P CON

■ **Models   C / CG / CF / CY / PL / PO / SE**

Position Controllers
For RCP3/RCP2 Series
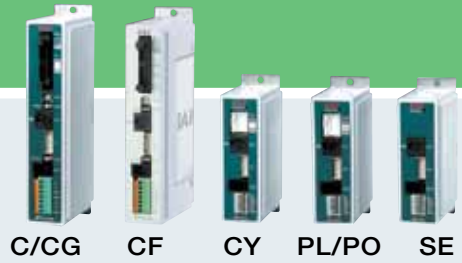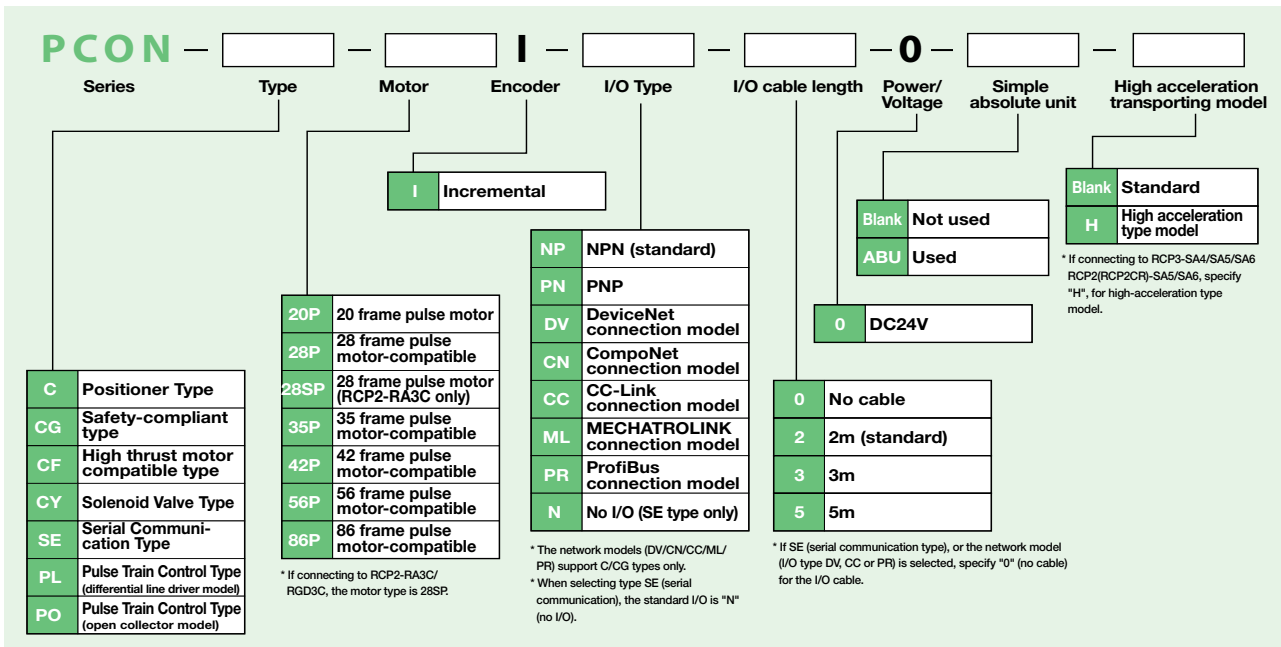
C/CG   CF   CY   PL/PO   SE

List of models

These are the position controllers that can be used with the RCP3/RCP2 Series actuators. Our line-up has 6 types, which are compatible with various control systems.
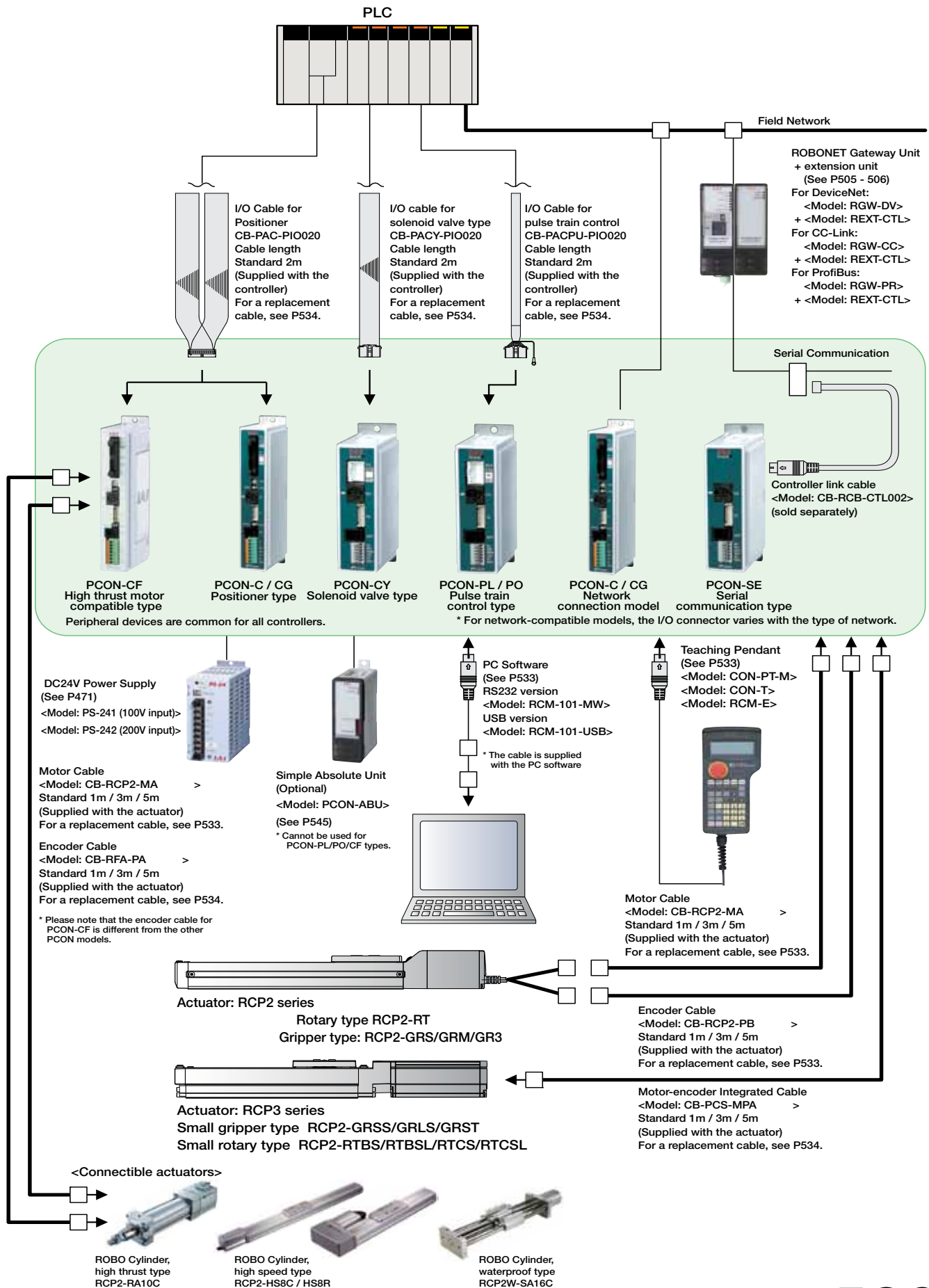
Type	C	CG	CF	CY	PL/PO	SE
Name	Positioner type	Conforming to safety category compatible type	High-thrust motor compatible type	Solenoid valve type	Pulse train control type	Serial communication type
External View						
Description	Positioner capable of a maximum of 512 points Positioning	Conforming to type C safety category specifications	Dedicated controller for RCP2 high-speed type/high-thrust type / waterproof type	Can be operated using the same control as the air cylinder type	For pulse train control	For Serial communication
Position points	512 points	512 points	512 points	3 points	–	64 points

(*1) Network connection specifications are designated by the I/O type symbols for the model.

