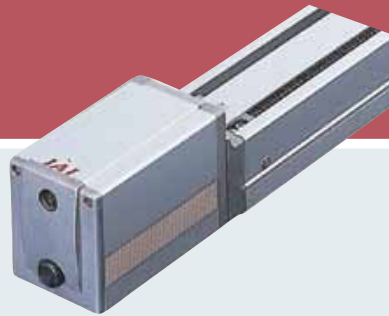


- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /FlatType
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proof
- Controllers
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON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

# ERC2



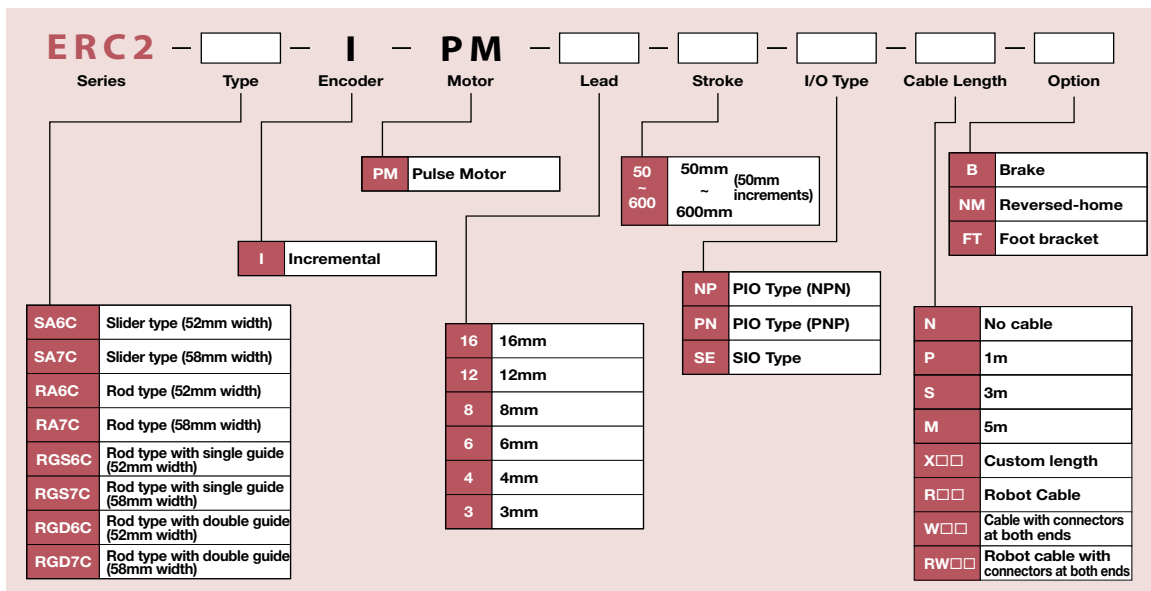
■ Model: NP / PN / SE

Controller module of controller-integrated actuator

## List of Models

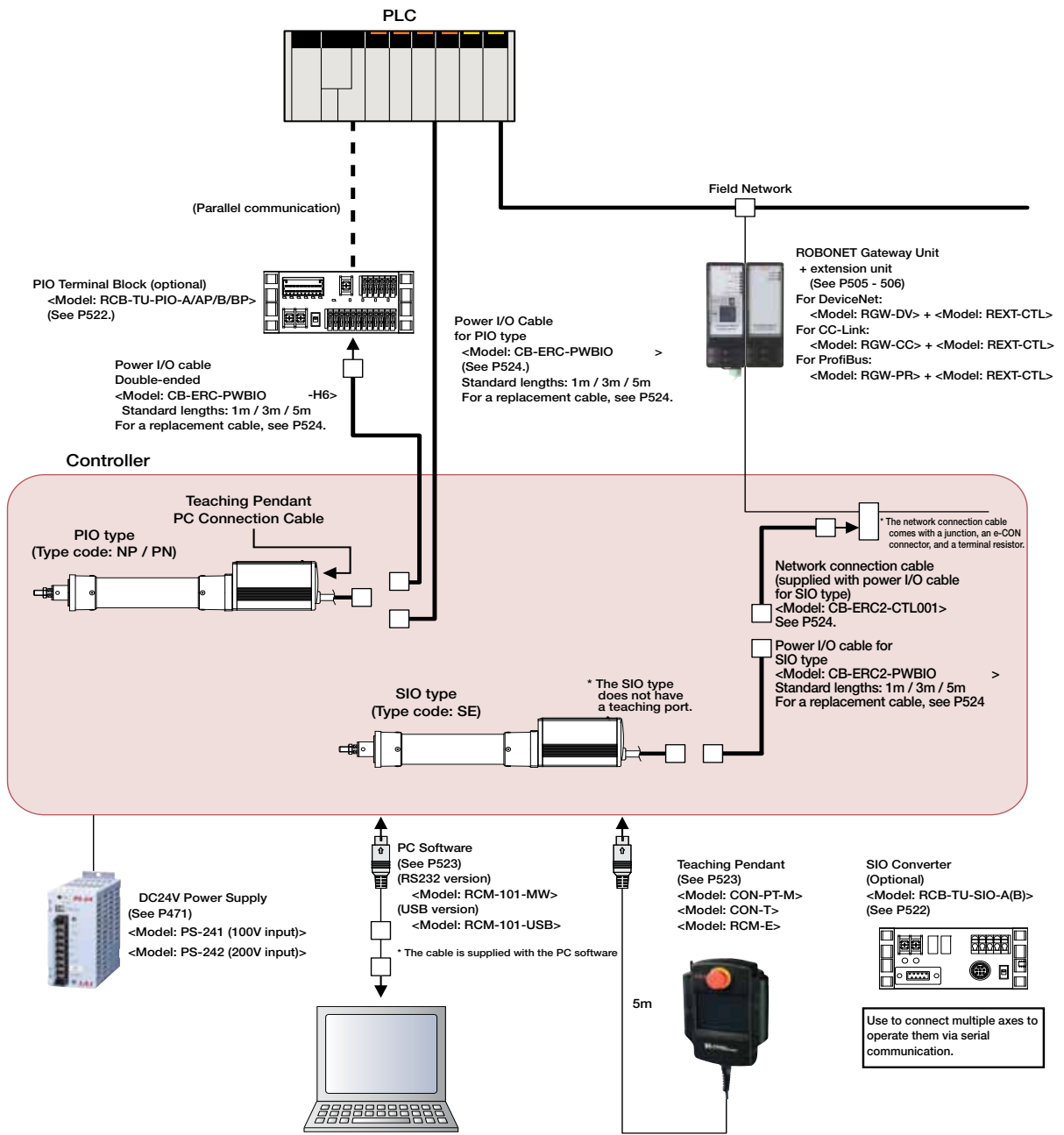
I/O type	NP	PN	SE
Name	PIO type (NPN Specification)	PIO type (PNP Specification)	Serial Communication Type
External View			
Description	Controller that moves by designating position numbers with NPN PIO via PLC.	Controller that moves by designating position numbers with PNP PIO via PLC.	Controller that is used by connecting to the field network via the gateway unit.
Position points	16 points	16 points	64 points

