

SCON-CB



Position controller for
Single-axis robot / Cartesian robot / RoboCylinder RCS2/RCS3/RCS4

Features

1 Supports Battery-less Absolute Encoder

The RCS2, RCS3, RCS4, ISB and ISDB can operate equipped with a battery-less absolute encoder. As no battery is needed for retaining position data, it is possible to save control panel space, which helps to keep down the initial costs and maintenance costs.



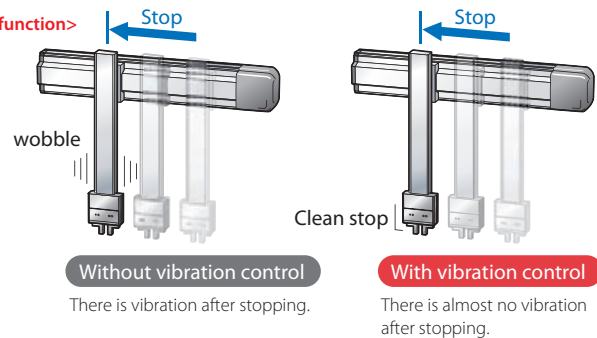
2 Major field networks supported <Optional function>

Direct connection can be made to CompoNet, EtherCAT, EtherNet/IP and PROFINET IO in addition to DeviceNet, CC-Link and PROFIBUS-DP. Operation is also possible by specifying the coordinate values directly via the field network.



3 Equipped with vibration control function <Standard function>

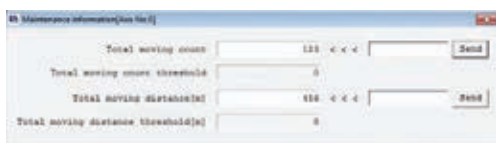
The equipped vibration control function reduces the runout (vibration) of the workpiece attached to the slider of the actuator. The standby time for vibration convergence is shortened, reducing the cycle time.



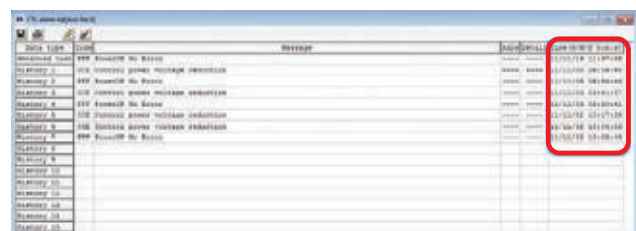
4 Capable of predictive maintenance <Standard function>

- A function that issues a warning when a motor overload is detected has been included
Monitoring changes in the temperature of the motor makes it possible to detect abnormalities before the occurrence of a breakdown or a malfunction.
- Improvement of monitoring functions
Similar to an oscilloscope, it is now possible to acquire the waveforms of the position, speed, etc. from the instant the state of the selected signal changes. Also, it is possible to acquire the signal states of positioning complete, alarms, etc.
- Smart tuning and off-board tuning enable acceleration/deceleration and gain adjustment according to the payload.
- A function that integrates the number of cycles with the traveled distance accumulation makes it possible to check maintenance timing.
- The calendar function makes it possible to keep a timetable of the alarms that have been generated.









<Maintenance information>



<Calendar function>



List of Models

Model Number	SCON-CB							
External view								
I/O type	Standard specification	Field network type (*1)						
	PIO connection specification (*1)	 DeviceNet connection specification	 CC-Link connection specification	 PROFIBUS-DP connection specification	 CompoNet connection specification	 EtherCAT connection specification	 EtherNet/IP connection specification	 PROFINET IO connection specification
I/O type model number	NP/PN	DV	CC	PR	CN	EC	EP	PRT
Supported encoder	Battery-less Absolute Incremental	Absolute	Battery-less absolute/Incremental/Absolute					

(*1) Please note that the network specifications cannot use PIO or pulse train communication.

(Reference) Please contact IAI for details of the PLC function equipped type.

Model

SCON - [] - [] - [] - [] - [] - [] - []

Series Type Motor Type Encoder Type Option I/O Type I/O Cable Length Input power

CB	High-function type
CGB	Global high-function type (with safety category spec.)

12	12W	150	150W
20	20W	200	200W
30D	30W	200S	200W
30R	30W	300S	300W
60	60W	400	400W
100	100W	600	600W
100S	100W	750	750W

(Example) 12: 12W servo motor supported

WAI	Battery-less Absolute Incremental
A	Absolute
AI	Index absolute type (*1)
AM	Absolute Multi-rotation type (*1)

(*1) DD motor operation mode is added.

HA	Hi-accel./decel. specification
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* High acceleration/deceleration specification is only available if the high acceleration/deceleration supported option is selected for the actuator.
 <High Acceleration/Deceleration Target Actuators>
 RCS2-SA4C/SA5C/SA6C/SA7C/RA4C/RA5C/RGS4C/RGS5C/RGD4C/RGD5C

1	Single phase 115VAC
2	Single phase 230VAC

* Check the power supply voltage that can be selected in the actuator page.

NP	PIO NPN specification
PN	PIO PNP specification
DV	DeviceNet connection specification
CN	CompoNet connection specification
CC	CC-Link connection specification
PR	PROFIBUS-DP connection specification
EC	EtherCAT connection specification
EP	EtherNet/IP connection specification
PRT	PROFINET IO connection specification

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

* When a field network specification is selected, the I/O cable length is "0" (No cable).

Notes

In principle, the same type of motor as the type of motor of the actuator to be connected should be entered, but there are some models where the motor type of some controllers and actuators do not match. Be sure to check the corresponding models listed below during selection.

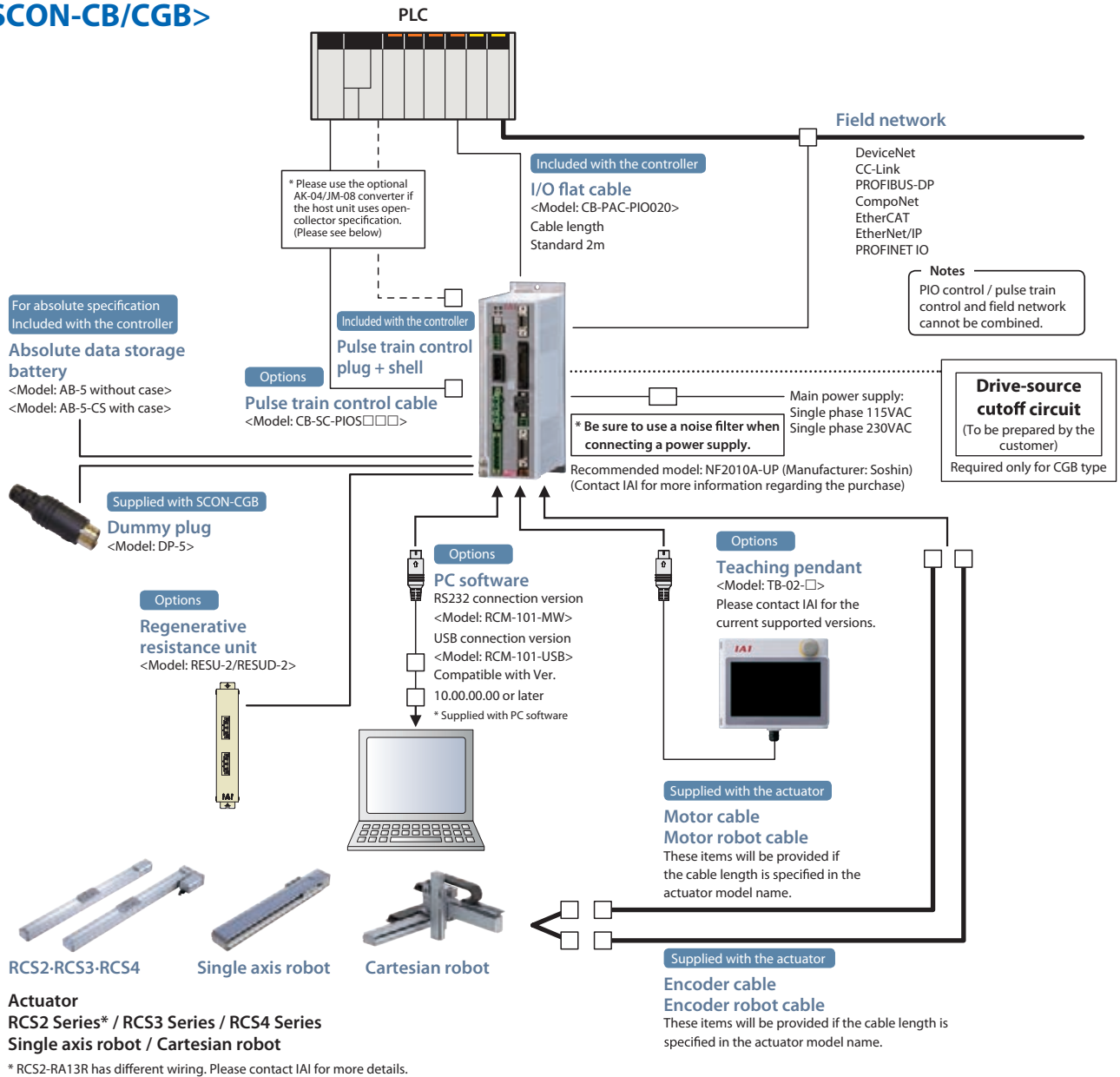
<30D/30R/200S Target Actuators>

- Controller motor type [30D] 30W actuators other than RS
- Controller motor type [30R] RS
- Controller motor type [200S] DD-LT18□ DDCR-LT18□ DDA-LT18C DDACR-LT18C

* For 200S, the controller casing will be 400W. Check the 400W specification for the price.

System Configuration

<SCON-CB/CGB>

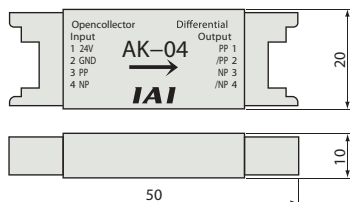


■ Pulse Converter: Model AK-04

Converts open-collector specification pulses to the differential system.
Please use this converter if the host controller uses open-collector specification for output pulse.

■ Specifications

Item	Specification
Input power	24VDC ±10% (Max. 50mA)
Input pulse	Open collector (collector current max. 12mA)
Input frequency	200kHz or less
Output pulse	Differential output (Max. 10mA) (26C31 or equivalent)
Mass	10g or less (not including the cable connectors)
Accessories	37104-3122-000L (e-CON connector) x 2 by 3M Suitable power line AWG No.24~26

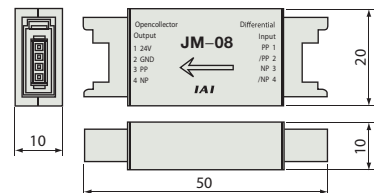


■ Pulse Converter: Model JM-08

Converts differential pulses to the open-collector specification.
Please use this converter if the host controller uses open-collector specification for pulse input.

