed to be less than 9.0A. If larger than 9.0A, another gateway unit is required.)

Step 7 Calculating various unit motor power capacities (MP)

Make sure that the total motor power capacity of the driver units selected so far is within 37.5A.



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.

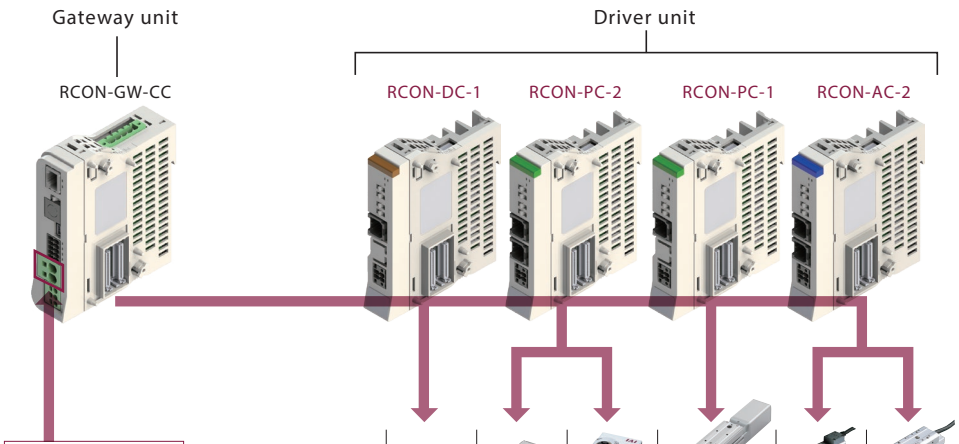
* Do not include the 100/200 VAC power supply to SCON-CB RC.

Motor Power Capacity List

Item	Actuator/driver unit	Series	Motor type		Rated current	Max. current: When energy-saving is set	Max. current	<Selection example>
Motor power capacity (MP) (Per 1-axis actuator)	Stepper motor RCON-PC	RCP2 RCP3	20P/20SP/28P	Without PowerCON	0.8A	-	-	x 2 axes
			28P*		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	-	-	
	AC servo motor RCON-AC	RCA RCA2	5W	Standard / Hi-accel./decel.	1.0A	-	3.3A	
			10W	Standard / High accel/decel / Energy saving	1.3A	2.5A	4.4A	
			20W		1.3A	2.5A	4.4A	x 2 axes
			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

<Selection example>



1.5A + 3.9A + 0.8A + 3.9A + 4.4A + 4.4A = 18.9A < 37.5A

OK

(Confirmed to be less than 37.5A. If larger than 37.5A, another gateway unit is required.)

Step 8 Fan unit selection

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

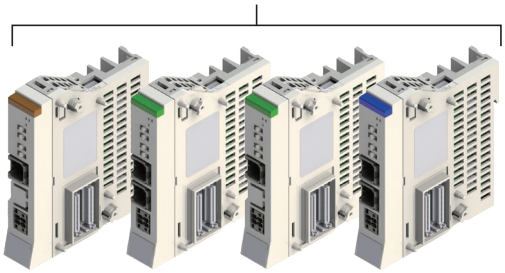
The number of fan units is the total number of driver units divided by 2.

If the total number of driver units is an odd number, add 1 to the total number and divide it by 2 (The last fan will connect to the last driver card and the terminal unit).

When ordering, be sure to specify the gateway unit model.

<Selection example>

4 driver units ÷ 2 = 2 units



Fan unit [RCON-FU]

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.

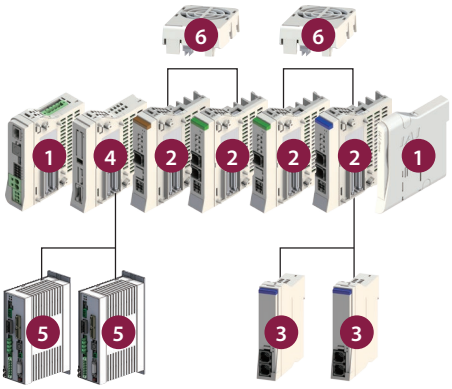
Step 9 Unit models to be ordered

Order using the model name for each unit.

<Selection example>

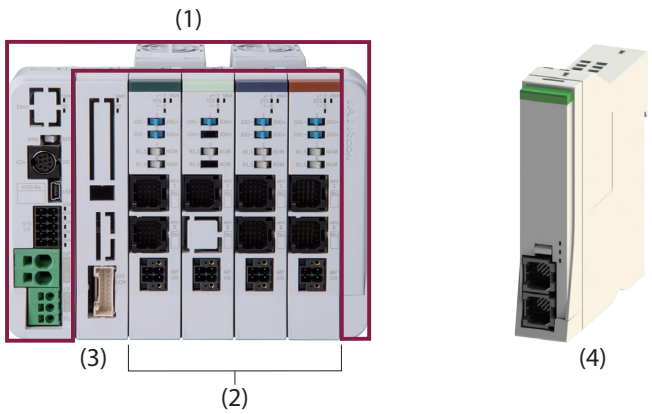
RCON

- Gateway unit (2 fan units included) [RCON-GW-CC-FU2] ····· 1 6
- Expansion unit [RCON-EXT] ····· 4
- Driver unit [RCON-DC-1] ····· 2
- Driver unit [RCON-PC-2] ····· 2
- Driver unit [RCON-PC-1] ····· 2
- Driver unit [RCON-AC-2] ····· 2
- Simple absolute unit [RCON-ABU-A] x 2 ····· 3
- RCON connection specification SCON [SCON-*-***-RC] x 2 ····· 5



See pages 33 to 34 for applicable cables for each actuator.

Model Specification Items



(1) Gateway unit

RCON – [Series] – [Type] – [I/O Type] – [Options]

Type	
GW	Standard type
GWG	Safety category spec type

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

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

* A terminal unit is required during operation.
* "-FU☐" can be deleted if fan unit is ordered separately.
Ex. RCON-GW-EP-FU2 is equal to RCON-GW-EP and RCON-FU (2 qty).

(2) Driver unit

RCON – [Series] – [Type] – [Number of Axes]

Type	
PC	Stepper motor
PCF	High thrust stepper motor
AC	AC servo motor
DC	DC brush-less motor

Number of Axes	
1	1-axis specification
2	2-axis specification

Type: PC 1.2A motor 1-axis 2-axis	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: Only 1-axis can be selected for PCF

Type: AC 2-30W motor 1-axis 2-axis	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-axis	3D	2.5W DC brush-less motor

(3) Expansion unit

RCON – EXT
Series Expansion

(4) Simple absolute unit

RCON – ABU – [Type]

Type	
P	Stepper motor
A	AC servo motor

(5) SCON controller (RCON connection specification)

SCON – [Type] – [Motor Type] [Encoder Type] [Options] – **RC** – **0** – [Power Supply Voltage]

Type / Motor Type / Encoder Type / Options / I/O Type / I/O Cable Length / Power Supply Voltage

Contact IAI for model selection items

Only SCON-C RC option can be connected to RCON-EXT.

System Configuration

PLC

Field network

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

Options
PC teaching software
(See P. 30)
<Model: IA-OS>
<Model: RCM-101-MW/USB>

Options
Touch panel teaching pendant
(See P. 30)
<Model: TB-03> <Model: TB-02>

For IA-OS: USB cable

For RCM-101:
Supplied with PC teaching software

Included with gateway unit
System I/O connector
(See P. 32)
<Model: DFMC1.5/5-ST-3.5>

Supplied with GWG specification
Dummy plug
(See P. 32)
<Model: DP-5>

Options
Fan unit
(See P. 32)
<Model: RCON-FU>

RCON

Options
24 V power supply
(See P. 31)
<Model: PSA-24(L)>

Supplied with simple absolute unit
Connection cable
(See P. 35)
<Model: CB-ADPC-MPA005>

Options
Simple absolute unit
(See P. 25)
<Model: RCON-ABU-P (For stepper motor)>
<Model: RCON-ABU-A (For AC servo motor)>

Supplied with SCON-CB (RC specification)
Connection cable
(See P. 37)
<Model: CB-RE-CTL002>

Supplied with driver unit
Drive source shutoff connector
(See P. 32)
<Model: DFMC1.5/2-STF-3.5>

RCON connection specification
SCON controller
[I/O type: RC]
(Please contact IAI for more details)

Supplied with expansion unit
Terminal connector
(See P. 31)
<Model: RCON-EXT-TR>

Motor/encoder cable*

Connectable actuators

100/200VAC

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

* Refer to page 25 for actuators that cannot be connected.