## Model

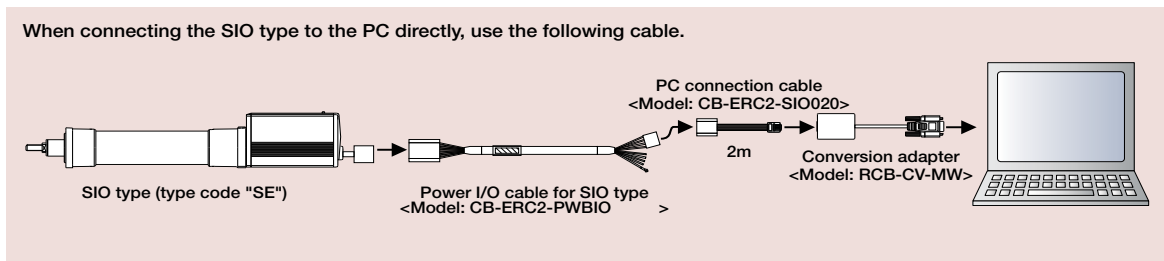


515 ERC2

System configuration



Wiring Diagram to Connect to a PC



ERC2 **516**

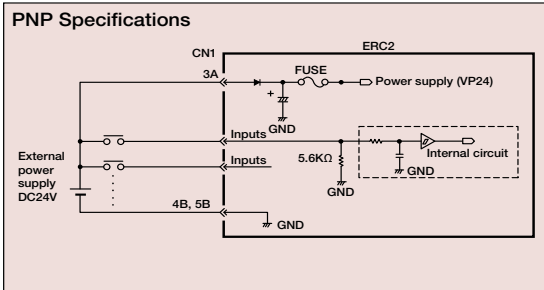
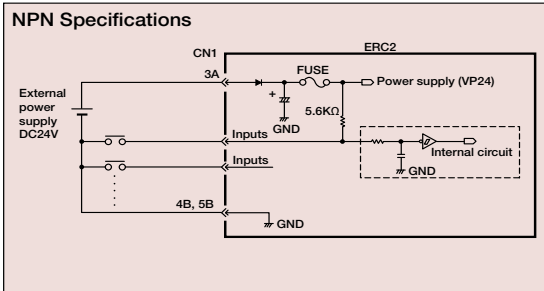
- Slider Type
- Mini
- Standard
- Controllers Integrated
- Pcd Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /FlatType
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proo
- Controllers**
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2**
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL

- Pulse Motor**
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

I/O specification (PIO type)

Input section External input specifications

Item	Specifications
Input points	6 points
Input voltage	DC24V +/-10%
Input current	4mA/circuit
Leak current	Max. 1mA/point
Operating voltage	ON voltage: Min. 18V (3.5mA) OFF voltage: Max. 6V (1mA)



Output section External output specifications

Item	Specifications
Input points	4 points
Nominal load voltage	DC24V
Max. current	60mA/point
Remaining voltage	2V or less
Short-circuit, reverse voltage, protection	Fuse resistance (27Ω.0.1W)

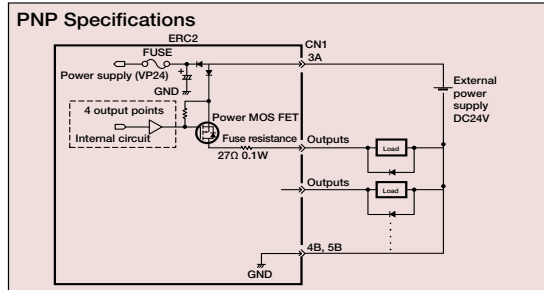
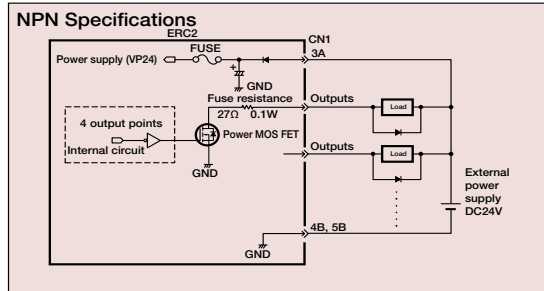


Table of I/O signals (PIO type)

Parameter (PIO pattern select)	PIO pattern	Pin No.
0	8-point type	A standard specification providing eight positioning points, plus a home return signal, zone signal, etc. (The parameter has been set to this pattern prior to the shipment.)
1	3-point type (Solenoid valve type)	Simply turn ON three signals of ST0 to ST2 to move the actuator to the corresponding positions (0 to 2), just like you do with solenoid valves (This allows for easy conversion from air cylinders).
2	16-point type (Zone signal type)	Can be positioned for up to 16 points. (Same as the 8-point type, except that this pattern provides no home return signal.)
3	16-point type (Position zone signal type)	A 16-point pattern with a position zone signal instead of a zone signal.