Model

PCON – ☐ – ☐ I – ☐ – ☐ – 0 – ☐ – ☐

| Series | Type | Motor | Encoder | I/O Type | I/O cable length | Power/ Voltage | Simple absolute unit | High acceleration transporting model |

I	Incremental

NP	NPN (standard)
PN	PNP
DV	DeviceNet connection model
CN	CompoNet connection model
CC	CC-Link connection model
ML	MECHATROLINK connection model
PR	ProfiBus connection model
N	No I/O (SE type only)

* The network models (DV/CN/CC/ML/ PR) support C/CG types only.
* When selecting type SE (serial communication), the standard I/O is "N" (no I/O).

20P	20 frame pulse motor
28P	28 frame pulse motor-compatible
28SP	28 frame pulse motor (RCP2-RA3C only)
35P	35 frame pulse motor-compatible
42P	42 frame pulse motor-compatible
56P	56 frame pulse motor-compatible
86P	86 frame pulse motor-compatible

* If connecting to RCP2-RA3C/ RGD3C, the motor type is 28SP.

C	Positioner Type
CG	Safety-compliant type
CF	High thrust motor compatible type
CY	Solenoid Valve Type
SE	Serial Communication Type
PL	Pulse Train Control Type (differential line driver model)
PO	Pulse Train Control Type (open collector model)

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

* If SE (serial communication type), or the network model (I/O type DV, CC or PR) is selected, specify "0" (no cable) for the I/O cable.

Blank	Not used
ABU	Used

0	DC24V

Blank	Standard
H	High acceleration type model

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

System configuration

PLC

Field Network

I/O Cable for Positioner
CB-PAC-PIO020
Cable length
Standard 2m
(Supplied with the controller)
For a replacement cable, see P534.

I/O cable for solenoid valve type
CB-PACY-PIO020
Cable length
Standard 2m
(Supplied with the controller)
For a replacement cable, see P534.

I/O Cable for pulse train control
CB-PACPU-PIO020
Cable length
Standard 2m
(Supplied with the controller)
For a replacement cable, see P534.

ROBONET Gateway Unit
+ extension unit
(See P505 - 506)
For DeviceNet:
    <Model: RGW-DV>
+ <Model: REXT-CTL>
For CC-Link:
    <Model: RGW-CC>
+ <Model: REXT-CTL>
For ProfiBus:
    <Model: RGW-PR>
+ <Model: REXT-CTL>

Serial Communication

Controller link cable
<Model: CB-RCB-CTL002>
(sold separately)

PCON-CF
High thrust motor compatible type

PCON-C / CG
Positioner type

PCON-CY
Solenoid valve type

PCON-PL / PO
Pulse train control type

PCON-C / CG
Network connection model

PCON-SE
Serial communication type

Peripheral devices are common for all controllers.

* For network-compatible models, the I/O connector varies with the type of network.

DC24V Power Supply
(See P471)
<Model: PS-241 (100V input)>
<Model: PS-242 (200V input)>

Motor Cable
<Model: CB-RCP2-MA   >
Standard 1m / 3m / 5m
(Supplied with the actuator)
For a replacement cable, see P533.

Encoder Cable
<Model: CB-RFA-PA   >
Standard 1m / 3m / 5m
(Supplied with the actuator)
For a replacement cable, see P534.

* Please note that the encoder cable for PCON-CF is different from the other PCON models.

Simple Absolute Unit
(Optional)
<Model: PCON-ABU>
(See P545)
* Cannot be used for PCON-PL/PO/CF types.

PC Software
(See P533)
RS232 version
<Model: RCM-101-MW>
USB version
<Model: RCM-101-USB>
* The cable is supplied with the PC software

Teaching Pendant
(See P533)
<Model: CON-PT-M>
<Model: CON-T>
<Model: RCM-E>

Motor Cable
<Model: CB-RCP2-MA   >
Standard 1m / 3m / 5m
(Supplied with the actuator)
For a replacement cable, see P533.

Actuator: RCP2 series
Rotary type RCP2-RT
Gripper type: RCP2-GRS/GRM/GR3

Encoder Cable
<Model: CB-RCP2-PB   >
Standard 1m / 3m / 5m
(Supplied with the actuator)
For a replacement cable, see P533.

Actuator: RCP3 series
Small gripper type RCP2-GRSS/GRLS/GRST
Small rotary type RCP2-RTBS/RTBSL/RTCS/RTCSL

Motor-encoder Integrated Cable
<Model: CB-PCS-MPA   >
Standard 1m / 3m / 5m
(Supplied with the actuator)
For a replacement cable, see P534.

<Connectible actuators>

ROBO Cylinder, high thrust type
RCP2-RA10C

ROBO Cylinder, high speed type
RCP2-HS8C / HS8R

ROBO Cylinder, waterproof type
RCP2W-SA16C

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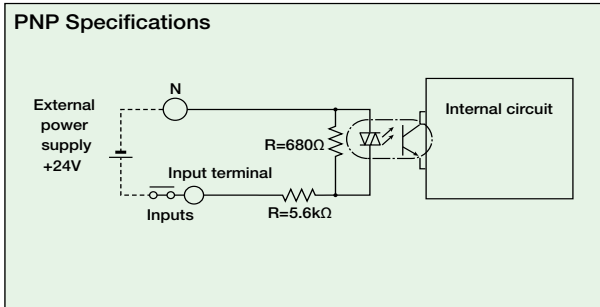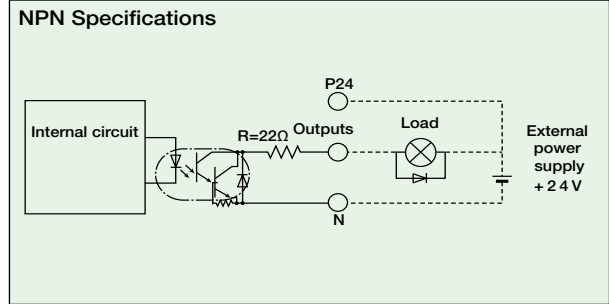Servo Motor (200V)
Linear Servo Motor

I/O Specifications

■ Input section External input specifications

Item	Specifications
Input voltage	DC24V　+/-10%
Input current	4mA/circuit
Leak current	1mA max./point
Isolation method	Photocoupler
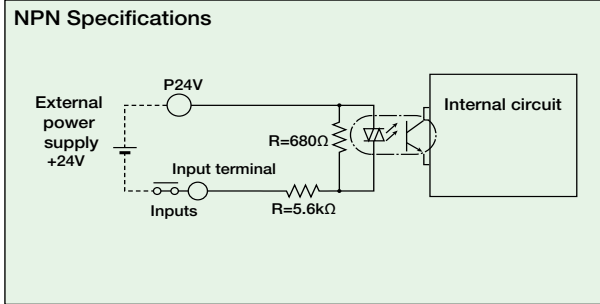
■ Output section External output specifications

Item	Specifications
Load Voltage	DC24V
Max. load current	50mA/point
Remaining voltage	2V or less
Isolation method	Photocoupler

NPN Specifications

External power supply +24V, P24V, Input terminal, Inputs, R=680Ω, R=5.6kΩ, Internal circuit

NPN Specifications

Internal circuit, P24, R=22Ω, Outputs, Load, N, External power supply +24V

PNP Specifications

External power supply +24V, N, Input terminal, Inputs, R=680Ω, R=5.6kΩ, Internal circuit

PNP Specifications

Internal circuit, P24V, R=22Ω, Outputs, N, Load, External power supply +24V

I/O Specifications

The 4 types of controllers (C/CG, CY, PL/PO, and SE) are classified by their respective I/O specifications. In addition, with the positioner type and solenoid valve type, the I/O signal details can be changed via the controller settings. As a result, a number of functions can be used.

■ Control Function by Type

Type	C/CG	CY	PL/PO	SE	Features
Name	Positioner type	Solenoid valve type	Pulse in-line control type	Serial communication type	
Positioner mode	◯	✕	✕	◯ (*1)	This is the basic operating mode, in which the user designates position numbers and inputs start signals.
Teaching mode	◯	✕	✕	◯ (*1)	In this mode, the slider (rod) moves based on an external signal, and the stopped positions can be registered as position data.
Solenoid valve mode	◯	◯	✕	◯ (*1)	The actuator can be moved simply by ON/OFF of position signals. This mode supports the same control signals you are already familiar with on solenoid valves of air cylinders.
Pulse train mode	✕	✕	◯	✕	In this mode, you can operate the actuator freely using pulse trains without inputting position data.
Network compatible	◯ (*2)	✕	✕	◯ (*3)	The controller can be connected to a DeviceNet or CC-Link network.

*1 Operates using network communications or serial communications.
*2 Can make a direct connection to a field network with the network specifications.
*3 Can be connected to a field network using a gateway unit.

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

Explanation of I/O Signal Functions

The table below explains the functions allocated to the controller's I/O signal.
Since the signals that can be used vary depending on the controller type and settings, check the signal table for each controller to confirm the available functions.

■ Signal Function Description

Classification	Signal abbreviations	Signal	Function description
Input	CSTR	PTP strobe signal (start signal)	Input this signal to cause the actuator to start moving to the position set by the command position number signal.
	PC1 to PC256	Command position number signal	This signal is used to input a target position number (binary input).
	BKRL	Brake forced release signal	This signal forcibly releases the brake.
	RMOD	Running mode switching signal	This signal can switch the running mode when the MODE switch on the controller is set to AUTO. (AUTO when this signal is OFF, or MANU when the signal is ON)
	*STP	Pause signal	Turning this signal OFF causes the moving actuator to decelerate to a stop. The actuator will resume the remaining movement if the signal is turned ON during the pause.
	RES	Reset signal	Turning this signal ON resets the alarms that are present. If this signal is turned ON while the actuator is paused (*STP is OFF), the remaining movement can be cancelled.
	SON	Servo ON signal	The servo remains on while this signal is ON, or off while the signal is OFF.
	HOME	Home return signal	Turning this signal ON performs home-return operation.
	MODE	Teaching mode signal	Turning this signal ON switches the controller to the teaching mode. (provided that CSTR, JOG+ and JOG- are all OFF and the actuator is not moving).
	JISL	JOG/INCHING switching signal	When the main signal is off, the JOG operation will be conducted for JOG+ and JOG-. When the signal is on, the unit will do the inching operation for JOG+ and JOG-.
	JOG+, JOG–	JOG signal	When the JISL signal is off and the JOG +/- signal turns on, the unit will jog in the + (positive) direction when the JOG + turns on and the - (negative) direction when the JOG - turns on. During the JOG operation, the unit slows to a stop when the JOG +/- signal turns off.
	PWRT	Teaching signal	In the teaching mode, specify a desired position number and then turn this signal ON for at least 20ms to write the current position to the specified position number.
	ST0 to ST6	Start position command	Turning this signal ON in the solenoid valve mode causes the actuator to move to the specified position. (Start signal is not required)
	TL	Torque limit selection signal	While this signal is ON, torque is limited by the value set by a parameter. The TLR signal turns on if torque has reached the specified value.
	DCLR	Deviation counter clear signal	The position deviation counter is continuously cleared while this signal is ON.
Output	PEND/INP	In position signal	This signal turns ON when the actuator has entered the positioning band after movement. If the actuator has exceeded the positioning band, PEND does not turn OFF, but INP does. PEND and INP can be swapped within parameters.
	PM1 to PM256	Positioning complete signal	This signal is used to output the position number achieved at the completion of positioning (binary output)
	HEND	Home return completion signal	This signal turns ON upon completion of home return.
	ZONE1	Zone signal	This signal turns ON when the current actuator position has entered the range specified by the parameters.
	PZONE	Position zone signal	Turns ON when the actuator moves into a position within the range of the target position data that was set. PZONE can be used together with ZONE1, but PZONE is valid only during movement to a specified position.
	RMDS	Running mode status signal	This outputs the operation mode status.
	*ALM	Controller alarm status signal	This signal remains ON while the controller is not in the alarm condition, and turns OFF when an alarm has occurred.
	MOVE	Moving signal	Turns ON while the actuator is moving (home return), including when there is push force.
	SV	Servo ON status signal	This signal turns ON when servo is ON.
	*EMGS	Emergency stop status signal	This signal remains ON while the controller is not in the emergency stop mode, and turns OFF once an emergency stop has been actuated.
	MODES	Mode status signal	The mode signal input turns it ON when it goes into teaching mode. It turns OFF when it goes into normal mode.
	WEND	Writing complete signal	This signal remains OFF after the controller has switched to the teaching mode. It turns ON upon completion of data write using the PWRT signal. If the PWRT signal is turned Off, this signal also turns OFF.
	PE0 to PE6	Current position number signal	This signal turns ON after the controller has completed moving to the target position in the solenoid valve mode.
	TLR	Torque limiting signal	This signal turns ON once the motor torque has reached the specified value in a condition where torque is being limited by the TL signal.
	LSO to LS2	Limit switch output signal	Each signal turns ON when the current actuator position has entered the positioning band before or after the target position. If the actuator has already completed home return, these signals are output even before a movement command is issued or while the servo is OFF.
	LOAD	Load output determination status signal	This signal turns ON once the motor torque has reached the specified value. (*PCON-CF dedicated signal)
	TRQS	Torque level status signal	Turns ON when the motor current reaches the threshold. (*PCON-CF dedicated signal)

(Note) Signals with asterisks (*) are normally ON and OFF during operation.

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

I/O Signal table

■ Positioner types (PCON-C / CG / CF)

Pin No.	Classification		Parameters (select PIO pattern)					
			0	1	2	3	4	5
			Positioning mode	Teaching mode	256-point mode	512-point mode	Solenoid Valve Mode 1	Solenoid Valve Mode 2
		Positioning Points	64 points	64 points	256 points	512 points	7 points	3 points
		Zone signal	○	×	×	×	○	○
		P-zone signal	○	○	○	×	○	○
1A	24V		P24					
2A	24V		P24					
3A	–		NC					
4A	–		NC					
5A	Input	IN0	PC1	PC1	PC1	PC1	ST0	ST0
6A		IN1	PC2	PC2	PC2	PC2	ST1	ST1 (JOG+)
7A		IN2	PC4	PC4	PC4	PC4	ST2	ST2 (–)
8A		IN3	PC8	PC8	PC8	PC8	ST3	–
9A		IN4	PC16	PC16	PC16	PC16	ST4	–
10A		IN5	PC32	PC32	PC32	PC32	ST5	–
11A		IN6	–	MODE	PC64	PC64	ST6	–
12A		IN7	–	JISL	PC128	PC128	–	–
13A		IN8	–	JOG+	–	PC256	–	–
14A		IN9	BKRL	JOG-	BKRL	BKRL	BKRL	BKRL
15A		IN10	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD
16A		IN11	HOME	HOME	HOME	HOME	HOME	–
17A		IN12	*STP	*STP	*STP	*STP	*STP	–
18A		IN13	CSTR	CSTR/PWRT	CSTR	CSTR	–	–
19A		IN14	RES	RES	RES	RES	RES	RES
20A		IN15	SON	SON	SON	SON	SON	SON
1B	Output	OUT0	PM1	PM1	PM1	PM1	PE0	LSO
2B		OUT1	PM2	PM2	PM2	PM2	PE1	LS1 (TRQS)
3B		OUT2	PM4	PM4	PM4	PM4	PE2	LS2 (–)
4B		OUT3	PM8	PM8	PM8	PM8	PE3	–
5B		OUT4	PM16	PM16	PM16	PM16	PE4	–
6B		OUT5	PM32	PM32	PM32	PM32	PE5	–
7B		OUT6	MOVE	MOVE	PM64	PM64	PE6	–
8B		OUT7	ZONE1	MODES	PM128	PM128	ZONE1	ZONE1
9B		OUT8	PZONE	PZONE	PZONE	PM256	PZONE	PZONE
10B		OUT9	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS
11B		OUT10	HEND	HEND	HEND	HEND	HEND	HEND
12B		OUT11	PEND	PEND/WEND	PEND	PEND	PEND	–
13B		OUT12	SV	SV	SV	SV	SV	SV
14B		OUT13	* EMGS	* EMGS	* EMGS	* EMGS	* EMGS	* EMGS
15B		OUT14	* ALM	* ALM	* ALM	*ALM	* ALM	* ALM
16B		OUT15	LOAD/TRQS	–	LOAD/TRQS	LOAD/TRQS	LOAD/TRQS	–
17B	–		NC					
18B	–		NC					
19B	0V		N					
20B	0V		N					

(Note) The names of signals above inside ( ) are functions before the unit returns home.
(Note) Signals with asterisks (*) are normally ON, and OFF during operation.

■ Solenoid valve type (PCON-CY)

Pin No.	Classification		Parameters (select PIO pattern)	
			0	1
			Solenoid valve mode 0	Solenoid valve mode 1
		Positioning Points	3 points	3 points
		Zone signal	×	×
		P-zone signal	×	○
1	24V			
2	0V			
3	Input	IN0	ST0	ST0
4		IN1	ST1 (JOG+)	ST1 (JOG+)
5		IN2	ST2 (RES)	ST2 (RES)
6		IN3	SON	SON
7	Output	OUT0	LS0	PE0
8		OUT1	LS1 (TRQS)	PE1 (TRQS)
9		OUT2	LS2 (–)	PE2 (–)
10		OUT3	SV	PZONE
11		OUT4	HEND	HEND
12		OUT5	* ALM	* ALM

(Note) The names of signals above inside ( ) are functions before the unit returns home.
(Note) Signals with asterisks (*) are normally ON, and OFF during operation.
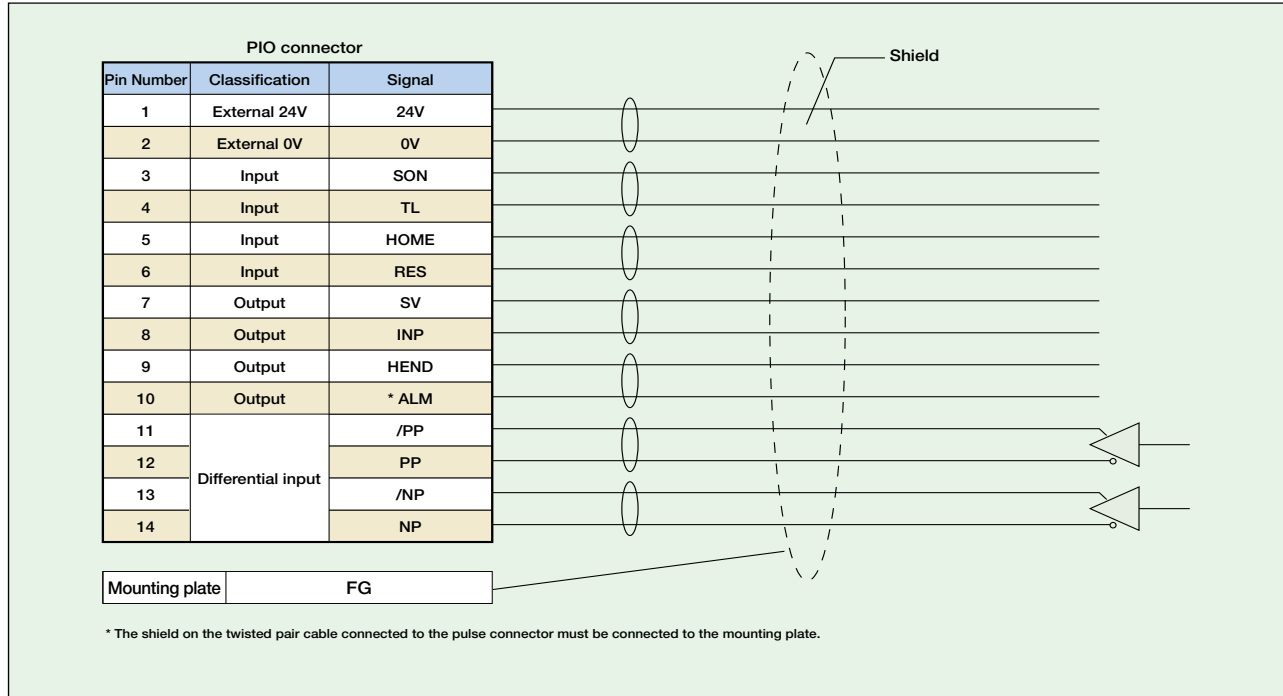
■ Pulse Train Type (PCON-PL/PO)

Pin No.	Classification		Parameters (select PIO pattern)	
			0	1
			Standard mode	Push mode
		Positioning Points	–	–
		Zone signal	×	×
		P-zone signal	×	×
1	24V			
2	0V			
3	Input	IN0	SON	SON
4		IN1	TL	TL
5		IN2	HOME	HOME
6		IN3	RES	RES／DCLR
7	Output	OUT0	SV	SV
8		OUT1	INP	INP／TLR
9		OUT2	HEND	HEND
10		OUT3	* ALM	* ALM
11	Input		* PP	* PP
12			PP	PP
13			* NP	* NP
14			NP	NP

(Note) Signals with asterisks (*) are normally ON, and OFF during operation.
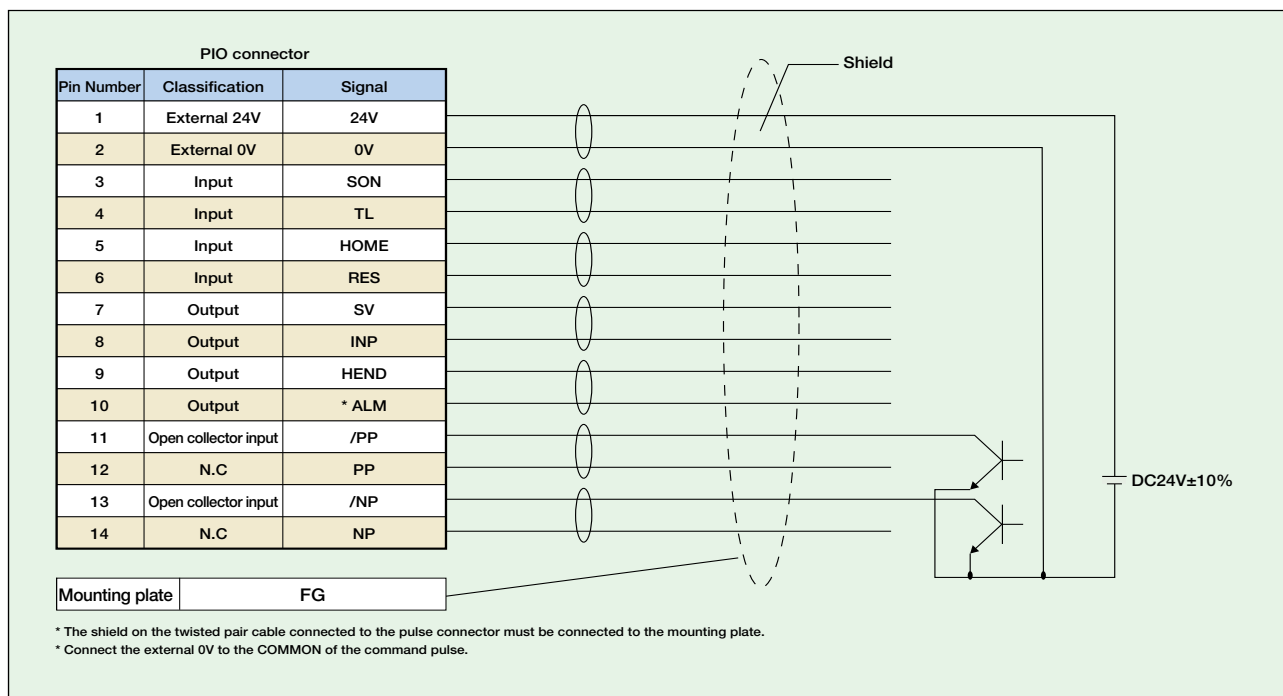
Pulse train input type wiring diagram

■ Differential Receiver Method (PCON-PL)

| Max. input pulse frequency | : | Max. 200 kpps |
| Cable Length | : | Max. 10m |

PIO connector

Pin Number	Classification	Signal
1	External 24V	24V
2	External 0V	0V
3	Input	SON
4	Input	TL
5	Input	HOME
6	Input	RES
7	Output	SV
8	Output	INP
9	Output	HEND
10	Output	* ALM
11		/PP
12		PP
13	Differential input	/NP
14		NP

Mounting plate	FG

Shield

* The shield on the twisted pair cable connected to the pulse connector must be connected to the mounting plate.

■ Open Collector Method (PCON-PO)

| Max. input pulse frequency | : | Max. 60 kpps |
| Cable Length | : | Max. 2m |

PIO connector

Pin Number	Classification	Signal
1	External 24V	24V
2	External 0V	0V
3	Input	SON
4	Input	TL
5	Input	HOME
6	Input	RES
7	Output	SV
8	Output	INP
9	Output	HEND
10	Output	* ALM
11	Open collector input	/PP
12	N.C	PP
13	Open collector input	/NP
14	N.C	NP

Mounting plate	FG

Shield

DC24V±10%

* The shield on the twisted pair cable connected to the pulse connector must be connected to the mounting plate.
* Connect the external 0V to the COMMON of the command pulse.

Command Pulse Input State

	Command pulse train state	Input terminal	During forward operation	During reversed operation
Negative logic	Forward pulse train	PP・/PP		
	Reversed pulse train	NP・/NP		
	The forward pulse train causes the motor to rotate forward, and the reverse pulse train causes the motor to rotate in reverse.			
	Pulse train	PP・/PP		
	Symbols	NP・/NP	Low	High
	The command pulse is used for the amount of motor rotation, and the command symbol is used for rotational direction.			
	A/B phase pulse train	PP・/PP		
		NP・/NP		
	An A/B phase pulse with a 90° phase difference (multiplier is 4) is used to generate commands for the amount of rotation and rotational direction.			
Positive logic	Forward pulse train	PP・/PP		
	Reversed pulse train	NP・/NP		
	Pulse train	PP・/PP		
	Symbols	NP・/NP	High	Low
	A/B phase pulse train	PP・/PP		
		NP・/NP		

Table of specifications

Item	Specifications						
Controller type	CF	C	CG	CY	PL	PO	SE
Connected actuator (*1)	RCP2-RA10C RCP2-HS8C (R) RCP2W-SA16C	RCP3／RCP2 series actuator (Note 1)					
Number of control axes	1-axis						
Operating method	Positioner type			Solenoid valve type	Pulse train input type		Serial communication type
Positioning Points	512 points			3 points	—		64 points
Backup memory	EEPROM						
I/O connector	40-pin connector			12-pin connector	14-pin connector		None
Number of I/O	16 input points/16 output points			4 input points/6 output points	4 input points/4 output points		None
I/O power	External supply DC24V±10%						—
Serial Communication	RS485 1ch						
Peripheral device communication cable	CB-PAC-PIO □□□			CB-PACY-PIO □□□	CB-PACPU-PIO □□□		CB-RCB-CTL002
Command pulse train input method	—				Differential line driver	Open collector	—
Max. input pulse frequency (Note 2)	—				Max. 200 kpps	Max. 60 kpps	—
Position detection method	Incremental encoder						
Drive-source cutoff relay at emergency stop	Integrated		External				
Forced release of electromagnetic brake	Brake release switch ON/OFF		ON/OFF terminal signal inside the power terminal for brake release				
Input Supply Voltage	DC 24 V ± 10%						
Power Supply Capacity	Max. 6A (*2)	2A max.					
Dielectric strength voltage	DC500V 1MΩ						
Vibration resistance	XYZ directions 10 to 57Hz, One side amplitude: 0.035mm (continuous), 0.075mm (intermittent) 58 to 150Hz, 4.9m/s² (continuous), 9.8m/s² (intermittent)						
Ambient operating temperature	0 ～ 40℃						
Ambient operating humidity	10 - 95% (non-condensing)						
Ambient operating atmosphere	Without corrosion gases						
Protection class	IP20						
Weight	Approx. 320g	Approx. 300g		Approx. 130g			

(Note 1) The high-thrust type (RA10C), high-speed type (HS8C/HS8R) and waterproof type (RCP2W-SA16) cannot be operated.
(Note 2) With the open collector specification, keep the maximum input frequency to 60 kpps or below to prevent malfunction. For applications exceeding 60kpps, use the differential line driver.
(*1)　　RCP2-RA10C/HS8C/HS8R and RCP2W-SA16C can only operate with PCON-CF.
　　　　Other RCP2／RCP3 Series actuators can be operated with C／CG／CY／PL／PO／SE.
(*2)　　Inrush current peak: 10A