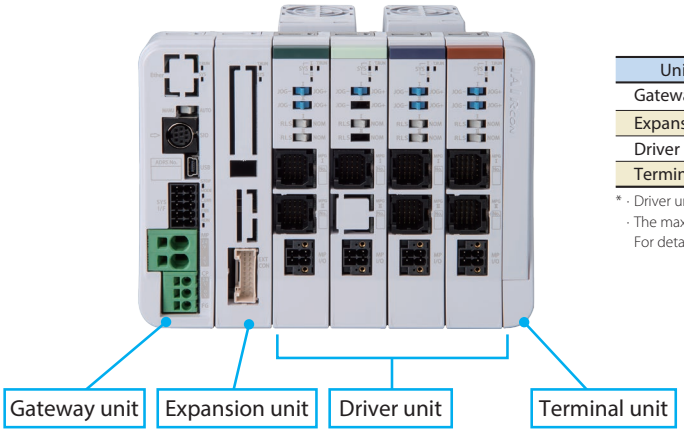
24VDC

RCP2/3/4/5/6 Series
RCA/2 Series
RCD Series

*The 100/200 VAC motor/encoder cable is supplied with the actuator.
The motor/encoder cables are different according to the actuator type to be connected.
Refer to page 33 if conversion cables need to be prepared.

Unit Configuration

The RCON has a modular configuration. Connect each unit under the following conditions.



Unit name	Number of connected units	Location
Gateway unit	1	Placed at far left
Expansion unit	1	Placed to right of gateway unit
Driver unit	16 axes max.*	Placed to left of terminal unit
Terminal unit	1	Placed at far right

* · Driver units can be rearranged.
· The maximum number of connectable axes varies depending on the operation mode.
For details, refer to "Maximum number of connectable axes (page 26)".

Unit name and single product model number list

Product name		Model	Reference page
Gateway unit (GWG: Safety category type)	DeviceNet connection specification	RCON-GW/GWG-DV	P. 20
	CC-Link connection specification	RCON-GW/GWG-CC	P. 20
	CC-Link IE Field connection specification	RCON-GW/GWG-CIE	P. 21
	PROFIBUS-DP connection specification	RCON-GW/GWG-PR	P. 21
	EtherCAT connection specification	RCON-GW/GWG-EC	P. 22
	EtherNet/IP connection specification	RCON-GW/GWG-EP	P. 22
	PROFINET IO connection specification	RCON-GW/GWG-PRT	P. 23
Expansion unit	For SCON-CB connection	RCON-EXT	P. 25
	Terminal connector (for SCON-CB)	RCON-EXT-TR	P. 32
Driver unit	Stepper motor 1-axis specification	RCON-PC-1	P. 24
	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	
Terminal unit	Included with gateway unit	RCON-GW-TR	P. 25
Simple absolute unit (1-axis specification)	For RCON-PC	RCON-ABU-P	P. 25
	For RCON-AC	RCON-ABU-A	
Fan unit	One for every two driver units	RCON-FU	P. 32

General Specifications

Item	Specifications				Details page
Power supply voltage	24VDC ±10%				-
Power supply current	Differs with system configuration				P. 19
Number of axes controlled	1 to 16 axes *For maximum axes, refer to "Maximum number of connectable axes"				P. 26
Encoder resolution [pulse/r]	Stepper motor	Incremental		800	-
		Battery-less Absolute	RCP4/RCP5	800	
			RCP6	8192	
	AC servo motor	Incremental	RCA	800	
		Battery-less Absolute		16384	
		Incremental	RCA2-***N/NA	1048	
			Excluding RCA2-***N/NAN	800	
	DC brush-less motor	Incremental	RCD-RA1R/GRSN	400	
			RCD-RA1DA/GRSNA	480	
Supported field networks	DeviceNet, CC-Link, CC-Link IE Field, PROFIBUS-DP, EtherCAT, EtherNet/IP, PROFINET IO				
Configuration units	Gateway unit, driver unit, expansion unit, simple absolute unit				P. 20
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	Position data and parameters are saved in non-volatile memory (Unlimited rewrites)				-
Calendar function	Retention function: About 10 days Charging time: About 100 hours				-
Safety category compliance	B (The safety category specification supports up to category 4 external circuits)				-
Protection functionality	Overcurrent, abnormal temperature, encoder disconnection, overload				-
Preventative/predictive maintenance function	Low electrolytic capacitor capacity and low fan rotation speed				-
Ambient operating temperature	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/s2 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				-
Generated heat (per 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	
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	CE Marking, UL Certification (planned), RoHS				-

Power Capacity

Based on the connection configuration, 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.

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

* Do not include the power supply to SCON-CB RC.

Power supply capacity by unit

Item	Specifications						
Power supply voltage	24VDC±10%						
Control power capacity (per unit)	Gateway unit (includes terminal unit)				0.8A		
	Driver unit (common for all types)	Brake: No			0.2A		
		Brake: Yes (1-axis specification)			0.4A		
		Brake: Yes (2-axis specification)			0.6A		
	Expansion unit				0.1A		
	Simple absolute unit (common to all types)				0.2A		
Motor power capacity (per 1-axis actuator)	Actuator/driver unit				Rated current	Max. current	
		Series	Motor type			When energy-saving is set	
	Stepper motor/ RCON-PC	RCP2 RCP3	20P/20SP/28P	Without PowerCON	0.8A	-	-
			28P*		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

Caution

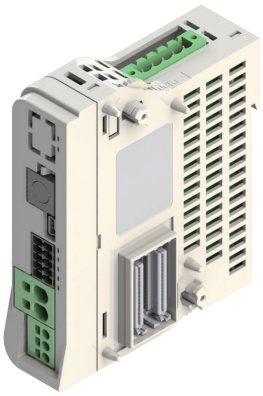
· For operation patterns where acceleration/deceleration operation is performed simultaneously on all axes, and where operating duty is 100%: Motor power must be calculated at the maximum current value.
(If the maximum current is not listed, calculate with the rated current.)

Gateway Unit

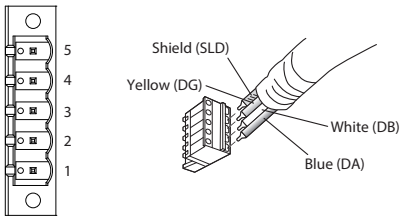
Features It is used to connect a 24V power supply and a teaching tool to the RCON.
(The GWG specification is for the safety category spec type.)