Pin No.	Classification	Wire color	Parameters (select PIO pattern)			
			0 Conventional type	1 3-point type (Solenoid valve type)	2 16-point type (Zone signal type)	3 16-point type (Position zone signal type)
1A	SIO	Orange (Red 1)	SGA			
1B		Orange (Black 1)	SGB			
2A	Signal	Light Blue (Red 1)	EMS1			
2B	Signal	Light Blue (Black 1)	EMS2			
3A	24V	White (Red 1)	24V			
3B	0V	White (Black 1)	BLK			
4A	24V	Yellow (Red 1)	MPI			
4B	0V	Yellow (Black 1)	GND			
5A	24V	Pink (Red 1)	MPI			
5B	0V	Pink (Black 1)	GND			
6A	Input	Orange (Red 2)	PC1	ST0	PC1	PC1
6B		Orange (Black 2)	PC2	ST1	PC2	PC2
7A		Light Blue (Red 2)	PC4	ST2	PC4	PC4
7B		Light Blue (Black 2)	HOME	-	PC8	PC8
8A		White (Red 2)	CSTR	RES	CSTR	CSTR
8B		White (Black 2)	* STP	* STP	* STP	* STP
9A		Yellow (Red 2)	PEND	PE0	PEND	PEND
9B		Yellow (Black 2)	HEND	PE1	HEND	HEND
10A	Output	Pink (Red 2)	ZONE	PE2	ZONE	PZONE
10B		Pink (Black 2)	* ALM			

Signals marked with an asterisk (\*) (ALM/STP) are negative logic signals so they are normally on.

Signal names

Classification	Signal Name	Signal abbreviations	Function overview
SIO	Serial Communication	SGA SGB	Used for serial communication.
	Emergency stop	EMS1 EMS2	These signals are wired to enable the emergency stop switch on the teaching pendant (see P521).
24V 0V	Brake release	BKR	By connecting to 0V (150mA needed) the brake is forcibly released.
Input	Command position No.	PC1 PC2 PC4 PC8	Designates the position number using 4-bit binary signals (or 3-bit binary signals if the 8-point PIO pattern is selected). (Example) Position 3 → Input PC1 and PC2 Position 7 → Input PC1 and PC2 and PC4
	Position movement	ST0 ST1 ST2	Turn the ST0 signal on to move the actuator to position 0. Same for ST1 and ST2 (Operation can be started with these signals alone. No need to input a start signal).
	Home return	HOME	Home-return operation starts at the leading edge of this signal.
	Start	CSTR	Input a command position number signal and turn this signal ON, and the actuator will start moving to the specified position.
	Reset	RES	Turning this signal ON resets the alarms that are present. When it is paused (*STP is off), it is possible to cancel the residual movement.
	Pause	* STP	Normal operation is allowed while this signal is ON (negative logic) The actuator starts to decelerate to a stop at the ON → OFF leading edge of this signal.
	Output	Positioning complete	PEND
Complete position No.		PE0 PE1 PE2	PE0 is output upon completion of movement to position 0. Same for PE1 and PE2. (These signals are valid only when the 3-point PIO pattern is selected.)
Home return complete		HEND	This signal turns ON upon completion of home return.
Zone		ZONE	This signal turns ON upon entry into the zone signal range set by parameters.
Position zone		PZONE	This signal turns ON upon entry into the zone signal range set in the position table.
Alarm		* ALM	The signal remains ON in normal conditions and turns OFF upon generation of the alarm (negative logic). Synchronized with the LED at the top of the motor cover (green: normal state, red: alarm on).

Signals marked with an asterisk (\*) (ALM/STP) are negative logic signals, so they are normally on.

