

SCON



**Position Controller
For RCS2 Series**

List of models

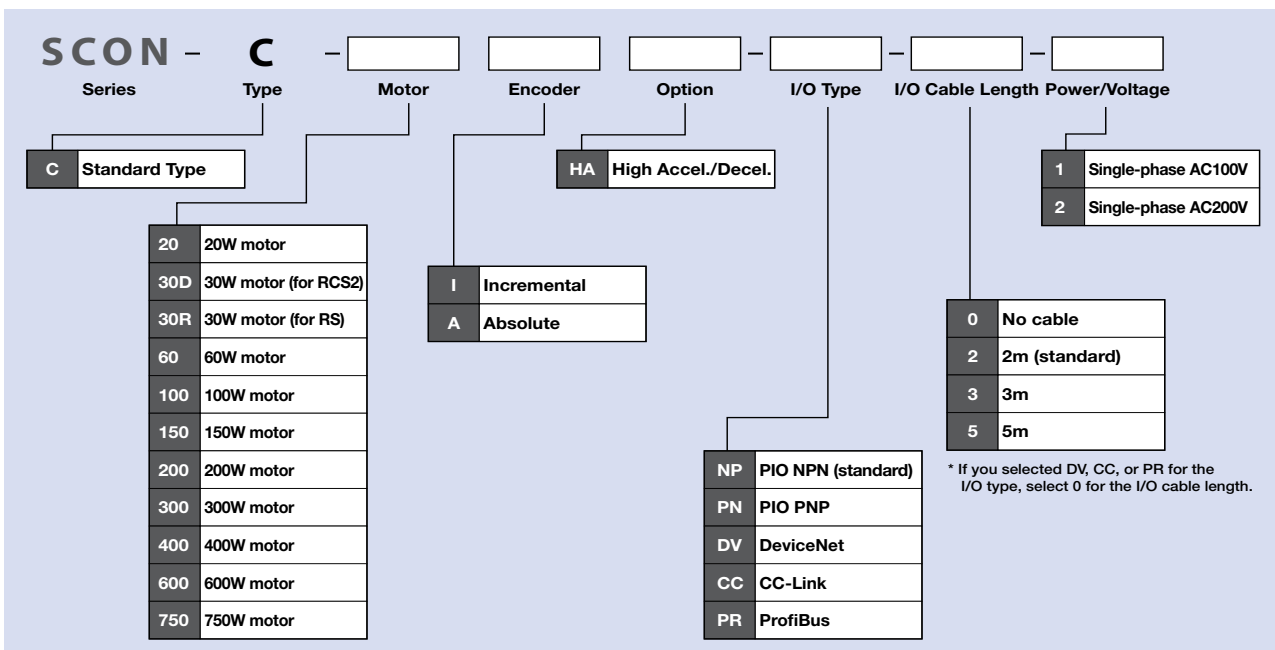
There are 2 types of SCON controllers: standard specifications in which operation is performed via PIO or pulse train input, and network specifications for operation via connection to a field network. Incremental specifications and absolute specifications are available for both types. However, only incremental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

Type	C								
Name	Standard				Network connection specifications (optional)				
External View									
Description	Positioning mode, Teaching mode Solenoid Valve Mode		Pulse train mode	DeviceNet Connection specifications		CC-Link Connection specifications		Profibus Connection specifications	
Position points	Max. 512 points		(-)			Max. 512 points			
I/O type symbol	NP/PN		DV		CC		PR		
Compatible encoder	Incremental	Absolute	Incremental	Incremental	Absolute	Incremental	Absolute	Incremental	Absolute