■ Specifications

Item	Specification
Input power	24VDC ±10% (Max. 50mA)
Input pulse	Differential input (Max. 10mA) (RS422 compliant)
Input frequency	500kHz or less
Output pulse	24VDC open collector (collector current max. 25mA)
Mass	10g or less (not including the cable connectors)
Accessories	37104-3122-000FL (e-CON connector) x 2 by 3M Suitable power line AWG No.24~26



Operation mode

The control method of this controller can be selected from positioner mode and pulse train control mode.

In positioner mode, it can be operated by specifying the position data (travel position, speed, acceleration, etc.) numbers input to the controller from the outside using I/O (input/output signal).

As well, in positioner mode, 8 different operation modes can be selected depending on the parameters.

In pulse train control mode, it is possible to control the travel distance, speed, acceleration and the like with pulses sent from an external pulse generator.

Mode		Type	Number of positioning points	Features
Positioner mode	Positioning mode	PIO pattern 0	64 points	This is the factory default standard mode. Specify from outside the position number you want to move.
	Teaching mode	PIO pattern 1	64 points	In this mode, the slider (rod) can be moved with an external signal to register the stop position as position data.
	256-point mode	PIO pattern 2	256 points	In this mode, the number of positioning points in positioning mode is increased to 256.
	512-point mode	PIO pattern 3	512 points	In this mode, the number of positioning points in positioning mode is increased to 512.
	Solenoid valve mode 1	PIO pattern 4	7 points	This mode allows travel by signal ON/OFF alone, as with air cylinder solenoid valves.
	Solenoid valve mode 2	PIO pattern 5	3 points	In solenoid valve mode, the output signal is the same as the air cylinder auto switch.
	Force control mode 1	PIO pattern 6	32 points	In this mode, position movement during force control can be done with positioning mode. (The maximum number of positioning points is 32)
	Force control mode 2	PIO pattern 7	5 points	In this mode, position movement during force control can be done with solenoid valve mode. (The maximum number of positioning points is 5)
Pulse train control mode	Pulse train control mode for incremental	PIO pattern 0	—	Position data input to the controller is not required, as operation is according to the transmitted pulses.
	Pulse train control mode for absolute	PIO pattern 1		

Table of I/O Signals * I/O signal assignment can be selected from 9 types.

Pin No.	Category	Number of positioning points	Parameter (PIO pattern) selection									
			0	1	2	3	4	5	6	7	0/1	
			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	Force control mode 1 32 points	Force control mode 2 5 points	Pulse train mode —	
1A	24V		P24									P24
2A	24V		P24									P24
3A	—		NC									NC
4A	—		NC									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	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	—	—	CLBR	CLBR	RSTR (Note)	
14A		IN9	BKRL	JOG-	BKRL	BKRL	BKRL	BKRL	BKRL	BKRL	—	
15A		IN10	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD	RMOD	—	
16A		IN11	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	—	
20A	IN15	SON	SON	SON	SON	SON	SON	SON	SON	—		
1B	Output	OUT0	PM1	PM1	PM1	PM1	PE0	LSO	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	REND (Note)	
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			N		
20B	0V						N			N		

* In the above table, signals in () represent functions available before the home return.

* In the above table, signals preceded by * are negative logic signals. Negative logic input signals are processed when turned OFF.

Negative logic output signals normally remain ON while the power is supplied, and turn OFF when the signal is output.

(Note): It is available to use only in Pulse-Train Control Mode PIO Pattern 1.

Field Network Specification: Explanation of Operation Modes

If the SCON-CB is controlled via a field network, you can select one of the following nine modes to operate the actuator. Please note that the data areas required on the PLC side will vary depending on the mode.

Mode Description

	Mode	Description
0	Remote I/O mode	Similarly to the PIO specification, this mode operates by directing bytes to ON/OFF via a network. The number of positioning points and functions will vary depending on the operation patterns (PIO patterns) set by the controller's parameters.
1	Position/simple direct value mode	The target position value is directly input, while all other operational conditions (speed, acceleration, etc.) are set by indicating the position number corresponding to the desired operating conditions from the position data table.
2	Half direct value mode	The actuator is operated by directly inputting values for speed, acceleration/deceleration rate and push current, as well as the target position.
3	Full direct value mode	The actuator is operated by directly inputting values for the target position, speed, acceleration/deceleration rate and push current limit value, etc. In addition, you are able to read the current position, current speed, and the command current value, etc.
4	Remote I/O mode 2	This mode is the same as the remote I/O mode above, with the added functionality of reading current position and the command current value.
5	Position/simple direct value mode 2	This mode is equipped with a force control function instead of the teaching and zone functions of the position/simple direct value mode above.
6	Half direct value mode 2	Instead of the half direct value mode command current reading function, it can read load cell data. It also supports the force control function.
7	Remote I/O mode 3	This mode is the same as the remote I/O mode above, with the added functionality of reading current position and load cell data.
8	Half direct value mode 3	This mode supports the vibration control function instead of the jog function of the half direct value mode.

Required Data Size for Each Network

	Mode	DeviceNet	CompoNet	CC-Link	PROFIBUS-DP	EtherCAT	EtherNet/IP	PROFINET IO
0	Remote I/O mode	2 bytes	2 bytes	1 station	2 bytes	2 bytes	2 bytes	2 bytes
1	Position/simple direct value mode	8 bytes	8 bytes	1 station	8 bytes	8 bytes	8 bytes	8 bytes
2	Half direct value mode	16 bytes	16 bytes	2 stations	16 bytes	16 bytes	16 bytes	16 bytes
3	Full direct value mode	32 bytes	32 bytes	4 stations	32 bytes	32 bytes	32 bytes	32 bytes
4	Remote I/O mode 2	12 bytes	12 bytes	1 station	12 bytes	12 bytes	12 bytes	12 bytes
5	Position/simple direct value mode 2	8 bytes	8 bytes	1 station	8 bytes	8 bytes	8 bytes	8 bytes
6	Half direct value mode 2	16 bytes	16 bytes	2 stations	16 bytes	16 bytes	16 bytes	16 bytes
7	Remote I/O mode 3	12 bytes	12 bytes	1 station	12 bytes	12 bytes	12 bytes	12 bytes
8	Half direct value mode 3	16 bytes	16 bytes	2 stations	16 bytes	16 bytes	16 bytes	16 bytes

List of Functions by Operation Mode

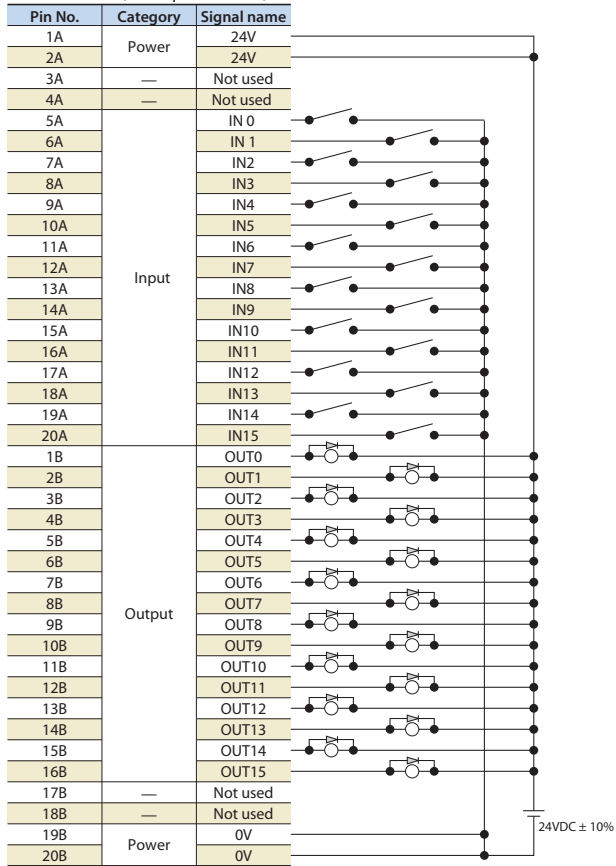
	Remote I/O mode	Position/simple direct value mode	Half direct value mode	Full direct value mode (Note 1)	Remote I/O mode 2	Position/simple direct value mode 2	Half direct value mode 2	Remote I/O mode 3	Half direct value mode 3
Number of positioning points	512 points	768 points	Unlimited	Unlimited	512 points	768 points	Unlimited	512 points	Unlimited
Operates by direct assignment of position data	—	○	○	○	—	○	○	—	○
Direct assignment of speed/acceleration	—	—	○	○	—	—	○	—	○
Push-motion operation	○	○	○	○	○	○	○	○	○
Current position read	—	○	○	○	○	○	○	○	○
Current speed read	—	—	○	○	—	—	○	—	○
Operation by position number input	○	○	—	—	○	○	—	○	—
Completed position number read	○	○	—	—	○	○	—	○	—
Force control	△ (Note)	—	—	○	△ (Note)	○	○	△ (Note)	—
Vibration control	○	○	—	○	○	○	—	○	○
Servo gain switching	○	○	○	○	○	○	—	○	○

* ○ indicates that the operation is supported, and — indicates that it is not supported.
 (Note) Usable when PIO pattern is set to 6 or 7.

I/O Wiring Diagrams

Positioning Mode / Teaching Mode / Solenoid Valve Mode

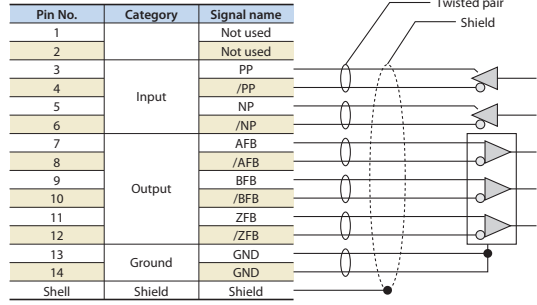
PIO connector (NPN specification)



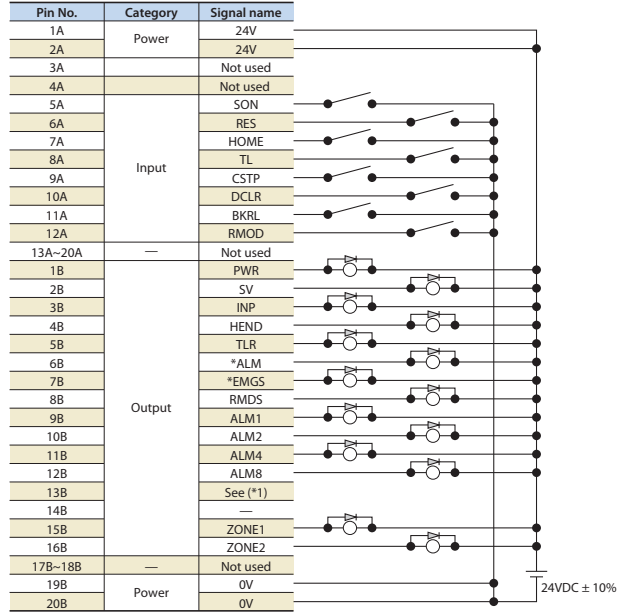
* Connect pin numbers 1A and 2A to 24V, and connect pin numbers 19B and 20B to 0V.

