

SCON

Models C / CA

Position Controllers
For RCS2 series



C

CA

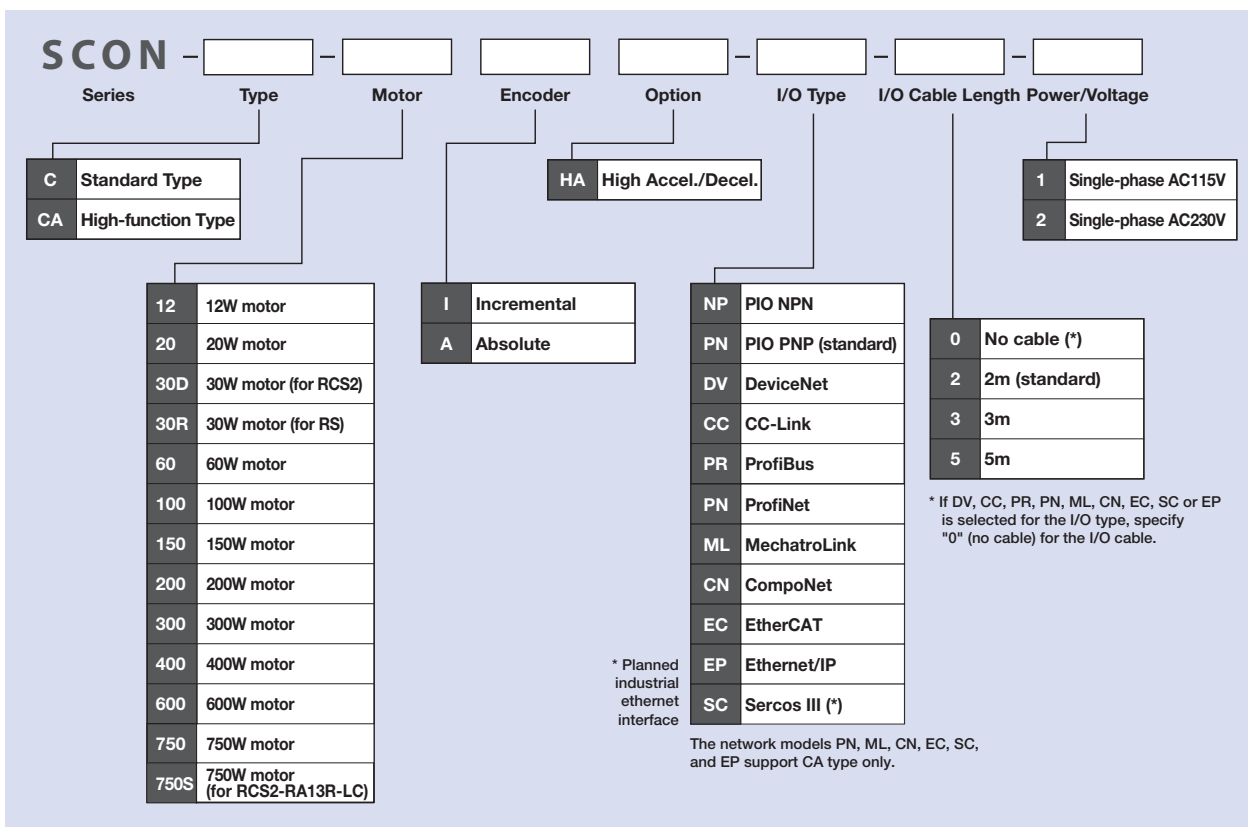
List of models

There are 2 I/O types of SCON controllers: standard specifications in which operation is performed via PIO or pulse train input, and network specifications for operation via connection to a field network. Incremental specifications and absolute specifications are available for both types. However, only incremental specified operations are available when operating via the pulse train input.

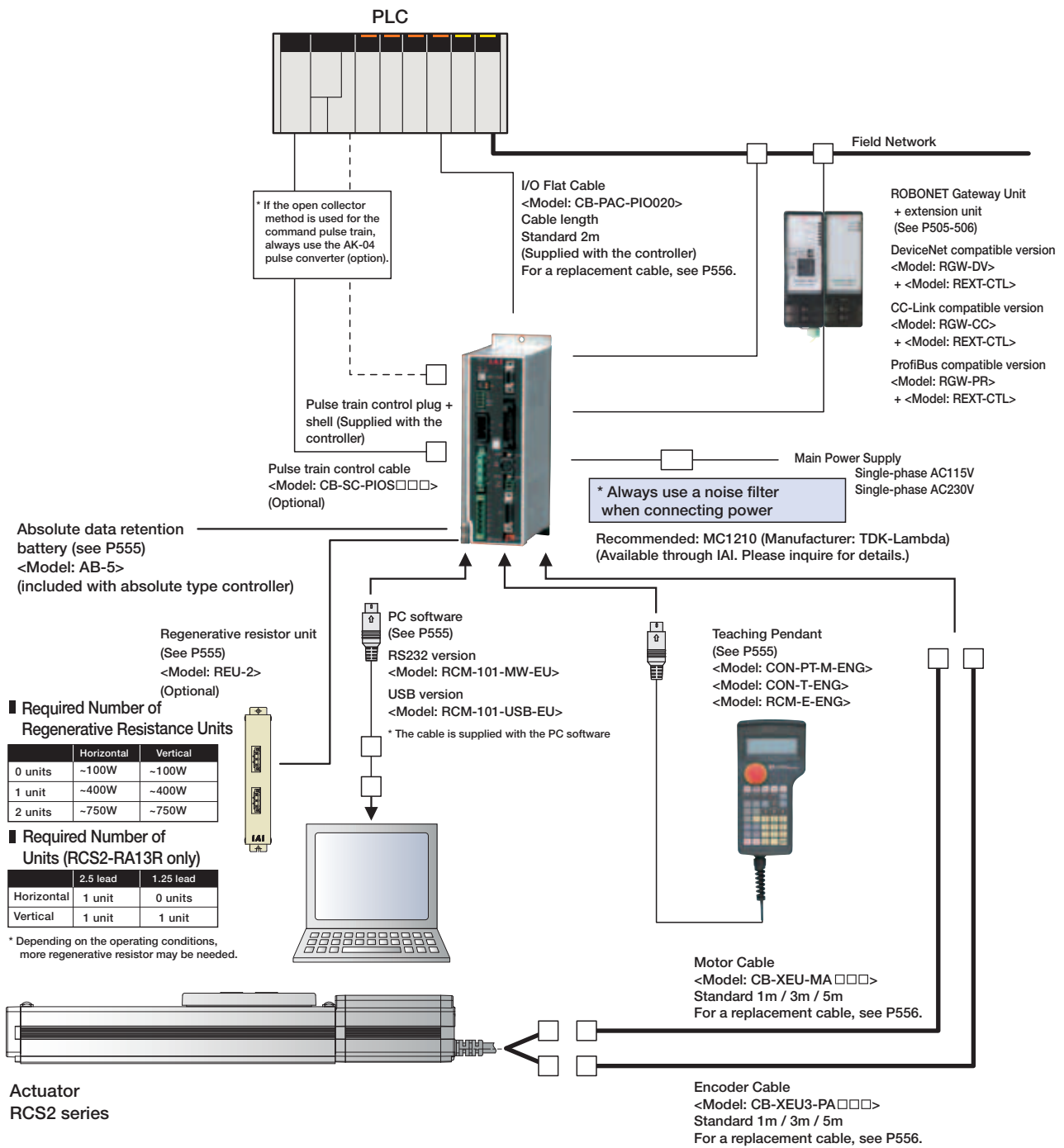
Type	C / CA					CA						
I/O type	Standard specifications					Network connection specifications (optional)						
External View												
Description	Positioning mode, Teaching mode Solenoid valve mode, Force mode (*1)		Pulse train mode (*2)	DeviceNet	CC-Link	ProfiBus	ProfiNet	MechatroLink	CompoNet	EtherCAT	Ethernet/IP	Sercos III (*3)
Position points	Max. 512 points		(-)	Max. 512 points								
I/O type symbol	NP/PN			DV	CC	PR	PN	ML	CN	EC	EP	SC
Compatible encoder	Incremental / Absolute		Incremental	Incremental / Absolute								

