ROBO CYLINDER

Extract of ROBO CYLINDER
General Catalog 2007

Controller-Integrated Type

ERC2

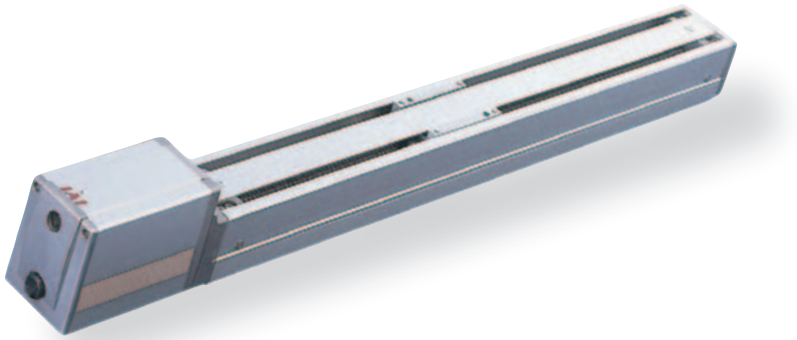
ERC2-SA6C

Controller-Integrated Type, Slider Type, Actuator Width 58mm, Pulse Motor, Straight

■Model Specification Items **ERC2** — **SA6C** — **I** — **PM** — □ — □ — □ — □ — □ — □

Series	Type	Encoder type	Motor type	Lead	Stroke	I/O type	Cable length	Options
ERC2	SA6C	I: Incremental specification	PM: Pulse motor	12: 12mm 6: 6mm 3: 3mm	50: 50mm ~ 600: 600mm (Set in 50-mm steps)	NP: PIO (NPN) type PN: PIO (PNP) type SE: SIO type	N: No cable P: 1m S: 3m M: 5m X□□: Specified length W□□: Cable with connectors on both ends R□□: Robot cable RW□□: Robot cable with connectors on both ends	B: Brake NM: Reversed-home specification

* Refer to p. 31 of the front matter for details on the model specification items.

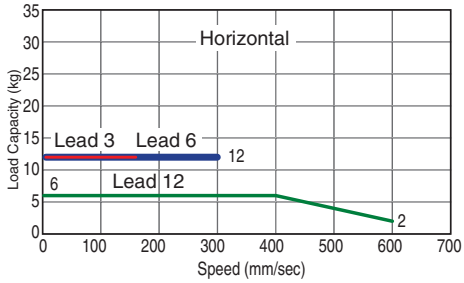


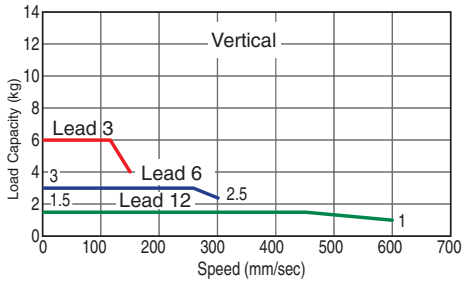
POINT Selection Points

(1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching a critical speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
(2) The ERC2 series uses a pulse motor, so the load capacity will decrease as the speed increases. Use the correlation diagram of speed and load capacity on the right to check the load capacity corresponding to the speed you desire.
(3) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G if the lead is 3 or the actuator is operated vertically). This is the maximum acceleration.

■Correlation Diagram of Speed and Load Capacity

With the RCP2 series, the load capacity will decrease as the speed increases due to the characteristics of the pulse motor used in the actuator. Use the table below to check if the desired speed and load capacity are satisfied.





Actuator Specifications

■Lead and Load Capacity

(Note 1) Take note that the maximum load capacity will decrease as the speed increases.

Model	Lead (mm)	Maximum load capacity (Note 1) Horizontal (kg)	Maximum load capacity (Note 1) Vertical (kg)	Stroke (mm)
ERC2-SA6C-I-PM-12-①-②-③-④	12	~6	~1.5	50 ~ 600 (Set in 50-mm steps)
ERC2-SA6C-I-PM-6-①-②-③-④	6	12	~3	
ERC2-SA6C-I-PM-3-①-②-③-④	3	12	~6	

Explanation of numbers ① Stroke ② I/O type ③ Cable length ④ Options

■Stroke and Maximum Speed

Lead \ Stroke	50 ~ 600 (Set in 50-mm steps)	600 (mm)
12	600	515
6	300	255
3	150	125

(Unit: mm/s)

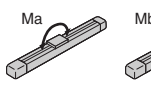
Options

Name	Model	Page
Brake	B	P381
Reversed-home specification	NM	P385

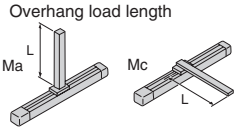
Actuator Specifications

Item	Description
Drive method	Ball screw ø10mm, rolled C10
Positioning repeatability	±0.05mm
Backlash	0.1mm or less
Allowable load moment	Ma: 8.9N•m Mb: 12.7N•m Mc: 18.6N•m
Overhang load length	Ma direction: 150mm or less, Mb/Mc directions: 150mm or less
Ambient operating temperature, humidity	0~40°C, 85% RH or below (non-condensing)

Direction of allowable load moment



Overhang load length

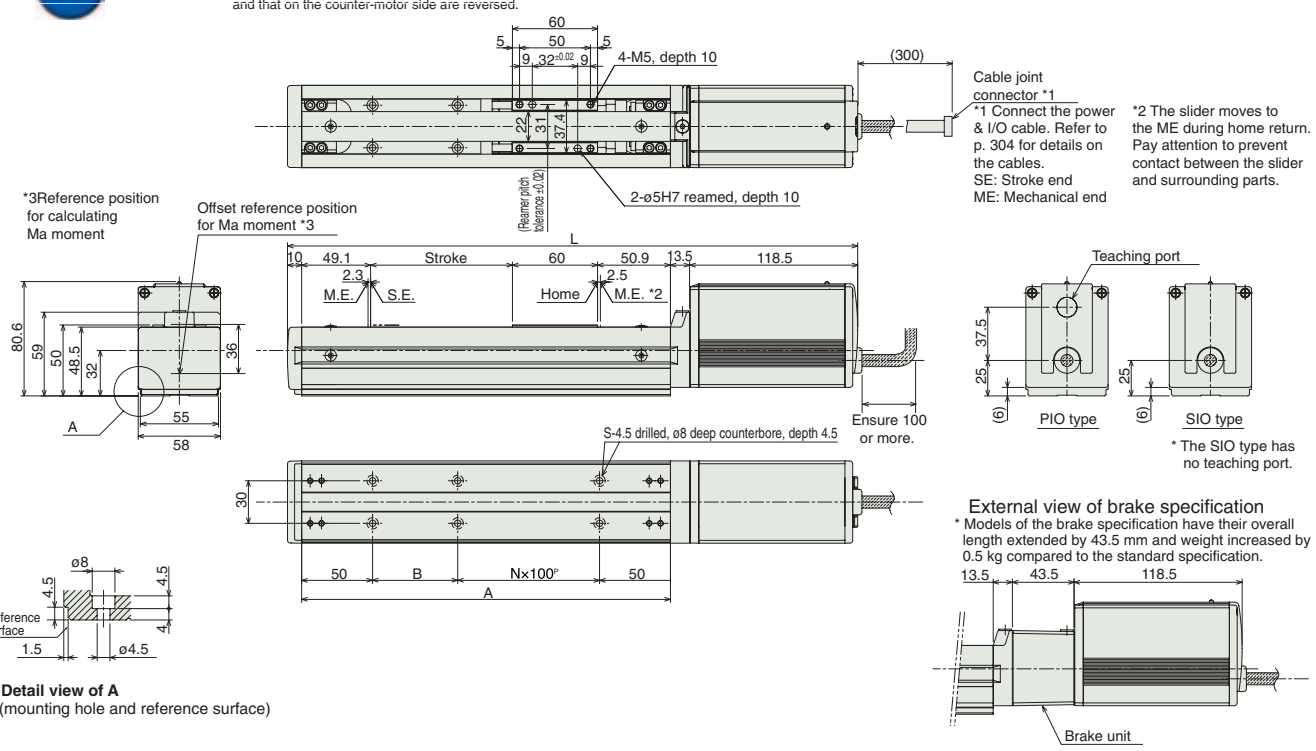


Dimensions

You can download CAD drawings from our website. www.intelligentactuator.com

2D CAD

* With the reversed-home specification, the dimension on the motor side (distance from the ME to the home) and that on the counter-motor side are reversed.



Dimensions and Weight by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600
L	352	402	452	502	552	602	652	702	752	802	852	902
A	210	260	310	360	410	460	510	560	610	660	710	760
B	10	60	10	60	10	60	10	60	10	60	10	60
N	1	1	2	2	3	3	4	4	5	5	6	6
S	6	6	8	8	10	10	12	12	14	14	16	16
Weight (kg)	1.9	2.0	2.1	2.3	2.4	2.6	2.7	2.8	3.0	3.1	3.3	3.4

I/O Type (Actuator with Built-In Controller)

I/O Type

You can select a desired built-in controller of the ERC2 series from among the following three types, each adopting different external input/output (I/O) specifications. Choose the type that best suits your specific purpose.

Name	External view	Model	Features	Maximum number of positioning points	Input power supply	Power-supply capacity	Reference page
PIO type (NPN specification)		ERC2-SA6C-I-PM-☐-☐-NP-☐-☐	Simple control type capable of positioning to a maximum of 16 points	16	DC24V	2A max.	→ P295
PIO type (PNP specification)		ERC2-SA6C-I-PM-☐-☐-PN-☐-☐	PNP I/O type popular overseas	16			
SIO type		ERC2-SA6C-I-PM-☐-☐-SE-☐-☐	Dedicated field network connection type (using a gateway unit)	64			

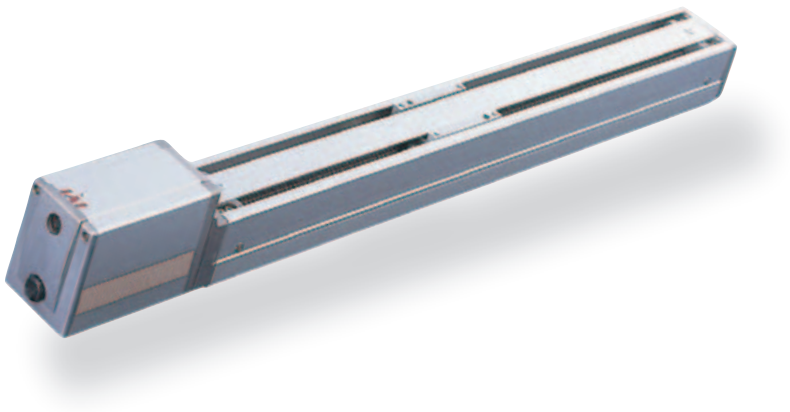
ERC2-SA7C

Controller-Integrated Type, Slider Type, Actuator Width 68mm, Pulse Motor, Straight

■Model Specification Items **ERC2** — **SA7C** — **I** — **PM** — □ — □ — □ — □ — — □ — □

- Series: ERC2
- Type: SA7C
- Encoder type: I: Incremental specification
- Motor type: PM: Pulse motor
- Lead: 16: 16mm, 8: 8mm, 4: 4mm
- Stroke: 50:50mm ~ 600:600mm (Set in 50-mm steps)
- I/O type: NP: PIO (NPN) type, PN: PIO (PNP) type, SE: SIOtype
- Cable length: N: No cable, P: 1m, S: 3m, M: 5m, X□□: Specified length, W□□: Cable with connectors on both ends, R□□: Robot cable, RW□□: Robot cable with connectors on both ends
- Options: B: Brake, NM: Reversed-home specification

* Refer to p. 31 of the front matter for details on the model specification items.

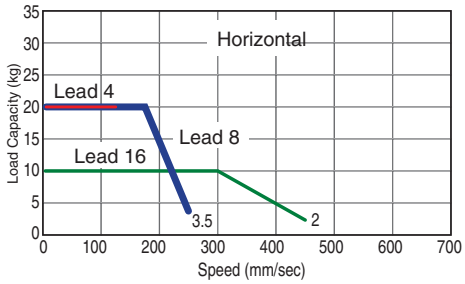


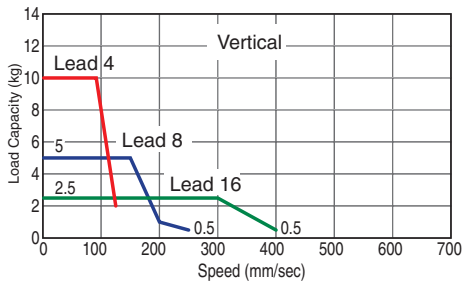
POINT Selection Points

(1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching a critical speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
(2) The ERC2 series uses a pulse motor, so the load capacity will decrease as the speed increases. Use the correlation diagram of speed and load capacity on the right to check the load capacity corresponding to the speed you desire.
(3) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G if the lead is 4 or the actuator is operated vertically). This is the maximum acceleration.

■Correlation Diagram of Speed and Load Capacity

With the RCP2 series, the load capacity will decrease as the speed increases due to the characteristics of the pulse motor used in the actuator. Use the table below to check if the desired speed and load capacity are satisfied.





Actuator Specifications

■Lead and Load Capacity

(Note 1) Take note that the maximum load capacity will decrease as the speed increases.

Model	Lead (mm)	Maximum load capacity (Note 1) Horizontal (kg)	Maximum load capacity (Note 1) Vertical (kg)	Stroke (mm)
ERC2-SA7C-I-PM-16-①-②-③-④	16	~10	~2.5	50 ~ 600 (Set in 50-mm steps)
ERC2-SA7C-I-PM-8-①-②-③-④	8	~20	~5	
ERC2-SA7C-I-PM-4-①-②-③-④	4	20	~10	

Explanation of numbers ① Stroke ② I/O type ③ Cable length ④ Options

■Stroke and Maximum Speed

Lead \ Stroke	50 ~ 600 (Set in 50-mm steps)
16	450 <400>
8	250
4	125

* The figure in < > applies when the actuator is used vertically. (Unit: mm/s)

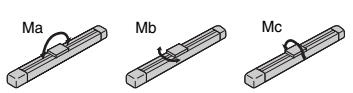
Options

Name	Model	Page
Brake	B	P381
Reversed-home specification	NM	P385

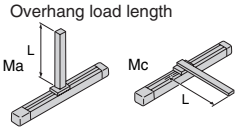
Actuator Specifications

Item	Description
Drive method	Ball screw ø10mm, rolled C10
Positioning repeatability	±0.05mm
Backlash	0.1mm or less
Allowable load moment	Ma: 13.8N•m Mb: 19.7N•m Mc: 29.0N•m
Overhang load length	Ma direction: 150mm or less, Mb/Mc directions: 150mm or less
Ambient operating temperature, humidity	0~40°C, 85% RH or below (non-condensing)

Direction of allowable load moment



Overhang load length

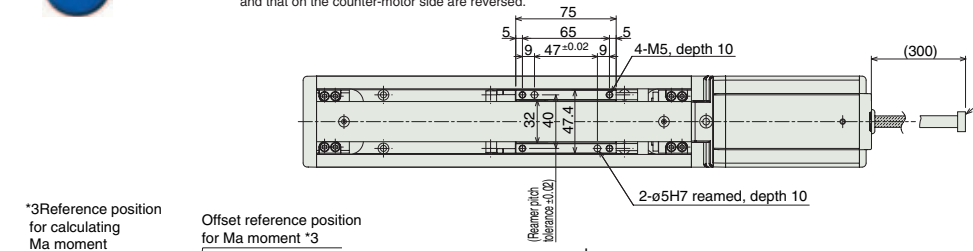


Dimensions

You can download CAD drawings from our website. www.intelligentactuator.com

2D CAD

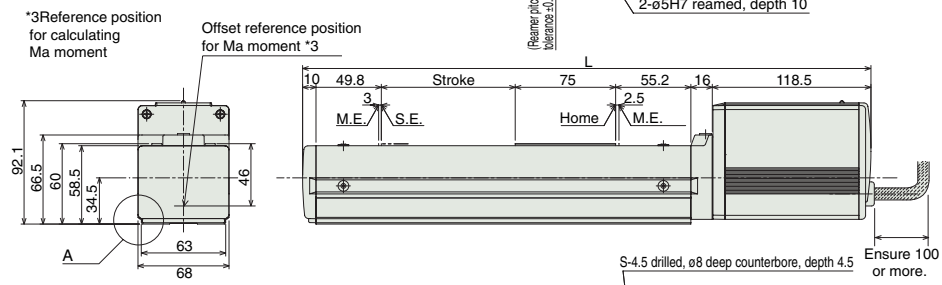
* With the reversed-home specification, the dimension on the motor side (distance from the ME to the home) and that on the counter-motor side are reversed.