Pulse Train Mode (Differential output)

Pulse connector



PIO connector (NPN specification)



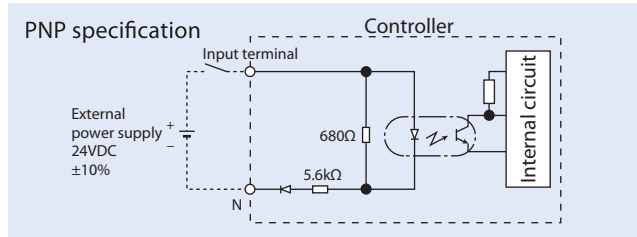
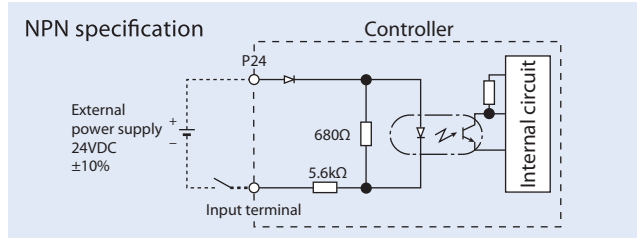
* The shield of the twisted pair cable connected to the pulse connector must be connected to the shell. Also, set the cable length within 10m.

* Connect pin numbers 1A and 2A to 24V, and connect pin numbers 19B and 20B to 0V. (*1) -*ALML/*OVLW/*BALM (can be switched by parameter)

PIO Input/Output Interface

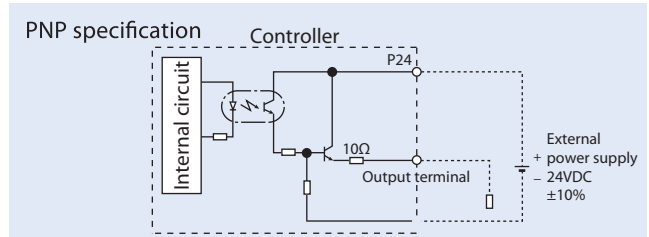
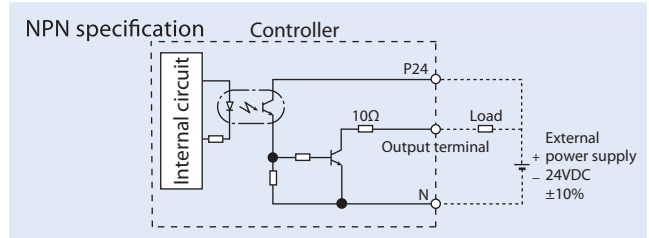
Input External input specification

Item	Specification
Input voltage	24VDC $\pm 10\%$
Input current	4mA/circuit
ON/OFF voltage	ON voltage: Min. 18.0VDC OFF voltage Max. 6.0VDC
Isolation method	Photocoupler



Output External output specification

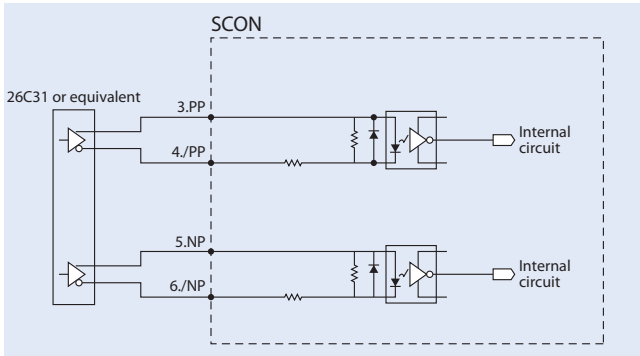
Item	Specification
Load voltage	24VDC
Maximum load current	50mA/point
Leakage current	Max. 0.1mA/point
Isolation method	Photocoupler



Pulse Train Type Input/Output Specification (differential line driver specification)

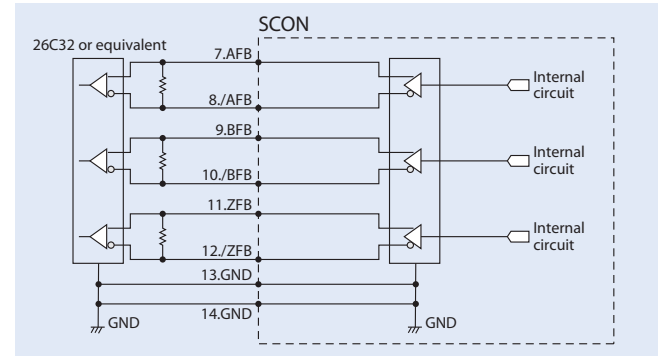
Input part

Maximum input pulse : Line driver interface 2.5Mpps
Isolation method : Photocoupler isolation



Output part

Maximum output pulse : Line driver interface 2.5Mpps
Isolated/Non-isolated : Non-isolated



Pulse Train Type Input/Output Specification (open collector specification)

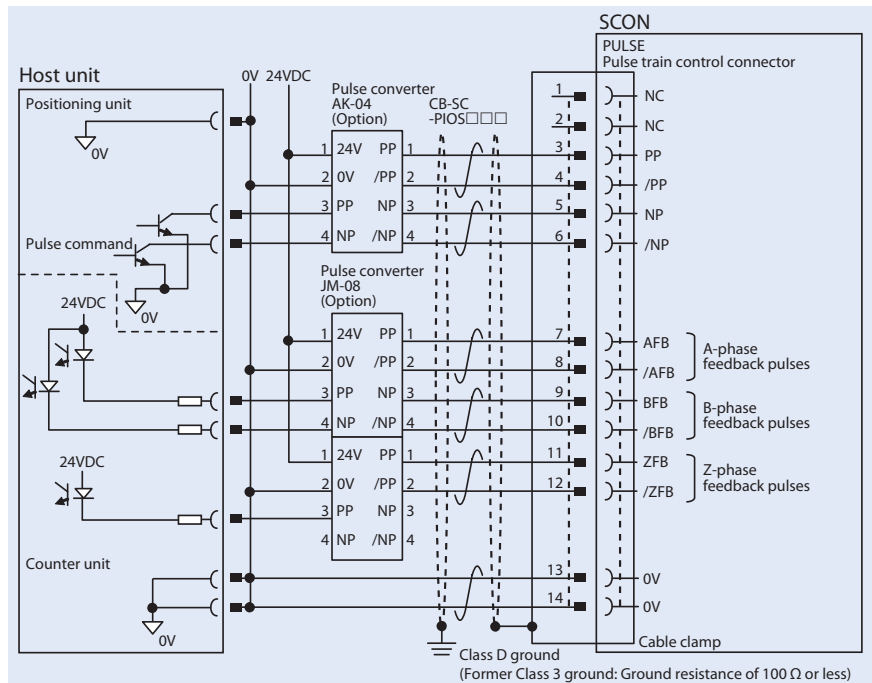
The AK-04 (optional) is needed to input pulses. The JM-08 (optional) is required for pulse train output.

Maximum input pulse : 200kpps (AK-04 required)
Maximum output pulse : 500kpps (JM-08 required)

- * The 24VDC power supply connected to the AK-04 should be common with the PIO interface power supply.
- * Make sure that the cable between the pulse output unit (PLC) and AK-04/JM-08 is as short as possible. Also, make sure that the cable length between AK-04/JM-08 and the pulse connector is within 2m.

Notes

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



Command Pulse Input Patterns

Command pulse train pattern		Input terminal	Forward	Reverse	
Negative logic	Forward pulse train	PP-/PP			
	Reverse pulse train	NP-/NP			
	A forward pulse train indicates the amount of motor rotation in the forward direction, while a reverse pulse train indicates the amount of motor rotation in the reverse direction.				
	Pulse train	PP-/PP			
	Sign	NP-/NP	Low	High	
The command pulses indicate the amount of motor rotation, while the sign indicates the rotating direction.					
Positive logic	Phase A/B pulse train	PP-/PP			
		NP-/NP			
	Command phases A and B pulse having a 90° phase difference (multiplier is 4) indicate the amount of motor rotation and the rotating direction.				
	Forward pulse train	PP-/PP			
	Reverse pulse train	NP-/NP	High	Low	

Specifications Table

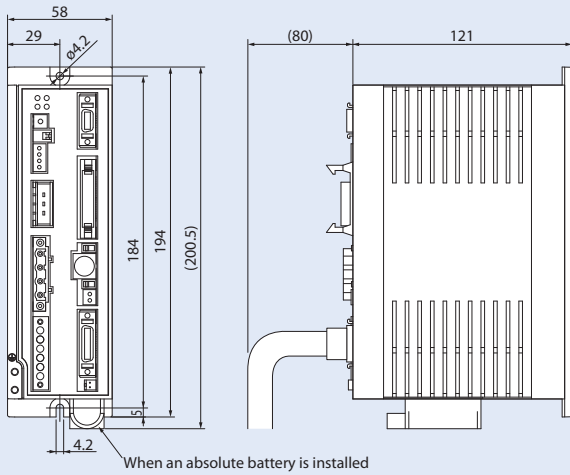
Item	Specification	
Compatible motor capacity	Less than 400W	400W or more
Number of controlled axes	1-axis	
Method of operation	Positioner type/Pulse train type	
Number of positioning points	512 points (PIO specification), 768 points (fieldbus specification)	
Backup memory	Non-volatile memory (FRAM)	
I/O connector	40-pin connector	
Number of I/O points	Input 16 points / output 16 points	
I/O power supply	External supply 24VDC ±10%	
Serial communication	RS485 1ch	
Command pulse train input method (Note 1)	Differential line driver output supported	
Maximum input pulse frequency	Differential line driver system: Max. 2.5Mpps / Open collector system (pulse converter used): Max. 200kpps	
Position detection method	Incremental encoder / absolute encoder / serial encoder quasi absolute / battery-less absolute encoder	
Drive-source cutoff function	CB: available (relay built in) CGB: not available	
Electromagnetic brake forced release	External brake release switch ON/OFF	
Input power	Single phase 100~115VAC ±10% Single phase 200~230VAC ±10%	Single phase 200~230VAC ±10%
Power supply capacity	12W / 89VA 20W / 74VA 30W (Excluding RS)/94VA 30W (For RS)/186VA 60W (Excluding RCS3-CTZ5C)/186VA 60W (For RCS3-CTZ5C)/245VA 100W / 282VA	150W / 376VA 200W / 469VA 400W (Excluding RCS3-CT8C)/968VA 400W (For RCS3-CT8C)/1278VA 600W / 1212VA 750W / 1569VA
Vibration resistant	X, Y, and Z directions 10~57Hz Single-side width 0.035mm (continuous), 0.075mm (intermittent) 58~150Hz 4.9m/s ² (continuous), 9.8m/s ² (intermittent)	
Calendar/clock functionality	Retention time	Approx. 10 days
	Charging time	Approx. 100 hours
Protection functionality	Overcurrent, abnormal temperature, fan speed degradation monitoring, encoder disconnection, etc.	
Ambient operating temperature	0 to 40°C	
Ambient operating humidity	85% or less (Non-condensing)	
Operating ambience	Free from corrosive gases	
Ingress protection	IP20	
Mass	Approx. 900g (25g added for simple absolute specification)	Approx. 1.2kg (25g added for simple absolute specification)
External dimensions	58mm(W)×194mm(H)×121mm(D)	72mm(W)×194mm(H)×121mm(D)