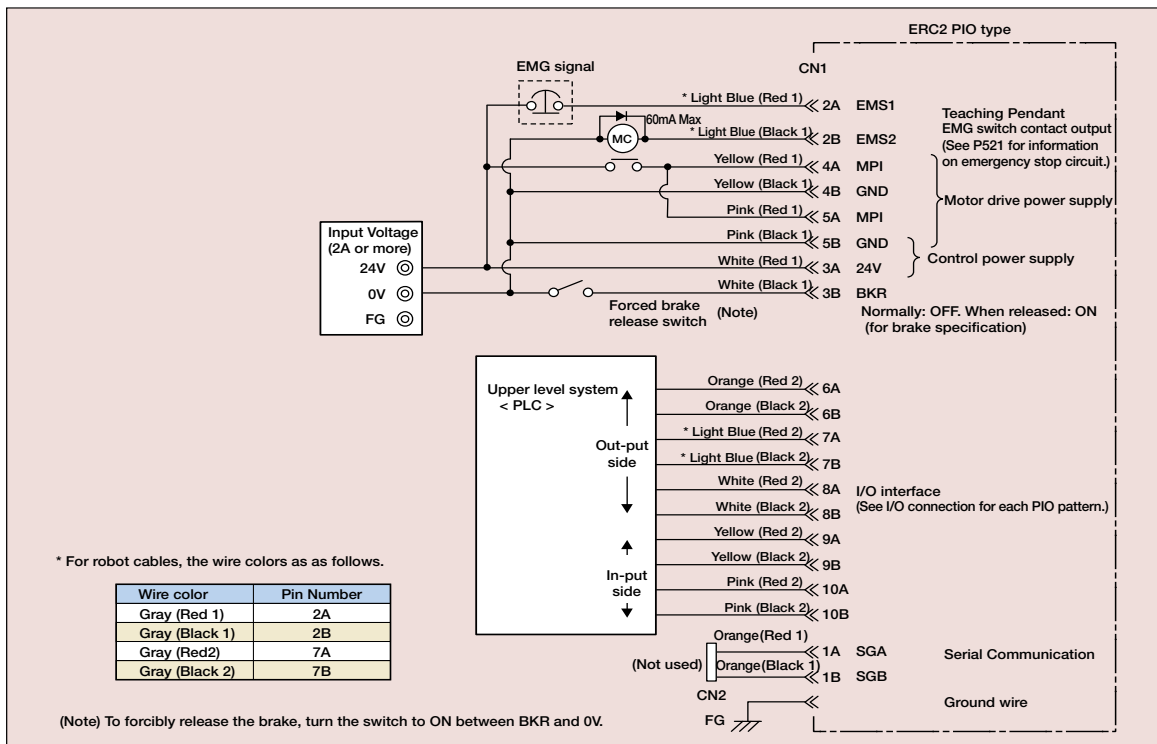
Specification Table

Specification	Details	
	Type	SIO specification (SE)
Control method	Low field vector control (patent pending)	
Positioning command	Position No. designation	Position No. designation / Direct value designation
Position No.	Max. 16 points	Max. 64 points
Backup memory	Position number data and parameters are stored in nonvolatile memory. Serial EEPROM with a rewrite life of 100,000 times	
PIO	6 dedicated input points/4 dedicated output points	None
Electromagnetic brake	Built-in circuit DC24V±10% 0.15A max.	
2-color LED display	Servo ON (green), Alarm/motor drive power supply shut-down (red)	
I/O power (Note 1)	Common to control power (non-isolated)	
Serial Communication	RS485 1ch (External termination)	
Absolute function	None	
Forced release of electromagnetic brake	Forced release when connected to 0V (NP), or 24V (PN)	Forced release when connected to 24V
Cable Length	I/O cable: 10m max.	
	SIO connector communication cable: 5m or shorter	
Dielectric strength voltage	DC500V 10MΩ	
EMC	EN55011 Class A Group1 (3m)	
Power supply voltage	DC24V ± 10%	
Power supply current	2A max.	
Environment	Ambient operating temperature	0 ~ 40°C
	Ambient operating humidity	85% RH or lower (non-condensing)
	Ambient operating atmosphere	Free from corrosive gases
Protection class	IP20	

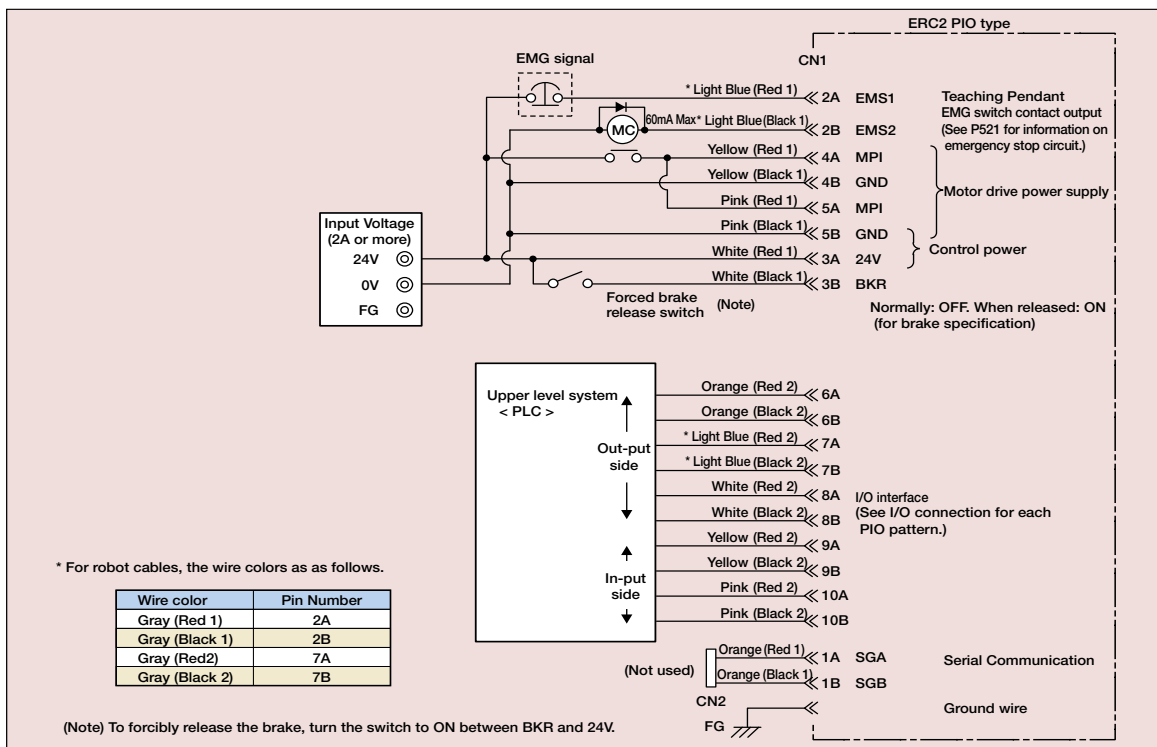
Use the isolated PIO terminal block (option P522) to isolate the I/O power supply.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Pcd 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