Gateway unit DeviceNet connection specification

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



Connector for network



Controller side
connector top view

Specifications

Power	24VDC ±10%
Control power	0.8A
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	155g
External dimensions	W30mm × H115mm × D95mm

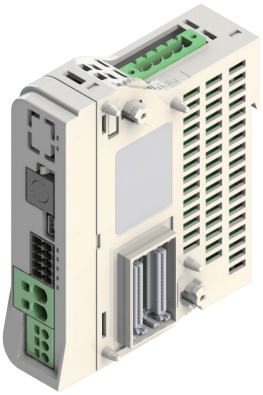
Connector		Cable connector model (manufacturer)	Remarks
System I/O	Cable side	DFMC1.5/5-ST-3.5	Standard accessories
Network	Cable side	MSTB2.5/5-STF-5.08 AUM (Phoenix Contact)	Standard accessories
	Controller side	MSTBA2.5/5-GF-5.08 AU (Phoenix Contact)	

Network connection cable

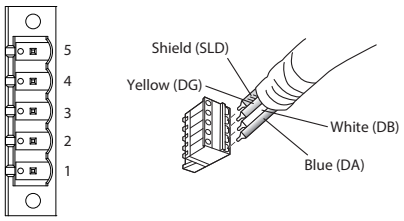
Pin No.	Signal name (color scheme)	Description	Compatible wire diameter
1	V- (black)	Power supply cable - side	DeviceNet dedicated cable
2	CAN L (blue)	Signal data Low side	
3	-	Drain (shield)	
4	CAN H (white)	Signal data High side	
5	V+ (red)	Power supply cable + side	

Gateway unit CC-Link connection specification

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



Connector for network



Controller side
connector top view

Specifications

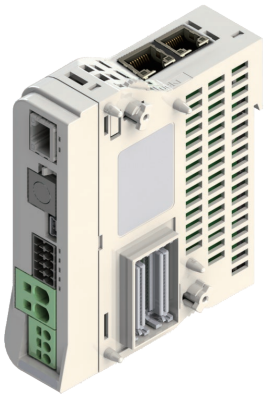
Power	24VDC ±10%
Control power	0.8A
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	154g
External dimensions	W30mm × H115mm × D95mm

Connector		Cable connector model (manufacturer)	Remarks
System I/O	Cable side	DFMC1.5/5-ST-3.5	Standard accessories
Network	Cable side	MSTB2.5/5-STF-5.08 AU (Phoenix Contact) With 110Ω/130Ω terminal resistor	Standard accessories
	Controller side	MSTB2.5/5-GF-5.08 AU (Phoenix Contact)	

Network connection cable

Pin No.	Signal name (color scheme)	Description	Compatible wire diameter
1	DA (blue)	Signal line A	CC-Link dedicated cable
2	DB (white)	Signal line B	
3	DG (yellow)	Digital ground	
4	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)	

Gateway unit CC-Link IE Field connection specification



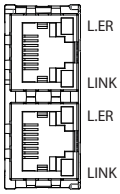
Model: **RCON-GW/GWG-CIE**

Specifications

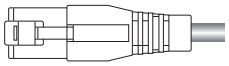
Power	24VDC ±10%
Control power	0.8A
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	165g
External dimensions	W30mm × H115mm × D95mm

Connector		Cable connector model (manufacturer)	Remarks
System I/O	Cable side	DFMC1.5/5-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)	

Connector for network



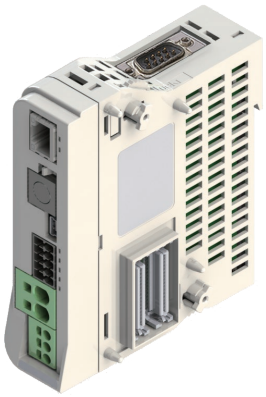
Controller side connector top view



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-	

Gateway unit PROFIBUS-DP connection specification



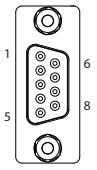
Model: **RCON-GW/GWG-PR**

Specifications

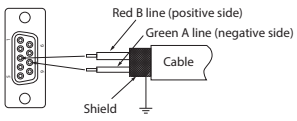
Power	24VDC ±10%
Control power	0.8A
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	158g
External dimensions	W30mm × H115mm × D95mm

Connector		Cable connector model (manufacturer)	Remarks
System I/O	Cable side	DFMC1.5/5-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)	

Connector for network



Controller side connector top view

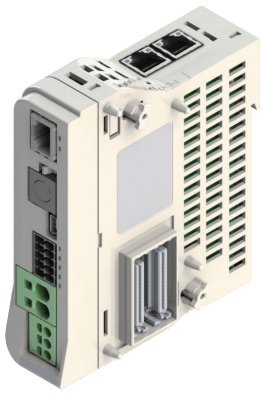


Network connection cable

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	

Gateway unit EtherCAT connection specification

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

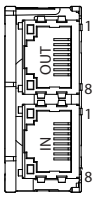


Specifications

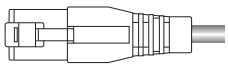
Power	24VDC ±10%
Control power	0.8A
Ambient operating temperature & humidity	0~55°C, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	152g
External dimensions	W30mm × H115mm × D95mm

Connector		Cable connector model (manufacturer)	Remarks
System I/O	Cable side	DFMC1.5/5-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)	

Connector for network



Controller side
connector top view

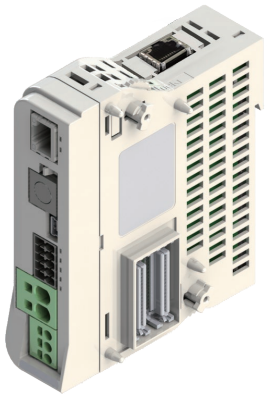


Network connection cable

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	

Gateway unit EtherNet/IP connection specification

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



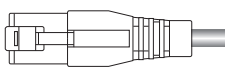
Specifications

Power	24VDC ±10%
Control power	0.8A
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	156g
External dimensions	W30mm × H115mm × D95mm

Connector		Cable connector model (manufacturer)	Remarks
System I/O	Cable side	DFMC1.5/5-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)	

Connector for network

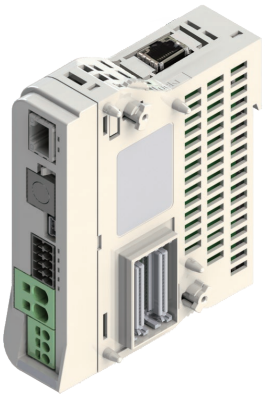
Controller side
connector top view



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	

Gateway unit PROFINET IO connection specification



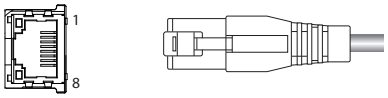
■ Model: **RCON-GW/GWG-PRT**

Specifications

Power	24VDC ±10%
Control power	0.8A
Ambient operating temperature & humidity	0~55℃, 85% RH or less, non-condensing
Operating atmosphere	Avoid corrosive gas and excessive dust
Degree of protection	IP20
Mass	158g
External dimensions	W30mm × H115mm × D95mm

Connector		Cable connector model (manufacturer)	Remarks
System I/O	Cable side	DFMC1.5/5-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)	

Connector for network



Controller side
connector top view

Network connection cable

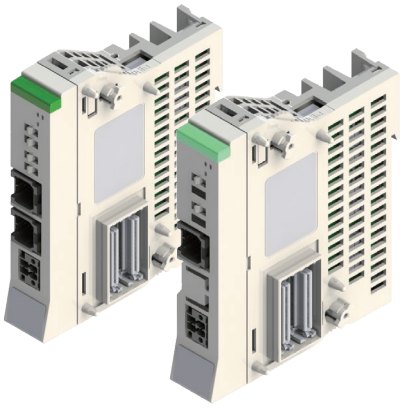
Pin No.	Signal name	Description	Compatible wire diameter
1	TD +	Transmit data +	For the Ethernet cable, use a straight STP cable of Category 5 or higher.
2	TD -	Transmit data -	
3	RD +	Receive data +	
4	-	Not used	
5	-	Not used	
6	RD -	Receive data -	
7	-	Not used	
8	-	Not used	

Driver Unit

Features A controller unit for actuator control.
Up to two axes can be connected to a single unit.