(Note 1) Use a differential line driver method resistant to noise for the command pulse input method.
If the open collector method must be used, convert the pulse to differential using the optional pulse converter (AK-04/JM-08).

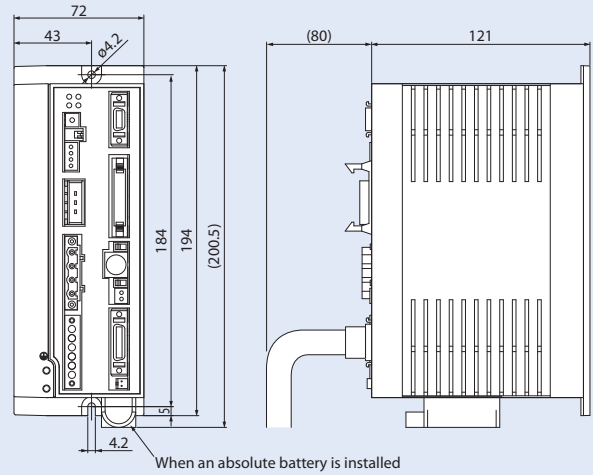
* The number of encoder pulses of actuators that can be operated with SCON-CB is 3072 pulses for RCS2-SRA7BD/SRGS7BD/SRGD7BD, 1600 pulses for RCS2-□□5N (incremental), 1048576 pulses for DD-□18P: 20 bits, 131072 pulses for DD-□18S: 17 bits, 2400 pulses for NS-S□M□ (incremental), 131072 pulse for ISB (battery-less absolute) and 16384 pulses for all other models.

External Dimensions

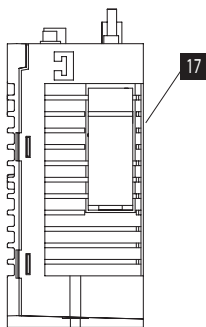
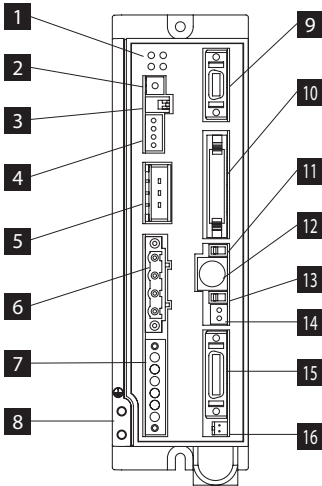
Less than 400W



400W or more



Name of Each Component



1 LED display

It represents the state of the controller.

Name	Color	Description
PWR	Green	Lights up on system-ready (after the power is turned on, in normal CPU)
SV	Green	Lights up on servo-on
ALM	Orange	Lights up on alarm
EMG	Red	Lights up on emergency stop

2 Rotary switch

Used to set up the controller address after connecting the controller in order to identify every controller connected.

3 Piano switch

Switch for the controller system.

Name	Description
1	Press-operation mode selection switch OFF: Positioner mode, ON: Pulse train control mode * Enabled at power on.
2	Used by the manufacturer for adjustment. Always keep this switch OFF.

4 System I/O connector

Connector for emergency stop switch, etc.

5 Regenerative resistance unit cable connector

Resistance unit connector for absorbing regenerative current that occurs when the actuator decelerates to a stop.

6 Motor connector

Connector for motor cable of actuator.

7 Power supply connector

Connector for the AC power supply. It has divided inputs on the control power supply side and motor power supply side.

8 Ground terminal

Screw for protective grounding. Be sure to ground.

9 Pulse train control connector

Connector used when operating in pulse train control mode. Feedback pulses are also enabled in positioner mode.

10 PIO connector

Cable connector for performing parallel communication with peripheral devices such as PLC.

11 Operation mode selection switch

Name	Description
MANU	Does not accept commands from PIO.
AUTO	Ready to accept commands from PIO.

* The emergency stop switch on the teaching pendant is enabled when the connection is made, regardless of the states, AUTO or MANU. Be sure to turn OFF the power when disconnecting the teaching pendant and SIO communication cable.

12 SIO connector

Connector for teaching pendant or PC communication cable.

13 Brake release switch

Used to forcibly release the electromagnetic brake installed in the actuator.

* To release the brake, the power supply (24VDC) for driving brake must be connected.

14 Brake power supply connector

Brake power 24VDC supply connector (required only when a brake-equipped actuator is connected).

15 Encoder/sensor connector

Connector for encoder/sensor cable.

16 Connector for the absolute data backup battery

Absolute data backup battery connector (required only for the absolute encoder specifications).

17 Absolute battery holder

Battery holder for installing the absolute data backup battery.

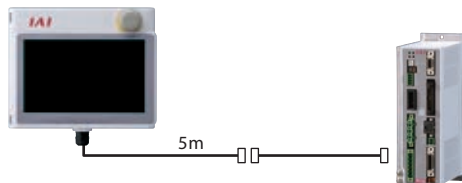
Options

Touch panel teaching pendant

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

■ **Model** **TB-02-C**

■ **Configuration**



Specifications

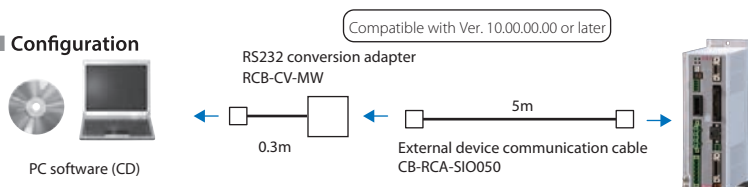
Rated voltage	24V DC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 to 40°C
Ambient operating humidity	20~85% RH (Non-condensing)
Environmental resistance	IP20
Mass	470g (TB-02 unit only)

PC software (Windows only)

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

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

■ **Configuration**

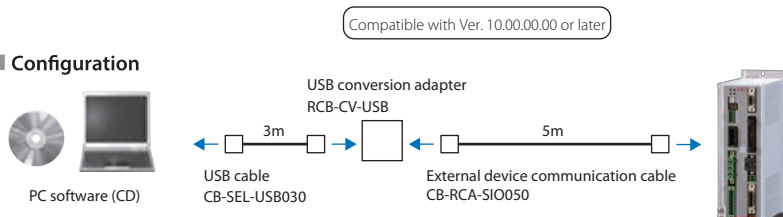


XP SP2 or later / Vista / 7 / 8 / 10



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

■ **Configuration**



Regenerative resistance unit

■ **Features** Unit that converts the regenerative current generated in motor deceleration to heat. Check the total W of the actuator to be operated in the table below, and prepare one if regenerative resistance is required.

■ **Model** **RESU-2** (standard specification)/**RESUD-2** (DIN rail mounting specification)

■ **Specifications**

Model	RESU-2	RESUD-2
Unit weight	About 0.4kg	
Built-in regenerative resistance value	235Ω 80W	
Unit mounting method	Screw mount	DIN rail mount
Attached cable	CB-SC-REU010	

■ **Necessary Amount Guideline**

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

* Depending on the operating conditions, a regeneration resistance higher than that mentioned above may be necessary.

■ **Necessary Amount Guideline (RCS2-RA13R)**

	Lead 2.5	Lead 1.25
Horizontal	1	0
Vertical	1	1

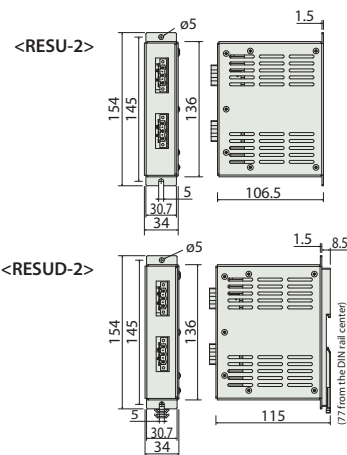
* Depending on the operating conditions, a regeneration resistance higher than that mentioned above may be necessary.

■ **Necessary Amount Guideline (DD)**

Series	Type	Required number
DD	LT18□	1
DDA	LH18□	2

* If two regenerative units are required, please prepare RESU-2 and RESU-1 (Consult IAI for more information).

■ **External Dimensions**



Absolute data storage battery

■ **Features** Absolute data storage battery for operating an actuator of the absolute specification.

■ **Model** **AB-5 (battery)**
AB-5-CS (with case)



Dummy plug

■ **Features** This is required when the global controller type with safety category specification (SCON-CGB) is used.