*Always use a noise filter for power supplies. (See P548) (Caution) Note that with the network specifications, neither control via pulse train nor PIO is available.
(*1) Force mode is only supported by SCON-CA. (*2) If the controller is operated in pulse-train mode, only an incremental encoder can be used. (*3) Planned industrial ethernet interface.

Model



System configuration



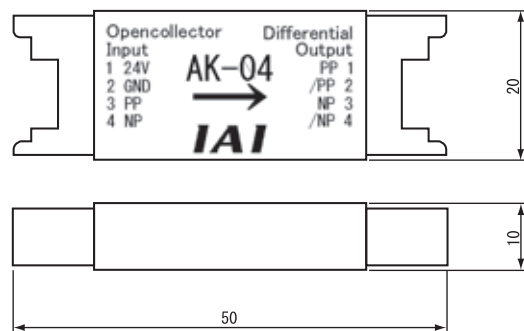
Pulse converter AK-04 (option)

Description: Pulse converter (model: AK-04) + I/O e-CON connector
Use this converter if output pulses from the host controller are of open collector specification. This converter is used to convert the open-collector command output pulses from the host controller to differential pulses. Converting open collector pulses to differential pulses improves noise resistance.
Two phases of differential pulses equivalent to those from the line driver 26C31 are output. The e-CON connector is used as an input/output connector to simplify the field wiring.

Basic Specifications

- Input power : DC24V±10% (Max. 50mA)
- Input pulse : Open collector (collector current Max. 12mA)
- Input frequency : 200 kHz or less
- Output pulse : 26C31 equivalent differential output (Max. 10mA)
- External dimensions : See the figure at right (cable connector not included)
- Weight : 10g or less (cable connector not included)
- Accessories : I/O e-CON connector
3M 37104-3122-000FL

(Applicable wire: AWG No. 24 to 26, 0.14 to less than 0.3mm²)
Outer diameter of finished wire 1.0 to 1.2mm

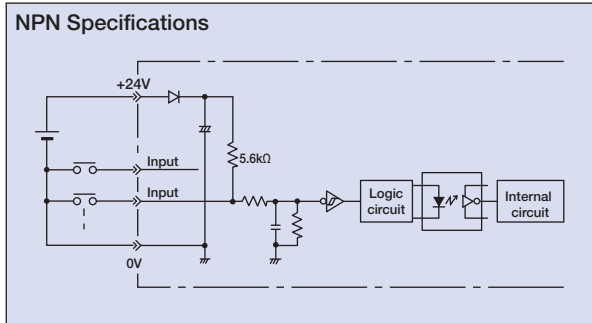


- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /FlatType
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Motor Type
- Cleanroom Type
- Splash-Proof
- Controllers
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (230V)
- Linear Motor

I/O Specifications

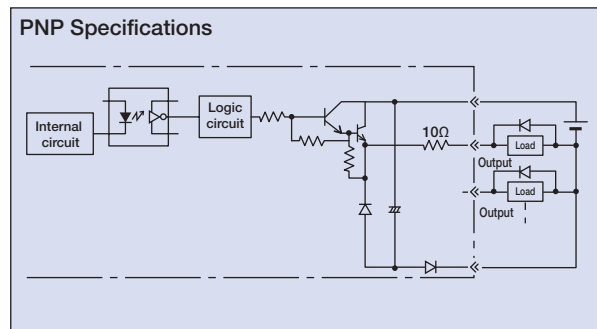
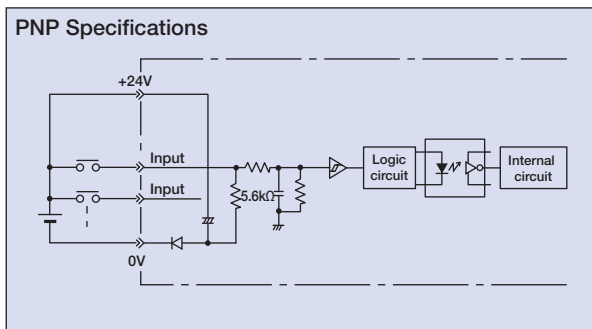
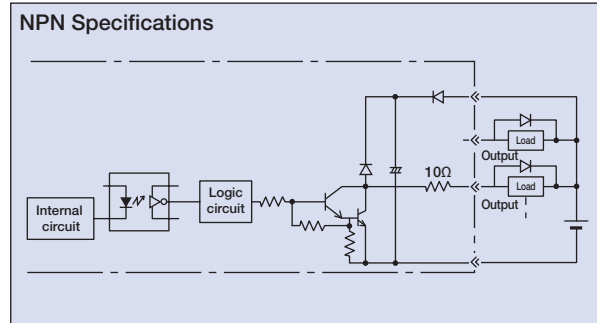
Input section External input specifications