### PIO Type NP (NPN Specification)



### PIO Type PN (PNP Specification)

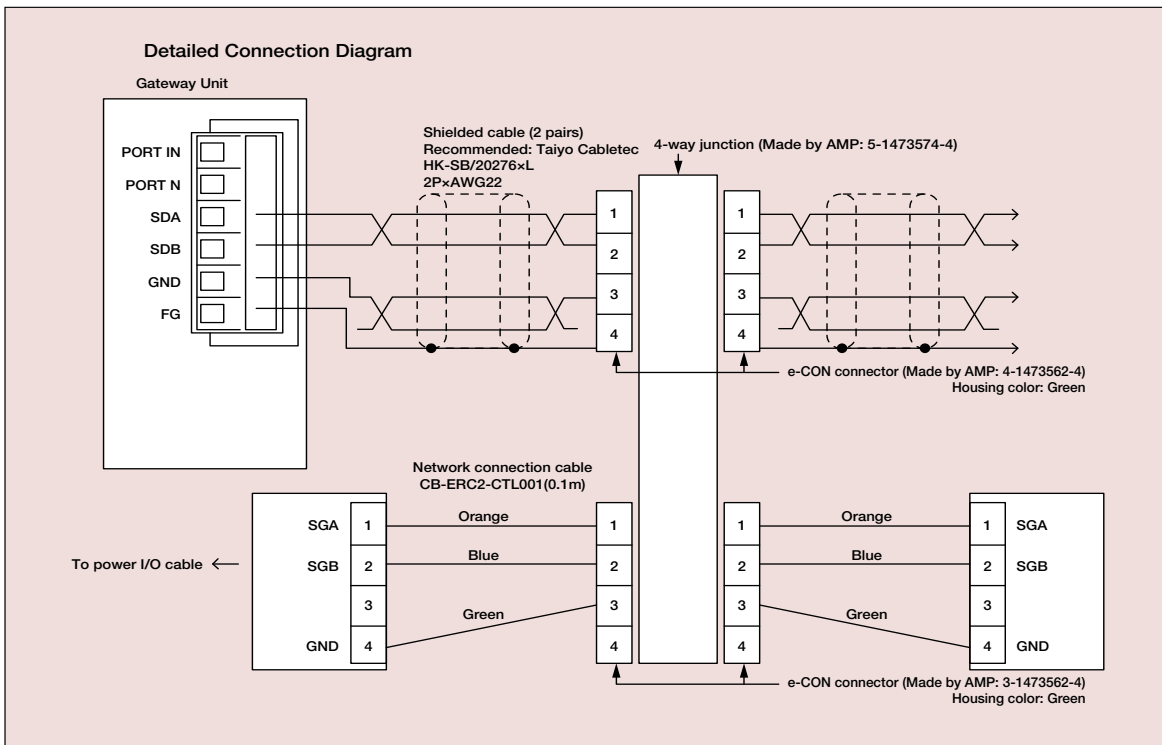
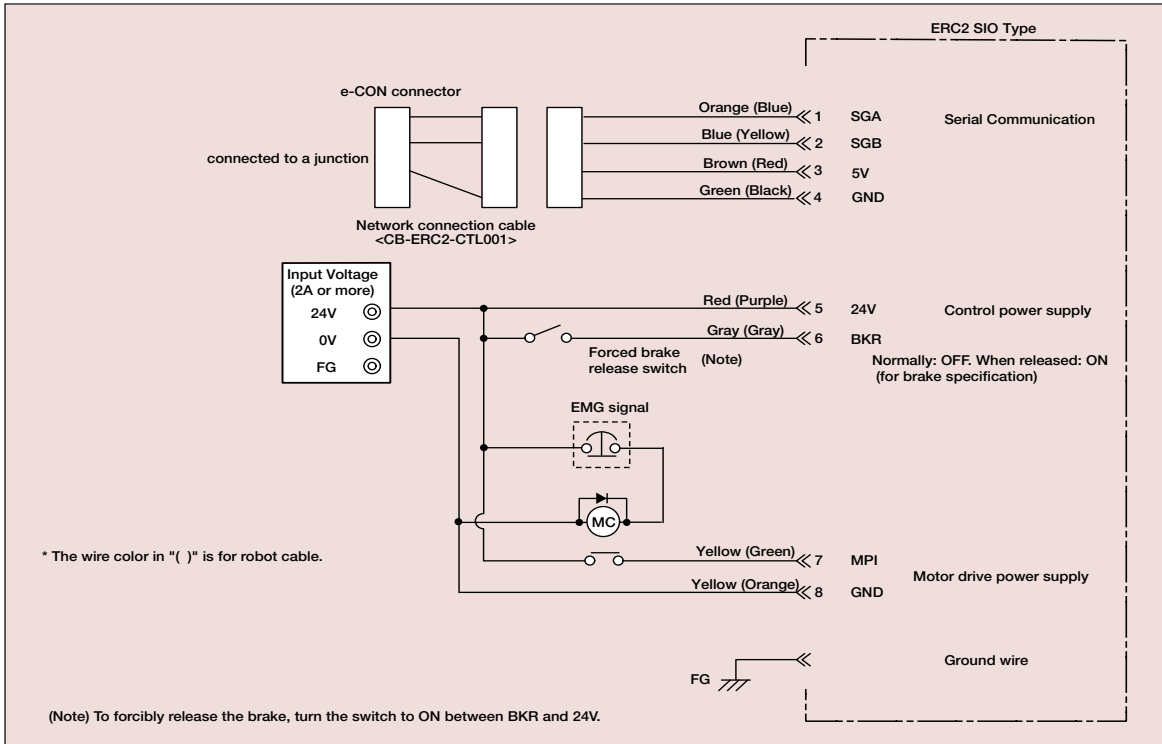


# 519

ERC2

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

SIO Type SE



ERC2 **520**

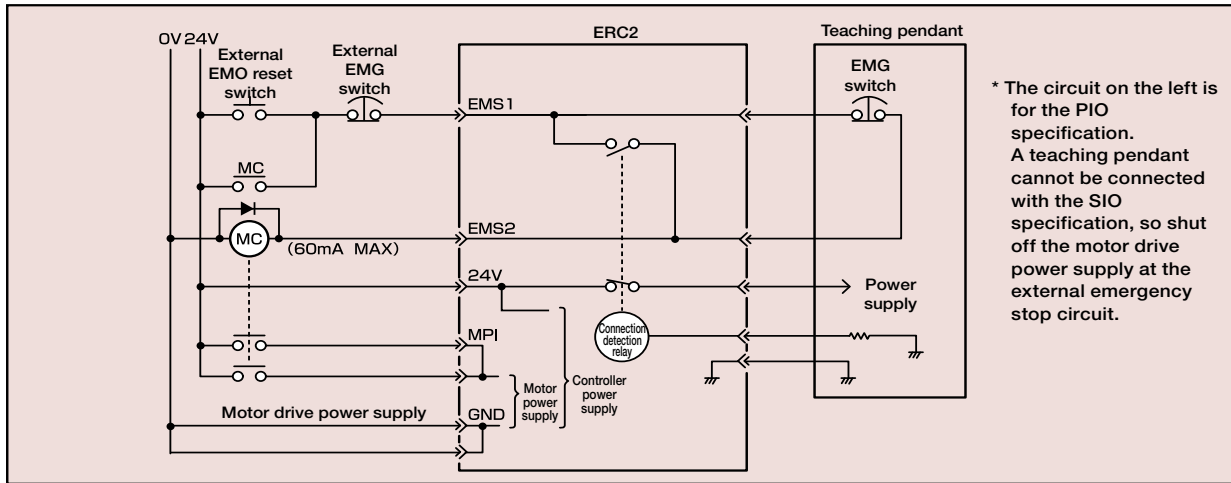
- Slider Type
- Mini
- Standard
- Controllers Integrated
- Pcd Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /FlatType
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proof
- Controllers
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON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