■ **Model** **DP-5**



Maintenance Parts

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

■ Cable Compatibility Chart

Model name			Motor cable	Motor robot cable	Encoder cable	Encoder robot cable
①	RCS2(CR/W) RCS3(CR)	Models other than ② ~ ④	CB-RCC-MA□□□	CB-RCC-MA□□□-RB	CB-RCS2-PA□□□	CB-X3-PA□□□ CB-XEU3-PA□□□ (EU version)
②	RCS3	CTZ5C CT8C		CB-XEU-MA□□□ (EU version)	-	CB-X1-PA□□□ CB-XEU1-PA□□□ (EU version)
	RCS4(CR)					
③	RCS2**	RT	CB-RCC-MA□□□	CB-RCC-MA□□□-RB CB-XEU-MA□□□ (EU vers.)	CB-RCS2-PLA□□□	CB-X2-PLA□□□ CB-XEU2-PLA□□□ (EU vers.)
④		RA13R (Standard)	CB-RCC-MA□□□	CB-RCC-MA□□□-RB CB-XEU-MA□□□ (EU version)	CB-RCS2-PLA□□□	CB-X2-PLA□□□ CB-XEU2-PLA□□□ (EU vers.)
		RA13R (With brake)			* CB-RCS2-PLA□□□ between the controller and brake	CB-X2-PLA□□□ CB-XEU2-PLA□□□ (EU vers.) * CB-X2-PLA□□□ CB-XEU2-PLA□□□ (EU vers.) between the controller and brake
⑤	NS	Without LS	-	CB-X-MA□□□ CB-XEU-MA□□□ (EU version)	-	CB-X3-PA□□□ CB-XEU3-PA□□□ (EU vers.)
⑥		With LS	-	-	-	CB-X2-PLA□□□ CB-XEU2-PLA□□□ (EU vers.)
⑦	-	-	-	-	-	-
⑧	DD/DDA	LT18□	-	CB-X-MA□□□ CB-XEU-MA□□□ (EU vers.)	-	CB-X3-PA□□□ CB-XEU3-PA□□□ (EU version)
⑨	DDCR/DDACR DDW	LH18□	-	CB-XMC-MA□□□ CB-XEUMC-MA□□□ (EU vers.)	-	
⑩	DDA	LT18	-	CB-X-MA□□□ CB-XEU-MA□□□ (EU vers.)	-	CB-X3-PA□□□ CB-XEU3-PA□□□ (EU vers.)
⑪	DDACR (With brake)	LH18	-	CB-XMC-MA□□□ CB-XEUMC-MA□□□ (EU vers.)	-	CB-DOB-BK□□□ between brake box and actuator
⑫	IS(P)WA	S/M/L	-	CB-XEU-MA□□□	-	CB-X1-PA□□□-WC
⑬	Models other than ① ~ ⑫		-	CB-X-MA□□□ CB-XEU-MA□□□ (EU version)	-	CB-X1-PA□□□ CB-XEU1-PA□□□ (EU vers.) (for 20m or less) *
						CB-X1-PA□□□-AWG24 CB-XEU1-PA□□□-AWG24 (EU vers.) (for 21m or more)
⑭	Models other than ① ~ ⑫ LS specification		-		-	CB-X1-PLA□□□ CB-XEU1-PLA□□□ (EU vers.) (for 20m or less) *
						CB-X1-PLA□□□-AWG24 CB-XEU1-PLA□□□-AWG24 (EU vers.) (for 21m or more)

* Those that do not have the battery-less absolute specification will also be CB-X(EU)1-PA□□□/CB-X(EU)1-PLA□□□ for 20m or more.

** For the RCS2-RA13R load cell specification cables, please contact IAI.

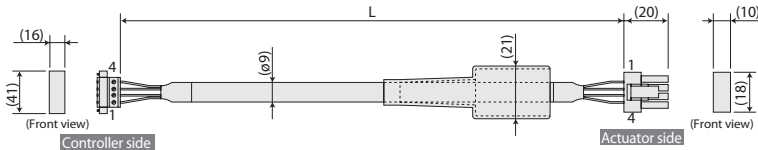
Model name	PIO flat cable	Pulse train control cable
⑮ SCON-CB	CB-PAC-PIO□□□	CB-SC-PIOS□□□

Model number	CB-RCC-MA □□□	Motor cable	for RCS2 / RCS3 / RCS4
	CB-RCC-MA □□□- RB	Motor robot cable	
	CB-X-MA □□□	Motor robot cable	for models other than RCS2 / RCS3 / RCS4 / DD(A)-H/LH18
	CB-XEU-MA □□□	EU motor robot cable	for RCS2 / RCS3 / RCS4 and other models

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

(Note) Model number of (EU) motor robot cable with 1.25sq wire for DD(A)-H/LH18: CB-X(EU)MC-MA□□□.

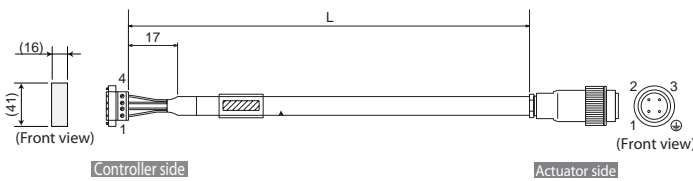
(Fig.: Motor cable CB-RCC-MA□□□ / CB-RCC-MA□□□-RB / CB-X-MA□□□ with plastic connector)



Minimum bending R: $r = 51$ mm or more (for movable use)
* If the cable must be guided in a cable track, use a robot cable.

Wire	Color	Signal	No.	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	

(Fig.: EU motor robot cable CB-XEU-MA□□□, EU version with M18 plastic round connector)



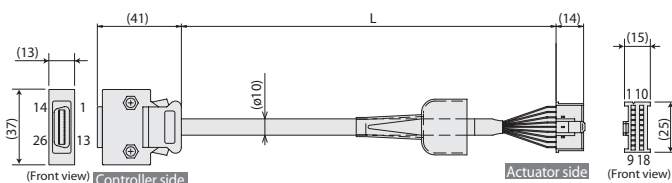
Minimum bending R: $r = 51$ mm or more (for movable use)
* Only robot cable is available for this model

Wire	Color	Signal	No.	No.	Signal	Color	Wire
0.75sq	Green/yellow	PE	1	⊕	PE	Green/yellow	0.75sq (crimped)
	Black/white ¹	U	2	1	U	Black/white ¹	
	Black/white ²	V	3	2	V	Black/white ²	
	Black/white ³	W	4	3	W	Black/white ³	

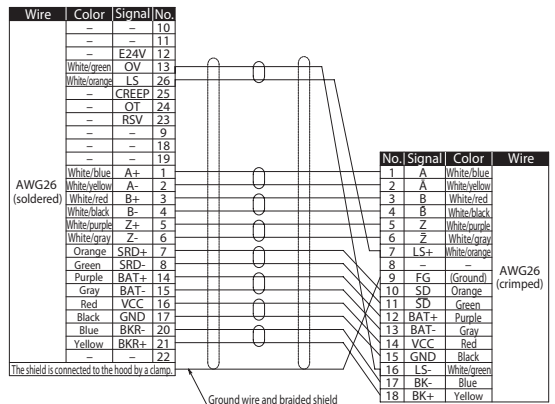
Model number	CB-RCS2-PA □□□	Encoder cable	for RCS2 / RCS3
	CB-X3-PA □□□	Encoder robot cable	
	CB-XEU3-PA □□□	EU encoder robot cable	for NS / RCS2 / RCS3

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

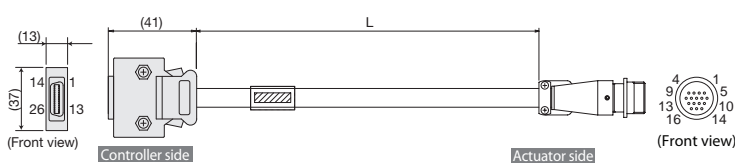
(Fig.: Encoder cable CB-RCS2-PA□□□ / CB-X3-PA□□□ with plastic connector)



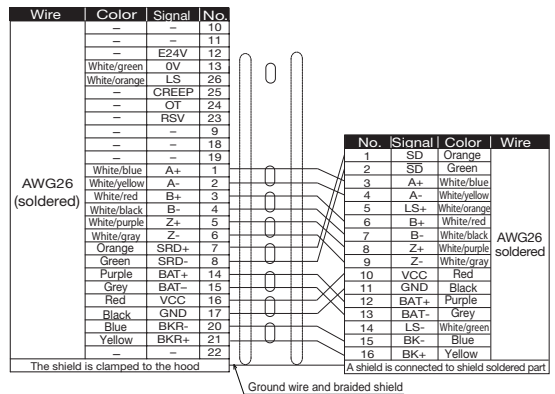
Minimum bending R: $r = 58$ mm or more (for movable use)
* If the cable must be guided in a cable track, use a robot cable.



(Fig.: EU encoder robot cable CB-XEU3-PA□□□, EU version with metal connector)



Minimum bending R: $r = 58$ mm or more (for movable use)



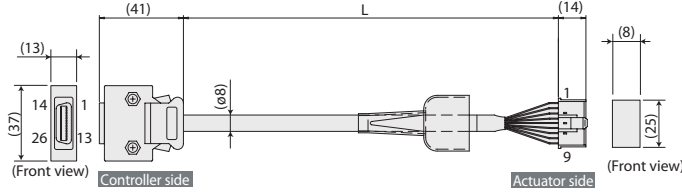
Maintenance Parts

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

Model number	CB-X1-PA □□□□	Encoder robot cable	for RCS4 and models other than NS / RCS2 / RCS3 / DD(A)
	CB-XEU1-PA □□□□	EU encoder robot cable	

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

(Fig.: Encoder robot cable CB-X1-PA□□□□ with plastic connector)

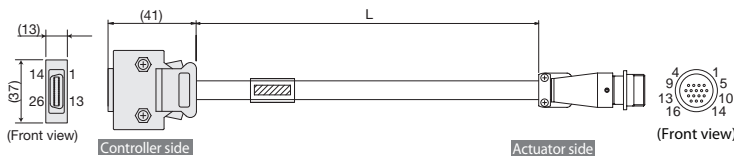


Minimum bend radius R: r = 44mm or larger (for movable use)

*Only robot cable is available for this model.

*If you require ISB/ISDB/ISDBCR (encoder type is battery-less absolute) with the cable of 21m or longer, select the CB-X1-PA□□□□-AWG24.

(Fig.: EU encoder robot cable CB-XEU1-PA□□□□, EU version with metal connector)



Minimum bend radius R: r = 44mm or larger (for movable use)

*Only robot cable is available for this model.

*If you require ISB/ISDB/ISDBCR (encoder type is battery-less absolute) with the cable of 21m or longer, select the CB-XEU1-PA□□□□-AWG24.