Item	Specifications
Input voltage	DC24V ±10%
Input current	4mA / 1 point
ON/OFF power supply	ON voltage...Min DC18.0V (3.5mA) ON voltage...Max DC6.0V (1mA)
Isolation method	Photocoupler



Output section External output specifications

Item	Specifications
Load Voltage	DC24V
Max. load current	100mA / 1 point 400mA / 8 points
Leak current	Max 0.1mA / 1 point
Isolation method	Photocoupler



Explanation of I/O Signal Functions

SCON-C is compatible with all of the following control methods except the force mode (only applicable for SCON-CA). Positioning is possible with up to 512 points in positioner mode and up to 7 points in solenoid valve mode.

Control Function by Operation Mode

Mode	Number of positioning points	Features
Positioner mode	Positioning mode	64 points Standard factory-set mode. Specify externally a number corresponding to the position you want to move to, to operate the actuator.
	Teaching mode	64 points In this mode, you can move the slider (rod) via an external signal and register the stopped position in the position data table.
	256-point mode	256 points In this mode, the number of positioning points available in the positioning mode has been increased to 256 points.
	512-point mode	512 points In this mode, the number of positioning points available in the positioning mode has been increased to 512 points.
	Solenoid value mode 1	7 points In this mode, the actuator can be moved only by turning signals ON/OFF, just like you do with an air cylinder of solenoid valve type.
	Solenoid value mode 2	3 points In this mode, the output signal is set to the same as the air cylinder auto switch in the solenoid valve mode.
	Force mode 1 (only SCON-CA)	32 points In this mode, you can move to positions under force control in the positioning mode. (Up to 32 positioning points are available.)
	Force mode 2 (only SCON-CA)	5 points In this mode, you can move to positions under force control in the solenoid valve mode. (Up to five positioning points are available.)
Pulse-train control mode	—	There is no need to enter position data in the controller, and the customer can operate the actuator freely based on custom control.

CAUTION

Note that for network compatible types with direct connection to a field network, these modes (PIO and pulse train communication) are not available.

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	Operations mode can be switched when the controller's MODE switch is set to AUTO. (AUTO if this signal is OFF, MANU if 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 preforms 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 signal	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 TLM signal turns on if torque has reached the specified value.
	Output	CSTP	Forced Stop Signal
DCLR		Deviation counter clear signal	When this signal is ON, the position deviation counter is cleared continuously.
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 using a parameter.
PM1 to PM256		Positioning complete signal	This signal is used to output the position number achieved at completion of positioning (binary output)
HEND		Home return completion signal	This signal turns ON upon completion of home return.
ZONE1		Zone signal	Turns ON if the actuator's current position is within the range set by the parameter.
PZONE		Position zone signal	This signal turns ON when the current actuator position has entered the range specified by position data during position movement. 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	Turns ON when the controller is in normal condition, and turns OFF when an alarm occurs.
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.
* BALM		Absolute battery voltage drop warning signal	With the absolute specifications for the controller, turns OFF when the absolute battery voltage drops.
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.
PWR		System Ready Signal	Turns ON when it starts up normally after turning ON the controller. (Dedicated pulse train type)
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 mode)	
ALM1 to ALM8	Alarm Code Output Signal	During a controller alarm, the alarm details are output in code. (Dedicated pulse train mode)	
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.	

(Note) Signals with asterisks (*) are normally ON and OFF during operation.
 (*1) A „pause“ function is not available during S-curve motion.

Slider Type

Mini

Standard

Controllers Integrated

Rod Type

Mini

Standard

Controllers Integrated

Table/Arm /FlatType

Mini

Standard

Gripper/ Rotary Type

Linear Motor Type

Cleanroom Type

Splash-Proof

Controllers

PMEC /AMEC

PSEP /ASEP

ROBO NET

ERC2

PCON

ACON

SCON

PSEL

ASEL

SSEL

XSEL

Pulse Motor

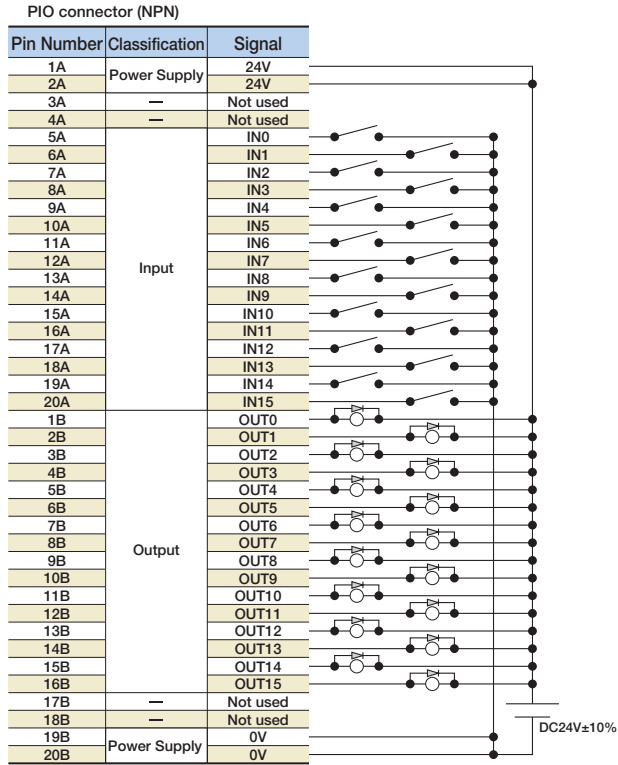
Servo Motor (24V)

