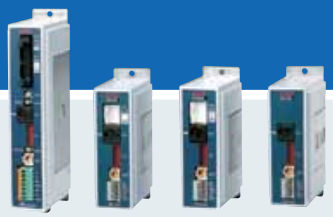
ACON

■ Models C / CG / CY / PL / PO / SE

Position Controllers
For RCA2/RCA



C/CG CY PL/PO SE

List of models

This position controller enables movement of the RCA2/RCA series actuators. A line-up of 5 types to support various controlling methods.

Type	C	CG	CY	PL/PO	SE
Name	Positioner type	Safety category compatible type	Solenoid valve type	Pulse train control type	Serial Communication Type
External view					
Description	Positioner capable of a maximum of 512 points of Positioning	Conforming to type C safety category specifications	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	3 points	(–)	64 points

Model

ACON – [Series] – [Type] – [Motor] – I – [Encoder] – [Option] – [I/O Type] – [I/O Cable Length] – 0 – [Power Voltage] – [Simple absolute unit]

Series	Type	Motor	Encoder	Option	I/O Type	I/O Cable Length	Power Voltage	Simple absolute unit

Encoder

I	Incremental

* The absolute-type RCA actuators cannot be operated with the ACON controller To operate an absolute-type actuator, use the ASEL controller. However, you can operate a simple absolute-type actuator, in which a simple absolute unit is attached to an incremental actuator.

Option

HA	High Accel./Decel.
LA	Power-saving

Simple absolute unit

Blank	Not used
ABU	Used

Power Voltage

0	DC24V

Type

C	Positioner Type
CG	Safety-compliant 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)

Motor

2	2W motor-compatible
5	5W motor-compatible
10	10W motor-compatible
20S	20W motor-compatible (*)
20	20W motor-compatible
30	30W motor-compatible

* When connecting an RCA-RA3□/ RGS3□/RGD3□ and RCA2-SA4□/TA5□, the motor type is 20S.

I/O Type

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

* The network models (DV/CC/PR/ ML/CN) support C/CG types only.

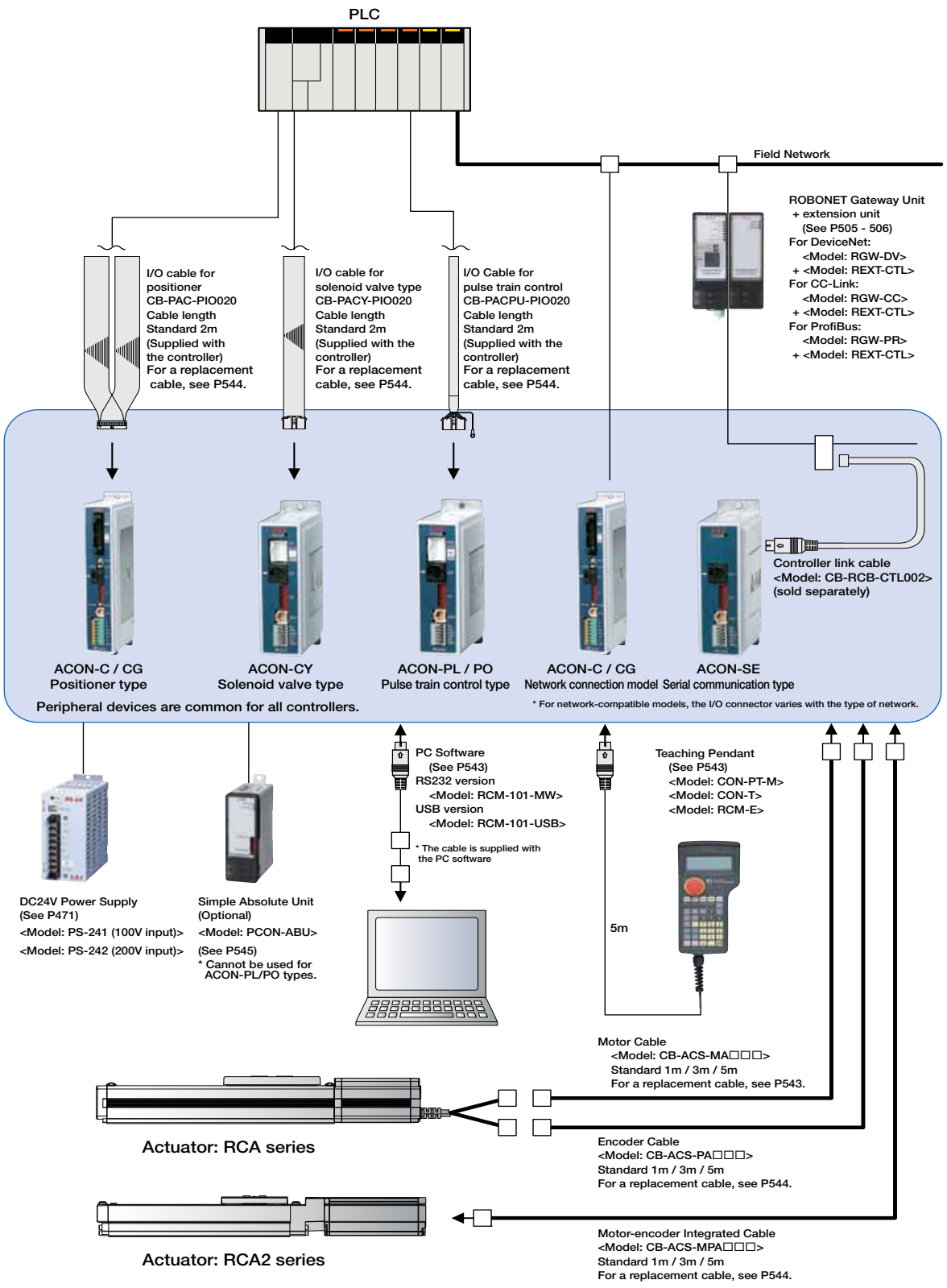
* When selecting type SE (serial communication), the standard I/O is "N" (no I/O).