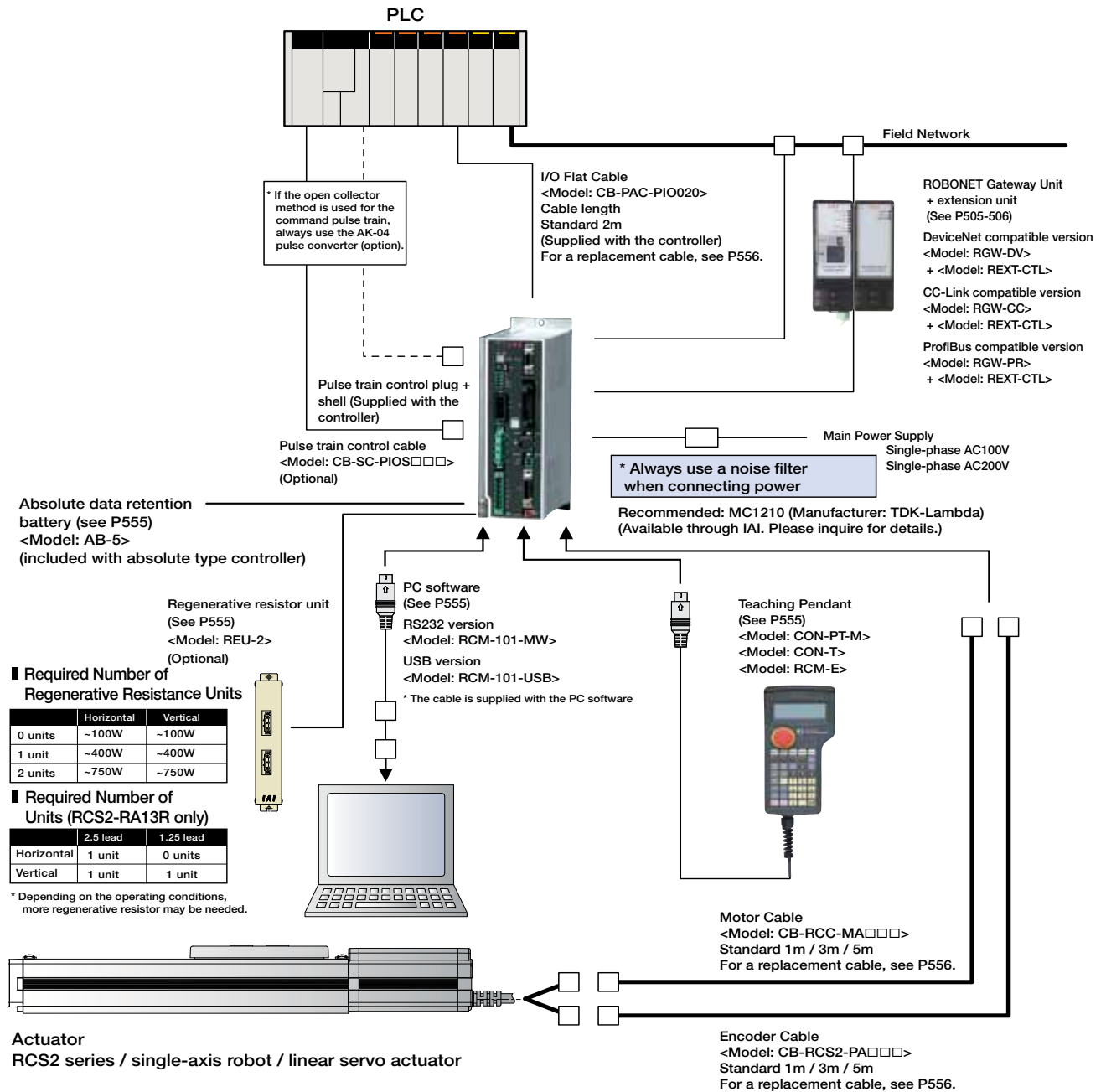
*Always use a noise filter for power supplies.
(See P548)

(Caution) Note that with the network specifications, neither control via pulse train nor PIO is available.

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.

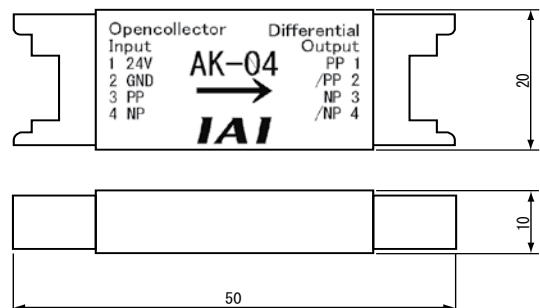
This converter is used to convert the open-collector command output pulses from the host controller to differential pulses. Converting open collector pulses to differential pulses improves noise resistance.