Servo Motor (230V)

Linear Motor

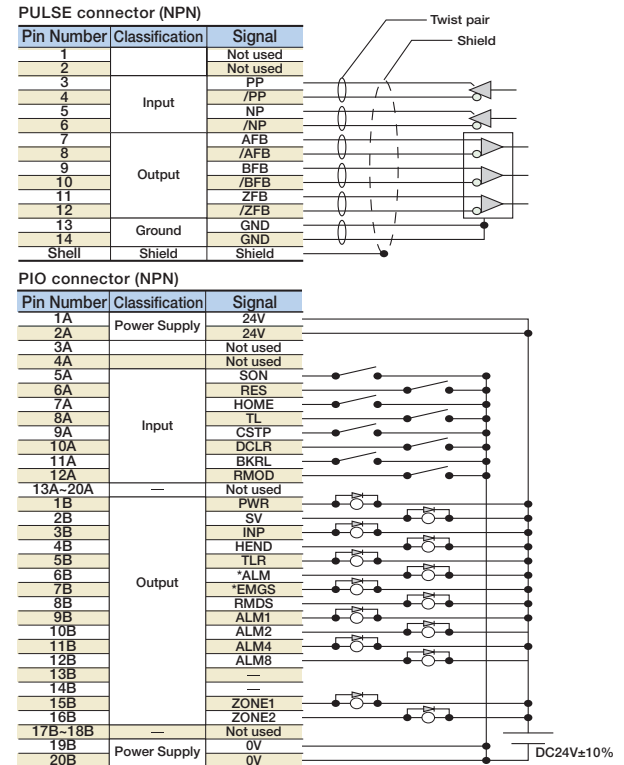
I/O wiring drawing

■ Positioning mode / teaching mode / solenoid valve mode



* Connect 24V between pins 1A and 2A, and 0V between pins 19B and 20B.

■ Pulse train mode (differential output)



* The shield on the twisted pair cable connected to the pulse connector must be connected to the shell. Also, the cable length must not be longer than 10m.
* Connect 24V between pins 1A and 2A, and 0V between pins 19B and 20B.

I/O Signal Table *Choose from 7 types (SCON-CA: from 9 types) of signal allocation.

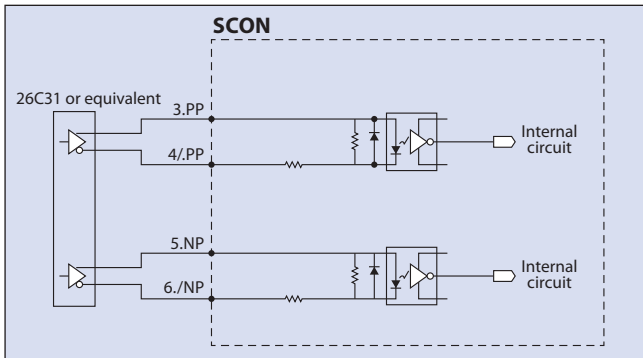
Pin No.	Category	Parameter (PIO pattern) selection	Parameter (PIO pattern) selection							Pulse-train mode		
			0	1	2	3	4	5	6		7	
			Positioning mode	Teaching mode	256-point mode	512-point mode	Solenoid value mode 1	Solenoid value mode 2	Force mode 1 **		Force mode 2 **	Standard mode
1A	24V		64 points	64 points	256 points	512 points	7 points	3 points	32 points	5 points	P24	
2A	24V										P24	
3A	—										NC	
4A	—										NC	
5A	Input	IN0	PC1	PC1	PC1	PC1	ST0	ST0	PC1	ST0	SON	
6A		IN1	PC2	PC2	PC2	PC2	ST1	ST1(JOG+)	PC2	ST1	RES	
7A		IN2	PC4	PC4	PC4	PC4	ST2	ST2(-)	PC4	ST2	HOME	
8A		IN3	PC8	PC8	PC8	PC8	ST3	—	PC8	ST3	TL	
9A		IN4	PC16	PC16	PC16	PC16	ST4	—	PC16	ST4	CSTR	
10A		IN5	PC32	PC32	PC32	PC32	ST5	—	—	—	DCLR	
11A		IN6	—	MODE	PC64	PC64	ST6	—	—	—	BKRL	
12A		IN7	—	JISL	PC128	PC128	—	—	—	—	RMOD	
13A		IN8	—	JOG+	—	PC256	—	—	—	CLBR	CLBR	
14A		IN9	BKRL	JOG-	BKRL	BKRL	BKRL	BKRL	BKRL	BKRL	BKRL	—
15A		IN10	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD	—
16A		IN11	HOME	HOME	HOME	HOME	HOME	HOME	—	HOME	HOME	—
17A		IN12	*STP	*STP	*STP	*STP	*STP	—	—	*STP	*STP	—
18A		IN13	CSTR	CSTR/PWRT	CSTR	CSTR	—	—	—	CSTR	—	—
19A		IN14	RES	RES	RES	RES	RES	RES	RES	RES	RES	—
20A	IN15	SON	SON	SON	SON	SON	SON	SON	SON	SON	—	
1B	Output	OUT0	PM1	PM1	PM1	PM1	PE0	LS0	PM1	PE0	PWR	
2B		OUT1	PM2	PM2	PM2	PM2	PE1	LS1(TRQS)	PM2	PE1	SV	
3B		OUT2	PM4	PM4	PM4	PM4	PE2	LS2(-)	PM4	PE2	INP	
4B		OUT3	PM8	PM8	PM8	PM8	PE3	—	PM8	PE3	HEND	
5B		OUT4	PM16	PM16	PM16	PM16	PE4	—	PM16	PE4	TLR	
6B		OUT5	PM32	PM32	PM32	PM32	PE5	—	TRQS	TRQS	*ALM	
7B		OUT6	MOVE	MOVE	PM64	PM64	PE6	—	LOAD	LOAD	*EMGS	
8B		OUT7	ZONE1	MODES	PM128	PM128	ZONE1	ZONE1	CEND	CEND	RMDS	
9B		OUT8	PZONE/ZONE2	PZONE/ZONE1	PZONE/ZONE1	PM256	PZONE/ZONE2	PZONE/ZONE2	PZONE/ZONE1	PZONE/ZONE1	ALM1	
10B		OUT9	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS	ALM2	
11B		OUT10	HEND	HEND	HEND	HEND	HEND	HEND	HEND	HEND	ALM4	
12B		OUT11	PEND	PEND/WEND	PEND	PEND	PEND	—	PEND	PEND	ALM8	
13B		OUT12	SV	SV	SV	SV	SV	SV	SV	SV	*OVLW/*ALML	
14B		OUT13	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS	*EMGS	—	
15B		OUT14	*ALM	*ALM	*ALM	*ALM	*ALM	*ALM	*ALM	*ALM	ZONE1	
16B	OUT15	*BALM	*BALM	*BALM	*BALM	*BALM	*BALM	*BALM	*BALM	ZONE2		
17B	—										—	
18B	—										—	
19B	0V										N	
20B	0V										N	