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)

Driver unit for RCA series connection

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

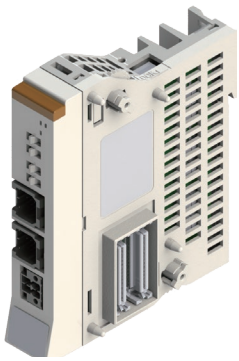
Model	Type	Compatible motor capacity
RCON-AC-1	1-axis connection	2W - 30W
RCON-AC-2	2-axis connection	

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)

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	

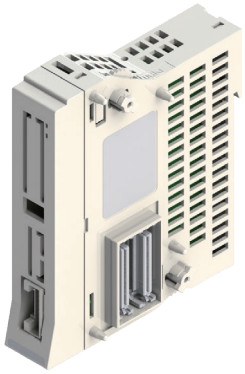
Specifications

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)

Other Units

Expansion unit

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



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	96g
External dimensions	W22.6mm × H115mm × D95mm
Accessories	Terminal connector

Actuators that cannot be connected

Servo press type, LSA-W21, SCARA robots, TTA, ZR units, Wrist Units

Terminal unit

A terminal resistor for returning RCON serial communication and input/output signals. (Supplied as an accessory with the gateway unit.)

Model
RCON-GW-TR

Specifications

Power	24VDC ±10%
Control power	0.8A
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

Simple absolute unit

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

* One unit per axis with simple absolute.

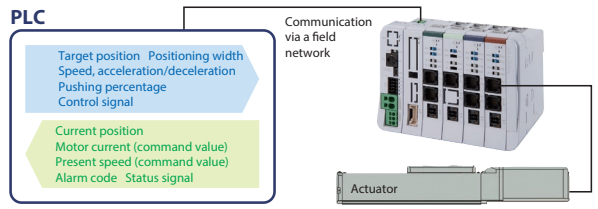
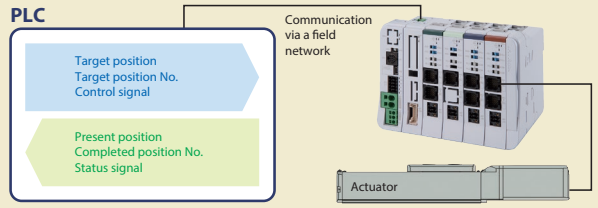
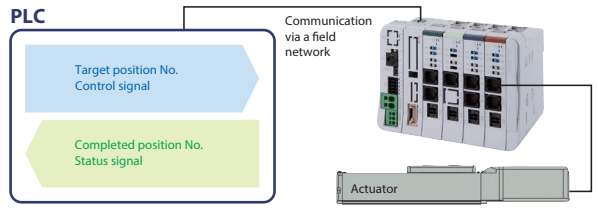
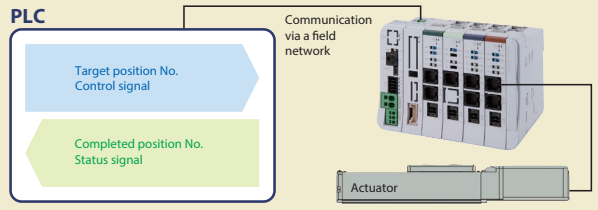
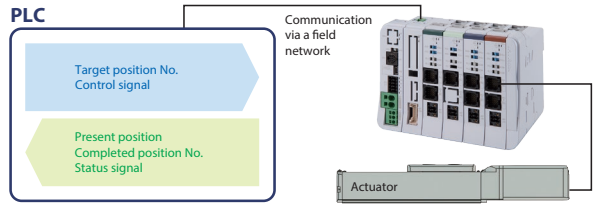
Model	Type	Compatible motor
RCON-ABU-P	For RCP series connection	Stepper motor
RCON-ABU-A	For RCA series connection	AC servo motor

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)

Field Network Operation Modes

The 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 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	Registers up to 128 points of position data, and can stop at the registered position. Also allows monitoring of the present position numerically with 0.01mm increments.	
Positioner 2 mode	Registers up to 128 points of position data, and can stop at the registered 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	Registers up to 128 points of position data, and can stop at the registered 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	Registers up to 16 points of position data, and can stop at the registered 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.	

* No remote I/O mode available.

Maximum number of connectable axes

Field network \ Operation mode	Direct numerical control mode	Simple direct mode	Positioner 1 mode	Positioner 2 mode	Positioner 3 mode	Positioner 5 mode
DeviceNet	8-axis	16-axis	16-axis	16-axis	16-axis	16-axis
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
PROFIBUS-DP	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
PROFINET IO	8-axis	16-axis	16-axis	16-axis	16-axis	16-axis

List of Functions by Operation Mode

	Direct numerical control mode	Simple direct mode	Positioner 1 mode	Positioner 2 mode	Positioner 3 mode	Positioner 5 mode
Number of positioning points	Unlimited	128 points	128 points	128 points	128 points	16 points
Home return motion	○	○	○	○	○	○
Positioning operation	○	○	△	△	△	△
Speed, acceleration/ deceleration settings	○	△	△	△	△	△
Different acceleration and deceleration settings	×	△	△	△	△	△
Pitch feed (Incremental)	○	△	△	△	×	△
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 1)	×	△	△	△	△	△
Present position reading (Note 2) (Resolution)	○ (0.01mm)	○ (0.01mm)	○ (0.01mm)	×	×	○ (Note 3) (0.1mm)

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

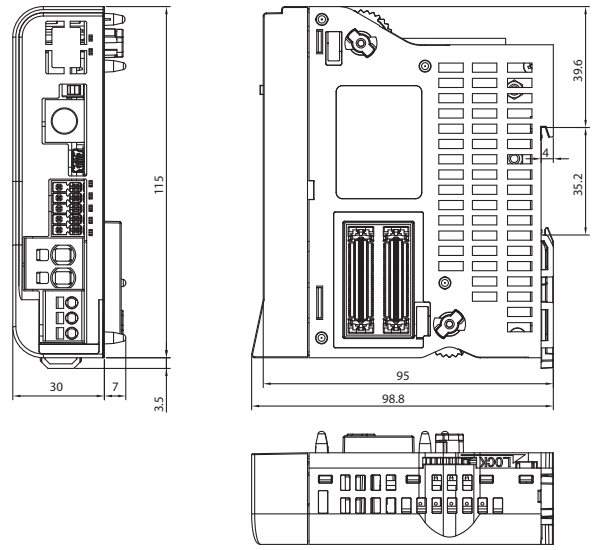
Note 1: This function is limited to the AC servo motor specification.

Note 2: The resolution when connecting a SCON controller to control a DDA motor is 0.001 degree (0.01 degree for positioner 5 mode only).

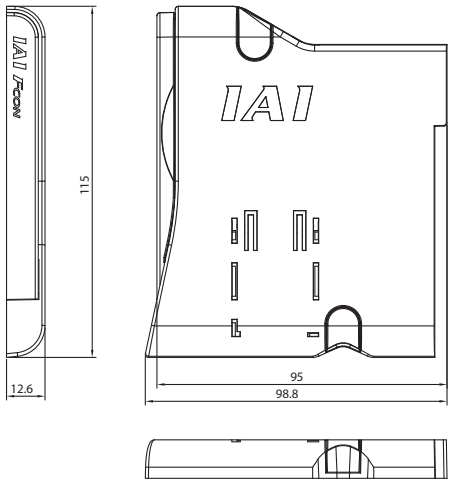
Note 3: The maximum output value in positioner 5 mode is 3,276.7mm (327.67 degrees for DDA motor).
To control the actuator in an operation range exceeding the maximum value, select a different operation mode.