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)

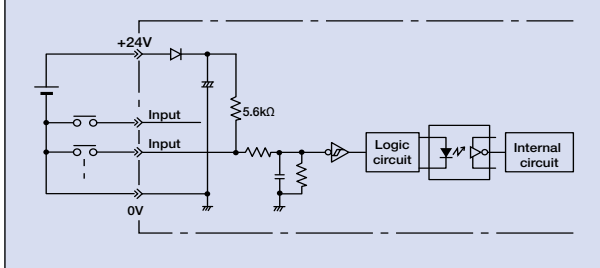


I/O Specifications

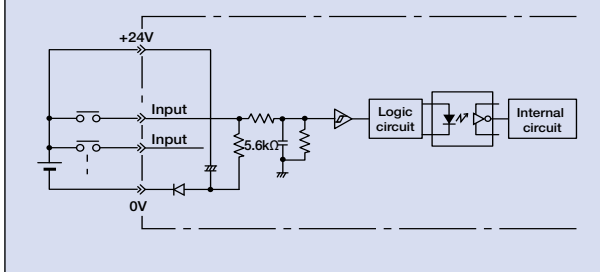
Input section External input specifications

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

NPN Specifications



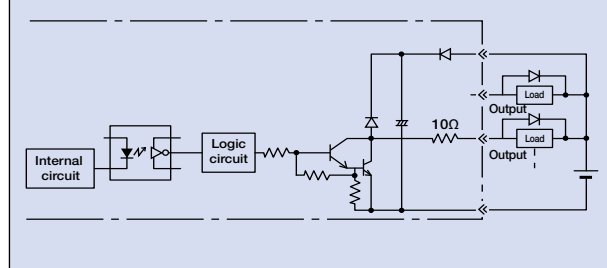
PNP Specifications



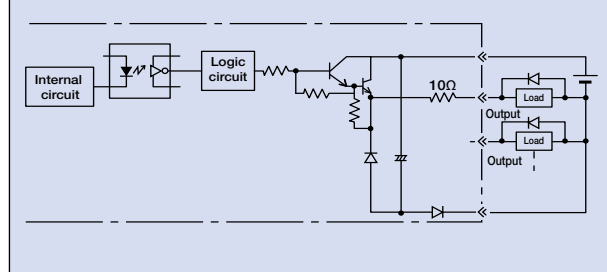
Output section External output specifications

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

NPN Specifications



PNP Specifications



Explanation of I/O Signal Functions

SCON-C is compatible with all of the following control methods.

Positioning is possible with up to 512 points in positioner mode and up to 7 points in solenoid valve mode.

Control Function by Type

Type	SCON-C	Features
Positioner mode	<input type="radio"/>	This is the basic operating mode, in which the user designates position numbers and inputs start signals.
Teaching mode	<input type="radio"/>	In this mode, it is possible to move the slide (rod) via external signal, and then register the stop position as position data.
Solenoid valve mode	<input type="radio"/>	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	<input type="radio"/>	In this mode, you can operate the actuator freely using pulse trains without inputting position data.
Network compatible	<input type="radio"/>	If the optional network specifications are selected, direct connection to a field network is possible.

CAUTION

Note that for network compatible types, PIO and pulse train communication are not available.

Explanation of I/O Signal Functions

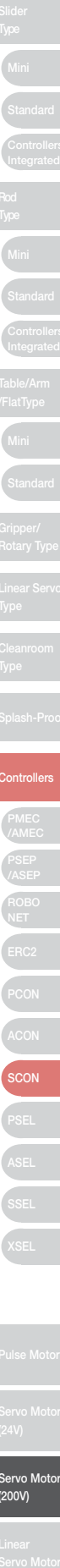
The table below explains the functions allocated to the controller's I/O signal.

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

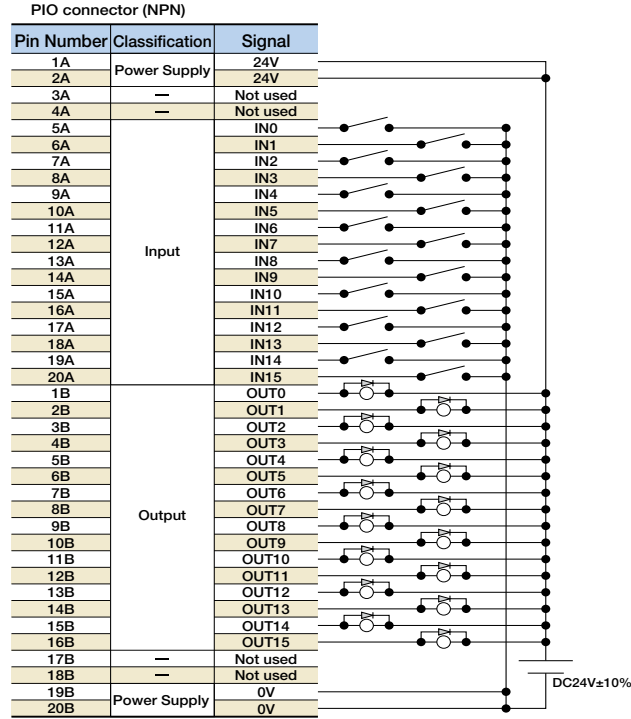
Classification	Signal abbreviations	Signal	Function description
Input	CSTR	Start signal	Input this signal to cause the actuator to start moving to the position set by the command position number signal.
	PC1 to PC256	Command position number signal	This signal is used to input a target position number (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.