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

No.	Signal	Color	Wire
1	BAT+	Purple	AWG26 (crimped)
2	SD	Gray	
3	SD	Orange	
4	SD	Green	
5	VCC	Red	
6	GND	Black	
7	FG	Ground	
8	BK-	Blue	
9	BK+	Yellow	

The shield is clamped to the hood
Braided ground & shield wire

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

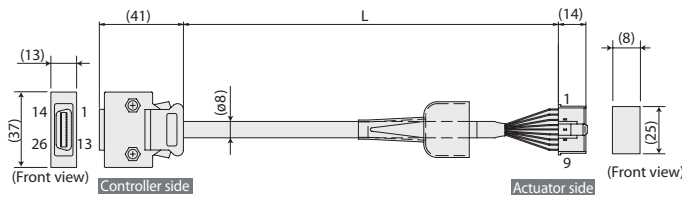
No.	Signal	Color	Wire
1	SD	Orange	AWG26 soldered
2	SD	Green	
3	—	—	
4	—	—	
5	—	—	
6	—	—	
7	—	—	
8	—	—	
9	—	—	
10	VCC	Red	
11	GND	Black	
12	BAT+	Purple	
13	BAT-	Gray	
14	—	—	
15	BK-	Blue	
16	BK+	Yellow	

The shield is clamped to the hood
Ground wire and braided shield

Model number	CB-X1-PA □□□□-AWG24	Encoder low-resistance robot cable	for models with battery-less absolute encoder other than NS / RCS2 / RCS3
	CB-XEU1-PA □□□□-AWG24	EU encoder low-resistance robot cable	

* Enter the cable length (L) into □□□. Compatible to a Maximum of 30 meters.
Ex.: 210 = 21m

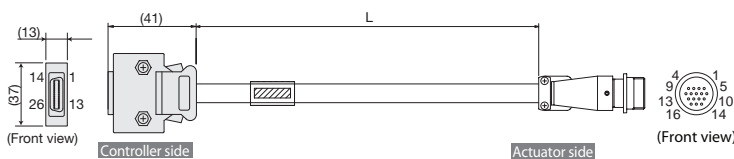
(Fig.: Encoder robot cable CB-X1-PA□□□□-AWG24 with plastic connector)



Minimum bend radius R: r = 44mm or larger (for movable use)

*Only robot cable is available for this model.

(Fig.: EU encoder robot cable CB-XEU1-PA□□□□-AWG24, EU version with metal connector)



Minimum bend radius R: r = 44mm or larger (for movable use)

*Only robot cable is available for this model.

Wire	Color	Signal	No.
—	—	—	10
—	—	—	11
—	—	E24V	12
—	—	OV	13
—	—	LS	26
—	—	CREEP	25
—	—	OT	24
—	—	RSV	23
—	—	—	9
—	—	—	18
—	—	—	19
—	—	A+	1
—	—	A-	2
—	—	B+	3
—	—	B-	4
—	—	Z+	5
—	—	Z-	6
Orange	SRD+	7	7
Green	SRD-	8	8
—	BAT+	14	14
—	BAT-	15	15
Red	VCC	16	16
Black	GND	17	17
Blue	BKR-	20	20
Yellow	BKR+	21	21
—	—	—	22

No.	Signal	Color	Wire
1	BAT+	—	AWG24 (crimped)
2	BAT-	—	
3	SD	Orange	
4	SD	Green	
5	VCC	Red	
6	GND	Black	
7	FG	Ground	
8	BK-	Blue	
9	BK+	Yellow	

The shield is clamped to the hood
Twisted pair
Ground wire and braided shield

Wire	Color	Signal	No.
—	—	—	10
—	—	—	11
—	—	E24V	12
—	—	OV	13
—	—	LS	26
—	—	CREEP	25
—	—	OT	24
—	—	RSV	23
—	—	—	9
—	—	—	18
—	—	—	19
—	—	A+	1
—	—	A-	2
—	—	B+	3
—	—	B-	4
—	—	Z+	5
—	—	Z-	6
Orange	SRD+	7	7
Green	SRD-	8	8
—	BAT+	14	14
—	BAT-	15	15
Red	VCC	16	16
Black	GND	17	17
Blue	BKR-	20	20
Yellow	BKR+	21	21
—	—	—	22

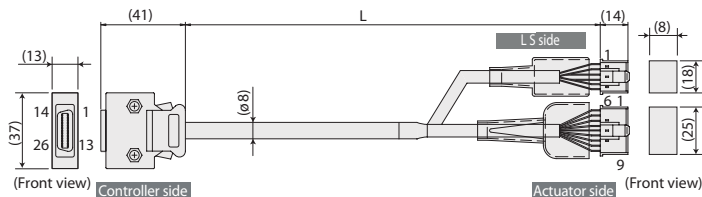
No.	Signal	Color	Wire
1	SD	Orange	AWG24 soldered
2	SD	Green	
3	—	—	
4	—	—	
5	—	—	
6	—	—	
7	—	—	
8	—	—	
9	—	—	
10	VCC	Red	
11	GND	Black	
12	BAT+	—	
13	BAT-	—	
14	—	—	
15	BK-	Blue	
16	BK+	Yellow	

The shield is clamped to the hood
Twisted pair
Ground wire and braided shield

Model number	CB-X1-PLA □□□	Limit switch encoder robot cable	for LS specification models other than NS / RCS2 / RCS3
	CB-XEU1-PLA □□□	EU limit switch encoder robot cable	

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

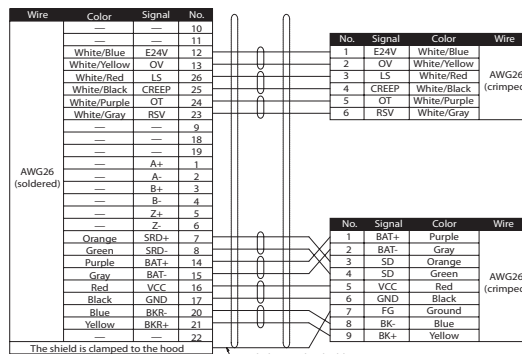
(Fig.: LS encoder robot cable CB-X1-PLA□□□ with plastic connector)



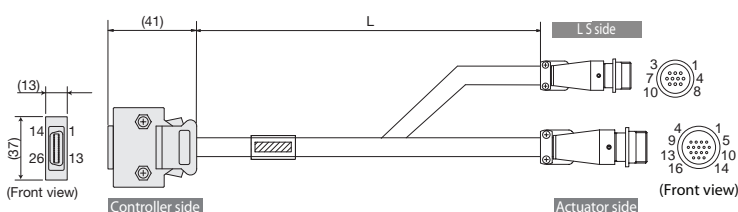
Minimum bend. radius R: r = 54mm or larger (for movable use)

*Only robot cable is available for this model.

*If you require ISB/ISDB/ISDBCR (encoder type is battery-less absolute) with the cable of 21m or longer, select the CB-X1-PLA□□□-AWG24.



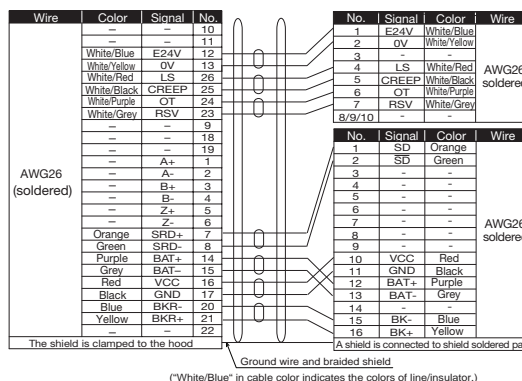
(Fig.: EU LS encoder robot cable CB-XEU1-PLA□□□, EU version with metal connector)



Minimum bend. radius R: r = 54mm or larger (for movable use)

*Only robot cable is available for this model.

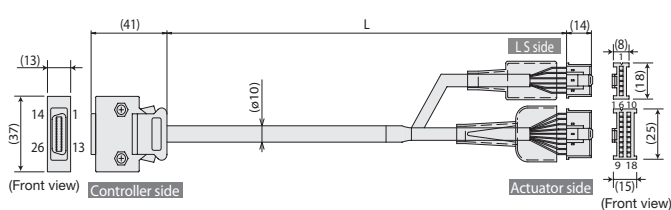
*If you require ISB/ISDB/ISDBCR (encoder type is battery-less absolute) with the cable of 21m or longer, select the CB-XEU1-PLA□□□-AWG24.



Model number	CB-RCS2-PLA □□□	Limit switch encoder cable	for RCS2 Rotary type
	CB-X2-PLA □□□	Limit switch encoder robot cable	for LS specification models
	CB-XEU2-PLA □□□	EU limit switch encoder robot cable	NS / RCS2 Rotary type

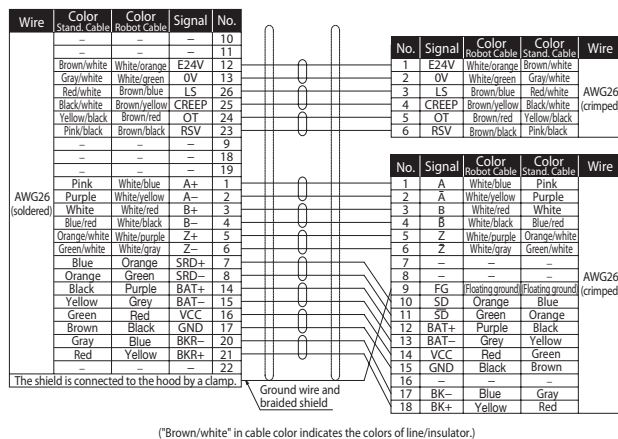
* Enter the cable length (L) into □□□. Compatible to a Maximum of 30 meters.
Ex.: 080 = 8m

(Fig.: LS encoder cable CB-RCS2-PLA□□□ / CB-X2-PLA□□□ with plastic connector)

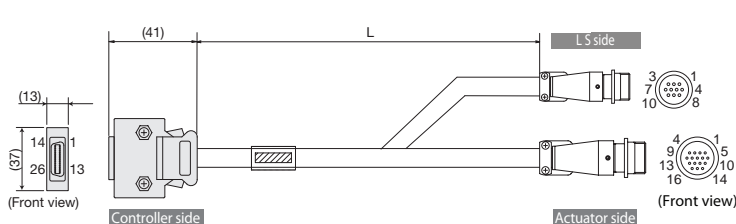


Minimum bending R: r = 58 mm or more (for movable use)

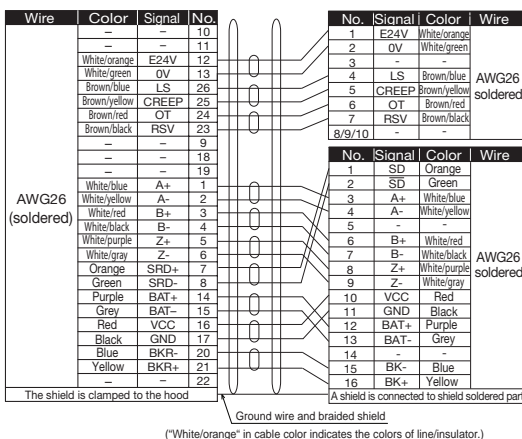
* If the cable must be guided in a cable track, use a robot cable.