External Dimensions

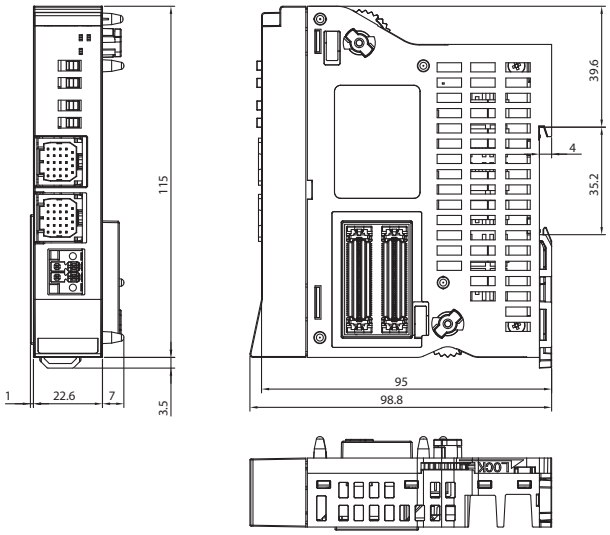
Gateway unit



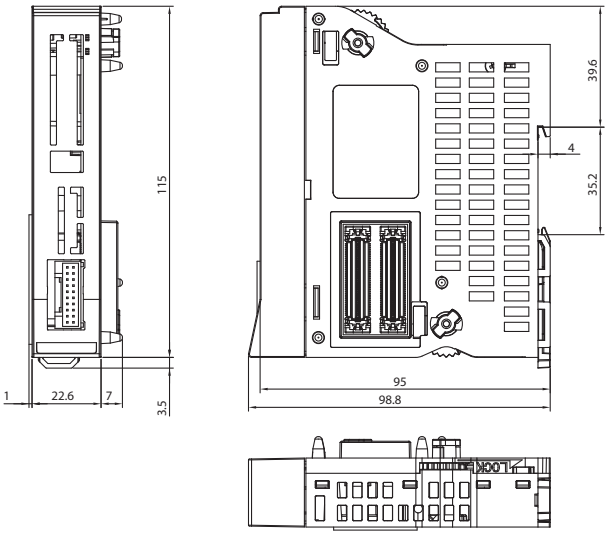
Terminal unit



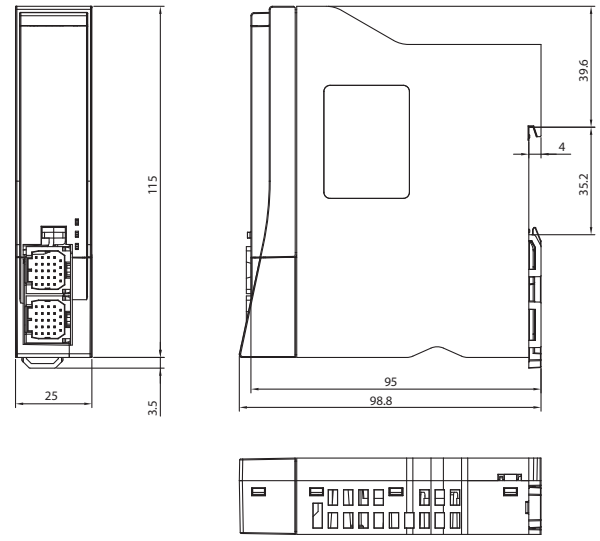
Driver unit



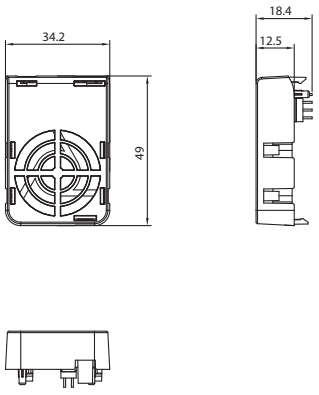
Expansion unit



Simple absolute unit



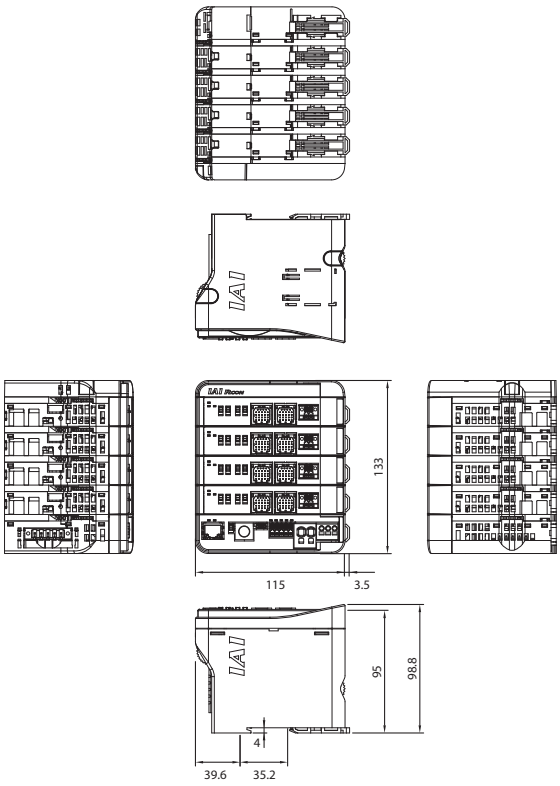
Fan unit



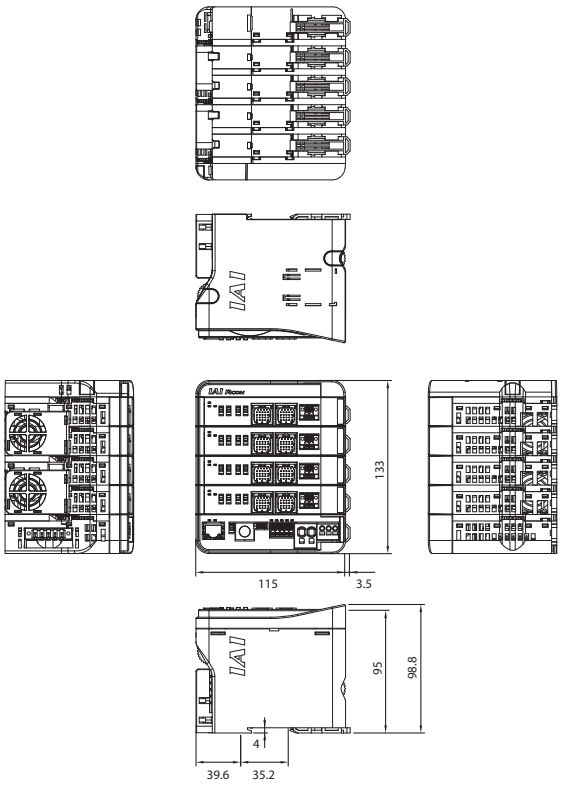
CAD drawings can be downloaded from our website.
www.intelligentactuator.com