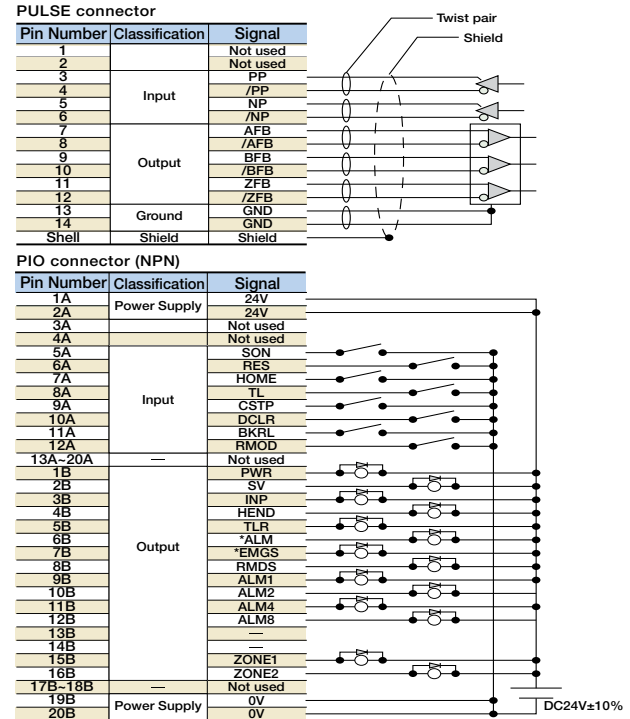
I/O wiring drawing

■ 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 of signal allocation.

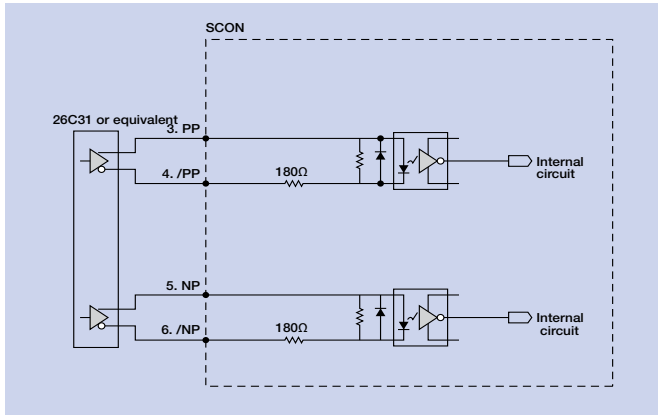
Pin Number	Classification	Number of Positions Zone Signal P-zone Signal	Parameter Selections (PIO Patterns)						Pulse Train Mode
			0	1	2	3	4	5	0
			Positioning Mode 64 points	Teaching Mode 64 points	256-point Mode 256 points	512-point Mode 512 points	Solenoid Valve Mode 1 7 points	Solenoid Valve Mode 2 3 points	Pulse Train Mode
1A	24V								P24
2A	24V								P24
3A	—								NC
4A	—								NC
5A	Input	IN0	PC1	PC1	PC1	PC1	ST0	ST0	SON
6A		IN1	PC2	PC2	PC2	PC2	ST1	ST1 (JOG+)	RES
7A		IN2	PC4	PC4	PC4	PC4	ST2	ST2 (-)	HOME
8A		IN3	PC8	PC8	PC8	PC8	ST3	—	TL
9A		IN4	PC16	PC16	PC16	PC16	ST4	—	CSTP
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	—	—	—
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	PWR
2B		OUT1	PM2	PM2	PM2	PM2	PE1	LS1 (TRQS)	SV
3B		OUT2	PM4	PM4	PM4	PM4	PE2	LS2	INP
4B		OUT3	PM8	PM8	PM8	PM8	PE3	—	HEND
5B		OUT4	PM16	PM16	PM16	PM16	PE4	—	TLR
6B		OUT5	PM32	PM32	PM32	PM32	PE5	—	* ALM
7B		OUT6	MOVE	MOVE	PM64	PM64	PE6	—	* EMGS
8B		OUT7	ZONE1	MODES	PM128	PM128	ZONE1	ZONE1	RMDS
9B		OUT8	PZONE	PZONE	PM256	PM256	PZONE	PZONE	ALM1
10B		OUT9	RMDS	RMDS	RMDS	RMDS	RMDS	RMDS	ALM2
11B		OUT10	HEND	HEND	HEND	HEND	HEND	HEND	ALM4
12B		OUT11	PEND	PEND/WEND	PEND	PEND	PEND	—	ALM8
13B		OUT12	SV	SV	SV	SV	SV	SV	—
14B		OUT13	* EMGS	* EMGS	* EMGS	* EMGS	* EMGS	* EMGS	—
15B		OUT14	* ALM	* ALM	* ALM	* ALM	* ALM	* ALM	ZONE1
16B	OUT15	* BALM	* BALM	* BALM	* BALM	* BALM	* BALM	ZONE2	
17B	—	—	—	—	—	—	—	—	
18B	—	—	—	—	—	—	—	—	
19B	0V	—	—	N	N	N	N	N	
20B	0V	—	—	N	N	N	N	N	