External Dimensions

PCON-C / CG / CF

PCON-CY / PL / PO / SE
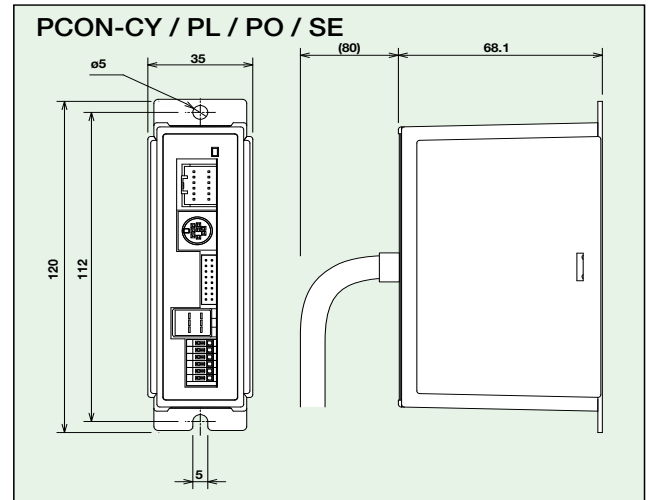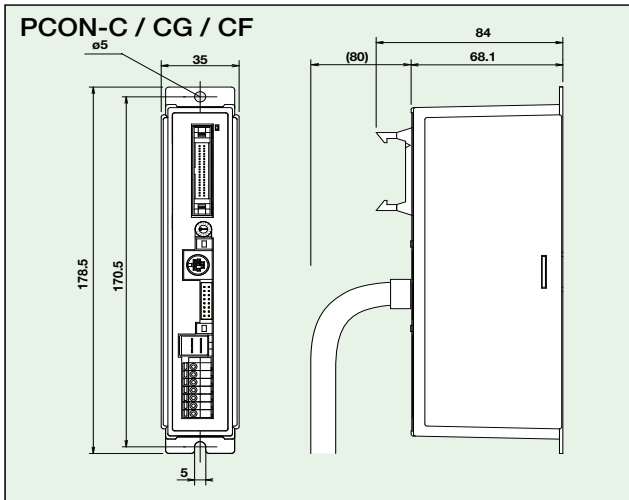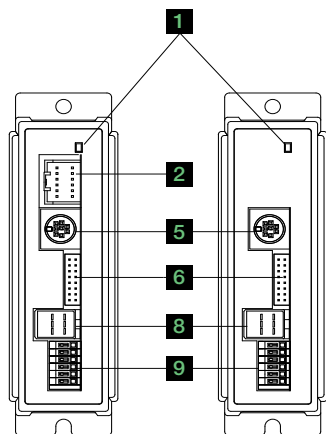
Name of Each Part
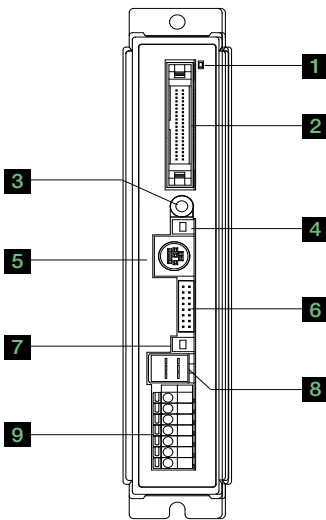
C / CG / CF type

CY / PL / PO Type   SE Type

* PIO connectors are:
  CY: 12 pin
  PL/PO: 14 pin

1 LED display

These LED colors indicate the condition of the controller.

Lit (green) Servo ON   Lit (red) Alarm activated   Unlit   Servo OFF   Blinking (green) Automatic servo-off
Emergency stop

2 PIO connector

Connects a cable for communicating with a PLC or other external equipment.

3 Address-setting rotary switch

This switch sets the addresses for controllers used when the unit is linked with other controllers.

4 Mode switch

Switches between manual teaching operations (MANU) and automatic operations (AUTO).

Operation details

MANU	I/O commands are not accepted. Data can be written from a teaching pendant or PC.
AUTO	I/O commands are valid, while operations from a teaching pendant or PC are not accepted. However, monitoring is possible.

5 SIO connector

Connects a teaching pendant, PC cable, controller, or gateway unit to a controller.

Operation details

Pin No.	Signal	Name	Remarks
1	SGA	Positive side, RS485 differential signal	
2	SGB	Negative side, RS485 differential signal	
3	5V	+5V output	For RS232/485 conversion
4	ENBL	Enable signal	
5	EMGA	EMG line connection to external equipment	
6	24V	24-V power for T/P	For T/P
7	0V	GND	
8	EMGB	EMG line connection to external equipment	
9	0V	EMG line connection to external equipment ground	

6 Encoder brake connector

Connects the encoder/brake cable for the actuator.

7 Brake release switch

This switch forces the brake to release.

8 Motor connector

Connects the motor cable for the actuator.

9 Power terminal block

Main power for controller(s), emergency stop

C / CG type

Terminal number	Signal	Name
7	S1	External drive-source cutoff for TP_ EMG terminal
6	S2	
5	MPI	Motor drive-source cutoff terminal
4	MPO	Motor drive-source cutoff terminal
3	24V	Positive side of the 24-V power supply
2	0V	Negative side of the 24-V power supply
1	EMG	EMG signal (application of 24 V)

CY / PL / PO / SE type

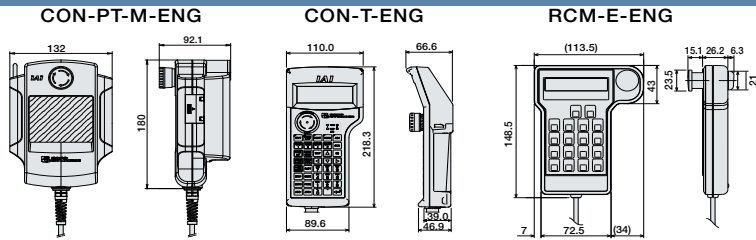| Terminal number	Signal	Name
6	BK	BK release
5	MPI	Motor drive-source cutoff terminal
4	MPO	Motor drive-source cutoff terminal
3	24V	Positive side of the 24-V power supply
2	0V	Negative side of the 24-V power supply
1	EMG	EMG signal (application of 24 V)

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

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

Option

Teaching Pendant

Features This is a teaching device that provides information on functions such as the position input, test runs, and monitoring.

Model **CON-PT-M-ENG** (Touch panel teaching pendant)

CON-T-ENG (Standard type)

RCM-E-ENG (Simple teaching pendant)

Configuration

Note:
The version of RCM-E-ENG that can be used with ROBONET is 2.08 or later.

5m

CON-T-ENG Options
- Wall-mounting hook Model HK-1
- Strap Model STR-1

CON-PT-M-ENG — 132 / 92.1 / 180 / 89.6

CON-T-ENG — 110.0 / 66.6 / 218.3 / 39.0 / 46.9

RCM-E-ENG — (113.5) / 15.1 26.2 6.3 / 21 / 23.5 / 43 / 148.5 / 7 / 72.5 / (34)

Specifications

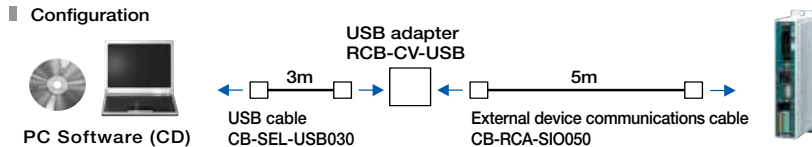| Item	CON-PT-M-ENG	CON-T-ENG	RCM-E-ENG
Data input	O	O	O
Actuator motion	O	O	O
Ambient Operating temp/humidity	Temp: 0~40ºC; Humidity: 85% RH or below		
Ambient Operating atmosphere	No corrosive gases. Especially no dust.		
Protection class	IP40	IP54	–
Weight	Approx. 750g	Approx. 400g	Approx. 400g
Cable length	5m		
Display	3-color LED touch panel with backlight	20 char. × 4 lines LCD display	16 char. × 2 lines LCD display