I/O Cable Length

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

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

System configuration



I/O Specifications

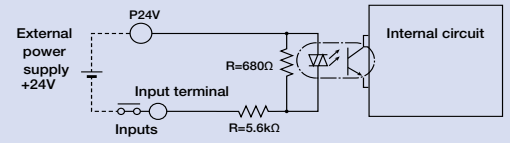
■ Input section External input specifications

Item	Specifications
Input voltage	DC24V ±10%
Input current	4mA/circuit
Leak current	1mA max./point
Isolation method	Photocoupler

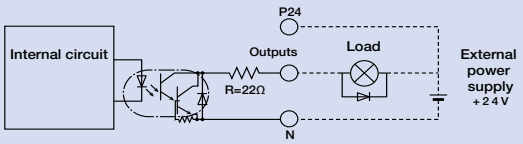
■ Output section External output specifications

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

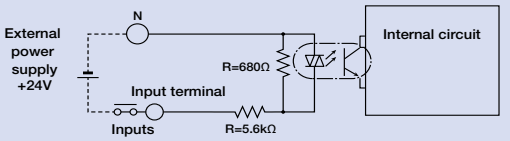
NPN Specifications



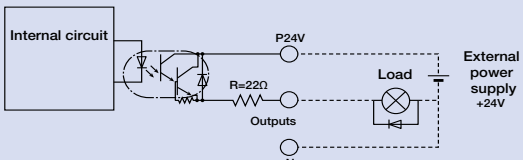
NPN Specifications



PNP Specifications



PNP Specifications



I/O Specifications

The 4 types of controllers (C/CG, CY, PL/PO, and SE) are classified by their respective I/O specifications. Also, for the positioner type and solenoid valve type, the I/O signal information can be changed in the controller settings, so multiple functions can be effectively used.

■ Control Function by Type

Type	C/CG	CY	PL/PO	SE	Features
Name	Positioner type	Solenoid valve type	Pulse train 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 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 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.