* In the above table, signals in () represent functions available before the home return. Signals preceded by * are turned OFF while the actuator is operating.
** The force modes are only available for SCON-CA.

Pulse Train Type I/O Specifications (differential line driver specifications)

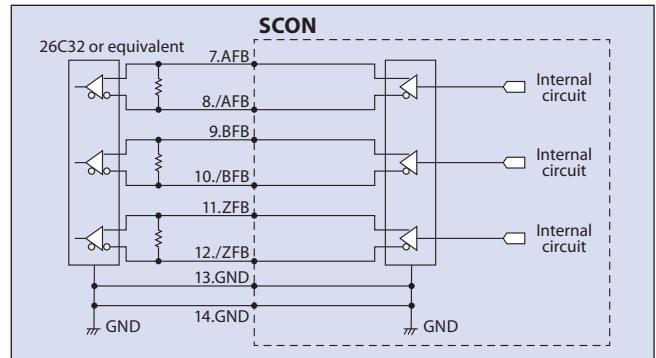
Input Section

Max. No. of input pulses: Line driver interface 0.5Mpps (SCON-CA: 2.5Mpps)
Isolation method : Photocoupler isolation



Output Section

Max. No. of output pulses: Line driver interface 0.5Mpps (SCON-CA: 2.5Mpps)
Isolation/non-isolation: Non-isolation



Pulse Train Type I/O Specifications (open collector specifications)

The AK-04 (options) is needed to input pulses. The JM-08 (options) is needed to output pulses.

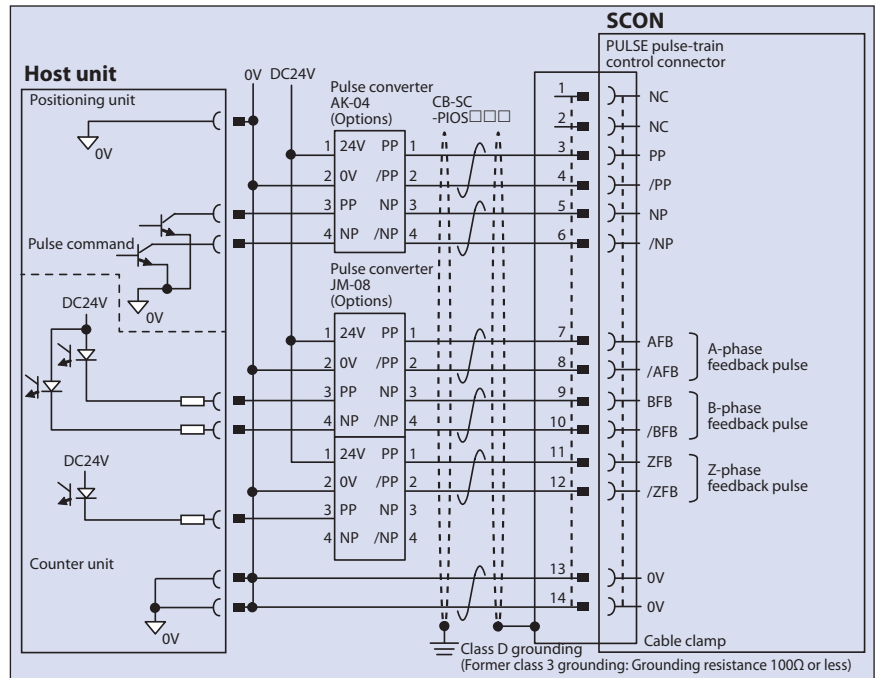
Maximum number of input pulses:
200kpps (The AK-04 is needed.)
Maximum number of output pulses:
500kpps (The JM-08 is needed.)

* The 24-VDC power supply connected to the AK-4 must be shared with the PIO interface.

* Keep the length of the cable connecting the pulse output unit (PLC) and AK-04/JM-08 as short as possible.
Also keep the cable between the AK-04/JM-08 and PULSE connector to 2m or less.

Note

Use the same power supply for open collector input/output to/from the host and for the AK-04, JM-08.



Command Pulse Input State

Command Pulse Train Shapes		Input terminals	Forward	Reverse	
Negative Logic	Forward pulse train	PP /PP			
	Reverse pulse train	NP /NP			
	The forward pulse train controls the amount of forward motor rotation; the reverse pulse train controls the same in reverse direction.				
	Pulse train	PP /PP			
	Sign	NP /NP	Low	High	
	The command pulse controls the amount of motor rotation, and the command sign controls the direction of rotation.				
Positive Logic	A/B phase pulse train	PP /PP			
		NP /NP			
	A (frequency-quadrupled) A/B phase pulse with a 90° phase difference is used to control the amount and direction of rotation.				
	Forward pulse train	PP /PP			
	Reverse pulse train	NP /NP			
	Sign	NP /NP	High	Low	
A/B phase pulse train	PP /PP				
	NP /NP				