PC Software (Windows Only)

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

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

Configuration

PC Software (CD) ← RS232 adapter RCB-CV-MW / 0.3m ← External device communications cable CB-RCA-SIO050 / 5m →
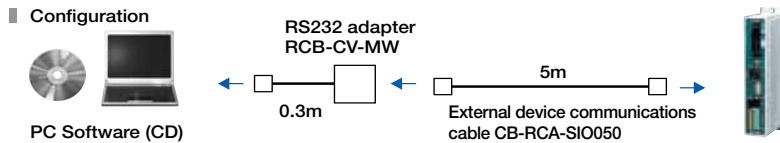
Model **RCM-101-USB** (External device communications cable + USB adapter + USB cable)

Configuration

PC Software (CD) ← USB cable CB-SEL-USB030 / 3m → USB adapter RCB-CV-USB ← External device communications cable CB-RCA-SIO050 / 5m →
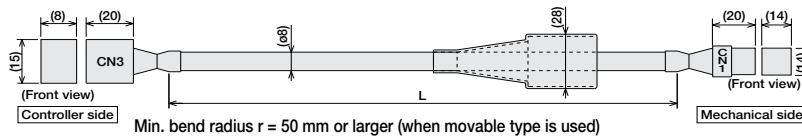
Spare Parts

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

Motor Cable for RCP2

Model **CB-RCP2-MA**☐☐☐ * The standard cable for the motor cable is the robot cable.

* Enter the cable length (L) into ☐☐☐ . Compatible to a maximum of 20 meters. Ex.: 080 = 8 m
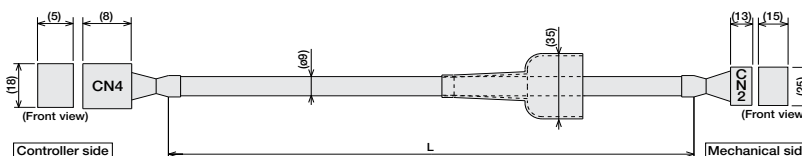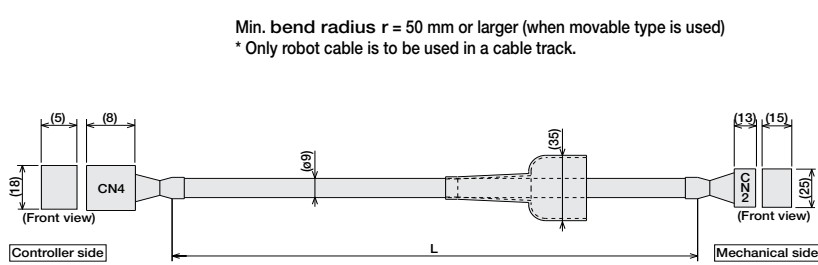
(8) (20) (ø8) (28) (20) (14)
(15) CN3 (Front view) / L / CN1 (14) (Front view) / Mechanical side
Controller side
Min. bend radius r = 50 mm or larger (when movable type is used)

I-1318119-3 (AMP) — CN3 / M cable / CN1 — SLP-06V (JST)

	CN3				CN1	
Orange	Ā	A1	1	A	Yellow
Gray	VMM	A2	2	VMM	Gray
White	B̄	A3	3	A	Orange
Yellow	A	B1	4	B	Yellow (Green)
Pink	VMM	B2	5	VMM	Pink
Yellow (Green)	B	B3	6	B̄	White

Encoder Cable/Encoder Robot Cable for RCP2

Model **CB-RCP2-PB**☐☐☐**/CB-RCP2-PB**☐☐☐**-RB**
* The standard cable for the encoder cable is the normal cable. A robot cable can be specified as an option.
* Enter the cable length (L) into ☐☐☐ . Compatible to a maximum of 20 meters. Ex.: 080 = 8 m

Min. bend radius r = 50 mm or larger (when movable type is used)
* Only robot cable is to be used in a cable track.

(5) (8) (ø9) (35) (13) (15)
(18) CN4 (Front view) / L / CN2 (25) (Front view) / Mechanical side
Controller side

PADR-16VS (JST) — CN4

	Cable color			
	Standard Cable	Robot Cable	Signal	Pin No.
Blue (Red 1)	Orange (Black 2)	L S +	16
White	Orange (Red 2)	L S –	15
Red	Orange (Black 1)	B K +	14
Gray	Orange (Red 1)	B K –	13
Brown	Light Gray (Black 1)	E N A	12
Green	Light Gray (Red 1)	E N A	11
Purple	White (Black 1)	E N B	10
Pink	White (Red 1)	E N B	9
–	–	–	8
Yellow	Yellow (Black 1)	V P S	7
Orange	Pink (Red 1)	V B B	6
Blue	Pink (Black 1)	GND	5
–	–	(NC)	4
–	–	(NC)	3
–	–	(NC)	2
Ground	Ground	F.G	1

XMP-18V (JST) — CN2

Pin No.	Signal	Cable color		
		Standard Cable	Robot Cable	
1	E N A	Brown	Light Gray (Black 1)
2	E N A	Green	Light Gray (Red 1)
3	E N B	Purple	White (Black 1)
4	E N B	Pink	White (Red 1)
5	–	–	–
6	–	–	–
7	–	–	–
8	–	–	–
9	GND	Blue	Pink (Black 1)
10	V B B	Orange	Pink (Red 1)
11	V P S	Yellow	Yellow (Black 1)
12	–	–	–
13	L S +	Blue (Red 1)	Orange (Black 2)
14	L S –	White	Orange (Red 2)
15	–	–	–
16	B K +	Red	Orange (Black 1)
17	B K –	Gray	Orange (Red 1)
18	F .G	Ground	Ground

Shielded wire
Ground wire

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

Encoder Cable / Encoder Robot Cable for the RCP2 High-speed Type / High-thrust Type / Waterproof Type

Model **CB-RFA-PA□□□/CB-RFA-PA□□□-RB**

* The standard cable for the encoder cable is the normal cable. A robot cable can be specified as an option.
* Enter the cable length (L) into □□□. Compatible to a maximum of 20 meters. Ex.: 080 = 8 m

Min. bend radius r = 50 mm or larger (when movable type is used)
* Only robot cable is to be used in a cable track.