Unit combination examples

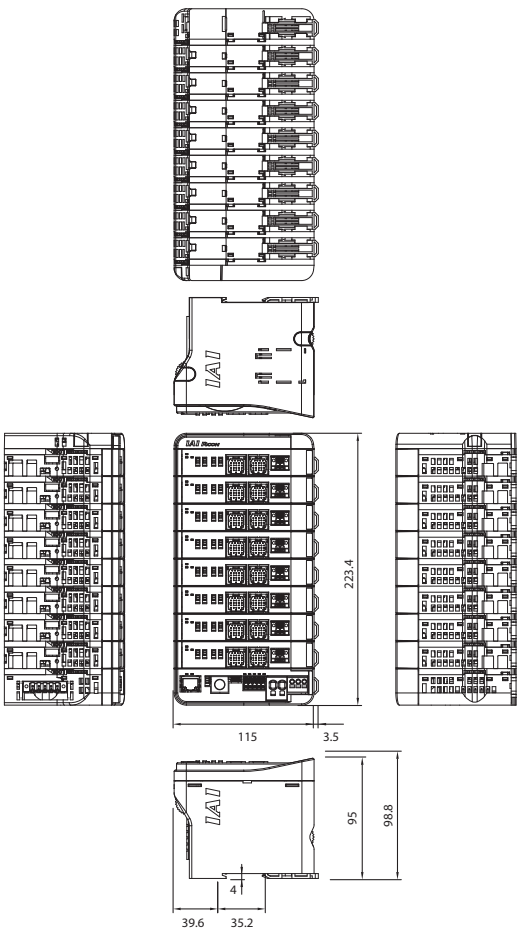
Driver units x 4, without fan



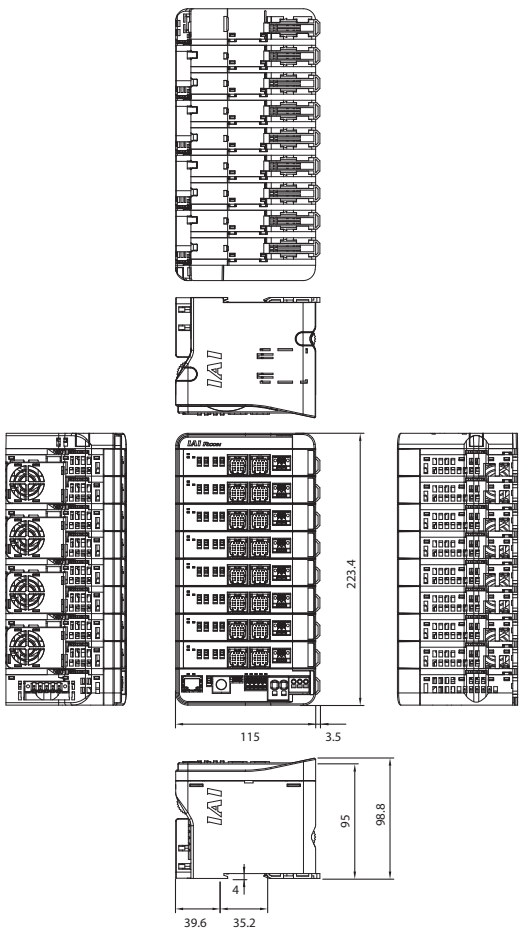
Driver units x 4, with fan



Driver units x 8, without fan



Driver units x 8, with fan



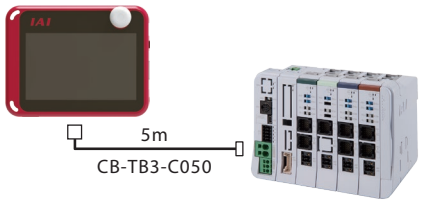
Options

Touch Panel Teaching Pendant

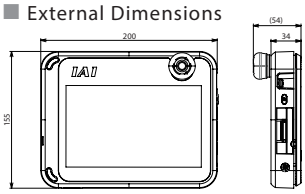
■ Features A teaching device equipped with functions such as position teaching, trial operation, and monitoring.

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

■ Configuration



■ External Dimensions

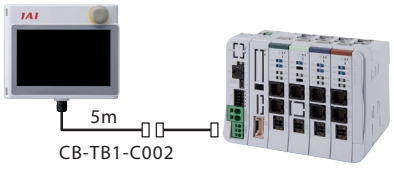


■ Specifications

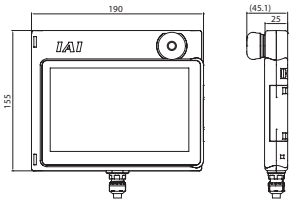
Rated voltage	24VDC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 to 40°C
Ambient operating humidity	20~85% RH (Non-condensing)
Environmental resistance	IPX0
Mass	670g (TB-03 unit only)
Charging method	Wired connection with dedicated AC adapter/controller
Wireless connection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

PC Teaching Software (Windows only)

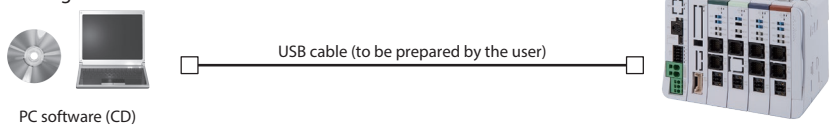
■ Features Start-up support software which comes equipped with functions such as position teaching, trial operation, and monitoring.
A complete range of functions needed for making adjustments contributes to shortened start-up time.

Supported Windows versions: 7/8/8.1/10

■ Model **IA-OS**

Please contact IAI for the current supported versions.

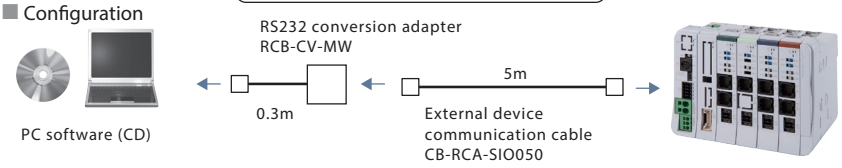
■ Configuration



■ Model **RCM-101-MW** (with external device communication cable + RS232 conversion unit)

Please contact IAI for the current supported versions.

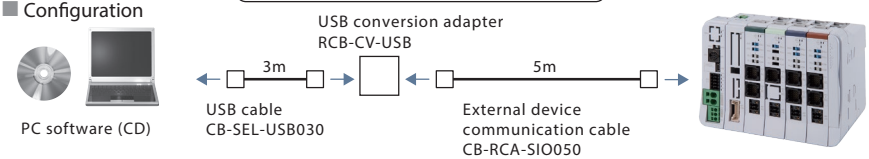
■ Configuration



■ Model **RCM-101-USB**
(with external device communication cable + USB conversion adapter + USB cable)

Please contact IAI for the current supported versions.

■ Configuration



24 V Power Supply

■ Overview A power supply the same height as RCON which can be easily installed on control panels.
It can be connected to RCON to monitor power status.

■ Model **PSA-24**
(Without fan)

■ Model **PSA-24L**
(With fan)

* Non-IAI power supply can be used for RCON.

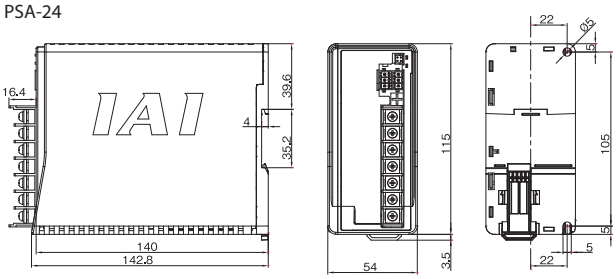
■ Specifications Table

Item	Specifications	
	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	24VDC ±10%	
Continuous rated output	Without fan: 8.5A (204W), with fan: 13.8A (330W)	
Peak output	17A(408W)	
	86% or more	90% or more
Parallel connection *3	Max.: 5 units	

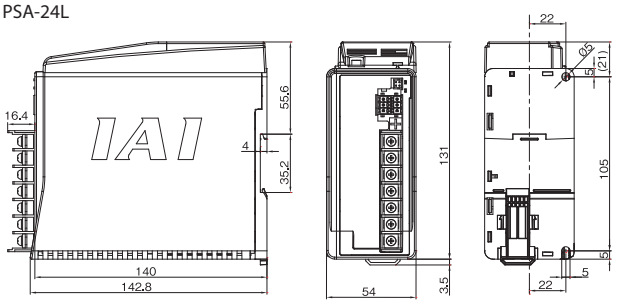
*1 The pulse width of flowing inrush current is less than 5 ms.
*2 In order to enable parallel operation, this power supply can vary the output voltage according to the load. Therefore, the power supply unit is dedicated for IAI controllers.
*3 Parallel connection cannot be used under the following conditions.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

■ Model **RCON-FU**

Dummy plug

■ Overview Required for the safety category specification (GWG).

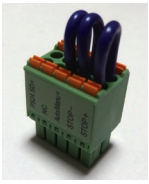
■ Model **DP-5**

* This plug is included with RCON-GWG.

System I/O connector

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

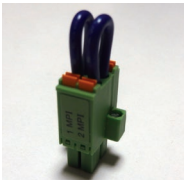
■ Model **DFMC1.5/5-ST-3.5**



Drive source shutoff connector

■ Overview A drive source shutoff input connector.

■ Model **DFMC1.5/2-STF-3.5**



Terminal connector

■ Overview Required as a terminal resistor when connecting SCON.