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	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 teaching mode (provided that CSTR, JOG+ and JOG- are all OFF and the actuator is not moving).
	JISL	JOG/INJOG 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. (Dedicated pulse train type)
	DCLR	Deviation counter clear signal	The position deviation counter is continuously cleared while this signal is ON. (Dedicated pulse train type)
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	Position 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	Positioning zone signal	Turns ON when 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. (Dedicated pulse train type)
	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. (Dedicated Solenoid Valve Mode)

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

I/O Signal table

■ Positioner type (ACON-C / CG)

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
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	–	–	–	–	–	–
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 (ACON-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	PE1
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 (ACON-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.

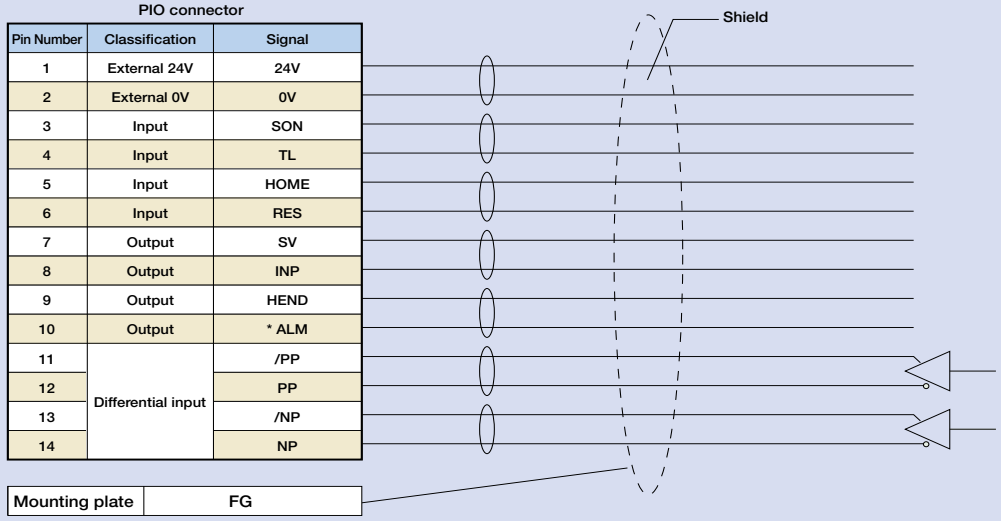
Wiring Diagram for the Pulse-Train Input Type

■ Differential Line Driver Method (ACON-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	Differential input	/PP
12		PP
13		/NP
14		NP



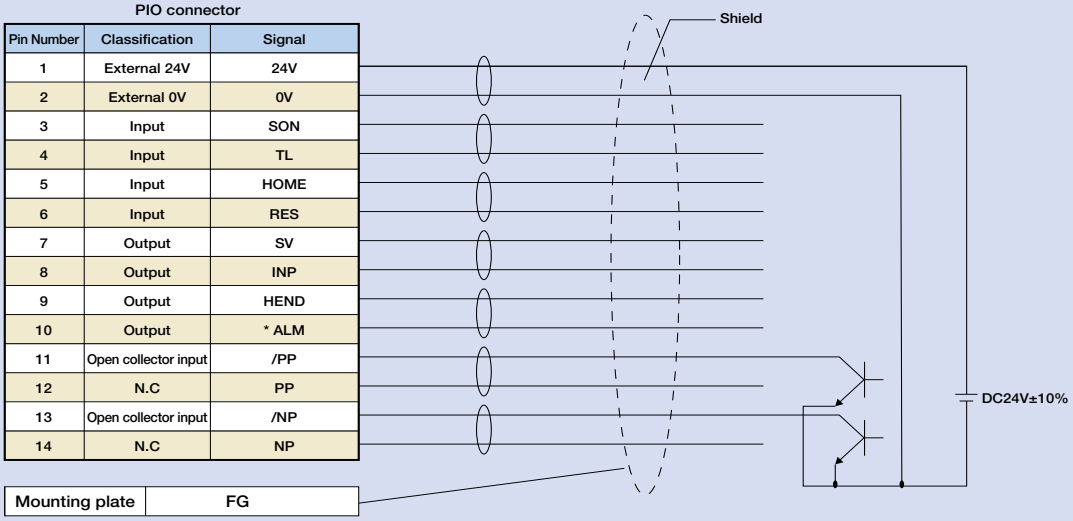
* The shield on the twisted pair cable connected to the pulse connector must be connected to the mounting plate.

■ Open Collector Method (ACON-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



* 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

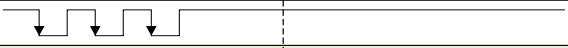
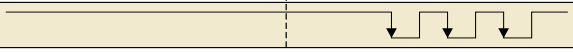
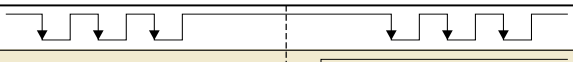
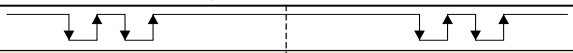
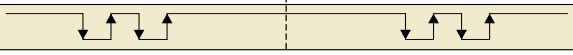
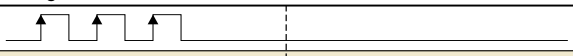
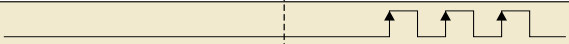
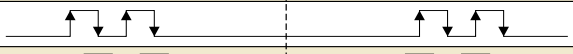
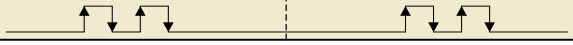
	Command pulse train state	Input terminal	During forward operation	During reversed operation
Negative logic	Forward pulse train	PP・/PP		
	Reversed pulse train	NP・/NP		
	The forward pulse train causes the motor to rotate forward, and the reverse pulse train causes the motor to rotate in reverse.			
	Pulse 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

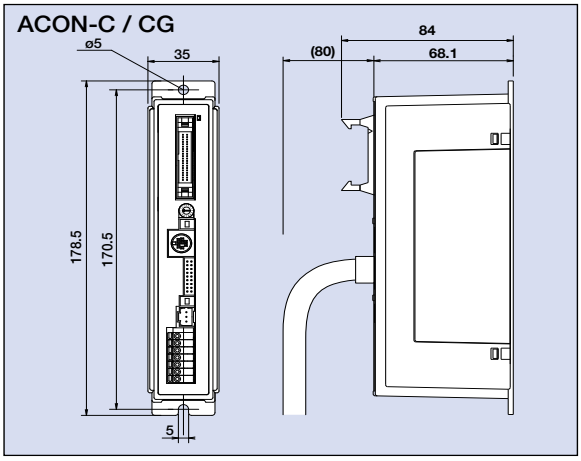
Item	Specifications					
Controller type	C	CG	CY	PL	PO	SE
Connected actuator	RCA Series Actuator					
Number of control axes	1-axis					
Operating method	Positioner type		Solenoid valve type	Pulse train input type		Serial communication type
Positioning Points	512 points		3 points	—		64 points
Backup 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 1)	—			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 Voltage	DC24V ± 10%					
Dielectric strength voltage	DC500V 1MΩ					
Vibration resistance	XYZ directions	10 to 57Hz, One side amplitude: 0.035mm (continuous), 0.075mm (intermittent) 58 to 150 Hz 4.9 m/s² (continuous), 9.8 m/s² (intermittent)				
Ambient operating temperature	0 ~ 40°C					
Ambient operating humidity	10 - 95% (non-condensing)					
Ambient operating atmosphere	Without corrosive gases					
Protection class	IP20					
Weight	Approx. 300g		Approx. 130g			

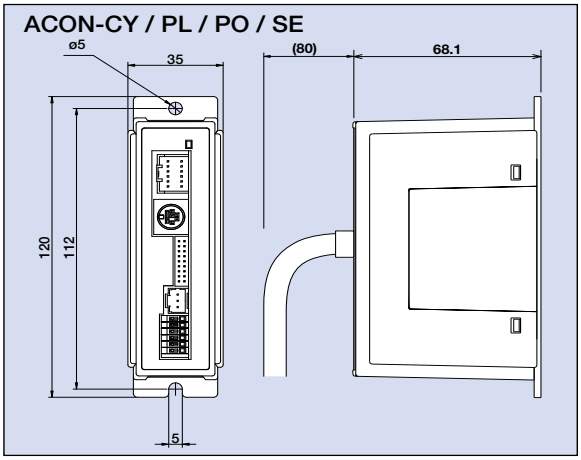
(Note 1) With the open collector specification, keep the maximum input frequency to 60 kpps or below to prevent malfunction. For applications exceeding 60kpps, use the differential line driver.

	Actuator	Motor	Standard specifications/high acceleration and deceleration model		Power-saving model	
			Rated [A]	Max. [A]	Rated [A]	Max. [A]
Motor Power Supply Capacity (Note 2)	RCA RCA2	10W	1.3	4.4	1.3	2.5
		20W [Model symbol: 20]	1.3	4.4	1.3	2.5
		30W	1.3	4.4	1.3	2.2
		20W [Model symbol: 20S] SA4, RA3, TA5 Type dedicated	1.7	5.1	1.7	3.4
	RCL	2W	0.8	4.6		
		5W	1.0	6.4		
		10W	1.3	6.4		

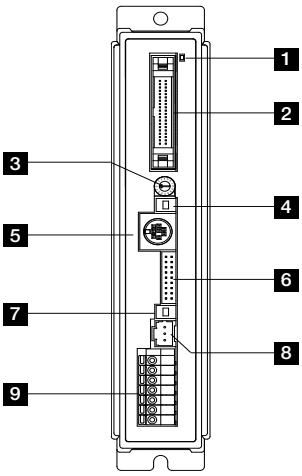
(Note 2) Other than motor power supply capacity, increase 0.5A as control power supply. Inrush current of approx. 5 to 12 times the rated current occurs within 1 to 2 msec from turning the power on. The inrush current changes depending on the power supply line impedance.

External Dimensions

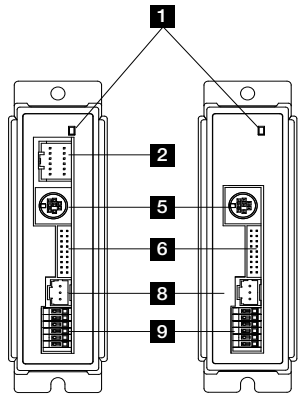




Name of Each Part



C / CG 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 Emergency stop Unlit Servo OFF Blinking (green) Automatic servo-OFF

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 controllers.

4 Mode switch

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

Operation details

MANUAL	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

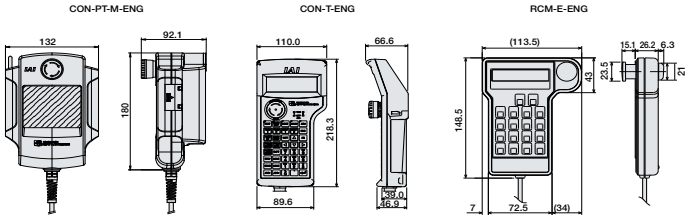
Terminal number	Signal	Name
6	BK	BK release
5	MPI	Motor drive-source cutoff terminal
4	MPO	Motor drive-source cutoff terminal
3	24V	Positive side of the 24-V power supply
2	0V	Negative side of the 24-V power supply
1	EMG	EMG signal (application of 24 V)

Option

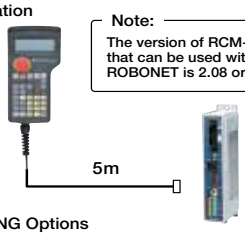
Teaching Pendant

Features This is a teaching device that provides information on functions such as position input, performing 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.

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

Specifications

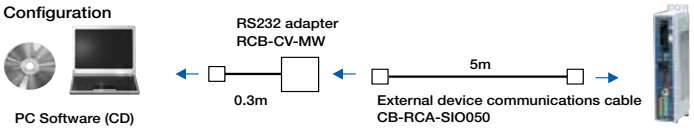
Item	CON-PT-M-ENG	CON-T-ENG	RCM-E-ENG
Data Input	O	O	O
Actuator motion	O	O	O
Ambient Operating Temp./Humidity	Temp: 0~40ºC; Humidity: 85% RH or below		
Ambient Operating Atmosphere	No corrosive gases. Especially no dust.		
Protection class	IP40	IP54	–
Weight	Approx. 750g	Approx. 400g	Approx. 400g
Cable 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.

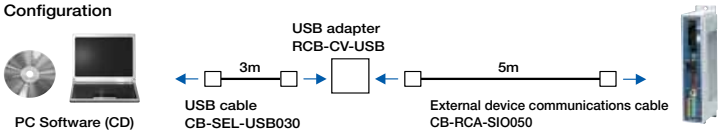
Model **RCM-101-MW** (External device communications cable + RS232 conversion unit)

Configuration



Model **RCM-101-USB** (External device communications cable + USB adapter + USB cable)

Configuration



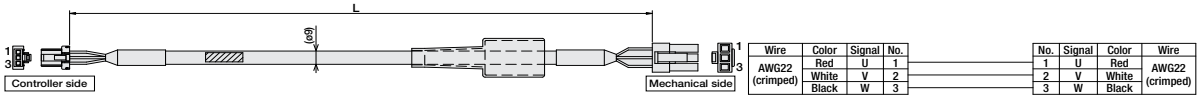
Spare parts

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 RCA

Model **CB-ACS-MA** □□□

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



Wire	Color	Signal	No.	No.	Signal	Color	Wire
AWG22 (crimped)	Red	U	1	1	U	Red	AWG22 (crimped)
	White	V	2	2	V	White	
	Black	W	3	3	W	Black	

Min. bend radius r = 50 mm or larger (when movable type is used)

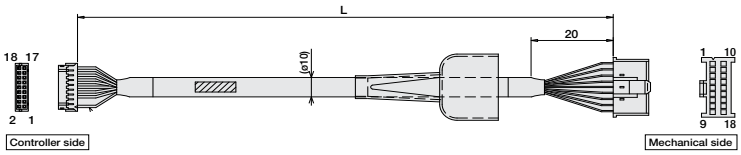
Encoder Cable / Encoder Robot Cable for RCA

Model **CB-ACS-PA□□□/CB-ACS-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.



CN2 Cable color (Robot Cable)	CN2 Cable color (Standard Cable)	CN2 Signal	CN2 Pin No.	CN1 Pin No.	CN1 Signal	CN1 Cable color (Standard Cable)	CN1 Cable color (Robot Cable)
White/Purple	Blue	LS+	18	1	ENA	Gray	White/Blue
White/Gray	Orange	LS–	17	2	ENA	Red	White/Yellow
Yellow	Green	BK+	16	3	ENB	Black	White/Red
Blue	Brown	BK–	15	4	ENB	Yellow	White/Black
White/Blue	Gray	ENA	14	5	–	–	–
White/Yellow	Red	ENA	13	6	–	–	–
White/Red	Black	ENB	12	7	LS+	Blue	White/Purple
White/Black	Yellow	ENB	11	8	–	–	–
Orange	Pink	ENZ	10	9	FG	Ground	Ground
Green	Purple	ENZ	9	10	ENZ	Pink	Orange
Purple	White	–	8	11	ENZ	Purple	Green
Gray	Blue/red	VPS	7	12	–	White	Purple
Red	Orange/White	5V	6	13	VPS	Blue/red	Gray
Black	Green/White	GND	5	14	5V	Orange/White	Red
–	–	–	4	15	GND	Green/White	Black
–	–	–	3	16	LS–	Orange	White/Gray
–	–	–	2	17	BK–	Brown	Blue
–	–	–	2	18	BK+	Green	Yellow
Ground	Ground	F.G	1				

Housing : PHDR-18VR (JST)
Contact : SPHD-001T-P0.5 (JST)

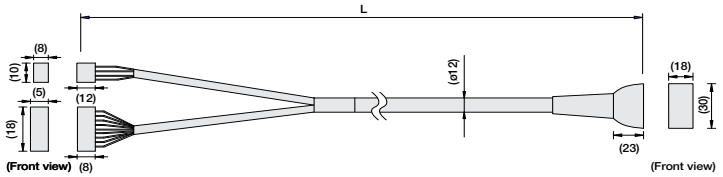
Plug housing : XMP-18V (JST)
Socket contact : BXA-001T-P0.6 (JST)
Retainer : XMS-09V (JST)

Motor-Encoder Integrated Cable for RCA2

Model **CB-ACS-MPA□□□**

* The standard cable is a 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.
U	1
V	2
W	3
BK+	16
BK–	15
LS+	18
LS–	17
A+	14
A–	13
B+	12
B–	11
Z+	10
Z–	9
–	8
/PS	7
VCC	6
GND	5
NC	
FG	1

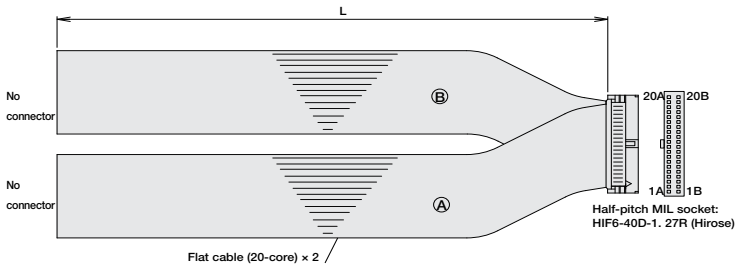
(Wire color)
Red
Yellow
Black
Yellow (Red ●)
Yellow (Blue ●)
Pink (Red ●)
Pink (Blue ●)
White (Red ●)
White (Blue ●)
Orange (Red ●)
Orange (Blue ●)
Gray (Red ●)
Gray (Blue ●)
Orange (Red ● Consecutive)
Orange (Blue ● Consecutive)
Gray (Red ● Consecutive)
Gray (Blue ● Consecutive)
Shield

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

I/O Flat Cable (for ACON-C / CG)

Model **CB-PAC-PIO□□□**

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



HIF6-40D-1. 27R

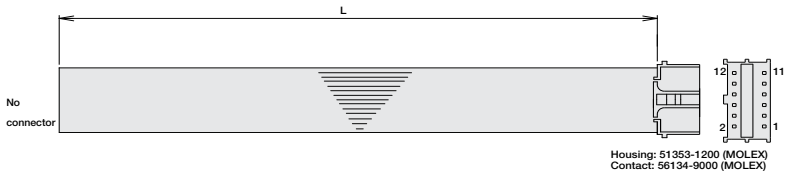
Pin No.	Signal	Cable Color	Wire
1A	24V	Brown-1	Flat cable Ⓐ (crimped)
2A	24V	Red-1	
3A	–	Orange-1	
4A	–	Yellow-1	
5A	IN0	Green-1	
6A	IN1	Blue-1	
7A	IN2	Purple-1	
8A	IN3	Gray-1	
9A	IN4	White-1	
10A	IN5	Black-1	
11A	IN6	Brown-2	
12A	IN7	Red-2	
13A	IN8	Orange-2	
14A	IN9	Yellow-2	
15A	IN10	Green-2	
16A	IN11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

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

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

Model **CB-PACY-PIO□□□**

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



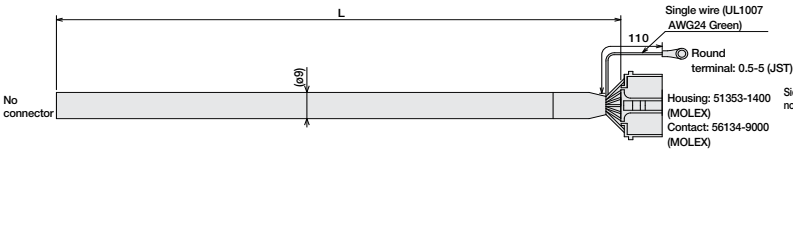
51353-1200 (MOLEX)

Pin No.	Signal	Cable Color	Wire
1	24V	Brown-1	Flat cable (crimped) AWG28
2	0V	Red-1	
3	IN0	Orange-1	
4	IN1	Yellow-1	
5	IN2	Green-1	
6	IN3	Blue-1	
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 ACON-PL/PO)

Model **CB-PACPU-PIO□□□**

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



51353-1400 (MOLEX)

No.	Signal Name	Cable Color	Wire
1	IO_24V	Black	0.2sq
2	IO_24G	White/Black	
3	IN0	Red	
4	IN1	White/Red	
5	IN2	Green	
6	IN3	White/Green	
7	OUT0	Yellow	
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	

1	FG	White/Gray	AWG24