* The names of signals above, the values enclosed in () are functions before homing is performed.
 * The signals with an asterisk are normally ON, and OFF during operation.

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

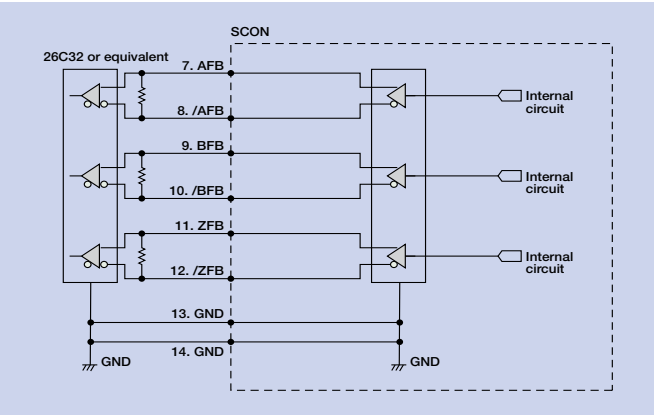
Input Section

Max. No. of Input Pulses : Line-driver interface: 500kpps
 Open collector interface: 200kpps (AK-04 required)
 Isolation method : Photocoupler

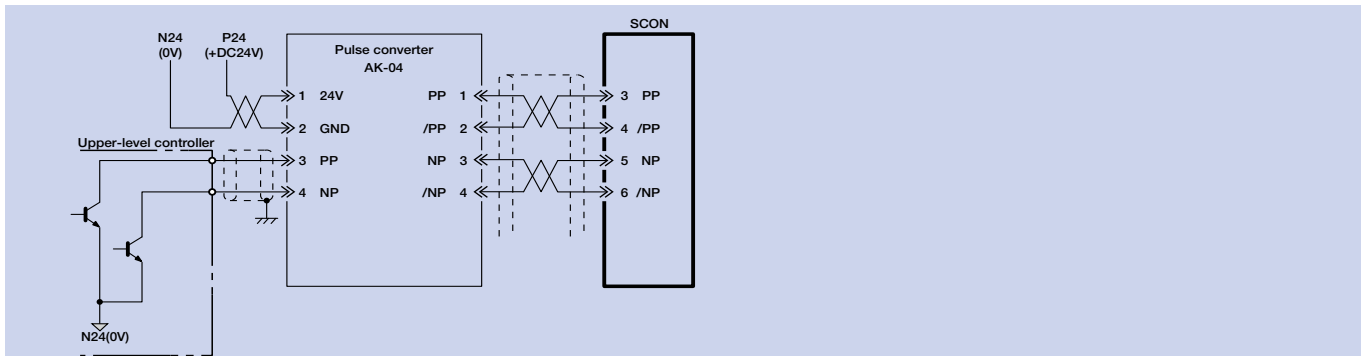


Output Section

Output method : Line-driver output
 Isolation : Not isolated



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



* Use the DC24V power supply connected to AK-04 to also supply power to the PIO interface.
 * Make sure the cable between the pulse output unit (PLC) and AK-04 is as short as possible. Also, the cable between AK-04 and the pulse connector should be 2m or shorter.