Housing: PHDR-16VS (JST)
Contact: SPHD-001T-P0.5

Housing: XMP-18V (JST)
Contact: BXA-001T-P0.6
Retainer: MS-09V

CN2

Cable color Robot Cable	Cable color Standard Cable	Signal	Pin No.
		(Spare)	16
		(Spare)	15
Orange (Black 1)	Red	BK+	14
Orange (Red 1)	Gray	BK−	13
Light Gray (Black 1)	Brown	ENA	12
Light Gray (Red 1)	Green	ENA	11
White (Black 1)	Purple	ENB	10
White (Red 1)	Pink	ENB	9
		(Spare)	8
Yellow (Black 1)	Yellow	VPS	7
			6
Pink (Black 1)	Blue	GND	5
Pink (Red 1)	Orange	5V	4
			3
			2
Ground	Ground	F.G	1

CN1

Pin No.	Signal	Cable color Standard Cable	Cable color Robot Cable
1	ENA	Brown	Light Gray (Black 1)
2	ENA	Green	Light Gray (Red 1)
3	ENB	Purple	White (Black 1)
4	ENB	Pink	White (Red 1)
5	–	–	–
6	–	–	–
7	–	–	–
8	–	–	–
9	GND	Blue	Pink (Red 1)
10	–	–	–
11	VPS	Yellow	Yellow (Black 1)
12	5V	Orange	Pink (Red 1)
13	–	–	–
14	–	–	–
15	–	–	–
16	BK+	Red	Orange (Black 1)
17	BK−	Gray	Orange (Red 1)
18	F.G	Ground	Ground

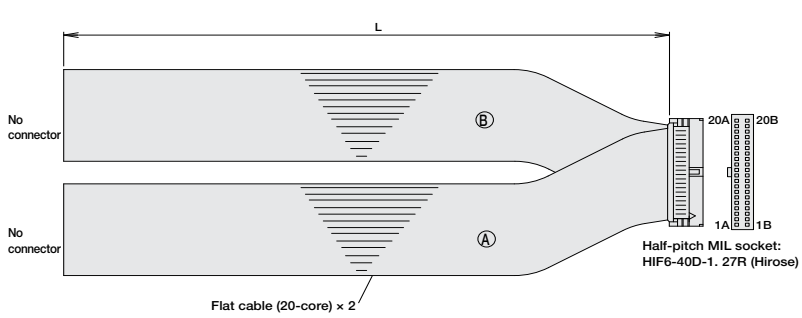## Motor-Encoder Integrated Type Cable for RCP3/RCP2 (Limited to RCP2-GRSS/GRLS/GRST/SRA4R/SRGS4R/SRGD4R)

Model **CB-PCS-MPA □□□**

* The standard cable is robot cable.

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

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

Signal	Pin No.
A	B1
VMM	A2
/A	A1
B	B3
VMM	B2
/B	A3
BK+	14
BK−	13
LS+	16
LS−	15
A+	12
A−	11
B+	10
B−	9
NC	8
VPS	7
VCC	6
GND	5
NC	4
FG	1

(Wire color)
Black
White
Red
Green
Yellow
Brown

Pink (Red ●)
Pink (Blue ●)
White (Red ●)
White (Blue ●)
Orange (Red ●)
Orange (Blue ●)
Gray (Red ●)
Gray (Blue ●)

Orange (Blue ● Continuous)
Gray (Red ● Continuous)
Gray (Blue ● Continuous)

Shield

Pin No.	Signal
B1	VMM
A1	/A
A2	A
B2	VMM
A3	/B
B3	B
A4	NC
B4	NC
A5	BK+
B5	BK−
A6	LS+
B6	LS−
A7	A+
B7	A−
A8	B+
B8	B−
A9	NC
B9	VPS
A10	VCC
B10	GND
A11	NC
B11	FG

Positioner I/O Cable (for PCON-C/CG)

Model **CB-PAC-PIO □□□**

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

Half-pitch MIL socket: HIF6-40D-1. 27R (Hirose)

Flat cable (20-core) × 2

HIF6-40D-1. 27R

No.	Signal	Cable Color	Wire	No.	Signal	Cable Color	Wire
1A	24V	Brown-1		1B	OUT0	Brown-3	
2A	24V	Red-1		2B	OUT1	Red-3	
3A	–	Orange-1		3B	OUT2	Orange-3	
4A	–	Yellow-1		4B	OUT3	Yellow-3	
5A	IN0	Green-1		5B	OUT4	Green-3	
6A	IN1	Blue-1		6B	OUT5	Blue-3	
7A	IN2	Purple-1		7B	OUT6	Purple-3	
8A	IN3	Gray-1		8B	OUT7	Gray-3	
9A	IN4	White-1	Flat cable Ⓐ (crimped)	9B	OUT8	White-3	Flat cable Ⓑ (crimped) AWG28
10A	IN5	Black-1		10B	OUT9	Black-3	
11A	IN6	Brown-2		11B	OUT10	Brown-4	
12A	IN7	Red-2		12B	OUT11	Red-4	
13A	IN8	Orange-2		13B	OUT12	Orange-4	
14A	IN9	Yellow-2		14B	OUT13	Yellow-4	
15A	IN10	Green-2		15B	OUT14	Green-4	
16A	IN11	Blue-2		16B	OUT15	Blue-4	
17A	IN12	Purple-2		17B	–	Purple-4	
18A	IN13	Gray-2		18B	–	Gray-4	
19A	IN14	White-2		19B	0V	White-4	
20A	IN15	Black-2		20B	0V	Black-4	

Solenoid Valve Type I/O Cable (for PCON-CY)

Model **CB-PACY-PIO □□□**

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

Housing: 51353-1200 (MOLEX)
Contact: 56134-9000 (MOLEX)

51353-1200 (MOLEX)
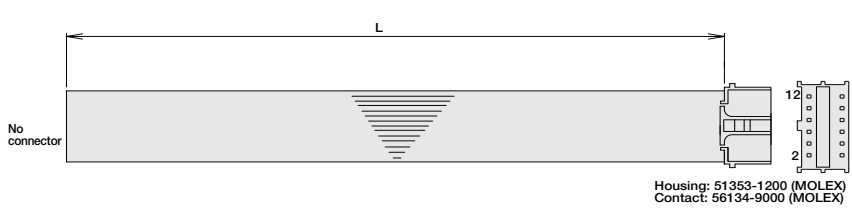
No.	Signal	Cable Color	Wire
1	24V	Brown-1	
2	0V	Red-1	
3	IN0	Orange-1	
4	IN1	Yellow-1	
5	IN2	Green-1	
6	IN3	Blue-1	Flat cable (crimped) AWG28
7	OUT0	Purple-1	
8	OUT1	Gray-1	
9	OUT2	White-1	
10	OUT3	Black-1	
11	OUT4	Brown-2	
12	OUT5	Red-2	

Pulse Train Control I/O Cable (for PCON-PL/PO)

Model **CB-PACPU-PIO □□□**

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

Single wire (UL1007 AWG24 Green)
Round terminal: 0.5-5 (JST)
Housing: 51353-1400 (MOLEX)
Contact: 56134-9000 (MOLEX)

Side with no connector

51353-1400 (MOLEX)
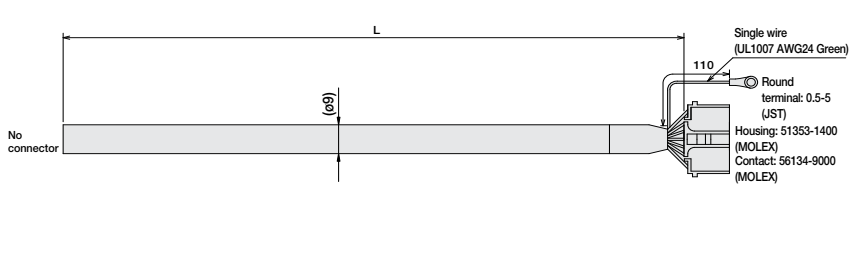
No.	Signal	Cable Color	Wire
1	IO_24V	Black	
2	IO_24G	White/Black	
3	IN0	Red	
4	IN1	White/Red	
5	IN2	Green	
6	IN3	White/Green	
7	OUT0	Yellow	0.2sq
8	OUT1	White/Yellow	
9	OUT2	Brown	
10	OUT3	White/Brown	
11	PP	Blue	
12	PG	White/Blue	
13	NP	Gray	
14	NG	White/Gray	

0.5-5 (JST)			
1	FG	White/Gray	AWG24