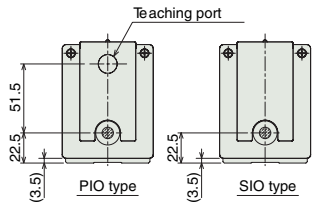


Cable joint connector *1

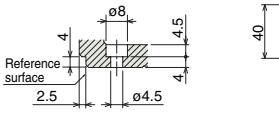
*1 Connect the power & I/O cable. Refer to p. 304 for details on the cables.
SE: Stroke end
ME: Mechanical end

*2 The slider moves to the ME during home return. Pay attention to prevent contact between the slider and surrounding parts.

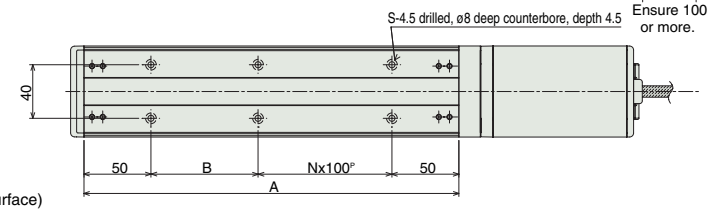




* The SIO type has no teaching port.

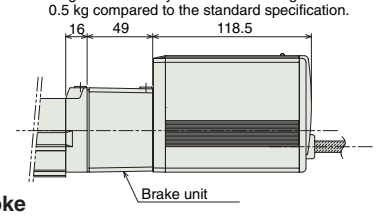


Detail view of A
(mounting hole and reference surface)



External view of brake specification

* Models of the brake specification have their overall length extended by 43.5 mm and weight increased 0.5 kg compared to the standard specification.



Dimensions and Weight by Stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600
L	374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5
A	230	280	330	380	430	480	530	580	630	680	730	780
B	30	80	30	80	30	80	30	80	30	80	30	80
N	1	1	2	2	3	3	4	4	5	5	6	6
S	6	6	8	8	10	10	12	12	14	14	16	16
Weight (kg)	3.1	3.2	3.4	3.6	3.7	3.9	4.0	4.2	4.3	4.5	4.6	4.8

I/O Type (Actuator with Built-In Controller)

I/O Type

You can select a desired built-in controller of the ERC2 series from among the following three types, each adopting different external input/output (I/O) specifications. Choose the type that best suits your specific purpose.

Name	External view	Model	Features	Maximum number of positioning points	Input power supply	Power-supply capacity	Reference page
PIO type (NPN specification)		ERC2-SA7C-I-PM-☐-☐-NP-☐-☐	Simple control type capable of positioning to a maximum of 16 points	16	DC24V	2A max.	→P295
PIO type (PNP specification)		ERC2-SA7C-I-PM-☐-☐-PN-☐-☐	PNP I/O type popular overseas	16			
SIO type		ERC2-SA7C-I-PM-☐-☐-SE-☐-☐	Dedicated field network connection type (using a gateway unit)	64			

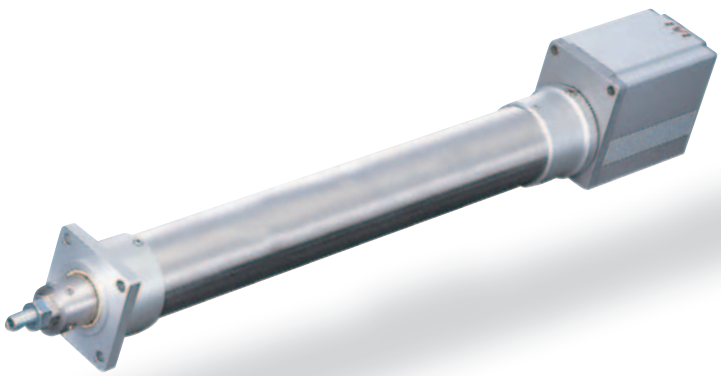
ERC2-RA6C

Controller-Integrated Type, Rod Type, Actuator Width 58mm, Pulse Motor, Straight

Model Specification Items ERC2 — RA6C — I — PM — □ — □ — □ — □ — □ — □

- Series: ERC2
- Type: RA6C
- Encoder type: I: Incremental specification
- Motor type: PM: Pulse motor
- Lead: 12: 12mm, 6: 6mm, 3: 3mm
- Stroke: 50:50mm ~ 300:300mm (Set in 50-mm steps)
- I/O type: NP: PIO (NPN) type, PN: PIO (PNP) type, SE: SIOtype
- Cable length: N: No cable, P: 1m, S: 3m, M: 5m, X□□: Specified length, W□□: Cable with connectors on both ends, R□□: Robot cable, RW□□: Robot cable with connectors on both ends
- Options: B: Brake, FT: Foot bracket, NM: Reversed-home specification

* Refer to p. 31 of the front matter for details on the model specification items.

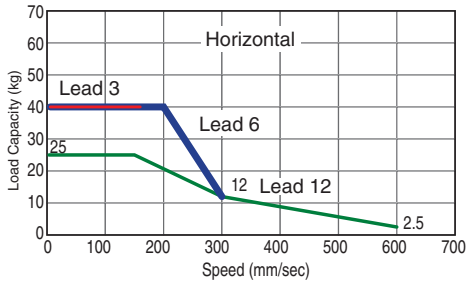


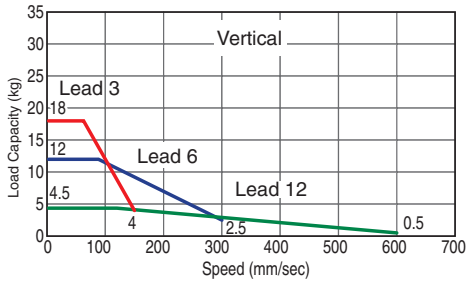
POINT Selection Points

(1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching a critical speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
(2) The ERC2 series uses a pulse motor, so the load capacity will decrease as the speed increases. Use the correlation diagram of speed and load capacity on the right to check the load capacity corresponding to the speed you desire.
(3) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G if the lead is 3 or the actuator is operated vertically). This is the maximum acceleration.
(4) The horizontal load capacity assumes use of an external guide.

Correlation Diagram of Speed and Load Capacity

With the RCP2 series, the load capacity will decrease as the speed increases due to the characteristics of the pulse motor used in the actuator. Use the table below to check if the desired speed and load capacity are satisfied.





Actuator Specifications

Lead and Load Capacity

(Note 1) Take note that the maximum load capacity will decrease as the speed increases.

Model	Lead (mm)	Maximum load capacity (Note 1) Horizontal (kg)	Maximum load capacity (Note 1) Vertical (kg)	Maximum push force (N) (Note 2)	Stroke (mm)
ERC2-RA6C-I-PM-12-①-②-③-④	12	~25	~4.5	78	50 ~ 300 (Set in 50-mm steps)
ERC2-RA6C-I-PM-6-①-②-③-④	6	~40	~12	157	
ERC2-RA6C-I-PM-3-①-②-③-④	3	40	~18	304	

Explanation of numbers ① Stroke ② I/O type ③ Cable length ④ Options

(Note 2) Refer to p. 406 for the graph of push force.

Stroke and Maximum Speed

Lead \ Stroke	50 ~ 600 (Set in 50-mm steps)	600 (mm)
12	600	500
6	300	255
3	150	125

(Unit: mm/s)

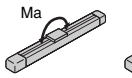
Options

Name	Model	Page
Brake	B	P381
Foot bracket	FT	P383
Reversed-home specification	NM	P385

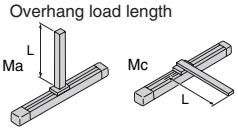
Actuator Specifications

Item	Description
Drive method	Ball screw ø10mm, rolled C10
Positioning repeatability	±0.05mm
Backlash	0.1mm or less
Rod diameter	ø22mm, dedicated SUS pipe
Rod non-rotation accuracy	±1.5°
Ambient operating temperature, humidity	0~40°C, 85% RH or below (non-condensing)

Direction of allowable load moment



Overhang load length

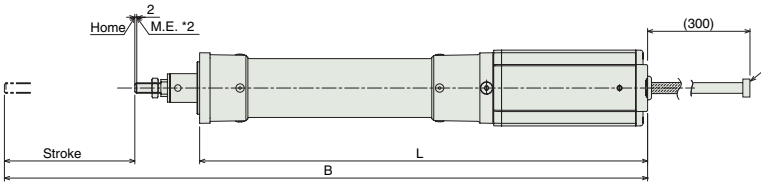


Dimensions

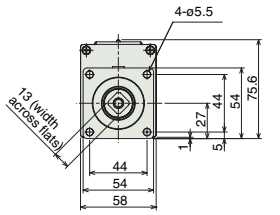
You can download CAD drawings from our website. www.intelligentactuator.com

2D CAD

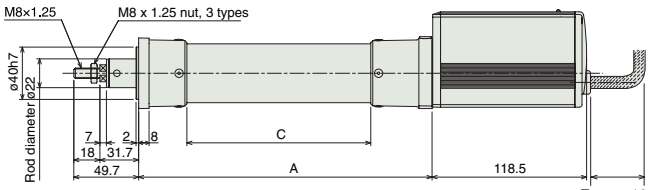
Note
Do not apply an external force on the rod in any direction other than the moving direction of the rod.
If the rod receives an external force from the right-angle direction or rotating direction, the detent may be damaged.



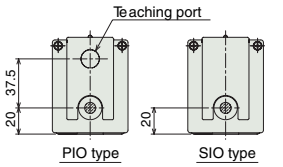
Cable joint connector *1
*1 Connect the power & I/O cable. Refer to p. 304 for details on the cables.
*2 The slider moves to the ME during home return. Pay attention to prevent contact between the slider and surrounding parts.
ME: Mechanical end



(Note) The actual angle of the across flats surface is slightly different.



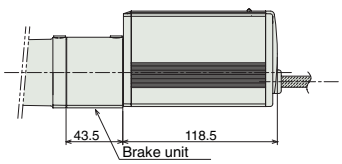
Ensure 100 or more.



* The SIO type has no teaching port.

External view of brake specification

* Models of the brake specification have their overall length extended by 43.5 mm and weight increased by 0.5 kg compared to the standard specification.



Dimensions and Weight by Stroke

Stroke	50	100	150	200	250	300
L	293.5	343.5	393.5	443.5	493.5	543.5
A	175	225	275	325	375	425
B	393.2	493.2	593.2	693.2	793.2	893.2
C	91	141	191	241	291	341
Weight (kg)	1.6	1.7	1.8	2.0	2.1	2.2

I/O Type (Actuator with Built-In Controller)

I/O Type

You can select a desired built-in controller of the ERC2 series from among the following three types, each adopting different external input/output (I/O) specifications. Choose the type that best suits your specific purpose.

Name	External view	Model	Features	Maximum number of positioning points	Input power supply	Power-supply capacity	Reference page
PIO type (NPN specification)		ERC2-RA6C-I-PM-☐-☐-NP-☐-☐	Simple control type capable of positioning to a maximum of 16 points	16	DC24V	2A max.	→P295
PIO type (PNP specification)		ERC2-RA6C-I-PM-☐-☐-PN-☐-☐	PNP I/O type popular overseas	16			
SIO type		ERC2-RA6C-I-PM-☐-☐-SE-☐-☐	Dedicated field network connection type (using a gateway unit)	64			

ERC2-RA7C

Controller-Integrated Type, Rod Type, Actuator Width 68mm, Pulse Motor, Straight

■Model Specification Items **ERC2** — **RA7C** — **I** — **PM** — □ — □ — □ — □ — □ — □

- Series: ERC2
- Type: RA7C
- Encoder type: I: Incremental specification
- Motor type: PM: Pulse motor
- Lead: 16: 16mm, 8: 8mm, 4: 4mm
- Stroke: 50:50mm ~ 600:600mm (Set in 50-mm steps)
- I/O type: NP: PIO (NPN) type, PN: PIO (PNP) type, SE: SIOtype
- Cable length: N: No cable, P: 1m, S: 3m, M: 5m, X□□: Specified length, W□□: Cable with connectors on both ends, R□□: Robot cable, RW□□: Robot cable with connectors on both ends
- Options: B: Brake, FT: Foot bracket, NM: Reversed-home specification

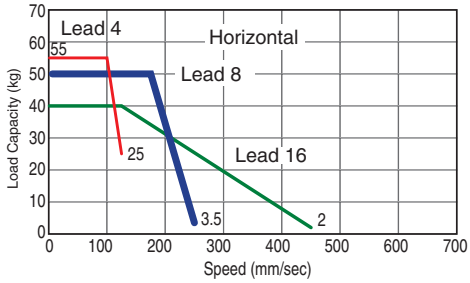
* Refer to p. 31 of the front matter for details on the model specification items.

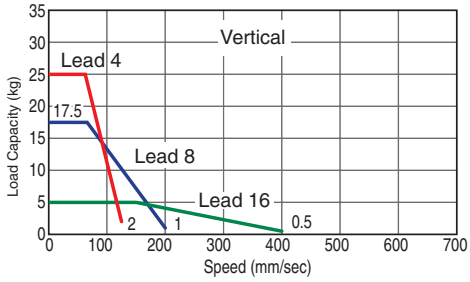
POINT Selection Points

(1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching a critical speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
(2) The ERC2 series uses a pulse motor, so the load capacity will decrease as the speed increases. Use the correlation diagram of speed and load capacity on the right to check the load capacity corresponding to the speed you desire.
(3) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G if the lead is 4 or the actuator is operated vertically). This is the maximum acceleration.
(4) The horizontal load capacity assumes use of an external guide.

■Correlation Diagram of Speed and Load Capacity

With the RCP2 series, the load capacity will decrease as the speed increases due to the characteristics of the pulse motor used in the actuator. Use the table below to check if the desired speed and load capacity are satisfied.





Actuator Specifications

■Lead and Load Capacity

(Note 1) Take note that the maximum load capacity will decrease as the speed increases.