Command Pulse Input State

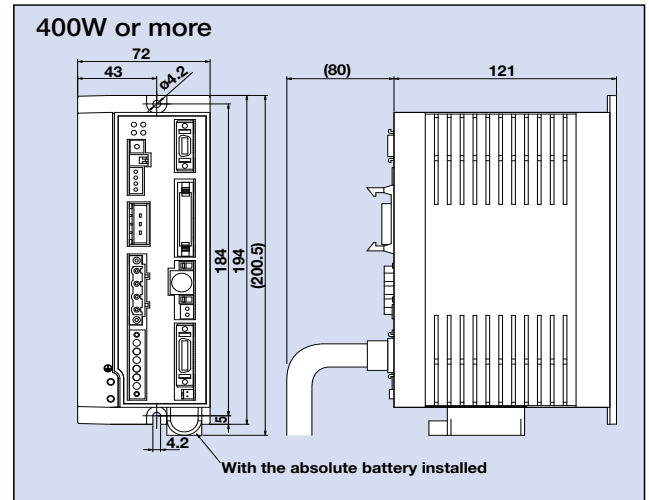
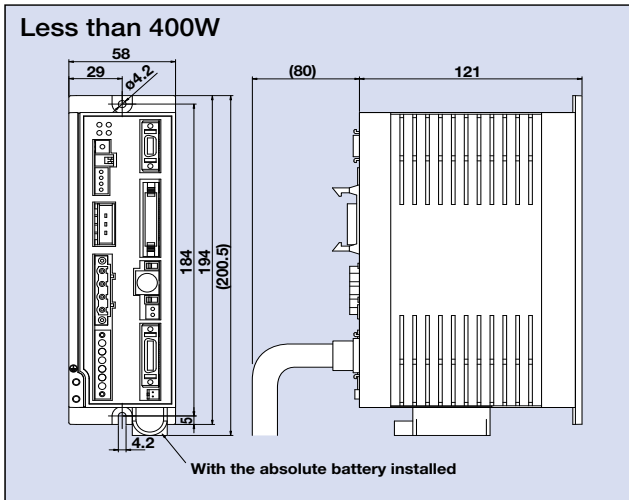
Command Pulse Train Shapes	Input terminals	Forward	Reverse
Forward pulse train	PP, /PP		
Reverse pulse train	NP, /NP		
The forward pulse train controls the amount of forward motor rotation; the reverse pulse train controls the same in reverse direction.			
Pulse train	PP, /PP		
Sign	NP, /NP	Low	High
The command pulse controls the amount of motor rotation, and the command sign controls the direction of rotation.			
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		
Pulse train	PP, /PP		
Sign	NP, /NP	High	Low
A/B phase pulse train	PP, /PP		
	NP, /NP		

Table of specifications

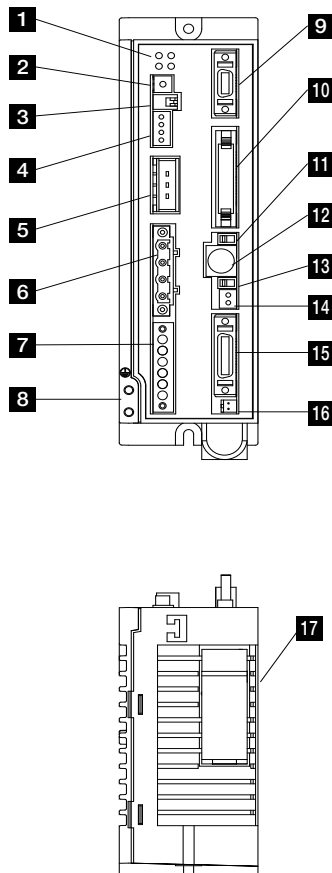
Item	Specifications	
Motor Capacity	Less than 400W	400W or more
Connected actuator	RCS2 series actuator / single axis robot / linear servo actuator	
Number of control axes	1-axis	
Operating method	Positioner type / pulse train type	
Positioning Points	512 points	
Backup memory	EEPROM	
I/O connector	40 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	Device Net, CC-Link, ProfiBus	
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: up to 500 kpps / open collector method (using pulse converter): up to 200kpps	
Position detection method	Incremental encoder / Absolute encoder	
Emergency stop function	Y (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).

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

Pod 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

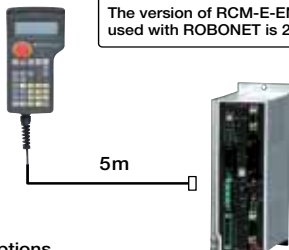
This is a teaching device that provides information on functions such as position input, test runs, and monitoring.