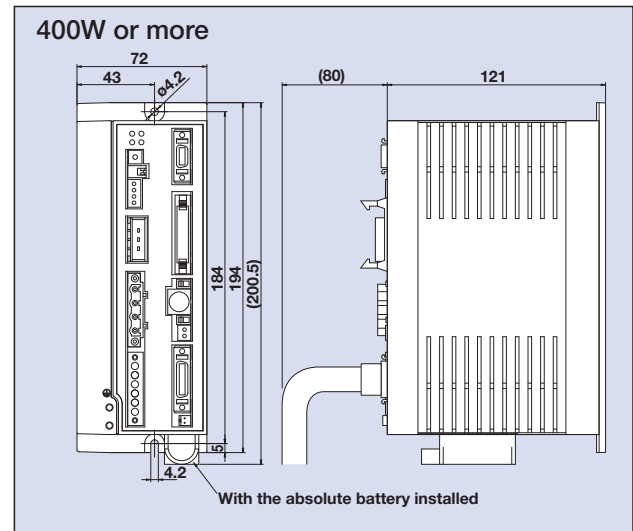
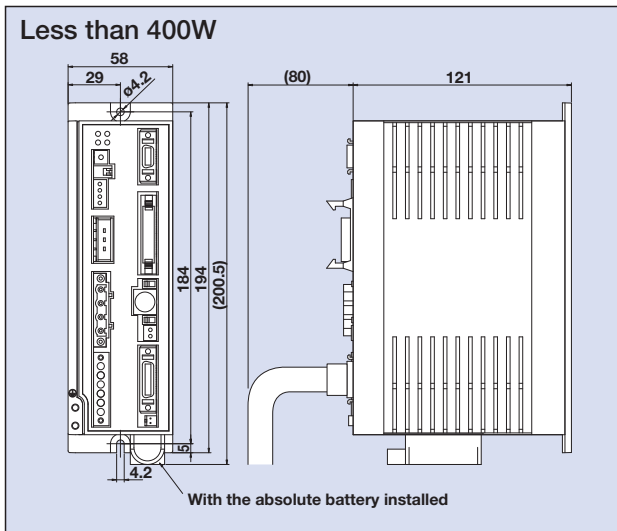
Table of specifications

Item	Specifications	
Motor Capacity	Less than 400W	400W or more
Connected actuator	RCS2 series actuator / single axis robot / linear motor	
Number of control axes	1-axis	
Operating method	Positioner type / pulse train type	
Positioning Points	512 points (PIO specification) / 768 (fieldbus specification)	
Backup memory	SCON-C: EEPROM / SCON-CA: FRAM (nonvolatile memory)	
I/O connector	40-pin connector	
Number of I/O	16 input points / 16 output points	
I/O power	External supply DC24V±10%	
Serial Communication	RS485 1ch	
Field Network	DeviceNet, CC-Link, ProfiBus (SCON-CA: additionally CompuNet, Mechatrolink, ProfiNet, EtherCAT, Ethernet/IP, Sercos III *2)	
Peripheral device communication cable	CB-PAC-PIO □□□	
Command pulse train input method	Differential line driver method / open collector method (converted to differential with the pulse converter *1)	
Max. input pulse frequency	Differential line driver method: 500kpps (SCON-CA: 2500kpps) / Open collector method (using pulse converter): 200kpps	
Position detection method	Incremental encoder / Absolute encoder	
Emergency stop function	Available (integrated relay)	
Electromagnetic brake forced release	Brake release switch ON/OFF	
Input Voltage	Single-phase AC90V to AC126.5V Single-phase AC180V to AC253V	Single-phase AC180V to AC253V
Power Supply Capacity	20W / 74VA 30W / 94VA 60W / 186VA 100W / 282VA 150W / 376VA 200W / 469VA	400W / 844VA 600W / 1212VA 750W / 1569VA
Dielectric strength voltage	DC500V 100MΩ or more	
Vibration resistance	XYZ directions	10 to 57Hz, One side amplitude: 0.035mm (continuous), 0.075mm (intermittent) 58 to 150 Hz 4.9 m/s ² (continuous), 9.8 m/s ² (intermittent)
Ambient operating temperature	0~40°C	
Ambient operating humidity	10 - 95% (non-condensing)	
Ambient operating atmosphere	Without corrosive gases	
Protection class	IP20	
Weight	Approximately 800g (plus 25g for the absolute specifications)	Approximately 1.1kg (plus 25g for absolute specifications)
External dimension	58mm(W)×194mm(H)×121mm(D)	72mm(W)×194mm(H)×121mm(D)

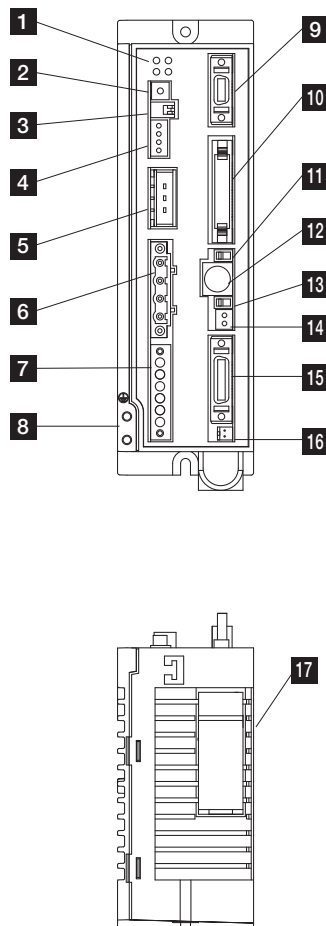
(Note 1) For the command-pulse input method, use the differential line driver method offering higher noise resistance.
If the open collector method must be used, convert the pulse to differential using the optional pulse converter (AK-04/JM-08).
(Note 2) Fieldbus network specification Sercos III is planned.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /FlatType
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Motor 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 (230V)
- Linear Motor

External dimensions



Name of Each Part



1 LED display

These LED colors indicate the condition of the controller.

Name	Color	Explanation
PWR	Green	Lit when the system is ready (after power is ON, CPU normal functions)
SV	Green	Lit when servo is ON
ALM	Orange	Lit during an alarm
EMG	Red	Lit during an emergency stop

2 Rotary switch

This is the address setting switch for identifying each controller when they are linked.

3 Piano switch

Controller system switch.

Name	Explanation
1	Operating mode switch OFF: positioner mode ON: pulse train control mode *Enabled at power ON.
2	Remote update switch (normally set to OFF) OFF: normal operating mode ON: update mode *Enabled when power is ON or during soft reset.

4 System I/O connector

Connector for the emergency stop switch etc.

5 Regeneration unit connector

Connector for resistance unit that absorbs regeneration current produced when the actuator decelerates to a stop.

6 Motor connector (X-SEL, ECON, RCS compatible)

Actuator motor cable connector.

7 Power supply connector

AC power connector. Divided into the control power input and motor power input.

8 Grounding screw

Protective grounding screw. Always ground this screw.

9 Pulse train control connector

This connector is used during pulse train control mode operations. It is disconnected during operations in positioner mode.

10 PIO connector

Connector for the cable for parallel communications with the PLC and other peripheral devices.

11 Operating mode switch

Name	Explanation
MANU	Do not receive PIO commands
AUTO	Accept PIO commands

*The emergency stop switch on the teaching pendant becomes effective when the line is connected, regardless of whether this switch is set to AUTO or MANU. Take note that an emergency stop will be actuated momentarily when the teaching-pendant or SIO communication cable is disconnected. This is a normal phenomenon and does not indicate an error.

12 SIO connector

Connector for the teaching pendant or PC communications cable.

13 Brake release switch

This is the electromagnetic brake forced release switch, integrated with the actuator.

*It is necessary to connect the DC 24V power for the brake drive.

14 Brake power connector

Brake power DC 24V supply connector (only required when the brake equipped actuator is connected)

15 Encoder sensor connector (X-SEL-P/Q compatible)

Encoder sensor cable connector

16 Absolute battery connector

Connector for the absolute data backup battery. (Required only for absolute encoder specifications)

17 Absolute battery holder

Battery holder for installing the absolute data backup battery

Slider Type

Mini

Standard

Controllers Integrated

Rod Type

Mini

Standard

Controllers Integrated

Table/Arm /FlatType

Mini

Standard

Gripper/ Rotary Type

Linear Motor 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 (230V)

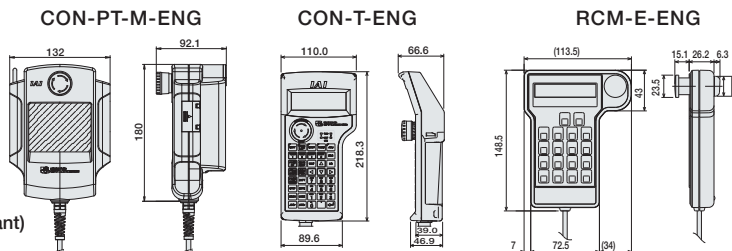
Linear Motor

Option

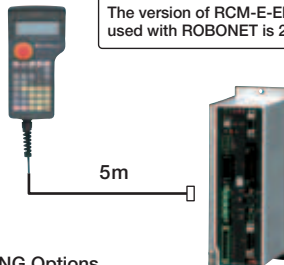
Teaching Pendant

Features This is a teaching device that provides information on functions such as 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.

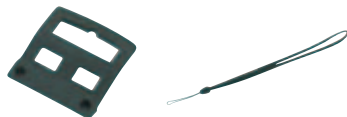


Specifications

Item	CON-PT-M-ENG	CON-T-ENG	RCM-E-ENG
Data input	○	○	○
Actuator motion	○	○	○
Ambient operating temp/humidity	Temp: 0~40°C; 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

CON-T-ENG Options

- Wall-mounting hook Model HK-1
- Strap Model STR-1

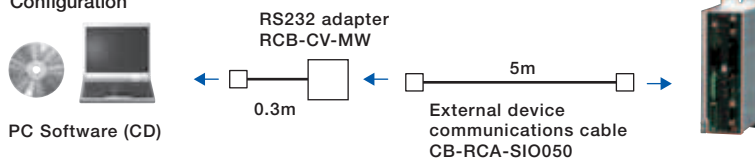


PC Software (Windows Only)

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

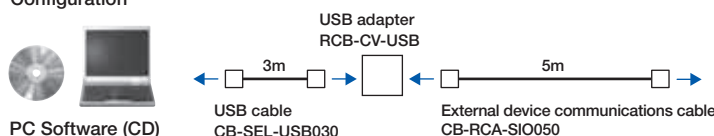
Model **RCM-101-MW-EU** (External device communications cable + RS232 conversion unit)

Configuration



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

Configuration



Regenerative Resistance Unit

Features A unit that returns the regenerative current, generated during the acceleration/deceleration of the motor, into heat. In the tables below, check the total power output of the actuator to see if a regenerative resistor is needed.

Model **REU-2** (for SCON/SSEL)

Specifications

Actuator weight	0.9kg
Internal regenerative resistance	220Ω 80W
Actuator-Controller Connection Cable (included)	CB-SC-REU010 (for SSEL)

Required Number of Units

	Horizontal	Vertical
0 units	~100W	~100W
1 unit	~400W	~400W
2 units	~750W	~750W

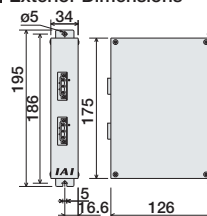
Required Number of Units (RCS2-RA13R only)

	2.5 lead	1.25 lead
Horizontal	1 unit	0 units
Vertical	1 unit	1 unit

* Depending on the operating conditions, more regenerative resistor may be needed.

* If two regenerative units are needed, acquire one REU-2 and one REU-1 (See P596).

Exterior Dimensions



Battery for retaining absolute data

Features Battery for saving absolute data, when operating an actuator with an absolute encoder.