Emergency Stop Circuit

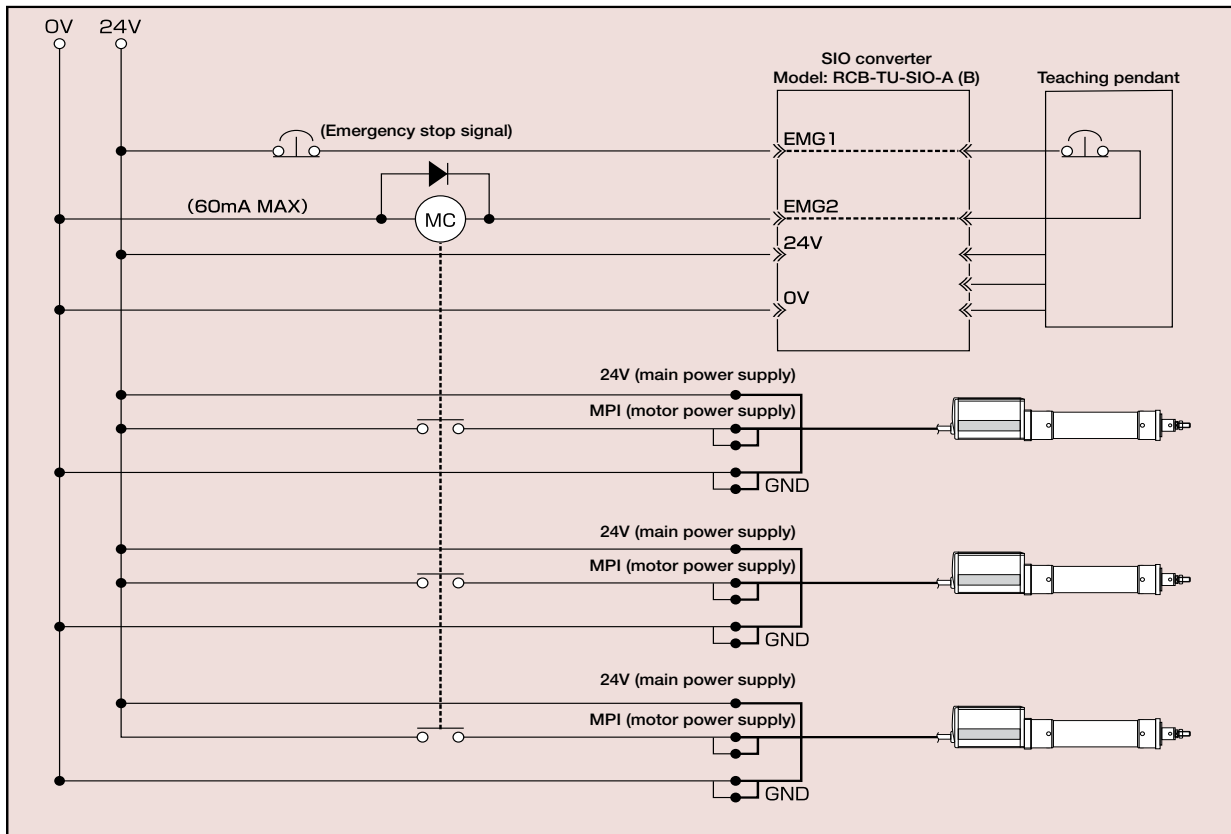
The ERC2 series has no built-in emergency stop circuit, so the customer must provide an emergency stop circuit based on the logic explained below.

(The circuit below is simplified for explanation purposes. Provide a ready circuit, etc., according to your specification.)

**Single Axis:** To provide an emergency stop circuit for a single-axis configuration, operate a relay using the EMS1 and EMS2 contacts of the power & I/O cable to cut off MPI (motor power).



**Multiple Axis:** To provide an emergency stop circuit for a multiple-axes configuration, operate a relay using the EMG1 and EMG2 contacts of the SIO converter to cut off MPI (motor power) for each axis.



521 ERC2

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

Option

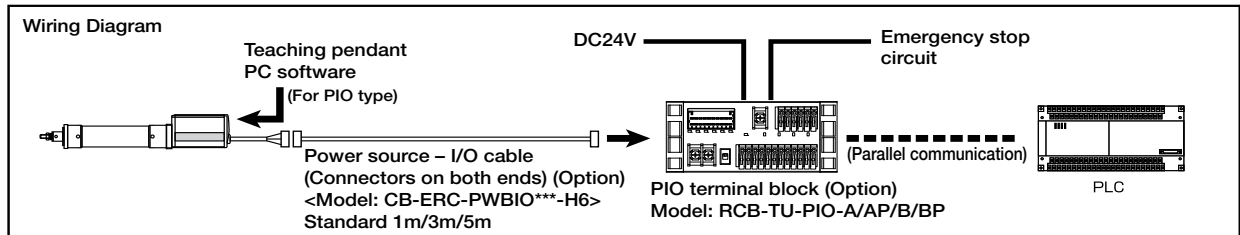
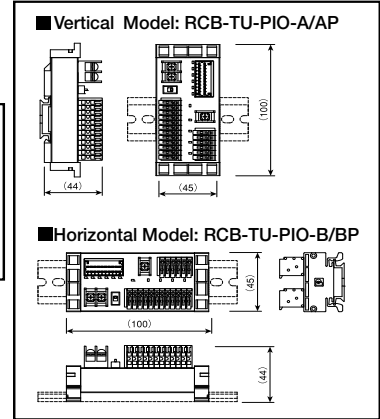
**Isolated PIO Terminal Block**

This terminal block is used to isolate the I/O power or simplify the wiring with a PLC.  
 \*When a terminal block is used, the optional power & I/O cable with connectors on both ends must be used.