Model

CON-PT-M-ENG (Touch panel teaching pendant)
CON-T-ENG (Standard type)
RCM-E-ENG (Simple teaching pendant)

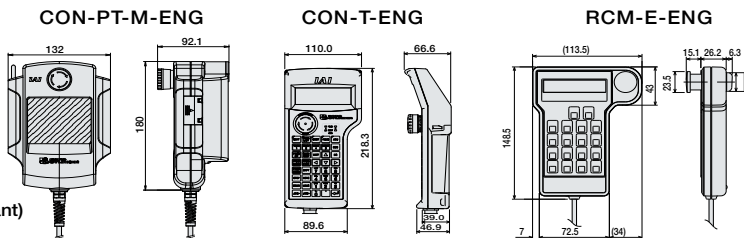
Configuration

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



CON-T Options

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



Specifications

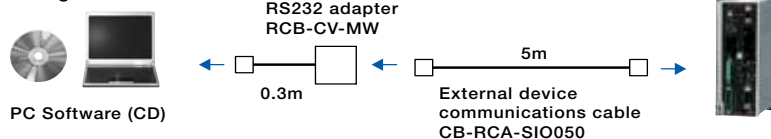
Item	CON-PT-M-ENG	CON-T-ENG	RCM-E-ENG
Data input	○	○	○
Actuator motion	○	○	○
Ambient operating temp/humidity	Temp: 0~40°C; Humidity: 85% RH or below		
Ambient operating atmosphere	No corrosive gases. Especially no dust.		
Protection class	IP40	IP54	-
Weight	Approx. 750g	Approx. 400g	Approx. 400g
Cable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

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.

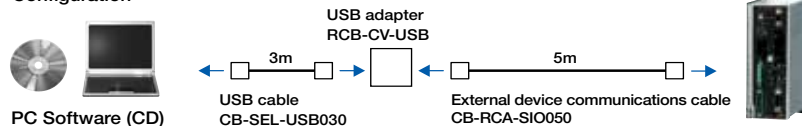
- Model **RCM-101-MW** (External device communications cable + RS232 conversion unit)

Configuration



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

Configuration



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

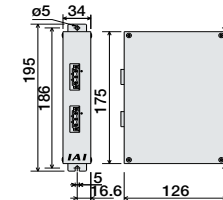
	Horizontal	Vertical
0 units	~100W	~100W
1 unit	~400W	~400W
2 units	~750W	~750W

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.

Exterior Dimensions



Battery for retaining absolute data

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

- Model **AB-5**



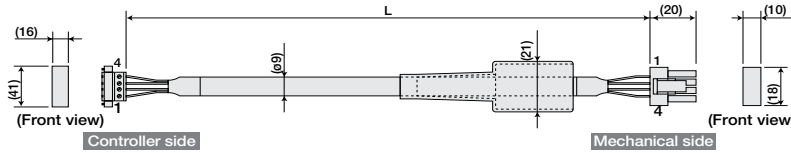
Spare parts

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

Motor cable/Motor robot cable

Model **CB-RCC-MA** / **CB-RCC-MA** **-RB**

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



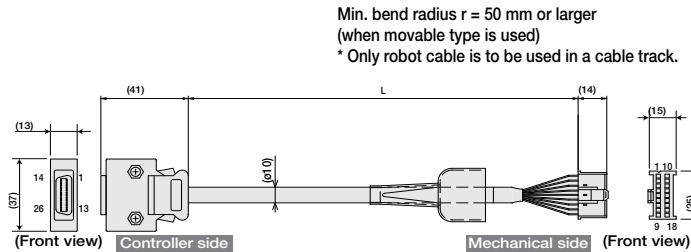
Min. bend radius $r = 50$ mm or larger
(when movable type is used)
* Only the robot cable is to be used in a cable track.

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

Encoder cable/Encoder robot cable

Model **CB-RCS2-PA** / **CB-X3-PA**

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



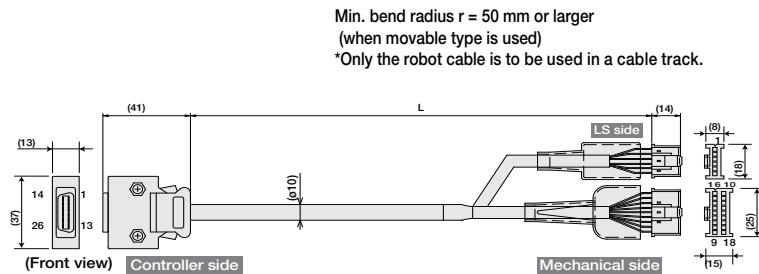
Min. bend radius $r = 50$ mm or larger
(when movable type is used)
* Only robot cable is to be used in a cable track.