(Fig.: EU LS encoder robot cable CB-XEU2-PLA□□□, EU version with metal connector)



Minimum bending R: r = 58 mm or more (for movable use)



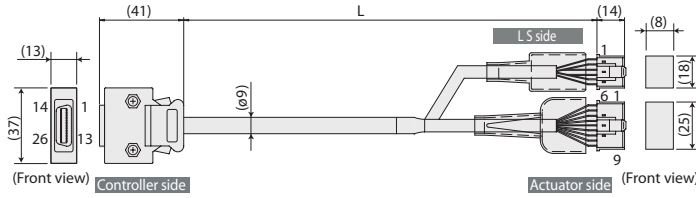
Maintenance Parts

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

Model number	CB-X1-PLA <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> -AWG24	Limit switch encoder low-resistance robot cable	for LS specification models with battery-less absolute encoder other than NS / RCS2 / RCS3
	CB-XEU1-PLA <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> -AWG24	EU limit switch encoder low-resistance robot cable	

* Enter the cable length (L) into . Compatible to a Maximum of 30 meters.
Ex.: 210 = 21m

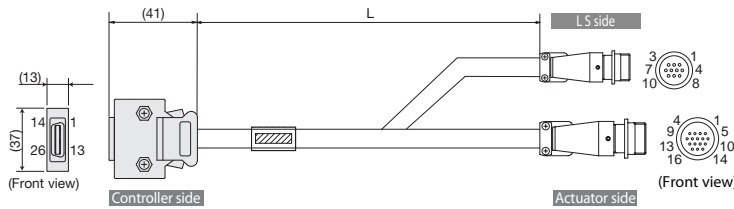
(Fig.: LS encoder low-resistance robot cable CB-X1-PLA -AWG24 with plastic connector)



Minimum bend. radius R: r = 54mm or larger (for movable use)

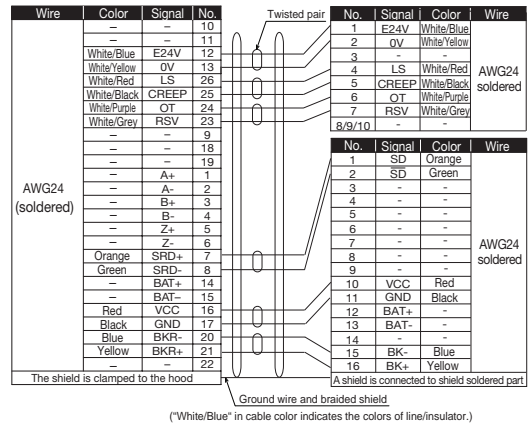
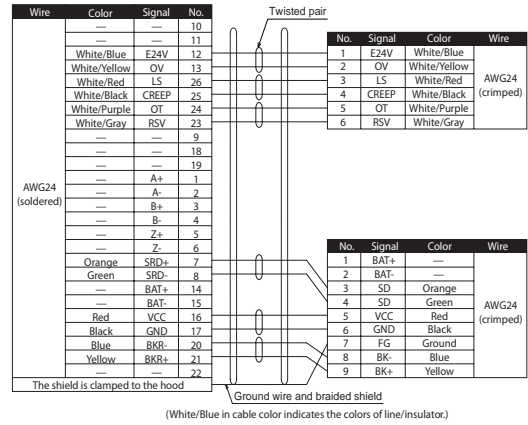
*Only robot cable is available for this model.

(Fig.: EU LS encoder low-resistance robot cable CB-XEU1-PLA -AWG24, EU version with metal connector)



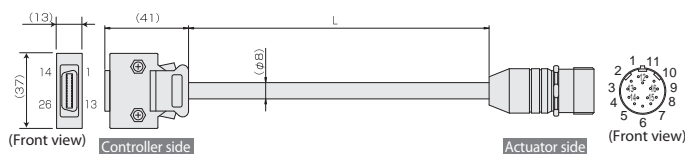
Minimum bend. radius R: r = 54mm or larger (for movable use)

*Only robot cable is available for this model.



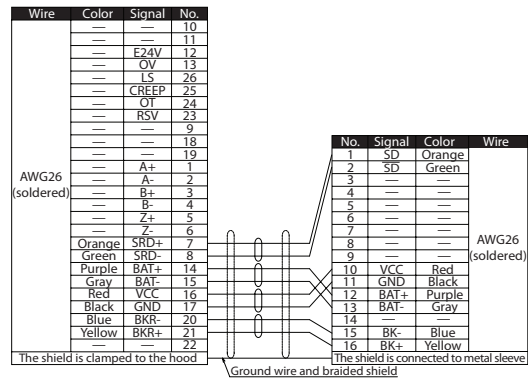
Model number	CB-X1-PA <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> -WC	Encoder robot cable	(Dedicated motor robot cable: CB-XEU-MA <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> see P. 162)	for splash-proof slider ISWA
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* Enter the cable length (L) into . Compatible to a Maximum of 30 meters.
Ex.: 080 = 8m



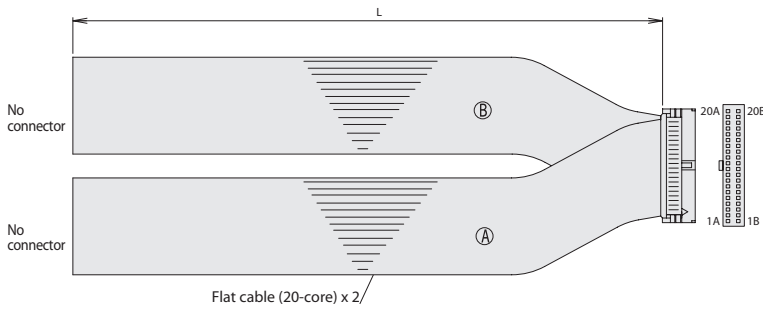
Minimum bend. radius R: r = 38mm or larger (for movable use)

*Only robot cable is available for this model.



Model number **CB-PAC-PIO** □□□ I/O Flat Cable for SCON-CB

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

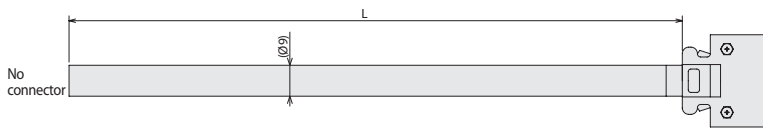


HIF6-40D-1.27R

No.	Signal	Color	Wire	No.	Signal	Color	Wire
1A	24V	Brown-1	Flat cable® (crimped)	1B	OUT0	Brown-3	Flat cable® (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	

Model number **CB-SC-PIOS** □□□ SCON Pulse-train Control Cable for SCON-CB

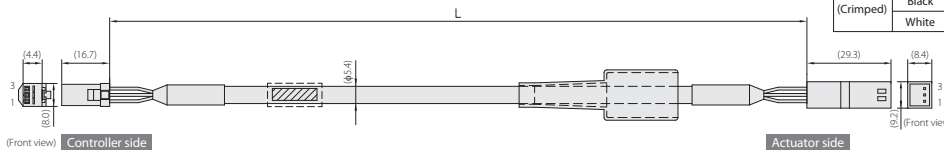
*Please indicate the cable length (L) in □□□ (e.g. 080=8m). Maximum length = 10m



Wire	Color	Signal	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	The shield is connected to cable clamp	

Model number **CB-DDB-BK** □□□ Brake Cable for DDA / DDACR

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



J11SF-03V-KX

Wiring	Color	Signal	No.
AWG20 (Crimped)	Red	+	3
	Black	-	2
	White	FG	1

J11SFM-03V-KX

No.	Signal	Color	Wiring
3	+	Red	AWG20 (Crimped)
2	-	Black	
1	FG	White	



(*) 3000 and 3300W types are not compliant with UL standard.

Features

1 Equipped Dedicated Press Program

There are 9 types of press-operation modes to choose from

Speed control After arriving at the target position, stops while maintaining the position at the time of arrival.	Position stop
	Distance stop
	Load stop
	Incremental load stop
Force control After arriving at the target position, stops while maintaining the force at the time of arrival.	Position stop/Position stop2
	Distance stop
	Load stop
	Incremental load stop

Simple program input

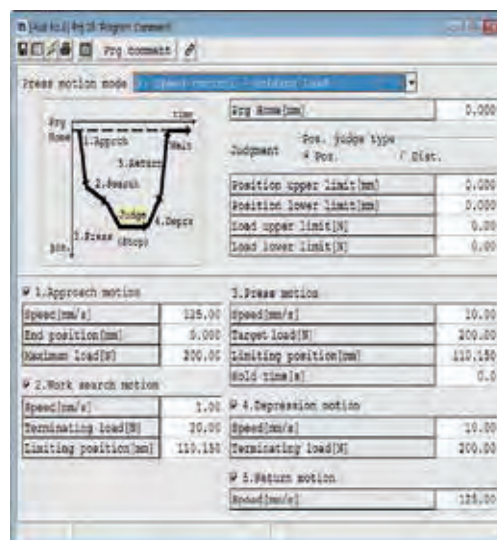
Simply operate the program by inputting the values into the screen for each press-operation mode that you are using.

Also, because the input increment for position is 0.001mm, it is now possible to input more precise settings.

This allows the user to make more microscopic adjustments in the positioning process.

A judgment function has also been added

Setting the judgment range with the press program judges whether or not the position and load fall within the specified range



2 Assignment of I/O Signals Specialized for the Servo Press Functions

The assignment of servo press dedicated I/O signals is completely different than the former PIO pattern.

3 Predictive Maintenance Functions

- A function that issues a warning when a motor overload is detected has been included
Monitoring changes in the temperature of the motor makes it possible to detect abnormalities before the occurrence of a breakdown or a malfunction.
- Improvement of monitoring functions
Similar to the trigger function of an oscilloscope, it is now possible to acquire the waveforms of the current position, current speed, etc. from the instant the state of the selected signal changes. Also, it is possible to acquire the signal states of positioning completion, alarms, etc.
- A function that integrates the number of cycles with the distance covered makes it possible to check maintenance timing.
- The calendar function makes it possible to keep a timetable of the alarms that have been generated.

4 Supports the Safety Function STO/SS1-t <Optional function>

Supports the STO (Safe Torque Off) / SS1-t (Safe Stop 1 - time controlled) function. The STO / SS1-t function is to shut off the energy supply to the motor by electric circuit in the controller.

For the SCON-CB, two specification are available; STO and SS1-t specification.

For applications of the vertical axis, SS1-t specification that has a long reaction time can prevent workpiece from dropping due to the time lag of brake operation when the safety torque shut off function is activated.