Model	Lead (mm)	Maximum load capacity (Note 1) Horizontal (kg)	Maximum load capacity (Note 1) Vertical (kg)	Maximum push force (N) (Note 2)	Stroke (mm)
ERC2-RA7C-I-PM-16-①-②-③-④	16	~40	~5	220	50 ~ 300 (Set in 50-mm steps)
ERC2-RA7C-I-PM-8-①-②-③-④	8	~50	~17.5	441	
ERC2-RA7C-I-PM-4-①-②-③-④	4	~55	~25	873	

Explanation of numbers ① Stroke ② I/O type ③ Cable length ④ Options

(Note 2) Refer to p. 406 for the graph of push force.

■Stroke and Maximum Speed

Lead \ Stroke	50 ~ 600 (Set in 50-mm steps)
12	450 <400>
6	250 <200>
3	125

* The figure in < > applies when the actuator is used vertically.

(Unit: mm/s)

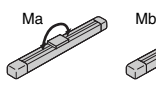
Options

Name	Model	Page
Brake	B	P381
Foot bracket	FT	P384
Reversed-home specification	NM	P385

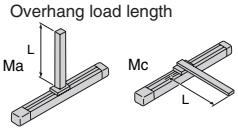
Actuator Specifications

Item	Description
Drive method	Ball screw ø12mm, rolled C10
Positioning repeatability	±0.05mm
Backlash	0.1mm or less
Rod diameter	ø30mm, dedicated SUS pipe
Rod non-rotation accuracy	±1.5°
Ambient operating temperature, humidity	0~40°C, 85% RH or below (non-condensing)

Direction of allowable load moment



Overhang load length

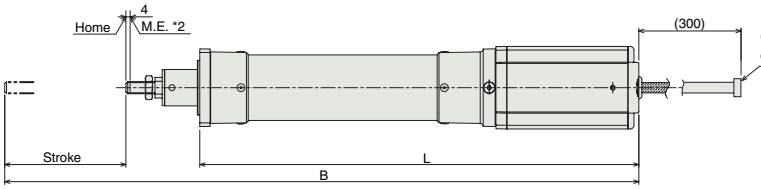


Dimensions

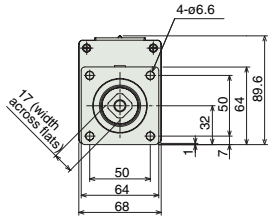
You can download CAD drawings from our website. www.intelligentactuator.com

2D CAD

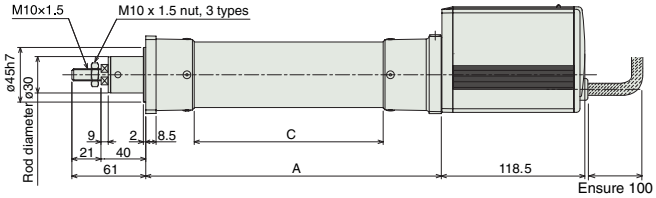
Note
Do not apply an external force on the rod in any direction other than the moving direction of the rod.
If the rod receives an external force from the right-angle direction or rotating direction, the detent may be damaged.

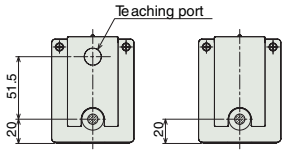


Cable joint connector *1
*1 Connect the power & I/O cable. Refer to p. 304 for details on the cables.
*2 The slider moves to the ME during home return. Pay attention to prevent contact between the slider and surrounding parts.
ME: Mechanical end



(Note) The actual angle of the across flats surface is slightly different.

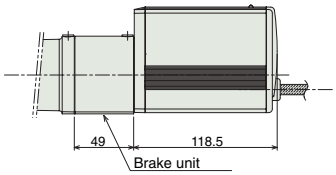




* The SIO type has no teaching port.

External view of brake specification

* Models of the brake specification have their overall length extended by 43.5 mm and weight increased by 0.5 kg compared to the standard specification.



Dimensions and Weight by Stroke

Stroke	50	100	150	200	250	300
L	312.5	362.5	412.5	462.5	512.5	562.5
A	194	244	294	344	394	444
B	423.5	523.5	623.5	723.5	823.5	923.5
C	106	156	206	256	306	356
Weight (kg)	2.7	2.9	3.0	3.2	3.3	3.5

I/O Type (Actuator with Built-In Controller)

I/O Type

You can select a desired built-in controller of the ERC2 series from among the following three types, each adopting different external input/output (I/O) specifications. Choose the type that best suits your specific purpose.

Name	External view	Model	Features	Maximum number of positioning points	Input power supply	Power-supply capacity	Reference page
PIO type (NPN specification)		ERC2-RA6C-I-PM-☐-☐-NP-☐-☐	Simple control type capable of positioning to a maximum of 16 points	16	DC24V	2A max.	→P295
PIO type (PNP specification)		ERC2-RA6C-I-PM-☐-☐-PN-☐-☐	PNP I/O type popular overseas	16			
SIO type		ERC2-RA6C-I-PM-☐-☐-SE-☐-☐	Dedicated field network connection type (using a gateway unit)	64			

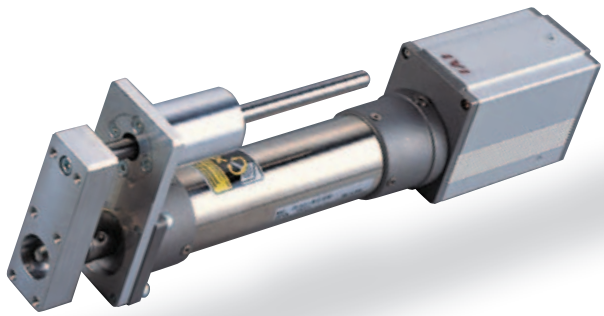
ERC2-RGS6C

Controller-Integrated Type, Rod Type with Single Guide, Actuator Width 58mm
Pulse Motor, Straight

■Model Specification Items **ERC2 — RGS6C — I — PM — □ — □ — □ — □ — □ — □ — □**

Series	Type	Encoder type	Motor type	Lead	Stroke	I/O type	Cable length	Options
ERC2	RGS6C	I: Incremental specification	PM: Pulse motor	12: 12mm 6: 6mm 3: 3mm	50:50mm ~ 600:600mm (Set in 50-mm steps)	NP: PIO (NPN) type PN: PIO (PNP) type SE: SIOtype	N: No cable P: 1m S: 3m M: 5m X□□: Specified length W□□: Cable with connectors on both ends R□□: Robot cable RW□□: Robot cable with connectors on both ends	B: Brake FT: Foot bracket NM: Reversed-home specification

* Refer to p. 31 of the front matter for details on the model specification items.

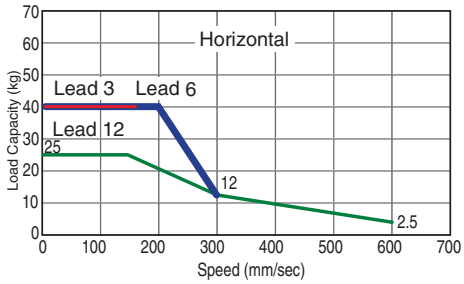


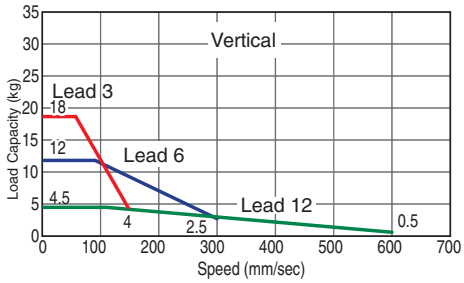
POINT Selection Points

(1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching a critical speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
(2) The ERC2 series uses a pulse motor, so the load capacity will decrease as the speed increases. Use the correlation diagram of speed and load capacity on the right to check the load capacity corresponding to the speed you desire. Subtract the guide weight (refer to the facing page) from the load capacity.
(3) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G if the lead is 3 or the actuator is operated vertically). This is the maximum acceleration.
(4) The horizontal load capacity assumes use of an external guide.

■Correlation Diagram of Speed and Load Capacity

With the RCP2 series, the load capacity will decrease as the speed increases due to the characteristics of the pulse motor used in the actuator. Use the table below to check if the desired speed and load capacity are satisfied.





Actuator Specifications

■Lead and Load Capacity

(Note 1) Take note that the maximum load capacity will decrease as the speed increases.

Model	Lead (mm)	Maximum load capacity (Note 1) Horizontal (kg)	Maximum load capacity (Note 1) Vertical (kg)	Maximum push force (N) (Note 2)	Stroke (mm)
ERC2-RGS6C-I-PM-12-①-②-③-④	12	~25	~4.5	78	50 ~ 300 (Set in 50-mm steps)
ERC2-RGS6C-I-PM-6-①-②-③-④	6	~40	~12	157	
ERC2-RGS6C-I-PM-3-①-②-③-④	3	40	~18	304	

Explanation of numbers ① Stroke ② I/O type ③ Cable length ④ Options

(Note 2) Refer to p. 406 for the graph of push force.

■Stroke and Maximum Speed

Lead \ Stroke	50 ~ 250 (Set in 50-mm steps)	300 (mm)
12	600	500
6	300	250
3	150	125

(Unit: mm/s)

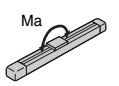
Options

Name	Model	Page
Brake	B	P381
Foot bracket	FT	P383
Reversed-home specification	NM	P385

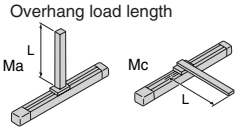
Actuator Specifications

Item	Description
Drive method	Ball screw ø10mm, rolled C10
Positioning repeatability	±0.05mm
Backlash	0.1mm or less
Rod diameter	ø22mm, dedicated SUS pipe
Rod non-rotation accuracy	±1.5°
Ambient operating temperature, humidity	0~40°C, 85% RH or below (non-condensing)

Direction of allowable load moment



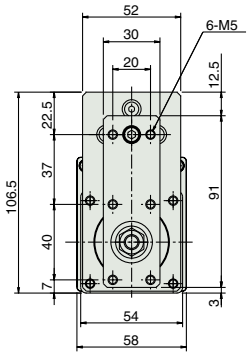
Overhang load length

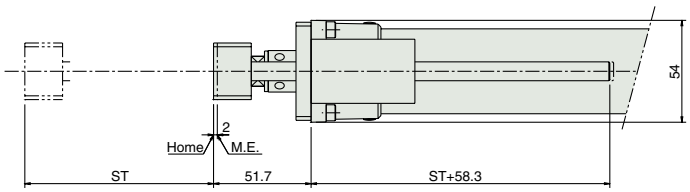


Dimensions

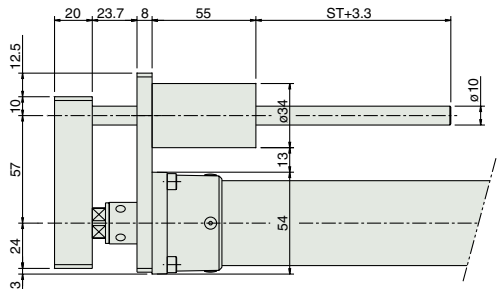
You can download CAD drawings from our website. www.intelligentactuator.com

2D CAD





M.E. : Mechanical end



• Refer to p. 8 for the actuator dimentions.

Dimensions and Weight by Stroke

Stroke	50	100	150	200	250	300
Guide weight (kg)	0.2	0.2	0.3	0.3	0.3	0.4
Guide + actuator weight (kg)	1.8	1.9	2.1	2.3	2.4	2.6

I/O Type (Actuator with Built-In Controller)

I/O Type

You can select a desired built-in controller of the ERC2 series from among the following three types, each adopting different external input/output (I/O) specifications. Choose the type that best suits your specific purpose.

Name	External view	Model	Features	Maximum number of positioning points	Input power supply	Power-supply capacity	Reference page
PIO type (NPN specification)		ERC2-RGS6C-I-PM-□-□-NP-□-□	Simple control type capable of positioning to a maximum of 16 points	16	DC24V	2A max.	→P295
PIO type (PNP specification)		ERC2-RGS6C-I-PM-□-□-PN-□-□	PNP I/O type popular overseas	16			
SIO type		ERC2-RGS6C-I-PM-□-□-SE-□-□	Dedicated field network connection type (using a gateway unit)	64			

ERC2-RGS7C

Controller-Integrated Type, Rod Type with Single Guide, Actuator Width 68mm
Pulse Motor, Straight

■Model Specification Items **ERC2 — RGS7C — I — PM — [ ] — [ ] — [ ] — [ ] — [ ] — [ ]**

Series — Type — Encoder type — Motor type — Lead — Stroke — I/O type — Cable length — Options

Encoder type: I: Incremental specification

Motor type: PM: Pulse motor

Lead: 16: 16mm, 8: 8mm, 4: 4mm

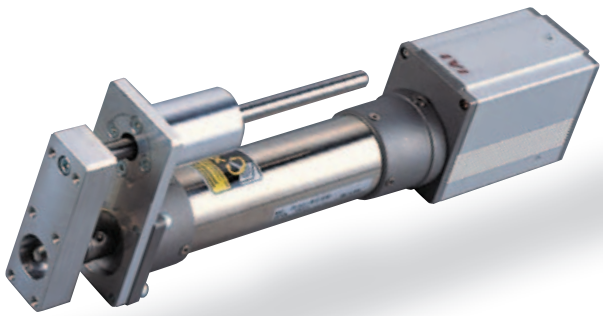
Stroke: 50:50mm ~ 600:600mm (Set in 50-mm steps)

I/O type: NP: PIO (NPN) type, PN: PIO (PNP) type, SE: SIOtype

Cable length: N: No cable, P: 1m, S: 3m, M: 5m, X□□: Specified length, W□□: Cable with connectors on both ends, R□□: Robot cable, RW□□: Robot cable with connectors on both ends

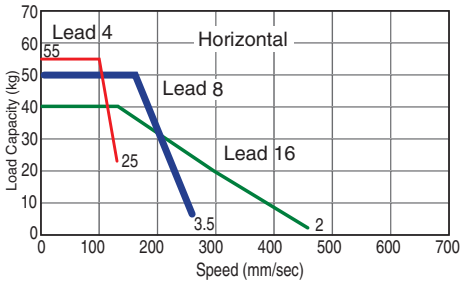
Options: B: Brake, FT: Foot bracket, NM: Reversed-home specification

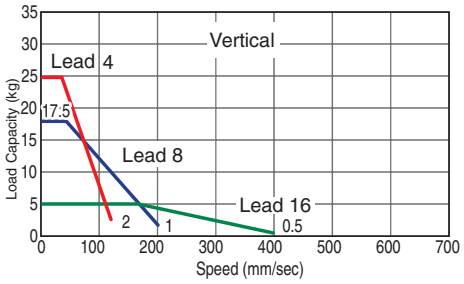
* Refer to p. 31 of the front matter for details on the model specification items.



■Correlation Diagram of Speed and Load Capacity

With the RCP2 series, the load capacity will decrease as the speed increases due to the characteristics of the pulse motor used in the actuator. Use the table below to check if the desired speed and load capacity are satisfied.





POINT Selection Points

(1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching a critical speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
(2) The ERC2 series uses a pulse motor, so the load capacity will decrease as the speed increases. Use the correlation diagram of speed and load capacity on the right to check the load capacity corresponding to the speed you desire. Subtract the guide weight (refer to the facing page) from the load capacity.
(3) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G if the lead is 4 or the actuator is operated vertically). This is the maximum acceleration.
(4) The horizontal load capacity assumes use of an external guide.

Actuator Specifications

■Lead and Load Capacity

(Note 1) Take note that the maximum load capacity will decrease as the speed increases.

Model	Lead (mm)	Maximum load capacity (Note 1) Horizontal (kg)	Maximum load capacity (Note 1) Vertical (kg)	Maximum push force (N) (Note 2)	Stroke (mm)
ERC2-RGS7C-I-PM-16-①-②-③-④	16	~40	~5	220	50 ~ 300 (Set in 50-mm steps)
ERC2-RGS7C-I-PM-8-①-②-③-④	8	~50	~17.5	441	
ERC2-RGS7C-I-PM-4-①-②-③-④	4	~55	~25	873	

Explanation of numbers ① Stroke ② I/O type ③ Cable length ④ Options

(Note 2) Refer to p. 406 for the graph of push force.

■Stroke and Maximum Speed

Lead \ Stroke	50 ~ 300 (Set in 50-mm steps)
16	450 <400>
8	250 <200>
4	125

* The figure in < > applies when the actuator is used vertically.

(Unit: mm/s)

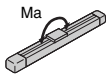
Options

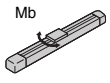
Name	Model	Page
Brake	B	P381
Foot bracket	FT	P384
Reversed-home specification	NM	P385

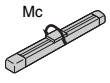
Actuator Specifications

Item	Description
Drive method	Ball screw ø12mm, rolled C10
Positioning repeatability	±0.05mm
Backlash	0.1mm or less
Rod diameter	ø30mm, dedicated SUS pipe
Rod non-rotation accuracy	±1.5°
Ambient operating temperature, humidity	0~40°C, 85% RH or below (non-condensing)

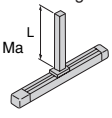
Direction of allowable load moment

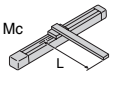






Overhang load length

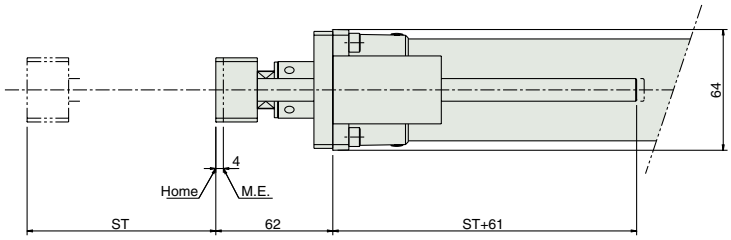




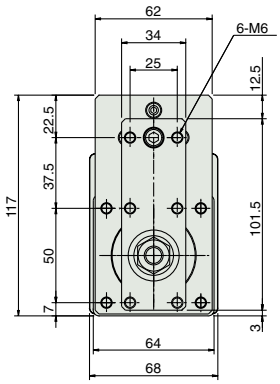
Dimensions

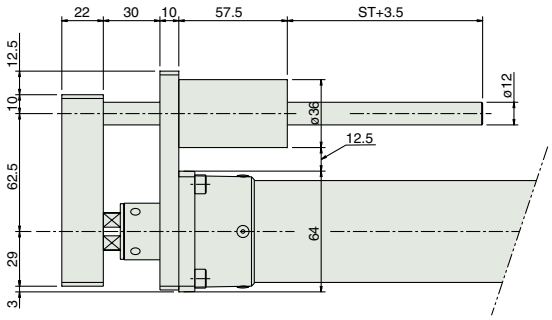
You can download CAD drawings from our website. www.intelligentactuator.com

2D CAD



M.E. : Mechanical end





• Refer to p. 10 for the actuator dimentions.

Dimensions and Weight by Stroke

Stroke	50	100	150	200	250	300
Guide weight (kg)	0.3	0.3	0.4	0.4	0.5	0.5
Guide + actuator weight (kg)	3.0	3.2	3.4	3.6	3.8	4.0

I/O Type (Actuator with Built-In Controller)

I/O Type

You can select a desired built-in controller of the ERC2 series from among the following three types, each adopting different external input/output (I/O) specifications. Choose the type that best suits your specific purpose.

Name	External view	Model	Features	Maximum number of positioning points	Input power supply	Power-supply capacity	Reference page
PIO type (NPN specification)		ERC2-RGS7C-I-PM-□-□-NP-□-□	Simple control type capable of positioning to a maximum of 16 points	16	DC24V	2A max.	→P295
PIO type (PNP specification)		ERC2-RGS7C-I-PM-□-□-PN-□-□	PNP I/O type popular overseas	16			
SIO type		ERC2-RGS7C-I-PM-□-□-SE-□-□	Dedicated field network connection type (using a gateway unit)	64			

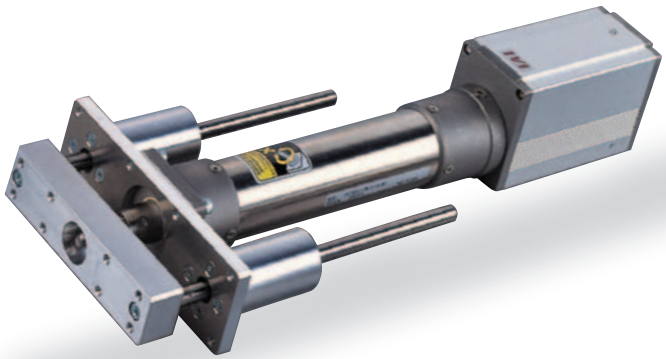
ERC2-RGD6C

Controller-Integrated Type, Rod Type with Double Guide, Actuator Width 58mm
Pulse Motor, Straight

■Model Specification Items **ERC2 — RGD6C — I — PM — □ — □ — □ — □ — □ — □**

Series	Type	Encoder type	Motor type	Lead	Stroke	I/O type	Cable length	Options
ERC2	RGD6C	I: Incremental specification	PM: Pulse motor	12: 12mm 6: 6mm 3: 3mm	50:50mm ~ 600:600mm (Set in 50-mm steps)	NP: PIO (NPN) type PN: PIO (PNP) type SE: SIOtype	N: No cable P: 1m S: 3m M: 5m X□□: Specified length W□□: Cable with connectors on both ends R□□: Robot cable RW□□: Robot cable with connectors on both ends	B: Brake FT: Foot bracket NM: Reversed-home specification

* Refer to p. 31 of the front matter for details on the model specification items.

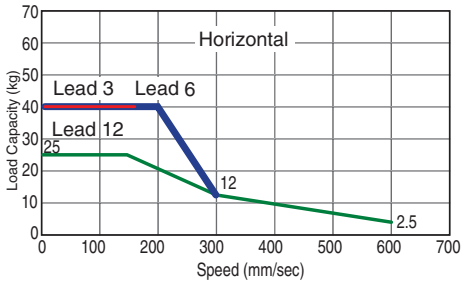


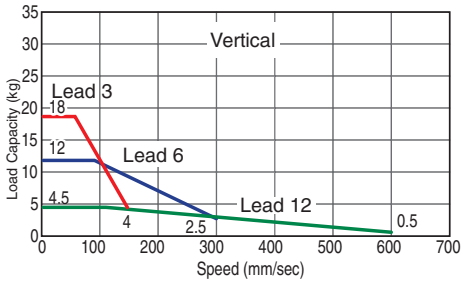
POINT Selection Points

(1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching a critical speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
(2) The ERC2 series uses a pulse motor, so the load capacity will decrease as the speed increases. Use the correlation diagram of speed and load capacity on the right to check the load capacity corresponding to the speed you desire. Subtract the guide weight (refer to the facing page) from the load capacity.
(3) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G if the lead is 3 or the actuator is operated vertically). This is the maximum acceleration.
(4) The horizontal load capacity assumes use of an external guide.

■Correlation Diagram of Speed and Load Capacity

With the RCP2 series, the load capacity will decrease as the speed increases due to the characteristics of the pulse motor used in the actuator. Use the table below to check if the desired speed and load capacity are satisfied.





Actuator Specifications

■Lead and Load Capacity

(Note 1) Take note that the maximum load capacity will decrease as the speed increases.

Model	Lead (mm)	Maximum load capacity (Note 1) Horizontal (kg)	Maximum load capacity (Note 1) Vertical (kg)	Maximum push force (N) (Note 2)	Stroke (mm)
ERC2-RGD6C-I-PM-12-①-②-③-④	12	~25	~4.5	78	50 ~ 300 (Set in 50-mm steps)
ERC2-RGD6C-I-PM-6-①-②-③-④	6	~40	~12	157	
ERC2-RGD6C-I-PM-3-①-②-③-④	3	40	~18	304	

Explanation of numbers ① Stroke ② I/O type ③ Cable length ④ Options

(Note 2) Refer to p. 406 for the graph of push force.

■Stroke and Maximum Speed

Lead \ Stroke	50 ~ 250 (Set in 50-mm steps)	300 (mm)
12	600	500
6	300	250
3	150	125

(Unit: mm/s)

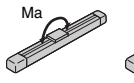
Options

Name	Model	Page
Brake	B	P381
Foot bracket	FT	P383
Reversed-home specification	NM	P385

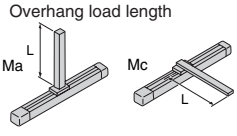
Actuator Specifications

Item	Description
Drive method	Ball screw ø10mm, rolled C10
Positioning repeatability	±0.05mm
Backlash	0.1mm or less
Rod diameter	ø22mm, dedicated SUS pipe
Rod non-rotation accuracy	±1.5°
Ambient operating temperature, humidity	0~40°C, 85% RH or below (non-condensing)

Direction of allowable load moment



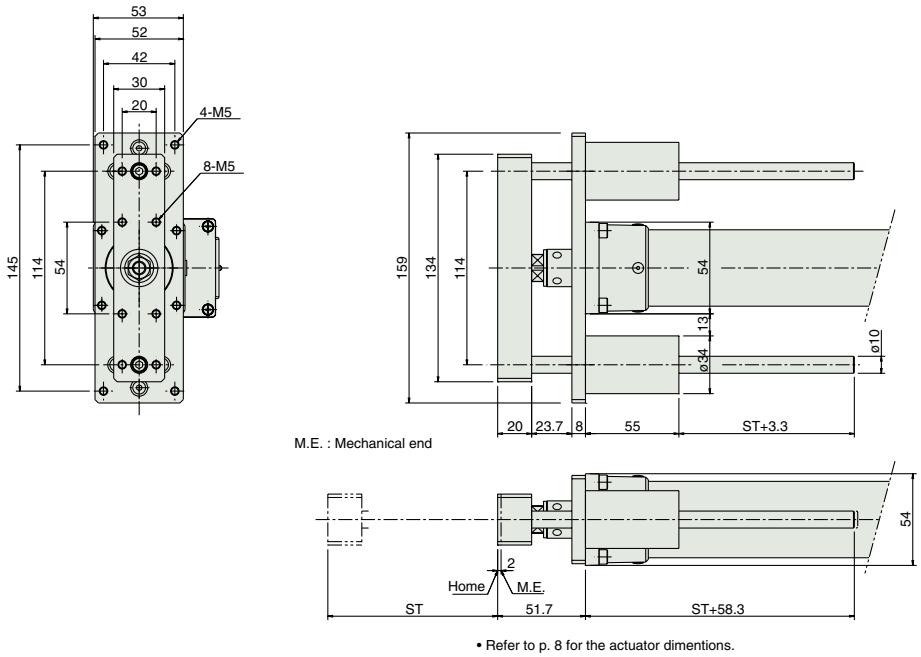
Overhang load length



Dimensions

You can download CAD drawings from our website. www.intelligentactuator.com

2D CAD



• Refer to p. 8 for the actuator dimentions.

Dimensions and Weight by Stroke

Stroke	50	100	150	200	250	300
Guide weight (kg)	0.4	0.4	0.5	0.6	0.6	0.7
Guide + actuator weight (kg)	2.0	2.1	2.3	2.6	2.7	2.9

I/O Type (Actuator with Built-In Controller)

I/O Type

You can select a desired built-in controller of the ERC2 series from among the following three types, each adopting different external input/output (I/O) specifications. Choose the type that best suits your specific purpose.

Name	External view	Model	Features	Maximum number of positioning points	Input power supply	Power-supply capacity	Reference page
PIO type (NPN specification)		ERC2-RGD6C-I-PM-☐-☐-NP-☐-☐	Simple control type capable of positioning to a maximum of 16 points	16	DC24V	2A max.	→P295
PIO type (PNP specification)		ERC2-RGD6C-I-PM-☐-☐-PN-☐-☐	PNP I/O type popular overseas	16			
SIO type		ERC2-RGD6C-I-PM-☐-☐-SE-☐-☐	Dedicated field network connection type (using a gateway unit)	64			

ERC2-RGD7C

Controller-Integrated Type, Rod Type, Actuator Width 68mm, Pulse Motor, Straight

■Model Specification Items **ERC2 — RGD7C — I — PM — □ — □ — □ — □ — □ — □**

Series — Type — Encoder type – Motor type — Lead — Stroke — I/O type — Cable length — Options

I: Incremental specification

PM: Pulse motor

Lead: 16: 16mm, 8: 8mm, 4: 4mm

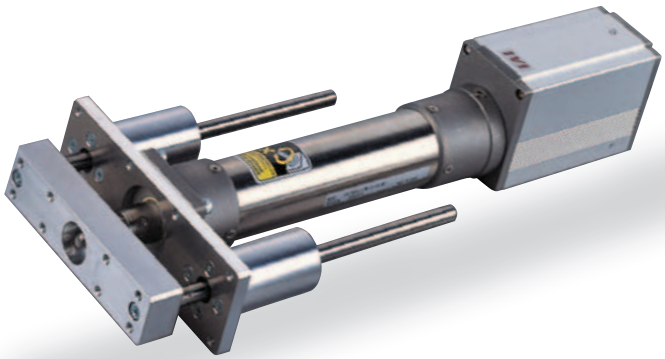
Stroke: 50:50mm ~ 600:600mm (Set in 50-mm steps)

I/O type: NP: PIO (NPN) type, PN: PIO (PNP) type, SE: SIOtype

Cable length: N: No cable, P: 1m, S: 3m, M: 5m, X□□: Specified length, W□□: Cable with connectors on both ends, R□□: Robot cable, RW□□: Robot cable with connectors on both ends

Options: B: Brake, FT: Foot bracket, NM: Reversed-home specification

* Refer to p. 31 of the front matter for details on the model specification items.

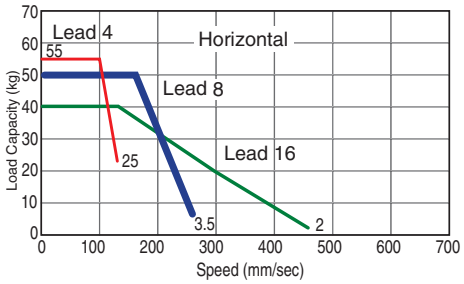


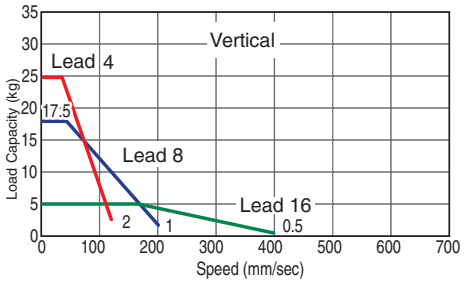
POINT Selection Points

(1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching a critical speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
(2) The ERC2 series uses a pulse motor, so the load capacity will decrease as the speed increases. Use the correlation diagram of speed and load capacity on the right to check the load capacity corresponding to the speed you desire. Subtract the guide weight (refer to the facing page) from the load capacity.
(3) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G if the lead is 4 or the actuator is operated vertically). This is the maximum acceleration.
(4) The horizontal load capacity assumes use of an external guide.

■Correlation Diagram of Speed and Load Capacity

With the RCP2 series, the load capacity will decrease as the speed increases due to the characteristics of the pulse motor used in the actuator. Use the table below to check if the desired speed and load capacity are satisfied.





Actuator Specifications

■Lead and Load Capacity

(Note 1) Take note that the maximum load capacity will decrease as the speed increases.

Model	Lead (mm)	Maximum load capacity (Note 1) Horizontal (kg)	Maximum load capacity (Note 1) Vertical (kg)	Maximum push force (N) (Note 2)	Stroke (mm)
ERC2-RGD7C-I-PM-16-①-②-③-④	16	~40	~5	220	50 ~ 300 (Set in 50-mm steps)
ERC2-RGD7C-I-PM-8-①-②-③-④	8	~50	~17.5	441	
ERC2-RGD7C-I-PM-4-①-②-③-④	4	~55	~25	873	

Explanation of numbers ① Stroke ② I/O type ③ Cable length ④ Options

(Note 2) Refer to p. 406 for the graph of push force.

■Stroke and Maximum Speed

Lead \ Stroke	50 ~ 300 (Set in 50-mm steps)
16	450 <400>
8	250 <200>
4	125

* The figure in < > applies when the actuator is used vertically.

(Unit: mm/s)

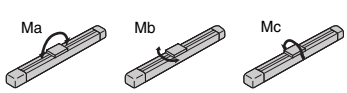
Options

Name	Model	Page
Brake	B	P381
Foot bracket	FT	P384
Reversed-home specification	NM	P385

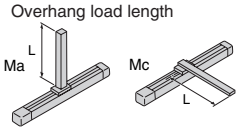
Actuator Specifications

Item	Description
Drive method	Ball screw ø12mm, rolled C10
Positioning repeatability	±0.05mm
Backlash	0.1mm or less
Rod diameter	ø30mm, dedicated SUS pipe
Rod non-rotation accuracy	±1.5°
Ambient operating temperature, humidity	0~40°C, 85% RH or below (non-condensing)

Direction of allowable load moment



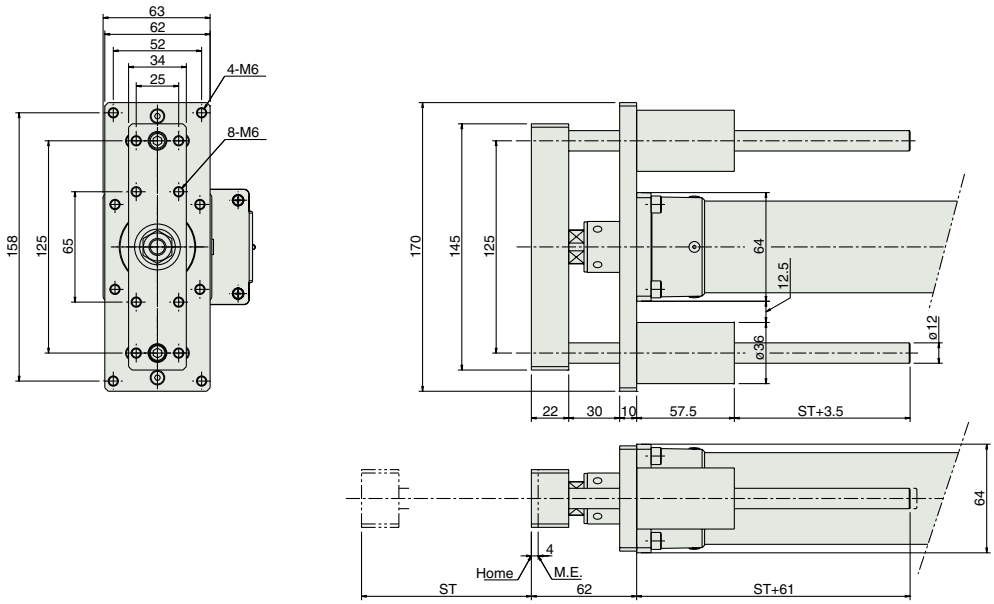
Overhang load length



Dimensions

You can download CAD drawings from our website. www.intelligentactuator.com

2D CAD



M.E. : Mechanical end

• Refer to p. 10 for the actuator dimentions.

Dimensions and Weight by Stroke

Stroke	50	100	150	200	250	300
Guide weight (kg)	0.5	0.6	0.7	0.8	0.9	1.0
Guide + actuator weight (kg)	3.2	3.5	3.7	4.0	4.2	4.5

I/O Type (Actuator with Built-In Controller)

I/O Type

You can select a desired built-in controller of the ERC2 series from among the following three types, each adopting different external input/output (I/O) specifications. Choose the type that best suits your specific purpose.

Name	External view	Model	Features	Maximum number of positioning points	Input power supply	Power-supply capacity	Reference page
PIO type (NPN specification)		ERC2-RGD7C-I-PM-□-□-NP-□-□	Simple control type capable of positioning to a maximum of 16 points	16	DC24V	2A max.	→P295
PIO type (PNP specification)		ERC2-RGD7C-I-PM-□-□-PN-□-□	PNP I/O type popular overseas	16			
SIO type		ERC2-RGD7C-I-PM-□-□-SE-□-□	Dedicated field network connection type (using a gateway unit)	64			

ROBO CYLINDER

Controller

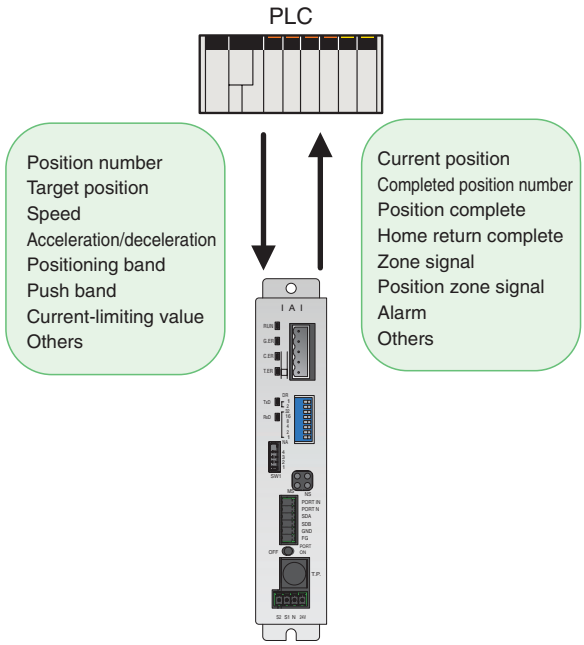
ERC2

Gateway Unit

The gateway unit is a conversion unit for connecting a ROBO Cylinder controller to a field network such as DeviceNet or ProfiBus. Connect a gateway unit to your field network, and link the gateway unit and each controller via serial communication (RS485). Numerical data such as coordinates, speeds, accelerations and current values can be sent and received between the network master (PLC) and controller by means of I/O-level communication.

Features

1. Move the actuator by specifying positions from a PLC via network.
2. Perform push-motion operation via network.
3. Operate the actuator by directly sending the target position, speed, acceleration/deceleration and positioning band as numerical values from a PLC.
4. Read the current actuator position and various signals using a PLC.
5. Connectable to a maximum of 16 axes.



Functions

One of the following three operation modes can be selected.

(1) Position-number specification mode

Input target positions, speeds, accelerations/decelerations, positioning bands and other settings to the controller in advance as position data, and specify a desired position number via network, just like you do with PIO signals, to move the actuator. A maximum of 64 positioning points can be set. Various status signals can be read using a PLC.

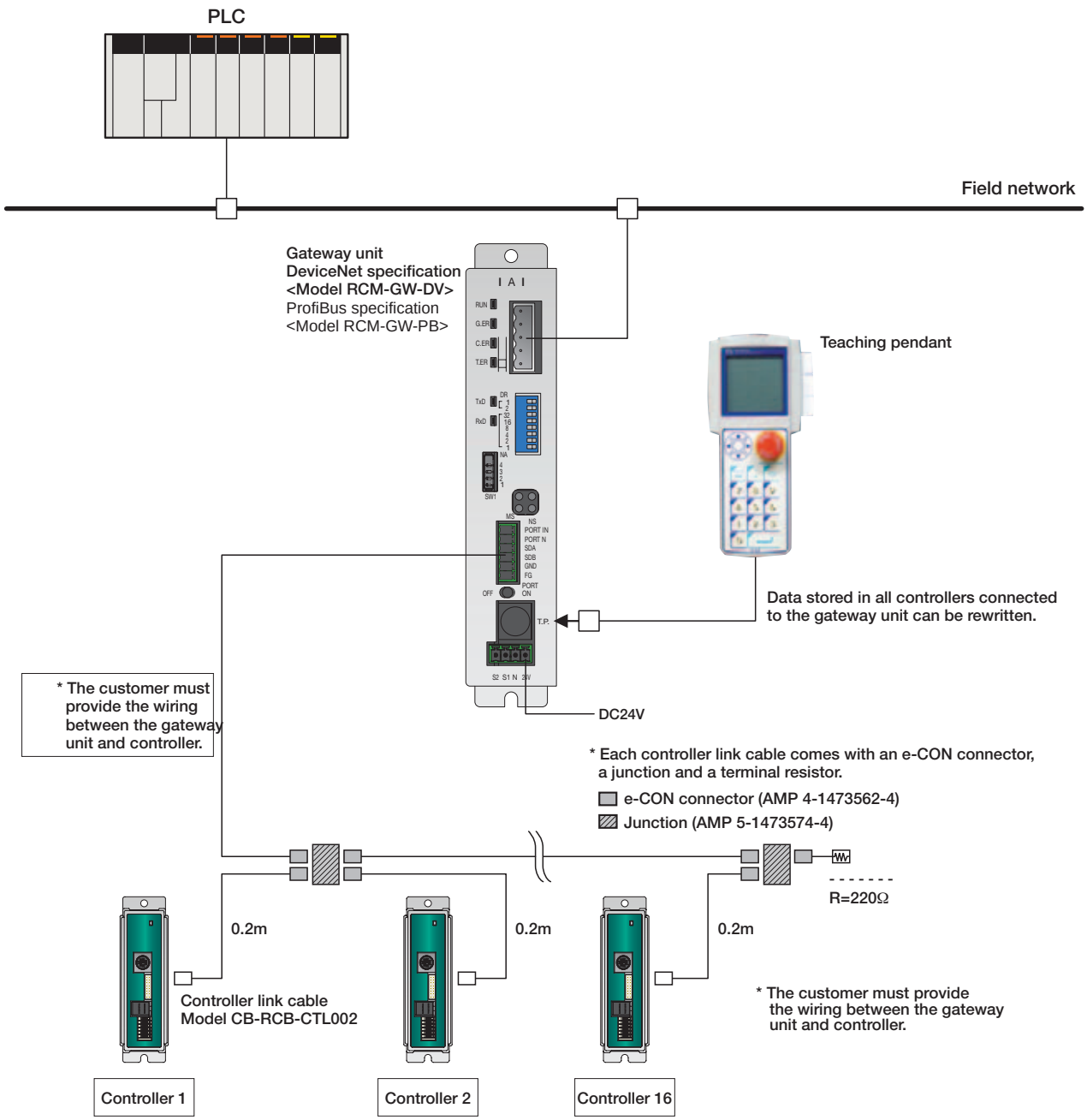
(2) Positioning-data specification mode

Specify a desired target position, speed, acceleration/deceleration, positioning band, push band, current-limiting value, etc., directly as numerical values to move the actuator or cause it to perform push-motion operation. Various status signals can be input/output and current position data read using a PLC.

(3) Simple direct/position-number specification mode

Call desired position data except for a target position (by specifying an applicable position number), and specify only a target position as a numerical value, to move the actuator. A maximum of 512 positioning points can be set.

System Configuration Diagram

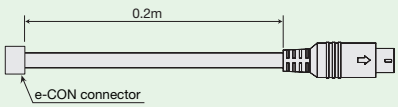


Connectable Controllers ERC2 / PCON / ACON / SCON (*1)
(*1) SCON will communicate at the I/O level when connected to the field network even if the gateway unit is not used.
It is necessary to use the gateway unit when communicating positional data.

■ Controller link cable

(Comes with e-CON connector, junction and terminal resistor)

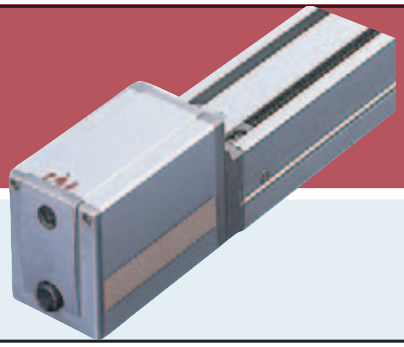
Model CB-RCB-CTL002



Color	Signal	No.
Yellow	SGA	1
Orange	SGB	2
Blue	GND	3
		4

No.	Signal	Color
1	SGA	Yellow
2	SGB	Orange
3	+5V	
4	ENBL	
5	EMGA	
6	+24V	
7	GND	Blue
8	EMGB	

ERC2



■ Model NP / PN / SE

Controller module of controller-integrated actuator

Type List

I/O type	NP	PN	SE
Name	PIO type (NPN specification)	PIO type (PNP specification)	Serial communication type
External view			
Description	Move the actuator by specifying position numbers from PLC via PIO	PNP specification of the NP type (overseas specification)	Connected to a field network via a gateway unit
Number of position points	16 points	16 points	64 points

Model

ERC2 — (Type) — I (Encoder type) — PM (Motor type) — (Lead) — (Stroke) — (I/O type) — (Cable length) — (Options)

Series

Type

SA6C	Slider type (width 52mm)
SA7C	Slider type (width 58mm)
RA6C	Rod type (width 52mm)
RA7C	Rod type (width 58mm)
RGS6C	Rod type with single guide (width 52mm)
RGS7C	Rod type with single guide (width 58mm)
RGD6C	Rod type with double guides (width 52mm)
RGD7C	Rod type with double guides (width 58mm)

Encoder type

I	Incremental

Motor type

PM	Pulse motor

Lead

16	16mm
12	12mm
8	8mm
6	6mm
4	4mm
3	3mm

Stroke

50 ∫ 600	50mm ∫ (Set in 50-mm steps) 600mm

I/O type

NP	PIO type (NPN specification)
PN	PIO type (PNP specification)
SE	SIO type

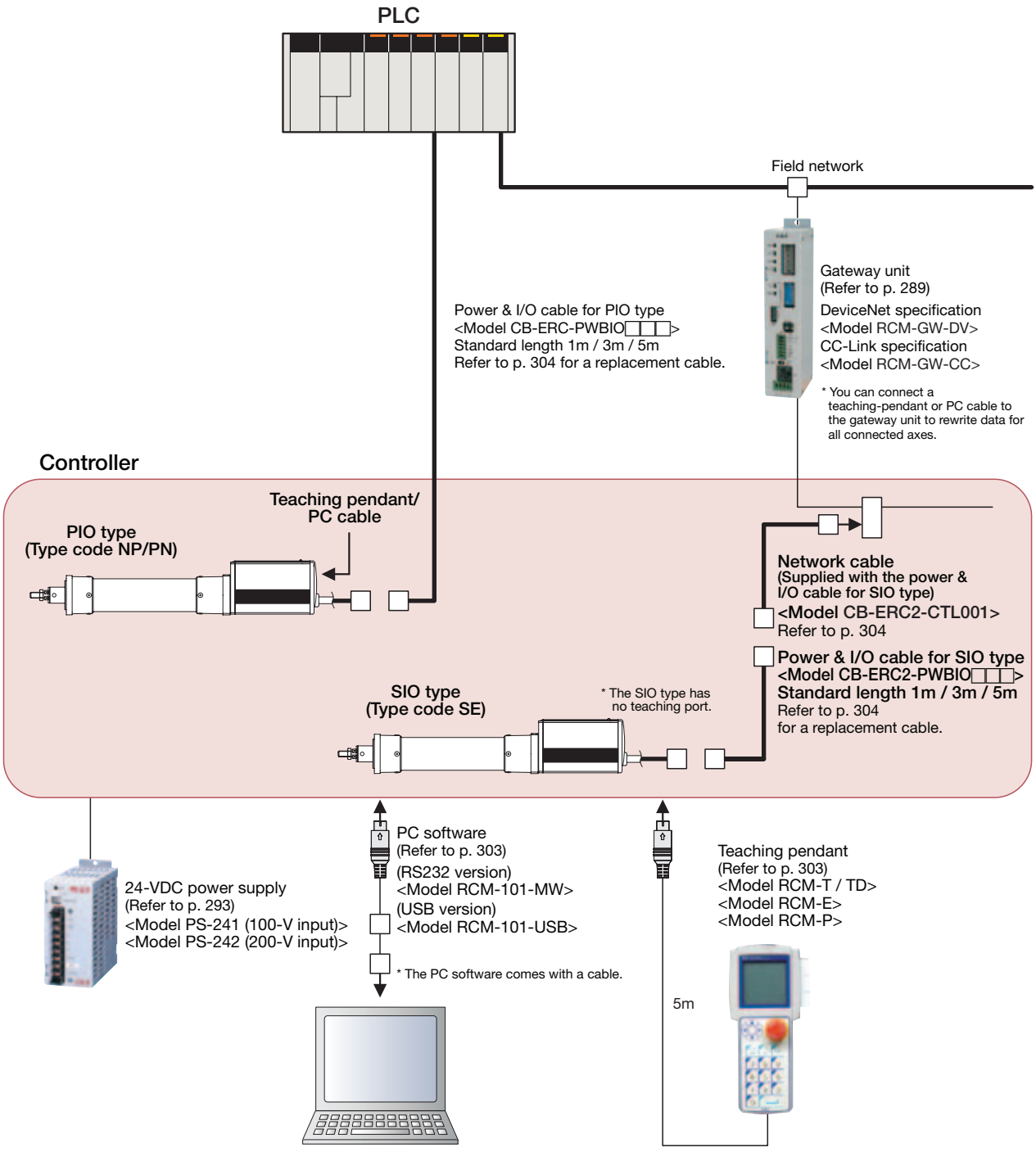
Cable length

N	No cable
P	1m
S	3m
M	5m
X□□□	Specified length
R□□	Robot cable
W□□	Cable with connectors on both ends
RW□□	Robot cable with connectors on both ends

Options

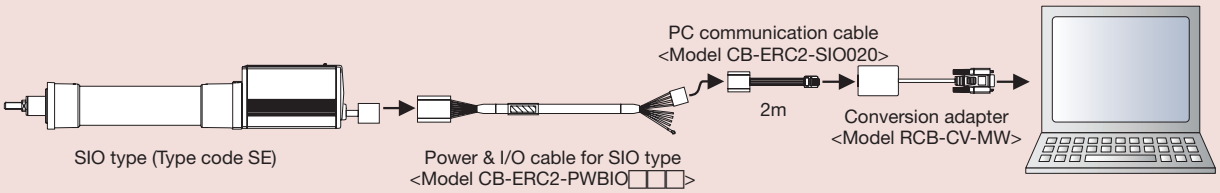
B	Brake
NM	Reversed-home specification
FT	Foot bracket

System Configuration



PC Connection Diagram

Use the following cables to connect the SIO type directly to a PC.



I/O Specifications (PIO Type)

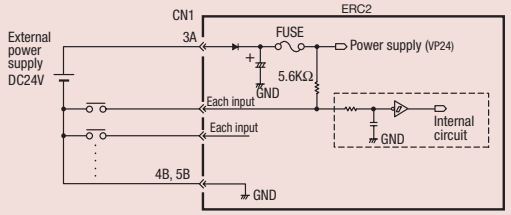
■ Input Part External input specifications

Item	Specification
Number of input points	6 points
Input voltage	24VDC ± 10%
Input current	4mA/circuit
Leak current	1mA max./point
Operating voltage	ON voltage: 18V min. (3.5mA) OFF voltage: 6V max. (1mA)

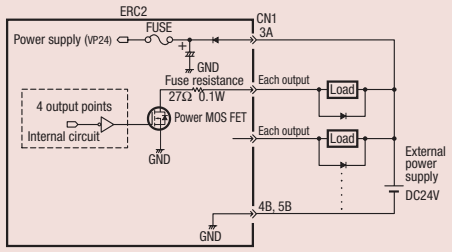
■ Output Part External output specifications

Item	Specification
Number of input points	4 points
Rated load voltage	DC24V
Maximum current	60mA/point
Residual voltage	2V max.
Short-circuit, reverse-voltage protection	Fuse resistance (27Ω0.1W)

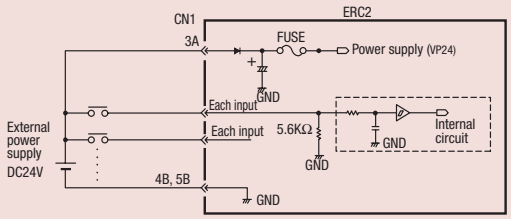
NPN specification



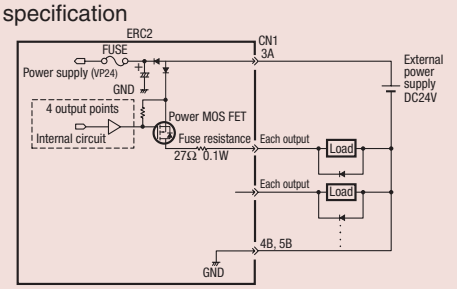
NPN specification



PNP specification



PNP specification



I/O Signal Table (PIO Type)

Parameter (PIO pattern selection)	PIO pattern	Pin number
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)	Up to 16 positioning points can be set. (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 number	Category	Wire color	Parameter (PIO pattern selection)			
			0	1	2	3
			Conventional type	3-point type (solenoid valve type)	16-point type (zone signal type)	16-point type (position zone signal type)
1A	SIO	Orange (red 1)	SGA			
1B		Orange (black 1)	SGB			
2A	24V	Light blue (red 1)	EMS1			
2B	0V	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	Output	Yellow (red 2)	PEND	PE0	PEND	PEND
9B		Yellow (black 2)	HEND	PE1	HEND	HEND
10A		Pink (red 2)	ZONE	PE2	ZONE	PZONE
10B		Pink (black 2)	*ALM			

(Note) The signals denoted by an asterisk (*) (ALM/STP) are negative-logic signals that always remain ON.

System Configuration

Category	Signal name	Abbreviation	Function overview
SIO	Serial communication	SGA SGB	Used in serial communication.
24V 0V	Emergency stop	EMS1 EMS2	These signals are wired to enable the emergency stop switch on the teaching pendant. (Refer to p. 301)
	Brake release	BKR	Connection to 0 V forcibly releases the brake. (150 mA is required)
Input	Command position number	PC1 PC2 PC4 PC8	Specify a target 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, 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.
	Pause	*STP	This signal is always ON while the actuator is operating normally (negative logic). The actuator starts to decelerate to a stop at the ON → OFF leading edge of this signal.
Output	Position complete	PEND	This signal turns ON once the actuator has moved to the target position and completed the positioning by entering the specified positioning band. Used to determine if positioning has completed.
	Completed position number	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 by position data.
	Alarm	*ALM	This signal remain ON in normal conditions and turns OFF upon generation of an alarm (negative logic). Synchronized with the LED at the top of the motor cover. (A green light stays on in normal conditions, and a red light comes on upon generation of an alarm.)

(Note) The signals denoted by an asterisk (*) (ALM/STP) are negative-logic signals that always remain ON.

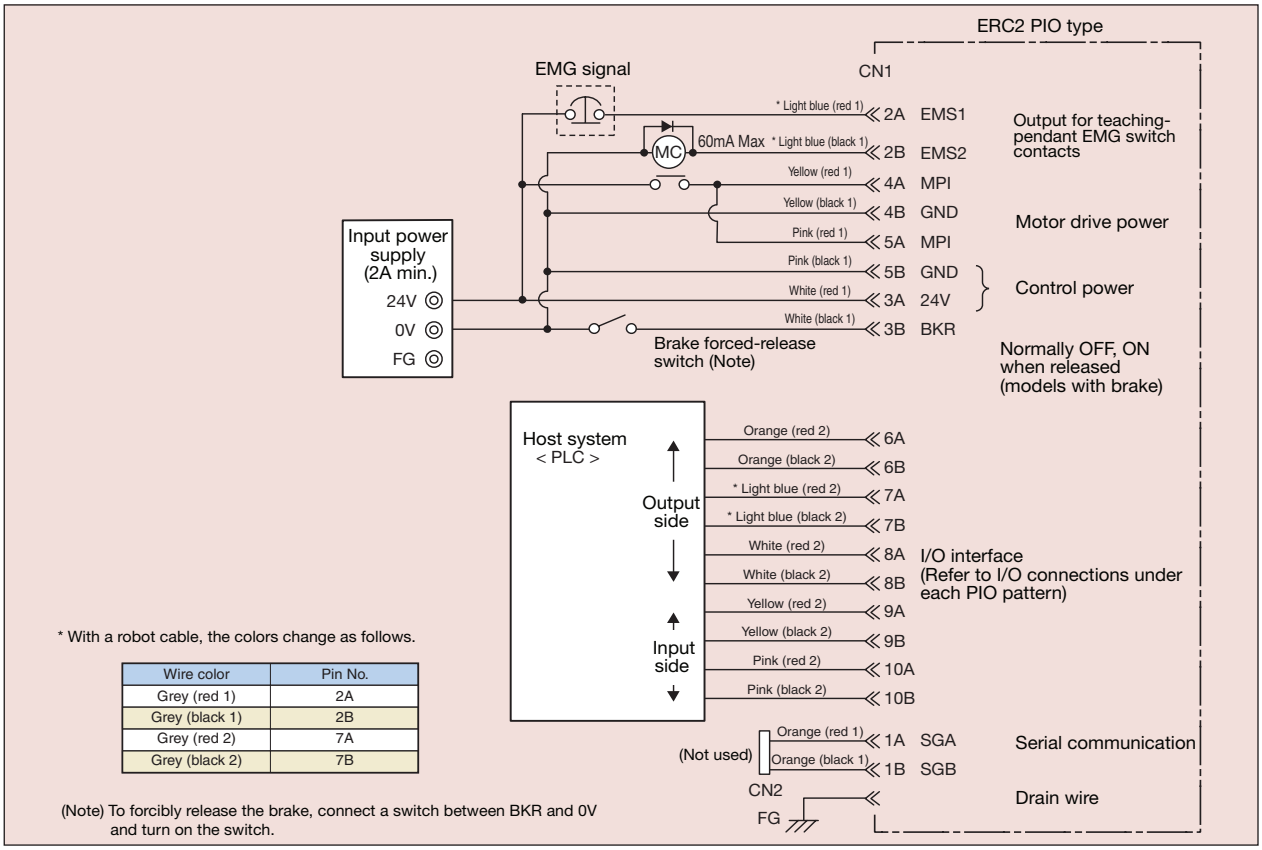
Specification Table

Specification item		Description	
Type		PIO specification (NP/PN)	SIO specification (SE)
Control method		Field-weakening vector control (patent pending)	
Positioning command		Position number specification	Position number specification/direct numerical specification
Position numbers		Maximum 16 points	Maximum 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, 24VDC ± 10%, 0.15A max.	
2-color LED indicator		Servo ON (green), alarm/motor drive-power cutoff (red)	
I/F power supply (Note 1)		Same as the control power supply (not insulated)	
Serial communication		RS485, 1 channel (terminated externally)	
Absolute function		None	
Forced release of electromagnetic brake		Forcibly released upon connection to 0V (NP) or 24V (PN)	Forcibly released upon connection to 24V
Cable length		I/F cable: 10m max.	
		SIO connector communication cable: 5m max.	
Dielectric strength voltage		DC500V 10MΩ	
EMC		EN55011 Class A Group1 (3m)	
Power-supply voltage		24V±10%	
Power-supply current		2A max.	
Environment	Ambient operating temperature	0~40˚C	
	Ambient operating humidity	85% RH or below (non-condensing)	
	Operating ambience	Free from corrosive gases	
Protection class		IP20	

(Note 1) Use an insulated PIO terminal block (optional, refer to p. 302) to insulate the I/F power supply.

I/O Wiring Diagram

PIO Type NP (NPN Specification)

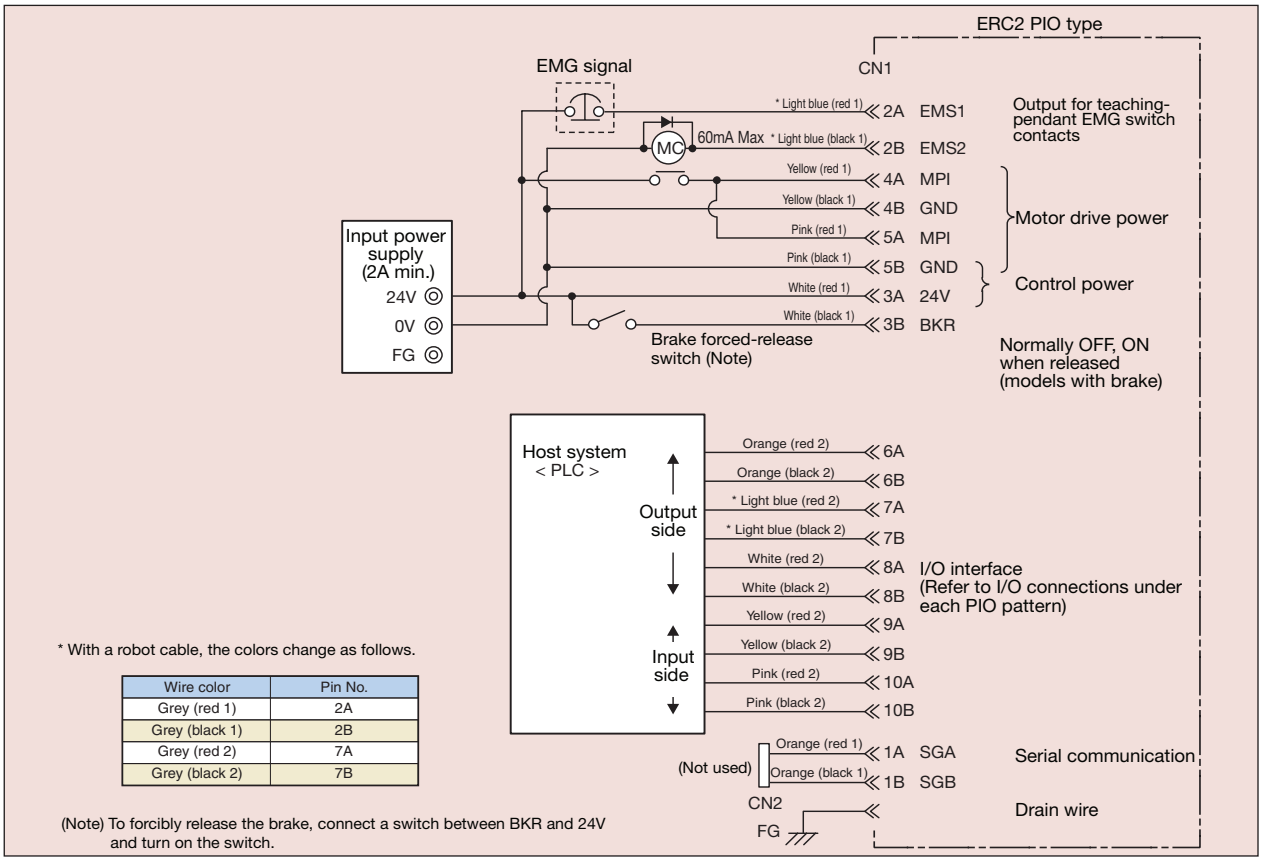


* With a robot cable, the colors change as follows.

Wire color	Pin No.
Grey (red 1)	2A
Grey (black 1)	2B
Grey (red 2)	7A
Grey (black 2)	7B

(Note) To forcibly release the brake, connect a switch between BKR and 0V and turn on the switch.

PIO Type NP (PNP Specification)

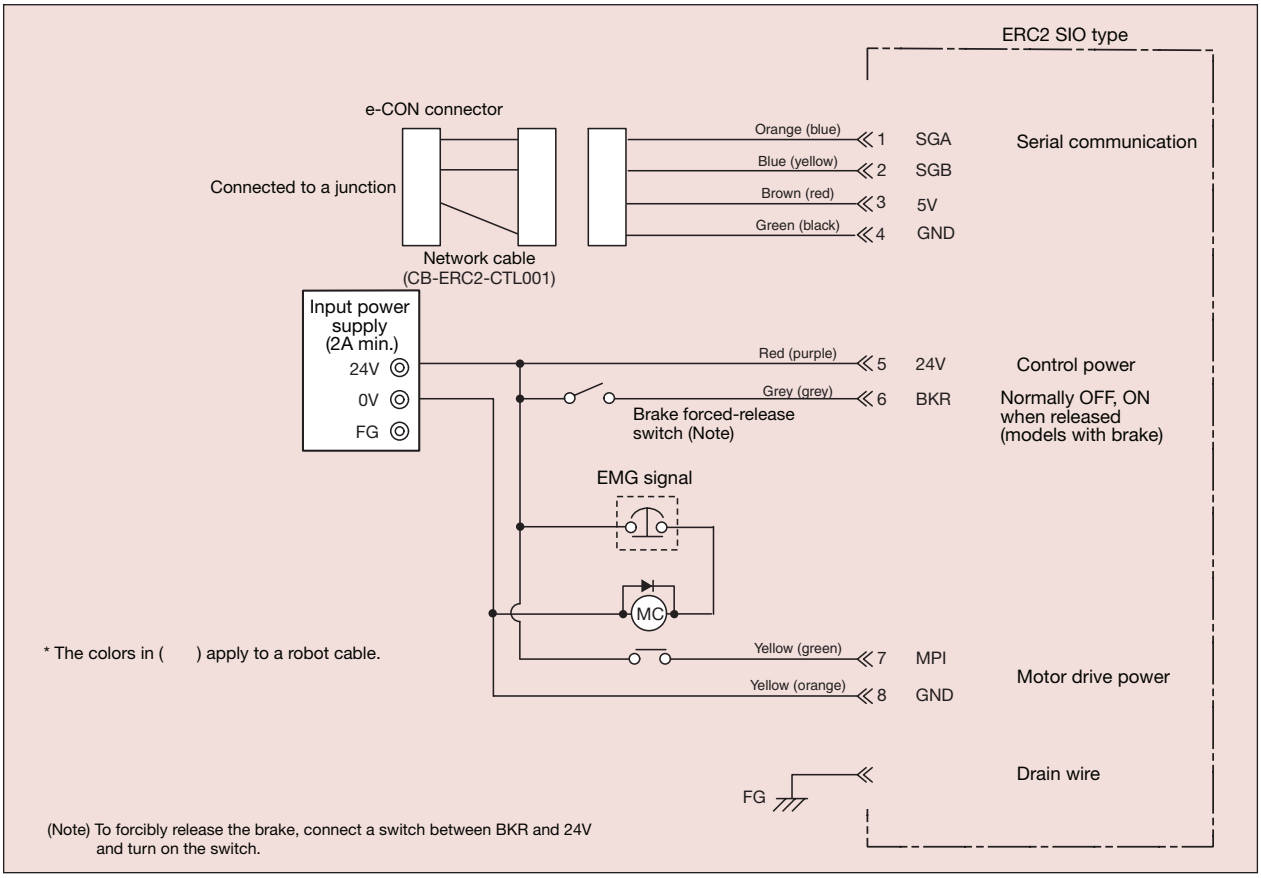


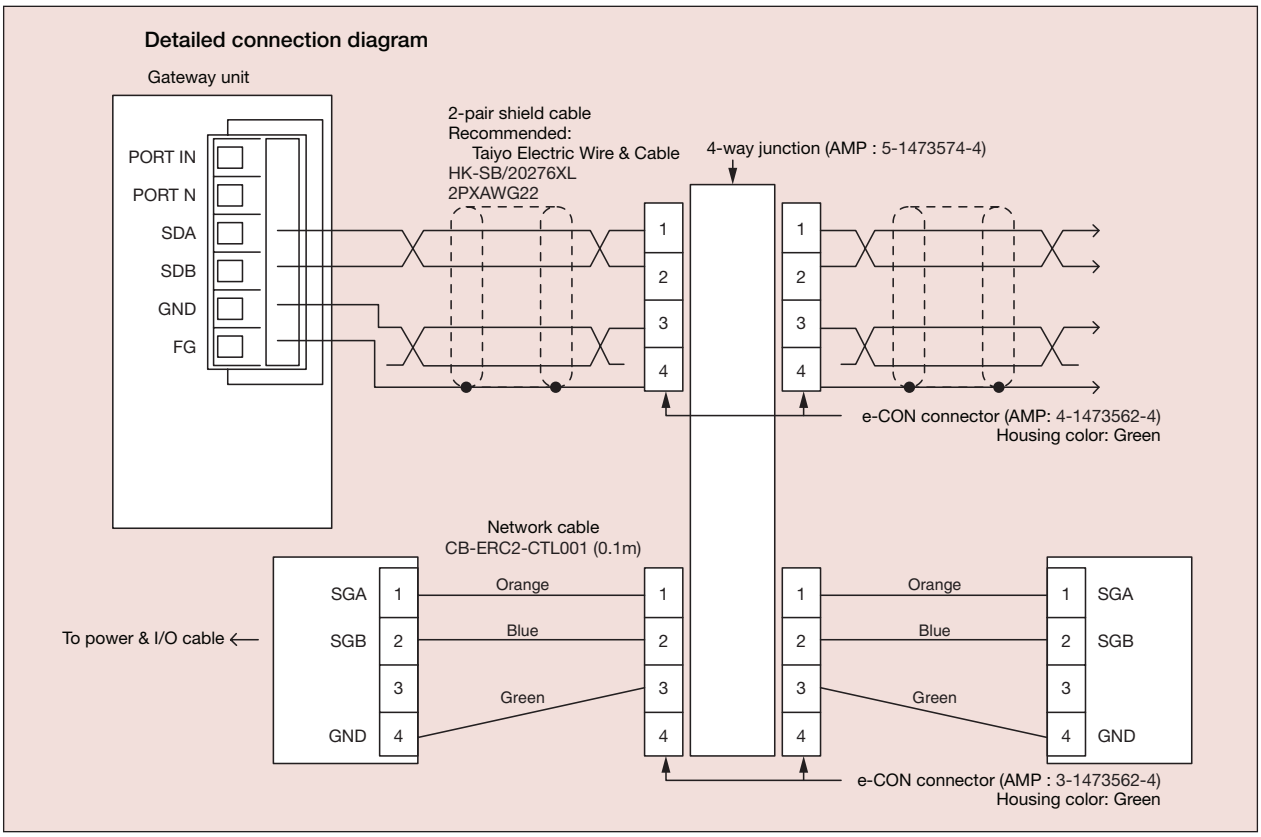
* With a robot cable, the colors change as follows.

Wire color	Pin No.
Grey (red 1)	2A
Grey (black 1)	2B
Grey (red 2)	7A
Grey (black 2)	7B

(Note) To forcibly release the brake, connect a switch between BKR and 24V and turn on the switch.

SIO Type SE


ERC2 SIO type
e-CON connector
Connected to a junction
Network cable
(CB-ERC2-CTL001)
Orange (blue)
Blue (yellow)
Brown (red)
Green (black)
1 SGA
2 SGB
3 5V
4 GND
Serial communication
Input power supply (2A min.)
24V
0V
FG
Red (purple)
Grey (grey)
5 24V
6 BKR
Control power
Normally OFF, ON when released (models with brake)
Brake forced-release switch (Note)
EMG signal
MC
* The colors in ( ) apply to a robot cable.
Yellow (green)
Yellow (orange)
7 MPI
8 GND
Motor drive power
FG
Drain wire
(Note) To forcibly release the brake, connect a switch between BKR and 24V and turn on the switch.

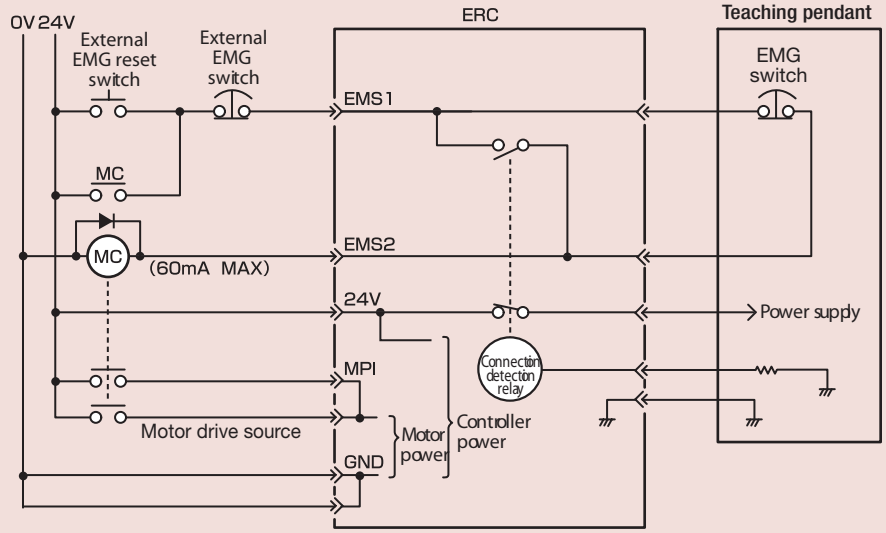

Detailed connection diagram
Gateway unit
PORT IN
PORT N
SDA
SDB
GND
FG
2-pair shield cable
Recommended:
Taiyo Electric Wire & Cable
HK-SB/20276XL
2PXAWG22
4-way junction (AMP : 5-1473574-4)
e-CON connector (AMP: 4-1473562-4)
Housing color: Green
Network cable
CB-ERC2-CTL001 (0.1m)
To power & I/O cable
SGA
SGB
GND
Orange
Blue
Green
e-CON connector (AMP : 3-1473562-4)
Housing color: Green

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 purpose. Provide a ready circuit, etc., according to your specification.)

Single Axis

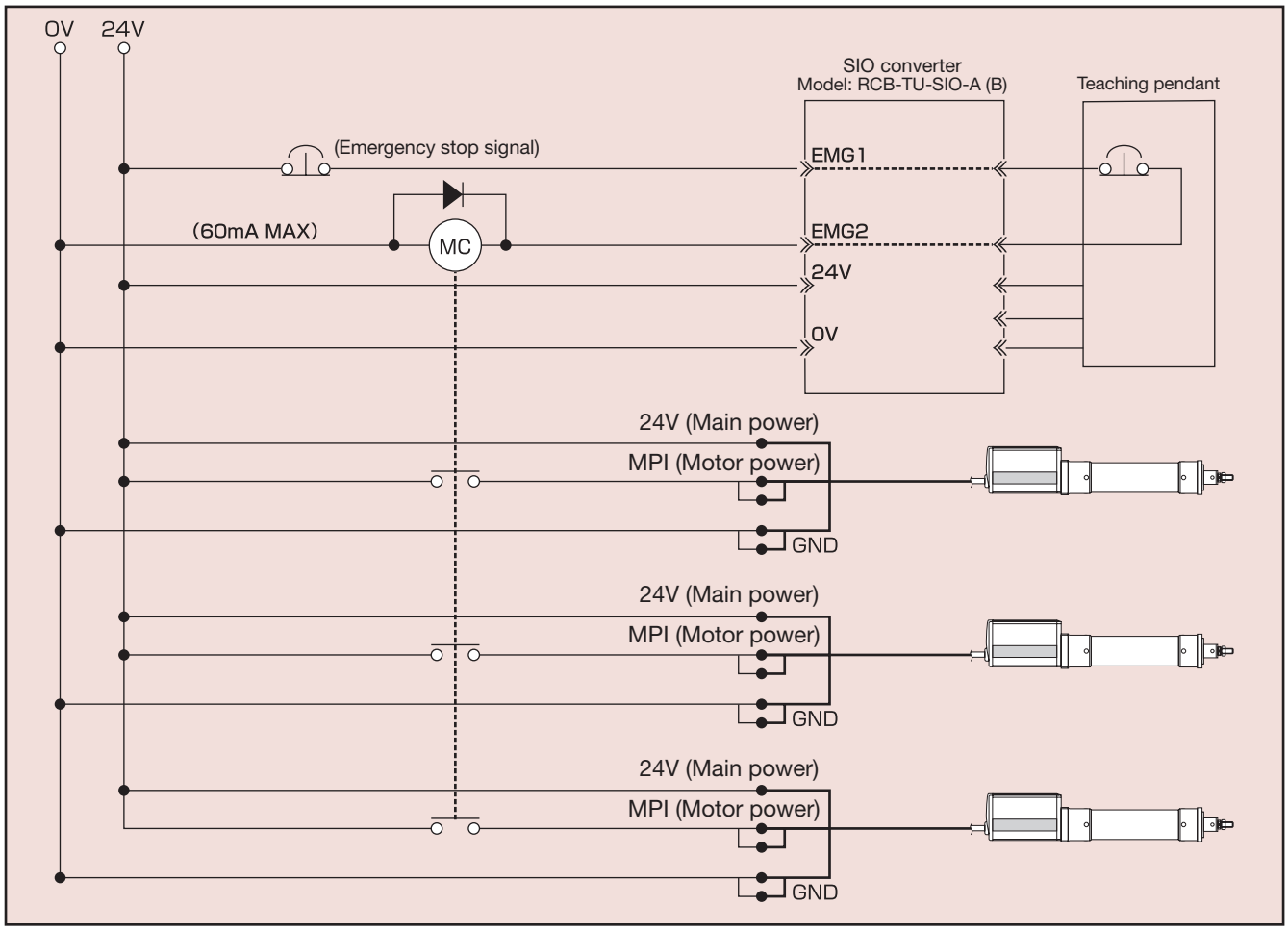
To provide an emergency stop circuit for a single-axis configuration, operate a relay using the EMS1 and EMS2 contacts of the power & I/O cable to cut off MPI (motor power).



* The circuit shown to the left applies to the PIO specification. With the SIO specification, cut off the motor drive source using an external emergency stop circuit because a teaching pendant cannot be connected.

Multiple Axes

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



Options

Insulated PIO Terminal Block

This terminal block is used to insulate 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/output ports are non-polar, so the I/O specification of the PLC can be either NPN or PNP.
- An input/output-signal monitor LED is equipped to check the ON/OFF status of signals.

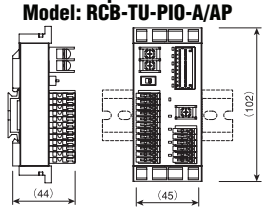
Specifications

Item		Specification
Power-supply voltage		DC24V±10%
Ambient operating temperature, humidity		0~55°C, 85% RH or below (non-condensing)
Input part	Number of input points	6 points
	Input voltage	DC24V±10%
	Input current	7mA/circuit (bipolar)
	Allowable leak current	1mA/point (approx. 2mA at normal temperature)
	Operating voltage (with respect to ground)	Input ON: Min16V (4.5mA) Input OFF: Max5V (1.3mA)
Output part	Number of output points	4 points
	Rated load voltage	DC24V
	Maximum current	60mA/point
	Residual voltage	2V max./60mA
	Short-circuit, overcurrent protection	Fuse resistance (27Ω, 0.1W)

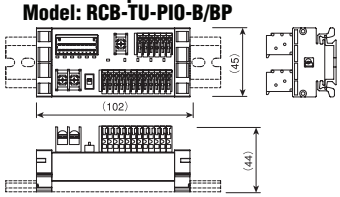
Note

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

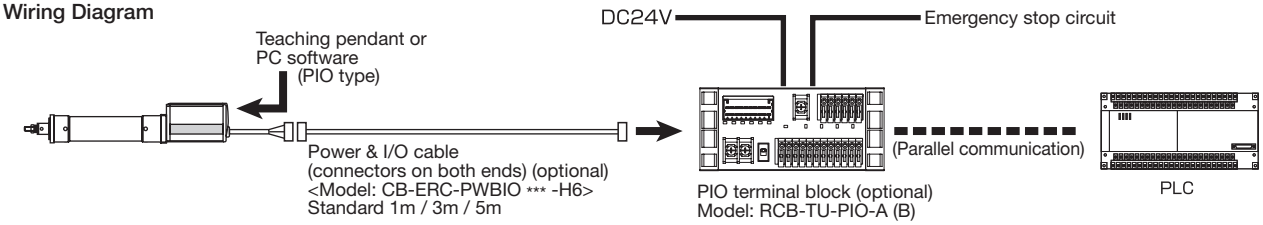
■ **Vertical Specification**
Model: RCB-TU-PIO-A/AP



■ **Horizontal Specification**
Model: RCB-TU-PIO-B/BP



Wiring Diagram



SIO Converter

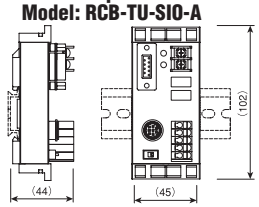
This converter permits RS232 communication by connecting the serial communication line (SGA, SGB) of the power & I/O cable and using a D-sub, 9-pin crossing cable for PC connection.

Features
- The connection port for teaching-pendant or 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.

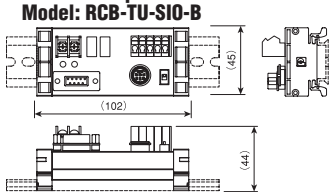
Specifications

Item	Specification
Power-supply voltage	DC24V±10%
Ambient operating temperature, humidity	0~55°C, 85% RH or below (non-condensing)
Terminal resistor	120Ω(built-in)

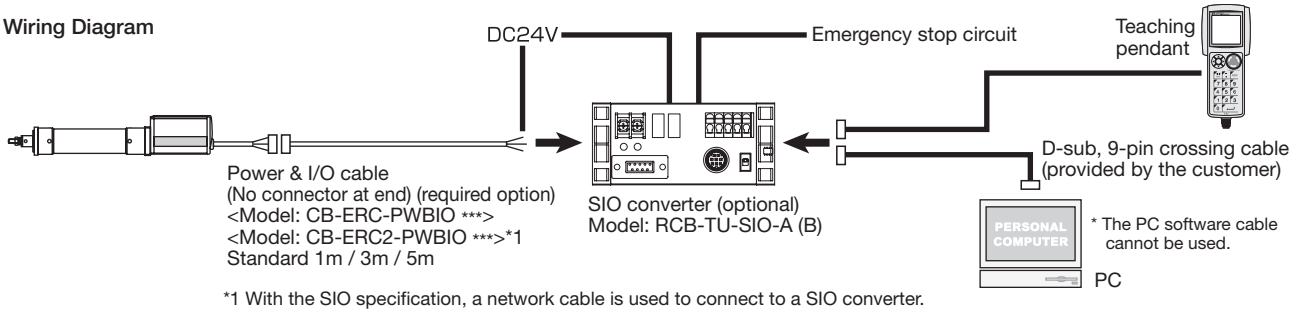
■ **Vertical Specification**
Model: RCB-TU-SIO-A



■ **Horizontal Specification**
Model: RCB-TU-SIO-B



Wiring Diagram

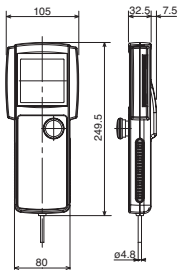
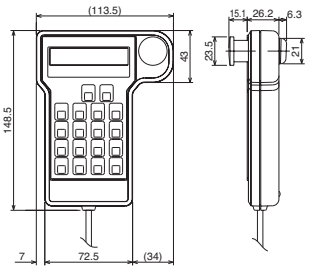
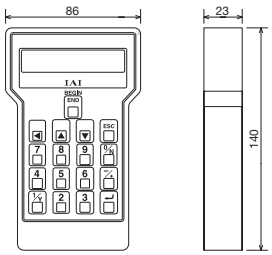


*1 With the SIO specification, a network cable is used to connect to a SIO converter.

Options

■ Teaching Pendant

An input device that provides all functions you need for trial operation and adjustment, such as position data input, test operation, as well as monitoring of current axis positions and input/output signals.

Name	Teaching Pendant	Simple teaching pendant	Data setting unit
Model	RCM-T (standard specification) RCM-TD (with deadman switch *1)	RCM-E	RCM-P
Standard price	—	—	—
External view			
Features	A standard, user-friendly teaching pendant equipped with a large LCD screen. A deadman switch type ensuring added safety is also available.	An economical type offering the same functions as the RCA-T at a substantially lower price.	An affordable data setting unit that provides all editing functions other than those relating to axis operation. * This unit does not support operations relating to axis movement.
Display	21 characters x 16 lines on LCD	16 characters x 2 lines on LCD	16 characters x 2 lines on LCD
Weight	Approx. 550g	Approx. 400g	Approx. 360g
Cable length	5m	5m	5m
Ambient operating temperature, humidity	Temperature: 0~40°C, Humidity: 85% RH or below		
External dimensions			

*1 The deadman switch is a safety switch that cuts off the drive source when released to disable operation.

■ PC Software

A software program that helps input position data and perform test operation.
It significantly facilitates debugging operation by offering wide-ranging functions including jogging, inching, step operation and continuous operation.

■ RS232 Communication Type

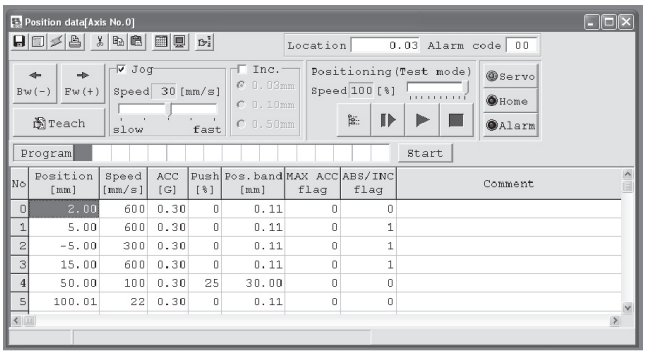
Model RCM-101-MW

<Content>PC software (CD-ROM), PC cable (communication cable + RS232 conversion unit)

■ USB Communication Type

Model RCM-101-USB

<Content>PC software (CD-ROM), PC cable (communication cable + USB conversion unit + USB cable)

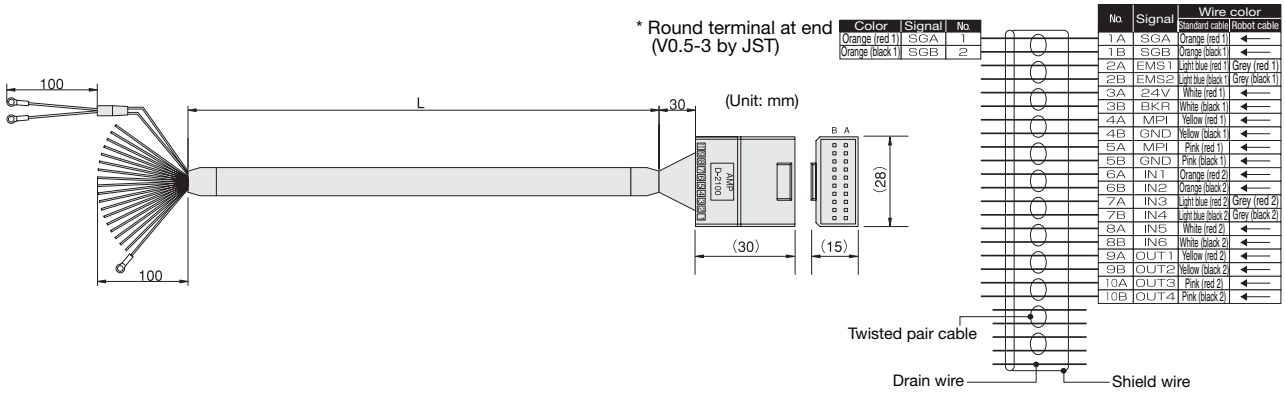


Cables and Spare Parts

Power & I/O Cable / Power & I/O Robot Cable for PIO Type

Model CB-ERC-PWBIO□□□/CB-ERC-PWBIO□□□-RB

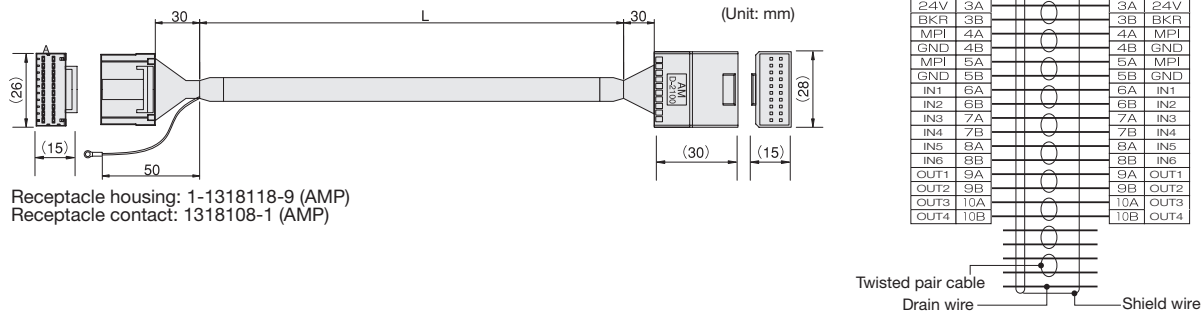
* □□□ indicates the cable length (L). Lengths up to 10 m can be specified. Example) 080 = 8 m



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

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

* □□□ indicates the cable length (L). Lengths up to 10 m can be specified. Example) 080 = 8 m

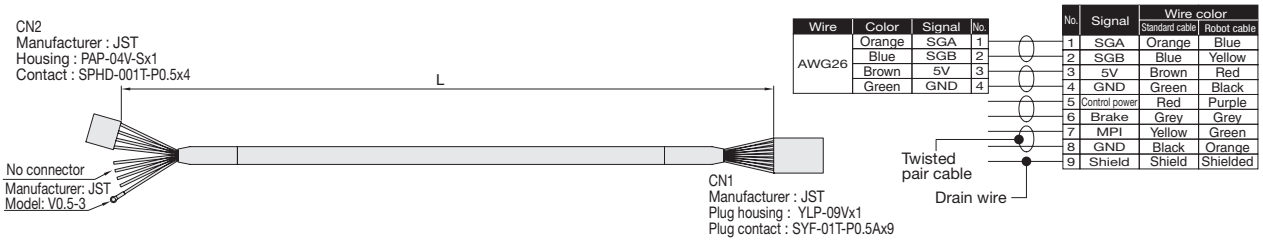


Receptacle housing: 1-1318118-9 (AMP)
Receptacle contact: 1318108-1 (AMP)

Power & I/O Cable / Power & I/O Robot Cable for SIO Type

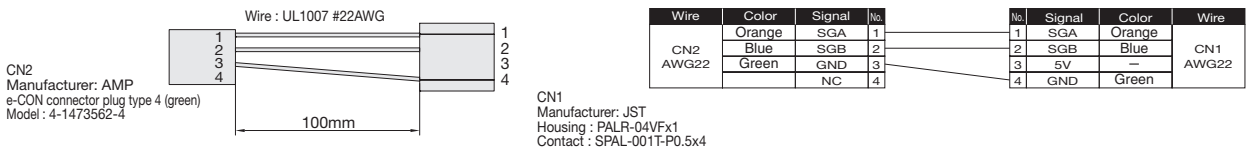
Model CB-ERC2-PWBIO□□□/CB-ERC2-PWBIO□□□-RB

* □□□ indicates the cable length (L). Lengths up to 10 m can be specified. Example) 080 = 8 m



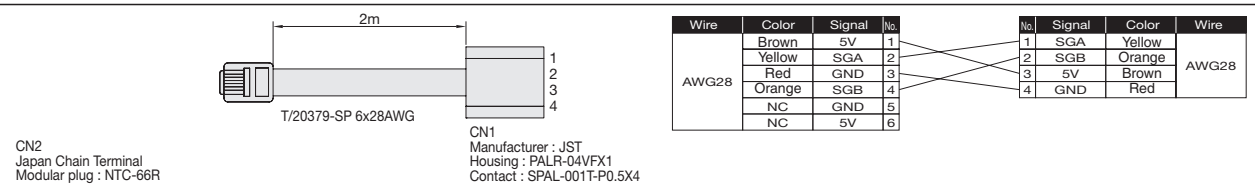
Network Cable

Model CB-ERC2-CTL001



PC Communication Cable

Model CB-ERC2-SIO020



ERC2 Series
Extract Cat. No. 0307-E

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ISO 9001

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