Wire	Color	Signal	Pin No.	Pin No.	Signal	Color	Wire
---	---	---	---	1	A	Pink	AWG26 (crimped)
---	---	---	---	2	A	Purple	
---	---	---	---	3	B	White	
---	---	---	---	4	B	Black/Red	
---	---	---	---	5	Z	Orange/White	
---	---	---	---	6	Z	Green/White	
---	---	---	---	7	LS+	Brown/White	
---	---	---	---	8	FG	Ground	
---	---	---	---	9	SD	Blue	
---	---	---	---	10	SD	Blue	
---	---	---	---	11	SD	Orange	
---	---	---	---	12	BAT+	Black	
---	---	---	---	13	BAT+	Yellow	
---	---	---	---	14	VCC	Green	
---	---	---	---	15	GND	Brown	
---	---	---	---	16	GND	Gray/White	
---	---	---	---	17	BK+	Gray	
---	---	---	---	18	BK+	Red	

Encoder cable/Encoder robot cable for RCS2-RT6/RT6R/RT7/RA13R

Model **CB-RCS2-PLA** / **CB-X2-PLA**

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



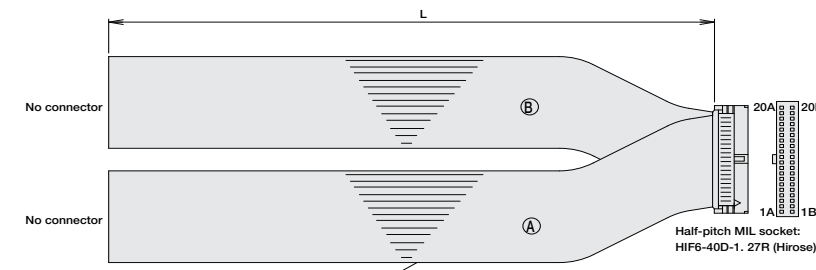
Min. bend radius $r = 50$ mm or larger
(when movable type is used)
* Only the robot cable is to be used in a cable track.

Wire	Color	Signal	Pin No.	Pin No.	Signal	Color	Wire
---	---	---	---	1	A	White/Orange	AWG26 (crimped)
---	---	---	---	2	A	White/Orange	
---	---	---	---	3	LS	Brown/Blue	
---	---	---	---	4	LS	Brown/Blue	
---	---	---	---	5	OT	Brown/Red	
---	---	---	---	6	RSV	Brown/Black	
---	---	---	---	7	---	---	
---	---	---	---	8	FG	Ground	
---	---	---	---	9	SD	Orange	
---	---	---	---	10	SD	Orange	
---	---	---	---	11	SD	Green	
---	---	---	---	12	BAT+	Purple	
---	---	---	---	13	BAT+	Red	
---	---	---	---	14	VCC	Blue	
---	---	---	---	15	GND	Gray	
---	---	---	---	16	GND	Black	
---	---	---	---	17	BK+	Blue	
---	---	---	---	18	BK+	Yellow	

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

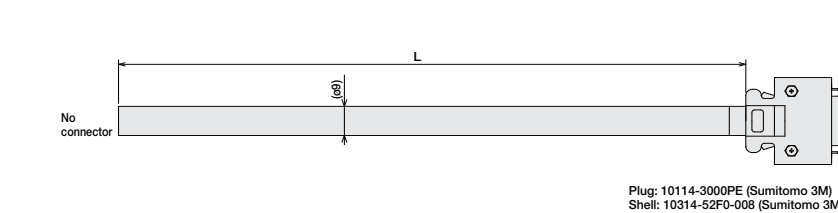


Pin No.	Signal	Color	Wire	Pin No.	Signal	Color	Wire
1A	24V	Brown-1	Flat cable (A) (crimped)	1B	OUT0	Brown-3	Flat cable (B) (crimped) AWG28
2A	24V	Red-1		2B	OUT1	Red-3	
3A	---	Orange-1		3B	OUT2	Orange-3	
4A	---	Yellow-1		4B	OUT3	Yellow-3	
5A	INO	Green-1		5B	OUT4	Green-3	
6A	IN1	Blue-1		6B	OUT5	Blue-3	
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



Plug: 10114-3000PE (Sumitomo 3M)
Shell: 10314-52F0-008 (Sumitomo 3M)

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