Specifications	Description	Remarks
STO	Reacting to input signals, the energy supply to the motor is shut off after a reaction time (8ms or shorter) by shut-off circuit in the controller.	
SS1-t	Reacting to input signals, brake is applied and the energy supply to the motor is shut off after a reaction time (500ms or shorter) by shut-off circuit in the controller.	This braking operation is not included in the safety function.

The energy supply to the servo motor can be shut off safely by connecting an external safety-related device and the I/O connector for safety function.

I/O connector for safety function (for STO/SS1-t specification only)



In addition, the STO/SS1-t function is compliant with the following safety standards:

- ISO/EN ISO 13849-1 category 3 Pl e
- IEC 61508 SIL3
- IEC/EN61800-5-2
- IEC/EN62061 SIL CL3

(Note) An engineer with expert knowledge in relevant safety standards should read and understand the descriptions stated in the instruction manual before designing a safety system using this function. Beware of potential injuries and failures.

List of Models

Model number	SCON-CB/CGB									
External view										
I / O type	Standard specification	Network connection specification (option) (*2)								
	PIO connection specification (*1)	DeviceNet connection specification DV	CC-Link connection specification CC	CC-Link IE Field connection specification CIE	PROFIBUS-DP connection specification PR	CompoNet connection specification CN	–	EtherCAT connection specification EC	EtherNet/IP connection specification EP	PROFINET IO connection specification PRT
I/O type model number	NP/PN	DV	CC	CIE	PR	CN	–	EC	EP	PRT
Supported encoder type	Battery-less absolute									
SCON-CB	30W	○								
	60W・100W	○								
	200W	○								
	400W	○	○	○	○	○	–	○	○	○
	750W	○								
	3000W	○								
3300W	○									

(*1) Pulse-train control is not available.

(*2) Communication with PIO or pulse-train is not available.

SCON-CB <Servo press specification> Controller

Model

SCON - [] - [] [] **F** - [] - [] - [] - []

Series Type Motor Type Encoder Type I/O Type I/O Cable Length Power Supply Voltage Safety type

CB	Standard
CGB	Safety category compliant type

* Only CGB can be selected for RCS3-RA15R/20R.

30D	30W	400	400W
60	60W	750S	750W
100	100W	3000	3000W
200	200W	3300	3300W

(Example) 60: 60 W servo motor compatible

F	For servo press only (Note 1)
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(Note 1) If you do not use the press program, it will be blank. (Excluding 3000 W, 3300 W)

WAI	Battery-less Absolute Incremental
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Not specified	Standard type
STO	STO type
SS	SS1-t type

* Only the standard type is selectable for RCS3-RA15R/20R.

1	Single phase AC115V
2	Single phase AC230V
3	Three phase AC230V

* Please check the power supply voltage that can be selected on the page of the actuator.

NP	PIO NPN (standard)
PN	PIO PNP
DV	DeviceNet connection
CN	CompoNet connection
CC	CC-Link connection
CIE	CC-Link IE Field connection specification
PR	PROFIBUS-DP
EC	EtherCAT
EP	EtherNet/IP
PRT	PROFINET IO

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

* When a field network specification is selected, the I/O cable length is "0".

Note

In principle, the same type of motor as the type of motor of the actuator to be connected should be entered, but there are some models where the motor type of some controllers and actuators do not match. Be sure to check the corresponding models listed below during selection.

<30D · 750S Applicable actuator>

- Controller Motor type "30D" RCS3-RA4R
- Controller Motor type "750S" RCS2 - RA13 R When option LCT is selected

Options

Absolute Data Backup Battery

Features This is an absolute data backup battery for an actuator with absolute specification.

Model **AB-5 (Battery only)**
AB-5-CS (With a case)
AB-5-CS3 (With a case)
 * For 3000W·3300W



Dummy plug (Safety category specification)

Features This plug is required when the safety category specification (SCON-CGB) is used.

Model **DP-5**



Dummy plug (STO/SS1-t specification)

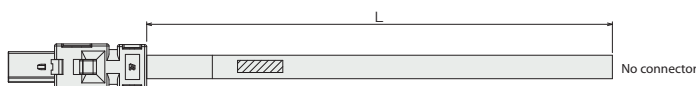
Features Necessary when STO/SS1-t function is not used.

Model **DP-6**



Spare Parts

Model **CB-SC-STO 030**

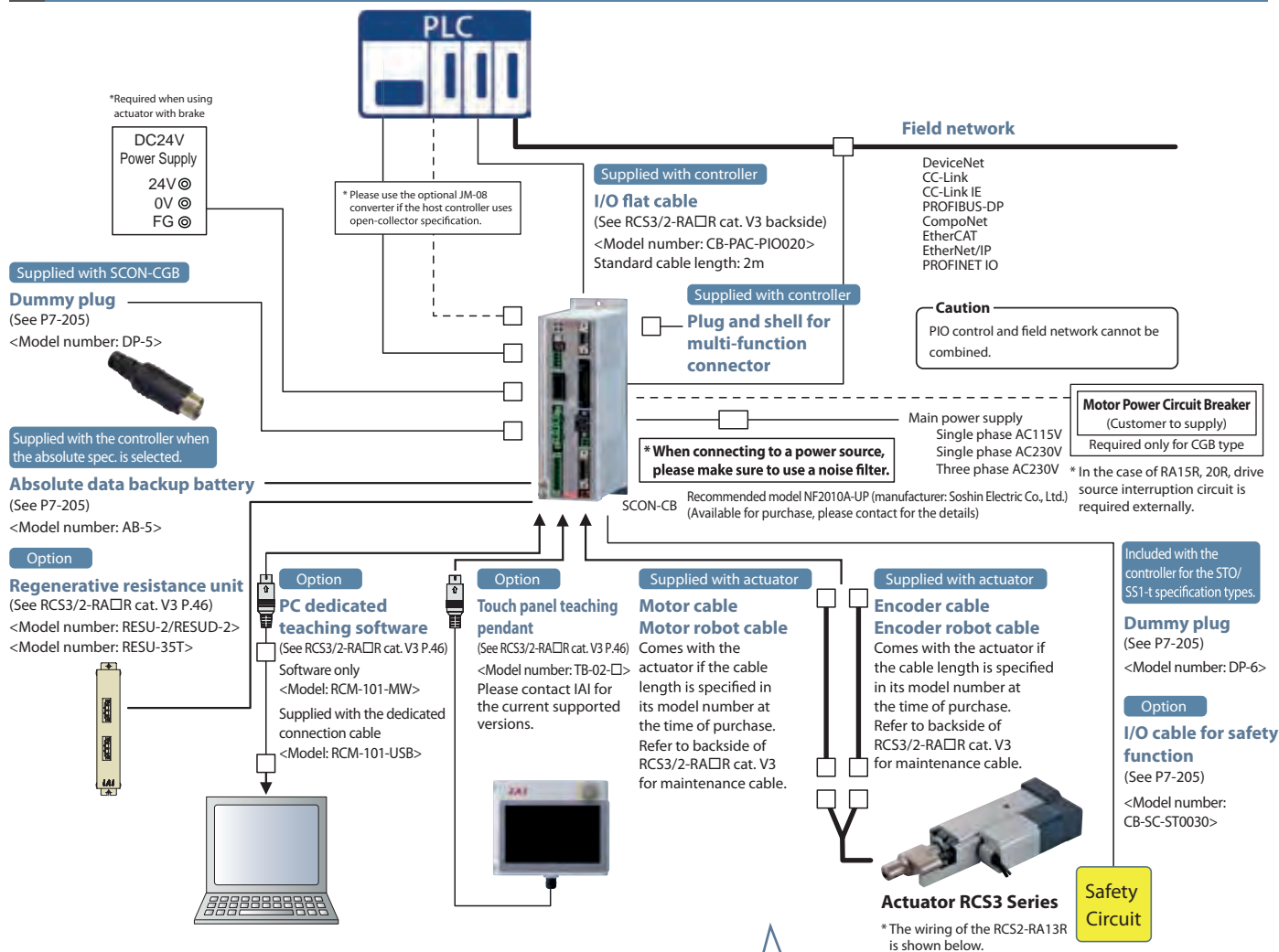


Wiring	Color	Signal	No.
—	—	—	1
—	—	—	2
Black	/SRI1-	3	3
Black/White	/SRI1+	4	4
Red	/SRI2-	5	5
Red/White	/SRI2+	6	6
Green	EDM-	7	7
Green/White	EDM+	8	8

Shield is connected to the cable clamp.

* Wire color: (ex.) Black/white represents white lines on the black insulator.

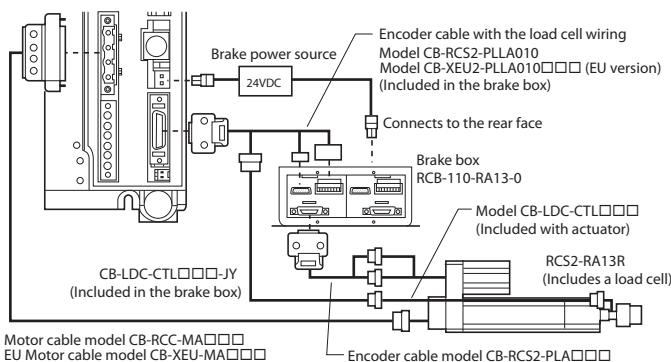
System Configuration



RCS2-RA13R wiring

RCS2-RA13R option: If the brake "BN" (No brake box) is selected and used as the second axis of the brake box, "CB-LDC-CTL□□-JY", CB-RCS2-PLA010 should be purchased separately.

With a Brake



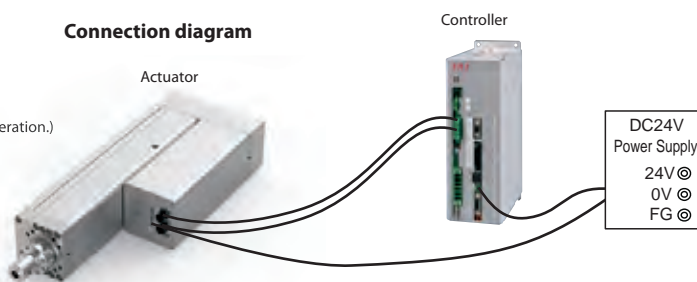
Without a Brake



RCS3-RA15R/20R (with brake) wiring

The brake circuit of RCS3-RA15R/20R is built into the actuator.
 Enter a 24VDC ± 10% voltage on the actuator.
 (If the input voltage is low, the brake cannot be released.
 Please supply power with the voltage drop of the wiring in consideration.)
 24VDC supply is required for both actuators and controllers.

Connection diagram



The cable is to be prepared by the user. The connector is included.
 * For details, please refer to the instruction manual.



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