Model **AB-5**



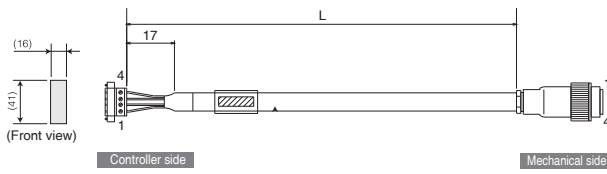
Spare parts

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

Motor cable / EU motor robot cable

Model **CB-RCC-MA** / **CB-XEU-MA**

* Enter the cable length (L) into . Compatible to a maximum of 30 meters.
Ex.: 080 = 8 m



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

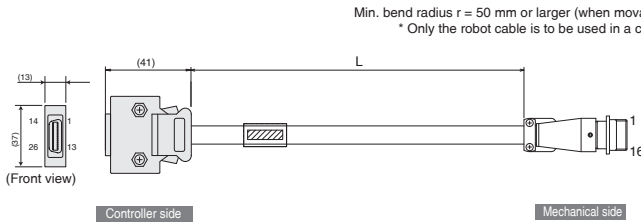
Wire	Color	Signal	No.	No.	Signal	Color	Wire
0.75sq	Green	PE	1	2	U	Red	0.75sq (crimped)
	Red	U	2	1	V	White	
	White	V	3	3	W	Black	
	Black	W	4	4	PE	Green	

(Fig.: Motor robot cable CB-XEU-MA , high-flexible, EU version with metal connector)

Encoder cable / EU encoder robot cable

Model **CB-RCS2-PA** / **CB-XEU3-PA**

* Enter the cable length (L) into . Compatible to a maximum of 30 meters.
Ex.: 080 = 8 m



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

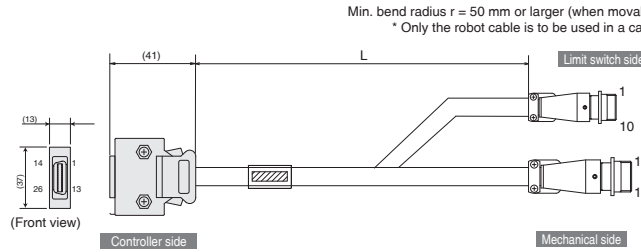
Wire	Color	Signal	No.	No.	Signal	Color	Wire
-	-	-	10	1	E24V	White/Blue	-
-	-	-	11	2	0V	White/Yellow	-
-	-	-	12	3	B	White/Red	-
Gray/White	LS	LS	13	4	B	Blue/Red	-
Brown/White	LS	LS	14	5	Z	Orange/White	-
-	CREEP	CREEP	25	6	Z	Orange/White	-
-	OT	OT	23	7	OT	White/Purple	-
-	RSV	RSV	23	8	RSV	White/Purple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

(Fig.: Encoder robot cable CB-XEU3-PA , high-flexible, EU version with metal connector)

Encoder cable / EU LS encoder robot cable RCS2-RT6/RT6R/RT7R/RTC8/RTC10/RTC12/RA13R

Model **CB-RCS2-PLA** / **CB-XEU2-PLA**

* Enter the cable length (L) into . Compatible to a maximum of 30 meters.
Ex.: 080 = 8 m



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

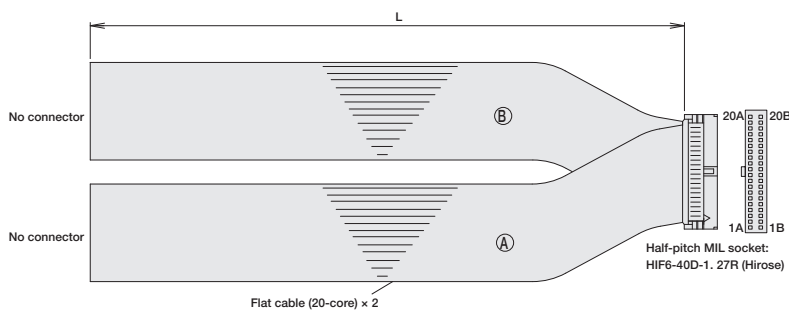
Wire	Color	Signal	No.	No.	Signal	Color	Wire
-	-	-	10	1	E24V	White/Blue	-
-	-	-	11	2	0V	White/Yellow	-
White/Orange	E24V	E24V	11	3	B	White/Red	-
White/Green	0V	0V	13	4	B	Blue/Red	-
Brown/Blue	B	B	26	5	Z	Orange/White	-
Brown/Yellow	CREEP	CREEP	25	6	Z	Orange/White	-
Brown/Red	OT	OT	24	7	OT	White/Purple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

(Fig.: Limit switch encoder robot cable CB-XEU2-PLA , high-flexible, EU version with metal connector)

I/O Flat Cable

Model **CB-PAC-PIO**

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

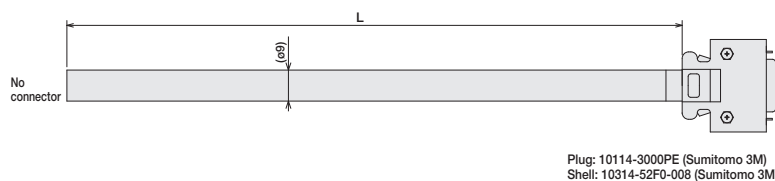


Pin No.	Signal	Color	Wire	Pin No.	Signal	Color	Wire
1A	24V	Brown-1	Flat cable (A) (crimped)	1B	OUT0	Brown-3	Flat cable (B) (crimped) AWG28
2A	24V	Red-1		2B	OUT1	Red-3	
3A	-	Orange-1		3B	OUT2	Orange-3	
4A	-	Yellow-1		4B	OUT3	Yellow-3	
5A	IN0	Green-1		5B	OUT4	Green-3	
6A	IN1	Blue-1		6B	OUT5	Blue-3	
7A	IN2	Purple-1		7B	OUT6	Purple-3	
8A	IN3	Gray-1		8B	OUT7	Gray-3	
9A	IN4	White-1		9B	OUT8	White-3	
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	

SCON Pulse Train Control Cable

Model **CB-SC-PIOS**

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



Wire	Color	Signal	Pin No.
Black	Black	Not used	1
White/Black	White/Black	Not used	2
Red	Red	PP	3
White/Red	White/Red	PP	4
Green	Green	NP	5
White/Green	White/Green	NP	6
Yellow	Yellow	AFB	7
White/Yellow	White/Yellow	/AFB	8
Brown	Brown	BFB	9
White/Brown	White/Brown	/BFB	10
Blue	Blue	ZFB	11
White/Blue	White/Blue	/ZFB	12
Gray	Gray	GND	13
White/Gray	White/Gray	GND	14
Shield	Shield	-	-