Features - The input and output ports are non-polar, so both NPN and PNP are compatible with the I/O specifications on the PLC side.  
 - An input/output-signal monitor LED is equipped to check the ON/OFF status of signals.

Specifications	Item	Specifications
	Power supply voltage	DC24V±10%
	Ambient Operating Temp./Humidity	0 to 55°C, 85% RH or below (non-condensing)
Input area	Input points	6 points
	Input voltage	DC24V±10%
	Input current	7mA/circuit (bipolar)
	Allowable leaked current	1mA/point (at room temperature, about 2mA)
	Operating voltage (with respect to ground)	Input ON: Min. 16V (4.5mA) OFF : Max. 5V (1.3 mA)
Output area	Output points	4 points
	Rated load voltage	DC24V
	Max. current	60mA/point
	Residual voltage	2V or less/60mA
	Short circuit Overcurrent protection	Fuse resistance (27Ω0.1W)

**Note:**  
 If you are using the ERC2-PN (PNP specification), use RCB-TU-PIO-AP/BP (compatible with PNP specification).

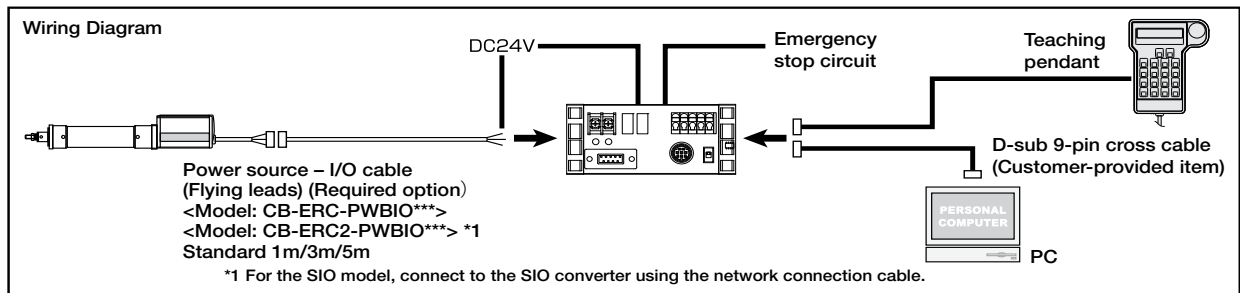
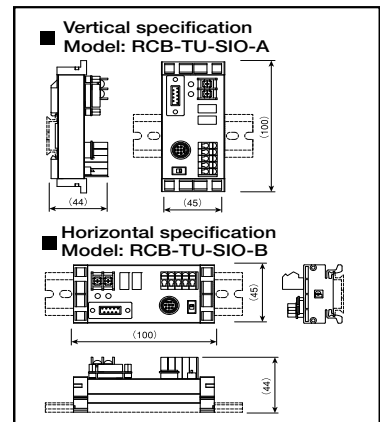


**SIO Converter**

This converter can be used for RS232 communication by connecting a serial communication wire (SGA, SGB) for the power-I/O cable, and using a D-sub 9-pin cross cable to connect a computer.

Features - The connection port for teaching-pendant or a PC cable can be installed at any position away from the actuator.  
 - Multiple axes can be connected and operated from a PC via serial communication.

Specifications	Item	Specifications
	Power supply voltage	DC24V ±10%
	Ambient Operating Temp./Humidity	0 to 55°C, 85% RH or below (non-condensing)
	Terminal resistor	120Ω (built-in)



- Slider Type
- Mini
- Standard
- Controllers Integrated
- Pcd Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /FlatType
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proo
- 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

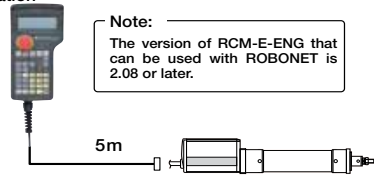
■ **Features** This is a teaching device that provides information on functions such as position input, test runs, and monitoring.

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

**CON-T-ENG** (Standard type)

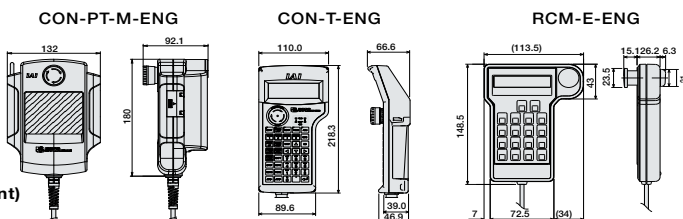
**RCM-E-ENG** (Simple teaching pendant)

■ **Configuration**



■ **CON-T-ENG Options**

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



### Specifications

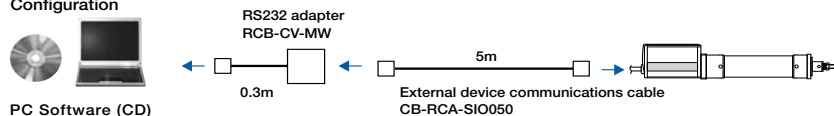
Item	CON-PT-M-ENG	CON-T-ENG	RCM-E-ENG
Data Input	○	○	○
Actuator motion	○	○	○
Ambient Operating Temp./Humidity	Temp: 0~40°C; Humidity: 85% RH or below		
Ambient Operating Atmosphere	No corrosive gases. Especially no dust.		
Protection class	IP40	IP54	-
Weight	Approx. 750g	Approx. 400g	Approx. 400g
Cable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