■ Model **RCON-EXT-TR**

* This connector is included with RCON-EXT.

Replacement battery

■ Overview A replacement battery for the simple absolute unit.

■ Model **AB-7**

* For RCON-ABU-P & RCON-ABU-A.

Maintenance Parts (Cables)

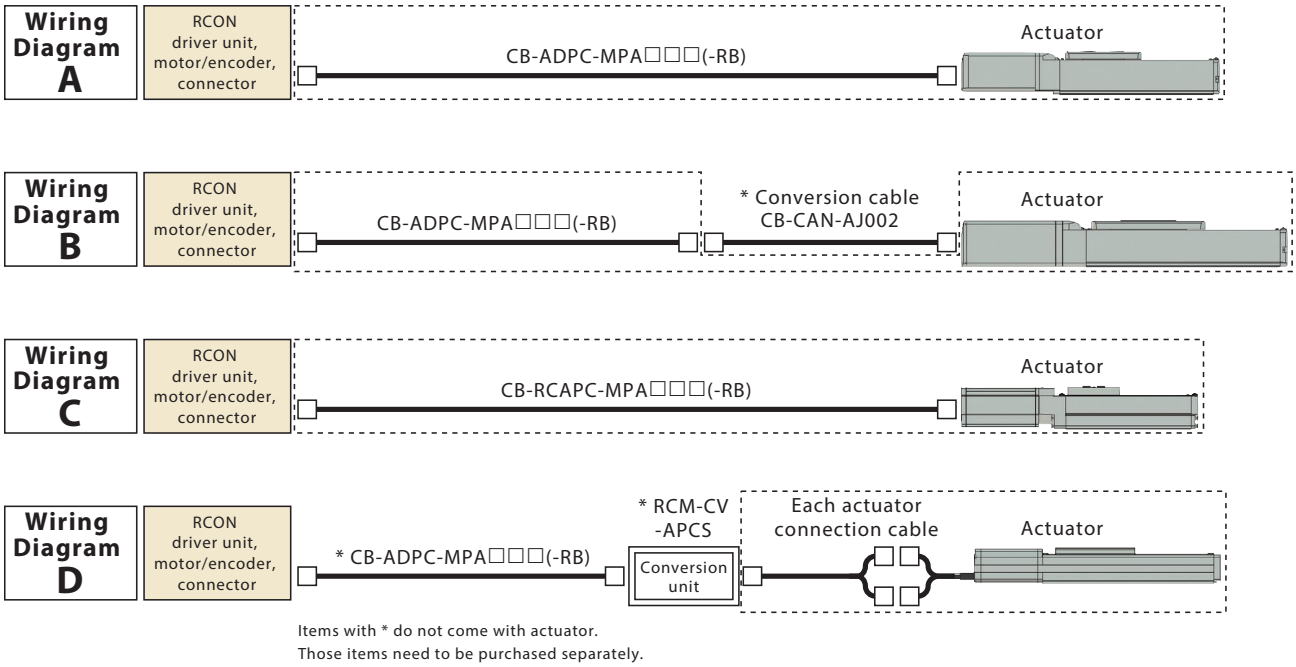
When placing an order for a replacement cable, please use the model number shown below.

Table of compatible cables

No.	Actuator		Applicable controller symbol	RCON connection cable (Note 2) (-RB: Robot cable) Each actuator connection cable	RCM-CV-APCS	Wiring diagram
	Series	Target type				
(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 rotary compact type (standard 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) to (10)	P5	CB-ADPC-MPA□□□(-RB) [CB-PSEP-MPA□□□]	Required	D
(12)	RCA2/RCA2CR/RCA2W, RCL		A6	CB-RCAPC-MPA□□□(-RB)	-	C
(13)	RCA RCACR RCAW	Short type (RCA only) RCA-SRA4R/SRGS4R/SRGD4R	A6	CB-RCAPC-MPA□□□(-RB)	-	C
(14)		Other than (13)	A6	CB-ADPC-MPA□□□(-RB) [CB-ASEP2-MPA□□□]	Required	D
(15)	RCD	RCD-RA1DA, RCD-GRSNA	D6	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 D driver unit to the RCD actuator will be 10 m.



Items with * do not come with actuator.
Those items need to be purchased separately.

Cables in dash lines (-----) come with actuators if the applicable controller designation for RCON (P5/P6/A6/D6) are selected in the actuator model #.

- Non High-Thrust Stepper : [P5]
- High-Thrust Stepper : [P6]
- 24V Servo : [A6]
- Brush-less DC Servo : [D6]

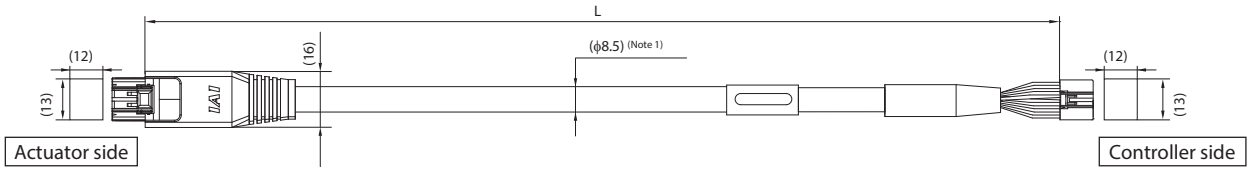
Ex.

RCP6-SA4C-WA-35P-5-50-P5-5S:	→	CB-ADPC-MPAO30 ("S"=3m) cable comes with actuator	**[Wiring Diagram A]**
RCP6-SA8C-WA-56SP-5-50-P6-S: (High-Thrust Type)	→	CB-ADPC-MPA030 ("S"=3m) cable comes with actuator but CB-CAN-AJ002 cable needs to be purchased separately	**[Wiring Diagram B]**
RCP6-SA4C-WA-35P-5-50-P3-S:	→	P3 is not for RCON type cable CB-ADPC-MPA030 ("S"=3m) cable required for RCON connection	
RCA-SA6C-WA-20-5-50-A6-S:	→	"S" 3m cable between RCM-CV-APCS and actuator comes with actuator. Add two more items: - RCM-CV-APCS - CB-ADPC-MPA□□□(-RB) Shortest non-flex cable is CB-ADPC-MPA002 (200mm)	**[Wiring Diagram D]**

Contact IAI for details.

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

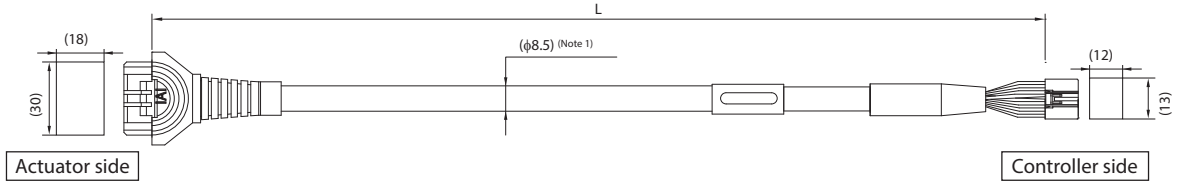
Purple (AWG26)

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

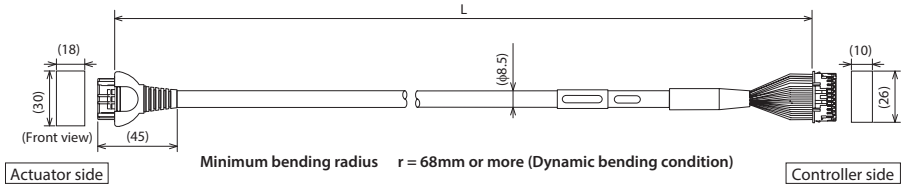
Purple (AWG26)
Pink (AWG26)

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



Actuator side
D-1100D 1-1827863-1
(AMP)

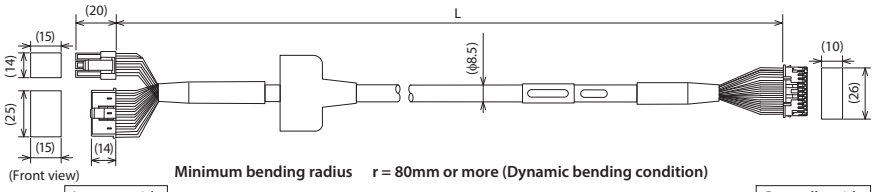
Terminal number		
A1	Black [ϕA]	1
B1	White [VMM]	2
A2	Brown [ϕ/A]	5
B2	Green [ϕB]	3
A3	Yellow [VMM]	4
B3	Red [ϕ/B]	6
A6	Orange [LS+]	7
B6	Gray [LS-]	8
A7	Red [A+]	13
B7	Green [A-]	14
A8	Black [B+]	15
B8	Brown [B-]	16
A4	NC	-
B4	NC	-
A5	Black (identification tape) [BK+]	9
B5	Brown (identification tape) [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

Controller side
PADP-24V-1-S
(J.S.T.MFG.CO.,LTD.)

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

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

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



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

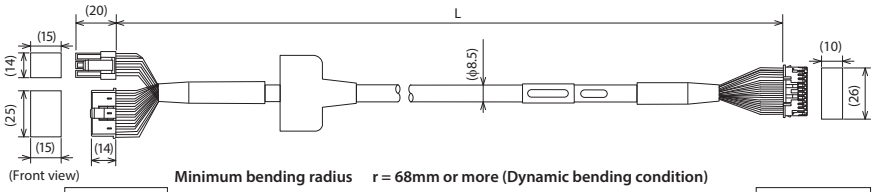
Actuator side
SLP-06V (J.S.T. Mfg. Co., Ltd.)
XMP-18V (J.S.T. Mfg. Co., Ltd.)

Pin No.	Signal name	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
5	NC	11	NC
6	NC	12	NC
13	LS+	7	LS+
14	LS-	8	LS-
1	A+	13	A+
2	A-	14	A-
3	B+	15	B+
4	B-	16	B-
16	BK+	9	BK+
17	BK-	10	BK-
12	VCC	21	VCC
9	GND	19	GND
11	VPS	18	VPS
10	NC	20	NC
18	FG	24	FG
15	NC	17	NC
7	NC	22	NC
8	NC	23	NC

Controller side
PADP-24V-1-S
(J.S.T.MFG.CO.,LTD.)

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



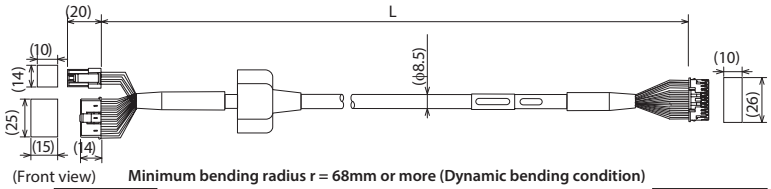
Actuator side
SLP-06V (J.S.T. Mfg. Co., Ltd.)
XMP-18V (J.S.T. Mfg. Co., Ltd.)

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

Controller side
PADP-24V-1-S
(J.S.T.MFG.CO.,LTD.)

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

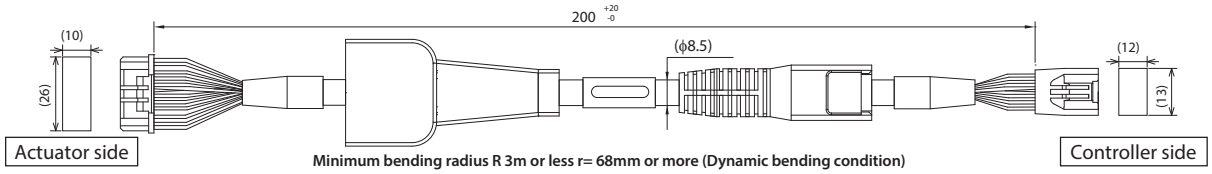


Actuator side
SLP-06V (J.S.T. Mfg. Co., Ltd.)
XMP-18V (J.S.T. Mfg. Co., Ltd.)

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

Controller side
PADP-24V-1-S
(J.S.T.MFG.CO.,LTD.)

Model **CB-CAN-AJ002**



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

Connection Diagram

1-1827863-1 (Amplifier)

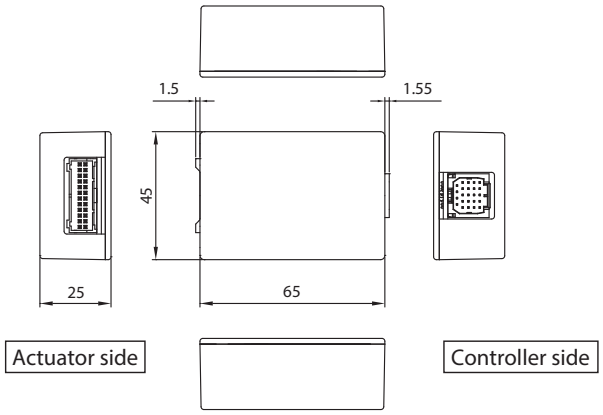
Pin No.	Signal name			Color
	PC	AC	DC	
A1	ϕA	U	U	Blue (AWG22)
B1	VMM	V	V	Orange (AWG22)
B2	ϕB	-	-	Brown (AWG22)
A3	VMM	-	-	Gray (AWG22)
A2	ϕ_A	W	W	Green (AWG22)
B3	ϕ_B	-	-	Red (AWG22)
A6	SA[mABS]	A+	A+	Light blue (AWG26)
B6	SB[mABS]	A-	A-	Orange (AWG26)
A7	A+	B+	B+	Green (AWG26)
B7	A-	B-	B-	Brown (AWG26)
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)

Center Interposition

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

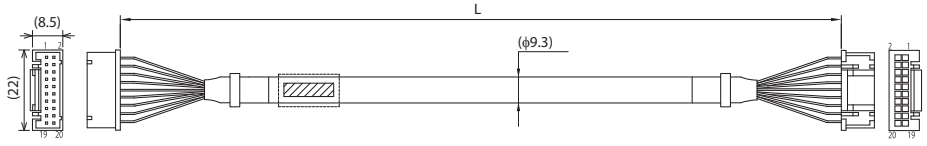
Pin No.	Signal name			Color
	PC	AC	DC	
3	ϕA	U	U	Blue (AWG22)
5	VMM	V	V	Orange (AWG22)
10	ϕB	-	-	Brown (AWG22)
9	VMM	-	-	Gray (AWG22)
4	ϕ_A	W	W	Green (AWG22)
15	ϕ_B	-	-	Red (AWG22)
12	SA[mABS]	A+	A+	Light blue (AWG26)
17	SB[mABS]	A-	A-	Orange (AWG26)
1	A+	B+	B+	Green (AWG26)
6	A-	B-	B-	Brown (AWG26)
11	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 **RCM-CV-APCS**



Model **CB-RE-CTL□□□**

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



Wiring diagram

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

RCON CHECKLIST

IAI America will select all RCON required items if the following information is provided by the customer.

Q1.	Fieldbus type
Q2.	Global type/non-global type
Q3.	Full actuator mode number of all axes (1st axis to max. 16th axis)
Q4.	Duty cycle in %
Q5.	Max. temperature of RCON installation location
Q6.	Does the quantity of IAI power supplies PSA-24(L) need to be calculated?
Q7.	Is any actuator purchased for non-RCON controllers? If so, which axes?
Q8.	Does any actuator require a simple absolute unit? If so, which axes?
Q9.	For global type gateway unit (RCON-GWG), what safety category level is required? Is safety category required during both AUTO and MANUAL modes, or only during AUTO mode?

Catalog No. CE0264-1A (0619)

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