### PC Software (Windows Only)

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

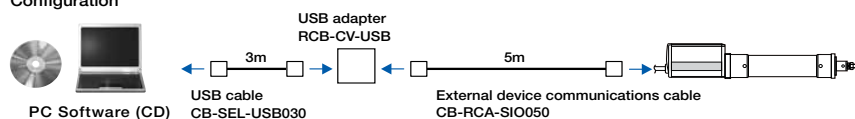
■ **Model** **RCM-101-MW** (External device communications cable + RS232 conversion unit)

■ **Configuration**



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

■ **Configuration**



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

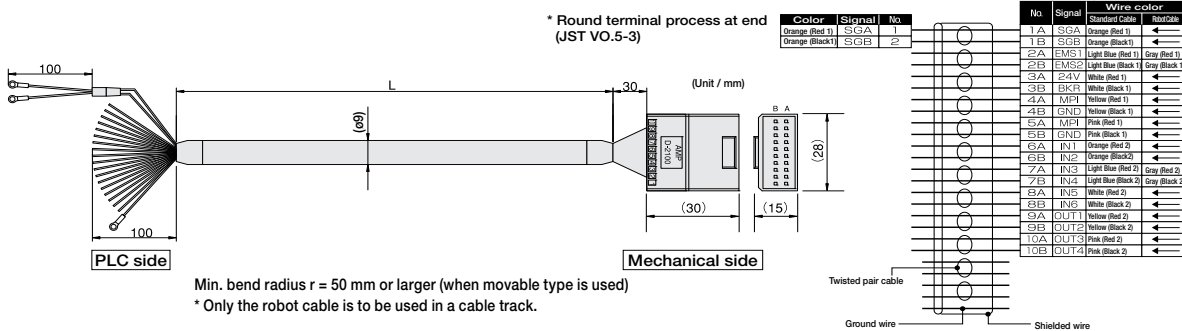
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

Cables & Spare Parts

Power & I/O Cable, Power & I/O Robot Cable For PIO

Model **CB-ERC-PWBIO** / **CB-ERC-PWBIO** -RB

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

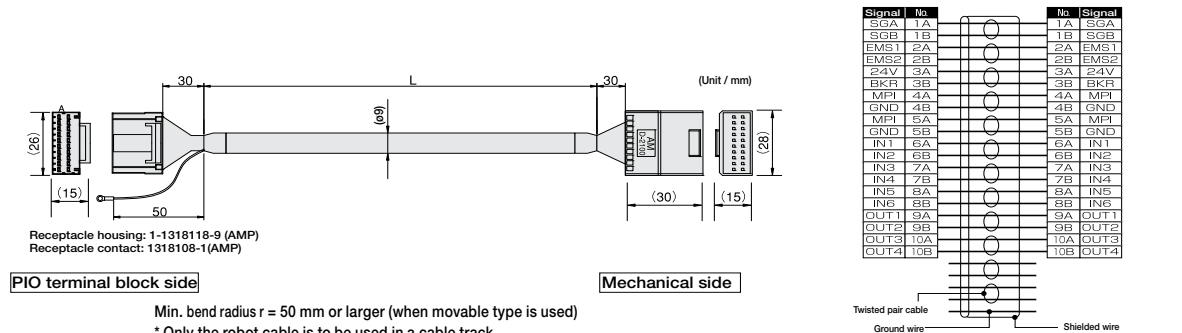


Min. bend radius r = 50 mm or larger (when movable type is used)  
\* Only the robot cable is to be used in a cable track.

Power & I/O Cable, Power-I/O Robot Cable (Connectors on Both Ends)

Model **CB-ERC-PWBIO** -H6 / **CB-ERC-PWBIO** -RB-H6

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

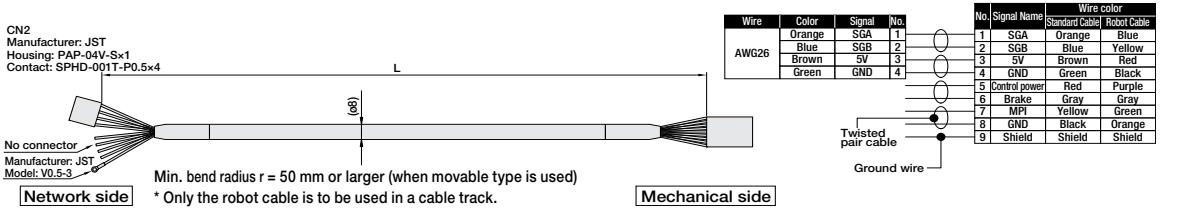


Min. bend radius r = 50 mm or larger (when movable type is used)  
\* Only the robot cable is to be used in a cable track.

Power & I/O Cable, Power & I/O Robot Cable For SIO Type

Model **CB-ERC2-PWBIO** / **CB-ERC2-PWBIO** -RB

\* Enter the cable length (L) into . Compatible to a maximum of 10 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.

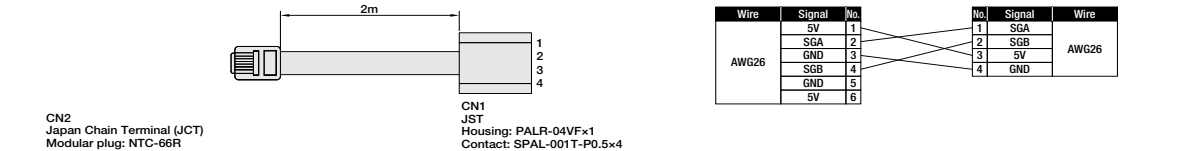
Network Connection Cable

Model **CB-ERC2-CTL001**



Communication Cable to Connect to PC

Model **CB-ERC2-SIO020**



- Slider Type
- Mini
- Standard
- Controllers Integrated
- PCd 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
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- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor