Dyadic Systems

Dyadic Systems Catalog

iNDUSTRiAL Quality-Value-Delivery DYNAMiCS controlled motion systems and components
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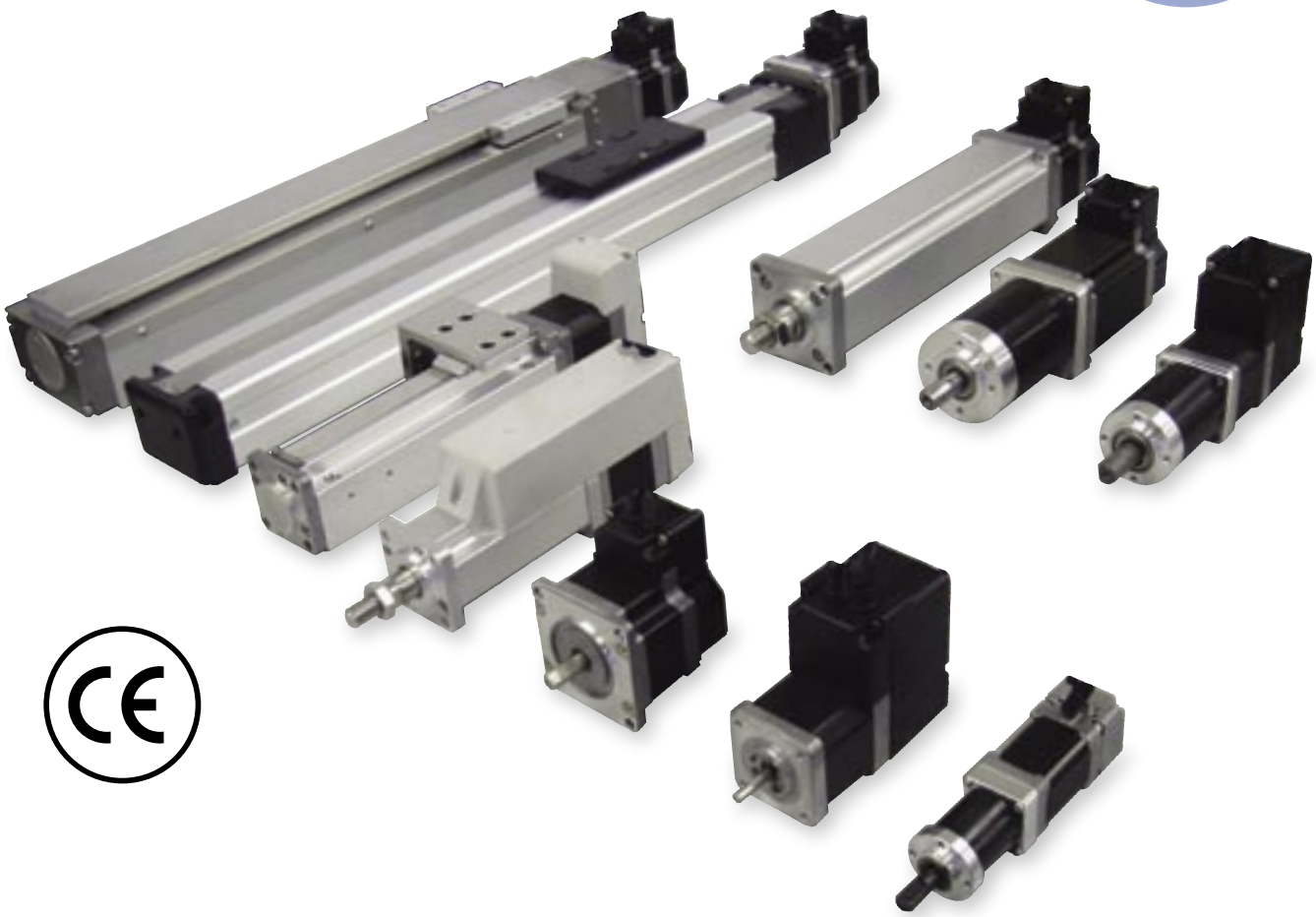
Mechatronics Cylinder

& Easy Servo System

2011.8

Ultimate Solution for Energy-saving Actuators!

substantial reduction in CO_2

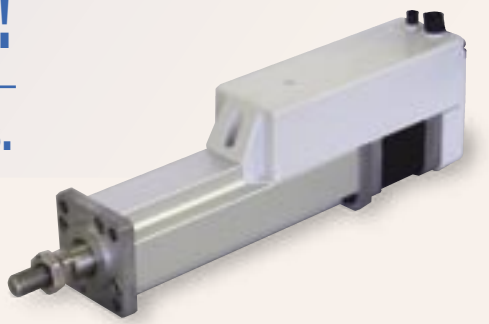


CE

Easy to use!
Low price!
Energy-saving!

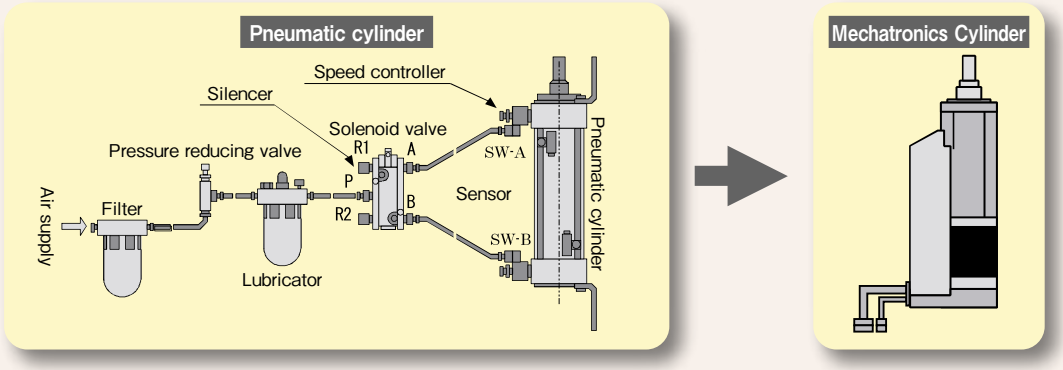
Easy to connect! Easy to operate!

Competitive price with pneumatic cylinders.



Feature 1 When compared to pneumatic cylinders:

(1) Can be used immediately after easy connection.
(2) Power consumption can be reduced substantially (1/3 - 1/10).
(3) Can be operated with DC 24V and ON/OFF signal.
(4) No shock absorber and sensor is required.
(5) Output of zone signal is possible.
(6) There is no splash of oil mist.
(7) Maintenance-free! Long-time continuous operation is possible.



Feature 2 Things that cannot be done with pneumatic cylinders can be achieved easily.

Multipoint positioning (with 16 positions) can be set easily.
Pressing thrust can be varied easily.
Travelling speed can be varied easily.
Multiracial synchronous operation can be achieved.

Feature 3 When compared to the conventional servomotors:

After the power is turned on, the cylinder returns to the home position automatically by the first positioning instruction and then performs the positioning to the target position.
No special knowledge about servo systems is required.
The teaching tool can be operated intuitively even without the instruction manual.

Feature 4 All the interfaces of the amplifiers (separate type) are common.

As all the interfaces of the amplifiers (separate type) are same and have backward compatibility, they can be used for a long period without compatibility problem.

Feature 5 Unique ancillary functions are provided.

All the cylinders and motors are equipped with the pneumatic cylinder compatible mode* and the self-sequence-control mode*, and they can be used easily by just switching the mode.
* We have detailed information, so please contact our dealers or sales offices.

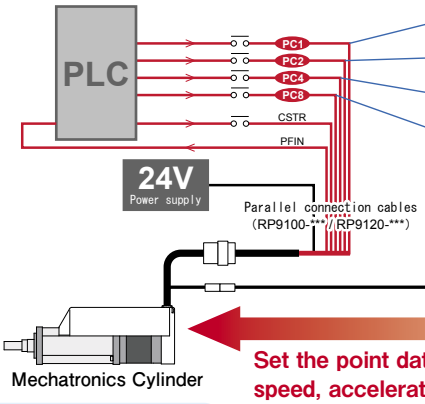
CE

For the R series servo system (except for RCB0411) and the SCN5 series mechatronics cylinders, the CE mark, which indicates that the product is in conformity with the following EC directive, is attached to them.

EMC Directive 89 / 336 / EEG

It can be controlled with PLC I/O

Max. positioning objects: 16



Data table

Point No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PC1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
PC2	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
PC4	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
PC8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

0:OFF 1:ON

Set the point data, such as position, speed, acceleration, etc.

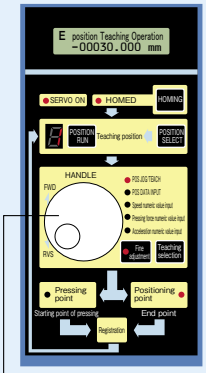
Teaching tool

Teaching Pendant (CTA-23) or PC setting tool (TBVST)

Teaching Pendant

Teaching can be done simply by following the instructions on the panel.

CTA-23



Jog handle

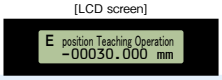
Position teaching

(1) Press POSITION SELECT to specify the position (Position '0' is displayed after the power is turned on).

(2) Turn the jog handle to determine the travel distance (mm). -> Press Write .

* The carrier (or rod) of the actuator moves simultaneously.

[LCD screen]

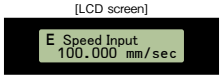


Speed teaching

(1) Press Teach Mode Select twice to light the LED for "Speed Data Input."

(2) Turn the jog handle to determine the travel distance (mm). -> Press Write .

[LCD screen]



* In a similar manner, the instructions for teaching acceleration/deceleration, push force, etc., can be set easily.

* For each position, repeat the series of operations above to set the instructions for teaching (up to 16 objects of positioning can be set).

PC Setting Tool

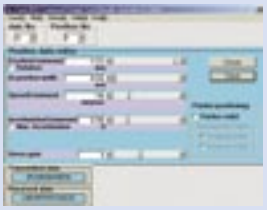
The objective position, travel speed, acceleration, push force (torque), etc., of the Mechatronics Cylinder/ servomotor can be set from a PC.

Kit Contents:

* Software disc
* RS232/485 converter ADP-1
* Connecter converter ADP-2
* ADP cable
* SIO cable

Main screen

Parameter change screen

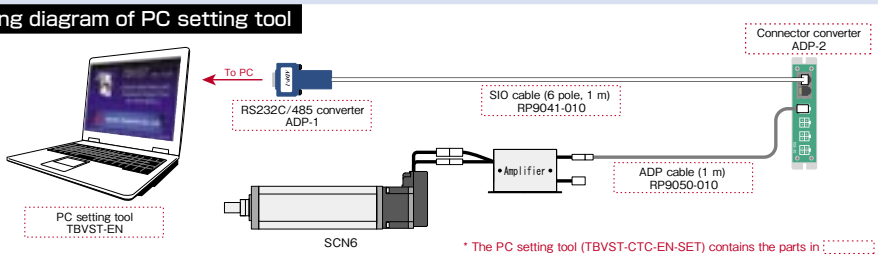


Position setting screen

File operation screen

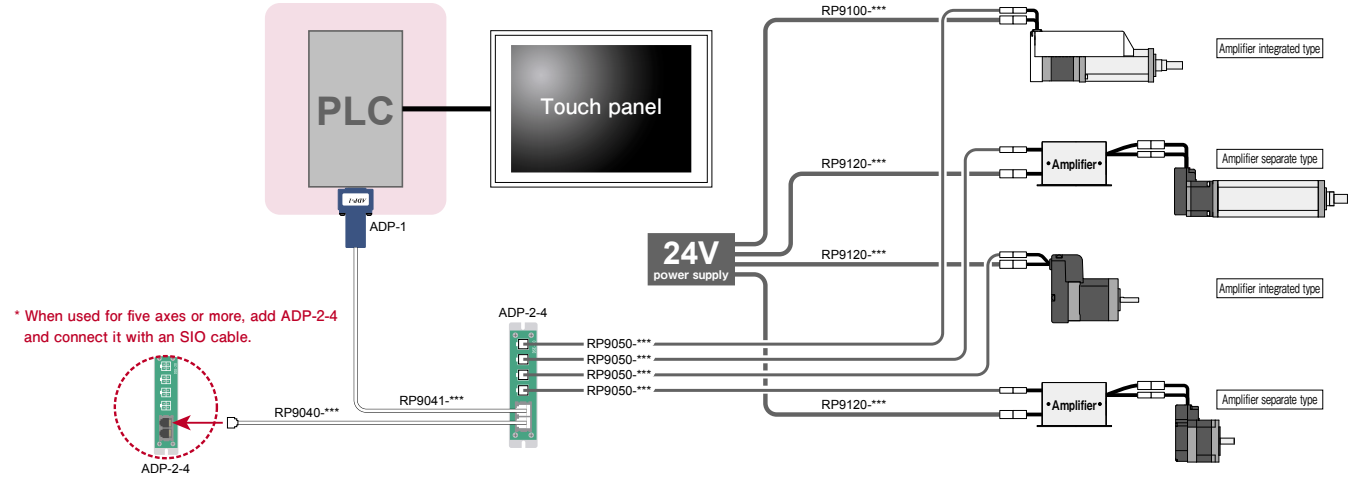
Trace screen

Wiring diagram of PC setting tool



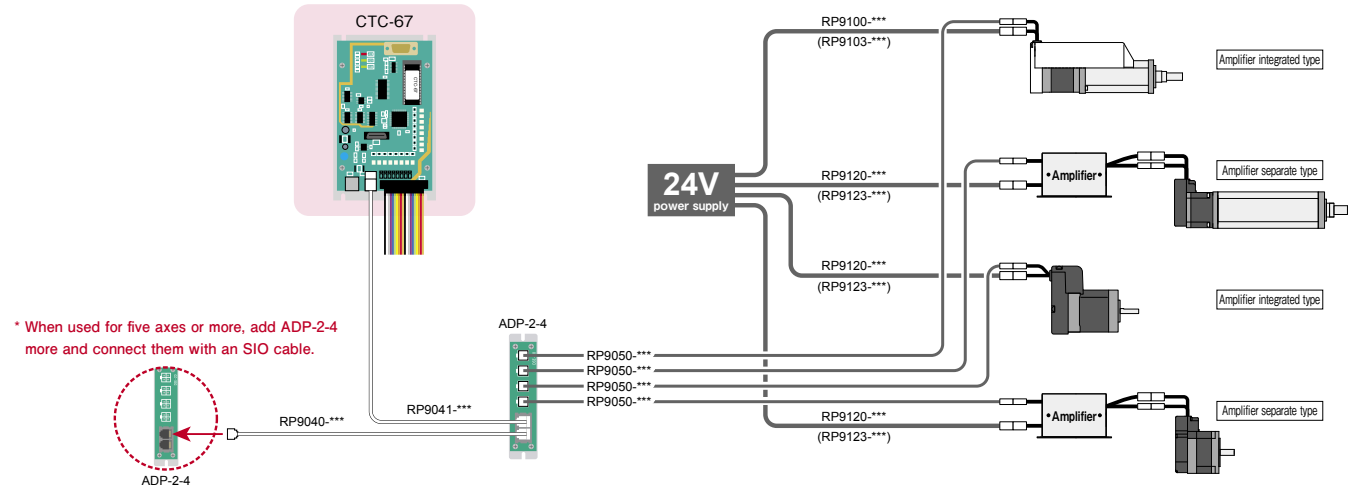
The control via serial communication

Number of positions: No limit
Controlable axes: Max. 16 axes



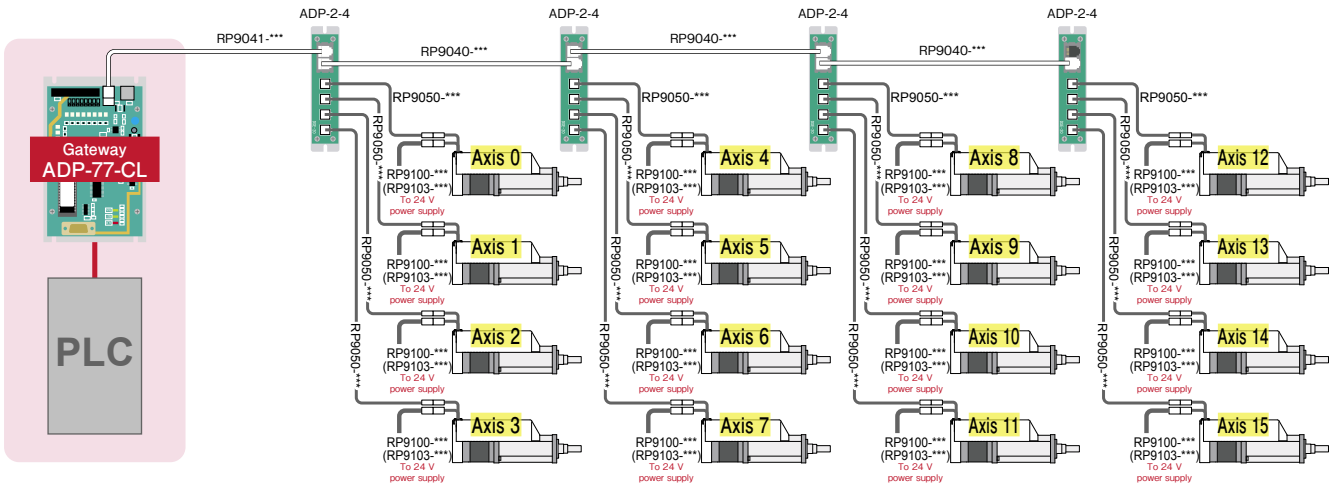
CTC-67 control

Controlable axes: Max. 8 axes



CC-Link control

Controlable axes: Max. 1,024 axes (when 64 gateways are connected)



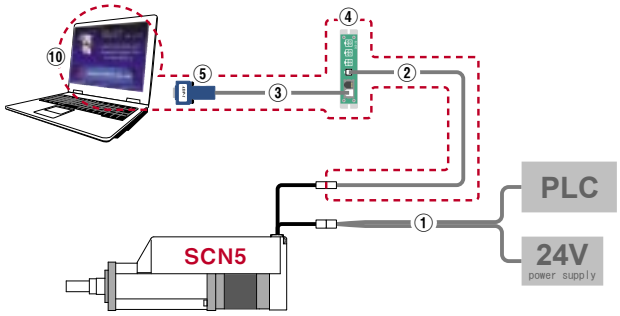
Accessories

SCN model's Brackets	Prallel Cables (Power & I/O)	ADP-1: 232 / 485 Adaptor	RP9050-010: ADP cable	RP9041-010: SIO cable	ADP-2: Conenector junction
For SCN5 / For SCN6	SCN5: RP9100-*** Others: RP9120-***				

SCN5 First purchase

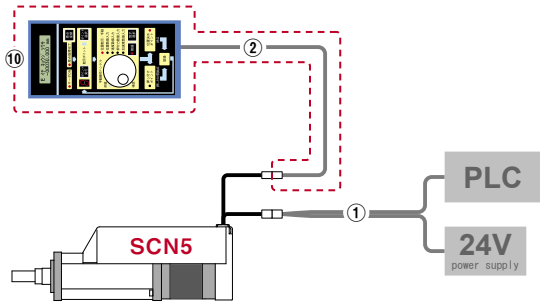
When using the PC setting tool

Items ②, ③, ④, ⑤, and ⑩ in the box comprise a set (the lengths of ② and ③ are 1 m).



When using the teaching Pendant

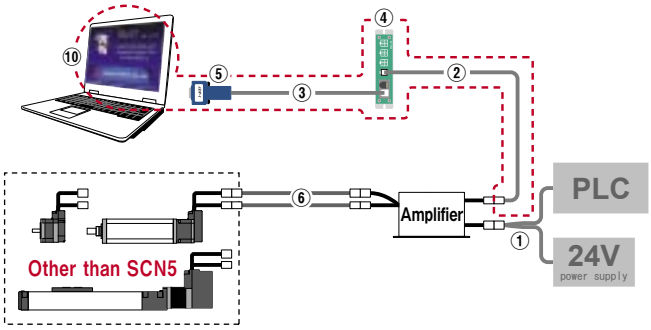
Items ② and ⑩ in the box consist of a set (the length of ② is 1 m).



Other than SCN5 First purchase

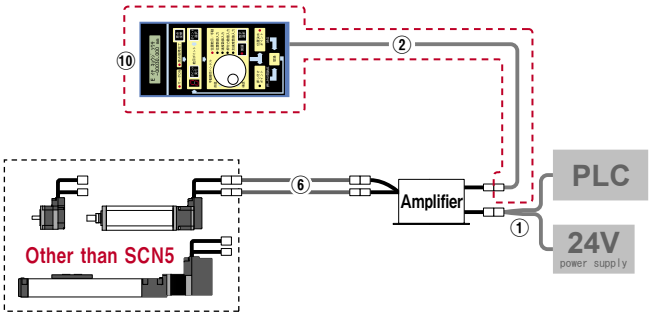
When using the PC setting tool

Items ②, ③, ④, ⑤ and ⑩ in the box consist of a set (the lengths of ② and ③ are 1 m).



When using the teaching Pendant

Items ② and ⑩ in the box consist of a set (the length of ② is 1 m).



List of Cables and Converters

Sign	Name	Model
①	Parallel connection cable for SCN5 (1 m)	RP9100-010
	Parallel connection cable for SCN5 (3 m)	RP9100-030
	Parallel connection cable for SCN5 (5 m)	RP9100-050
	Parallel connection cable for SCN5 (10 m)	RP9100-100
	Flex-proof parallel connection cable for SCN5 (1 m)	RP9100-010R
	Flex-proof parallel connection cable for SCN5 (3 m)	RP9100-030R
	Flex-proof parallel connection cable for SCN5 (5 m)	RP9100-050R
	Flex-proof parallel connection cable for SCN5 (10 m)	RP9100-100R
	Parallel connection cable for SCN5 for serial communication (1 m)	RP9103-010
	Parallel connection cable for SCN5 for serial communication (3 m)	RP9103-030
	Parallel connection cable for SCN5 for serial communication (5 m)	RP9103-050
	Parallel connection cable for SCN5 for serial communication (10 m)	RP9103-100
	Flex-proof parallel connection cable for SCN5 for serial communication (1 m)	RP9103-010R
	Flex-proof parallel connection cable for SCN5 for serial communication (3 m)	RP9103-030R
	Flex-proof parallel connection cable for SCN5 for serial communication (5 m)	RP9103-050R
	Flex-proof parallel connection cable for SCN5 for serial communication (10 m)	RP9103-100R
	Parallel connection cable (1 m)	RP9120-010
	Parallel connection cable (3 m)	RP9120-030
	Parallel connection cable (5 m)	RP9120-050
	Parallel connection cable (10 m)	RP9120-100
	Flex-proof parallel connection cable (1 m)	RP9120-010R
	Flex-proof parallel connection cable (3 m)	RP9120-030R
	Flex-proof parallel connection cable (5 m)	RP9120-050R
	Flex-proof parallel connection cable (10 m)	RP9120-100R
	Parallel connection cable for serial communication (1 m)	RP9123-010
	Parallel connection cable for serial communication (3 m)	RP9123-030
	Parallel connection cable for serial communication (5 m)	RP9123-050
	Parallel connection cable for serial communication (10 m)	RP9123-100
	Flex-proof parallel connection cable for serial communication (1 m)	RP9123-010R
	Flex-proof parallel connection cable for serial communication (3 m)	RP9123-030R

Sign	Name	Model
①	Flex-proof parallel connection cable for serial communication (5 m)	RP9123-050R
	Flex-proof parallel connection cable for serial communication (10 m)	RP9123-100R
②	ADP cable (1 m)	RP9050-010
	ADP cable (3 m)	RP9050-030
	ADP cable (5 m)	RP9050-050
	ADP cable (10 m)	RP9050-100
	Flex-proof ADP cable (1 m)	RP9050-010R
	Flex-proof ADP cable (3 m)	RP9050-030R
	Flex-proof ADP cable (5 m)	RP9050-050R
	Flex-proof ADP cable (10 m)	RP9050-100R
③	SIO cable (1 m, 6 core)	RP9041-010
	SIO cable (3 m, 6 core)	RP9041-030
	SIO cable (5 m, 6 core)	RP9041-050
	SIO cable (10 m, 6 core)	RP9041-100
④	Connector converter	ADP-2-4
⑤	RS232C/485 converter	ADP-1
⑥	Motor/encoder extension cable (1 m)	RP9135-010
	Motor/encoder extension cable (2 m)	RP9135-020
	Motor/encoder extension cable (3 m)	RP9135-030
	Motor/encoder extension cable (4 m)	RP9135-040
	Motor/encoder extension cable (5 m)	RP9135-050
	Motor/encoder extension cable (9 m)	RP9135-090
	Flex-proof motor/encoder extension cable (1 m)	RP9135-010R
	Flex-proof motor/encoder extension cable (2 m)	RP9135-020R
	Flex-proof motor/encoder extension cable (3 m)	RP9135-030R
	Flex-proof motor/encoder extension cable (4 m)	RP9135-040R
	Flex-proof motor/encoder extension cable (5 m)	RP9135-050R
	Flex-proof motor/encoder extension cable (9 m)	RP9135-090R
⑩	Teaching Pendant	CTA-23-SET
	PC setting tool	TBVST-CTC-EN-SET

Self-control Function

Since the amplifier has a built-in sequence control function, continuous motion is possible without using the PLC.

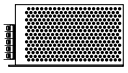
Air piping is not required. Program development for PLC is not necessary.

- Using the PC Settings Tool, programs can be created easily.
- Pressing the start switch starts a continuous motion.
- Motions can be performed, such as reciprocal motion between 2 points and continuous motion up to 16 points.
- Multiple programs can be created. A required program can be selected from them for execution.
- Changing from the standard function to the built-in sequence control function can be achieved with the PC Settings Tool.

Please prepare the following items other than the mechatronics cylinder


PC setting tool

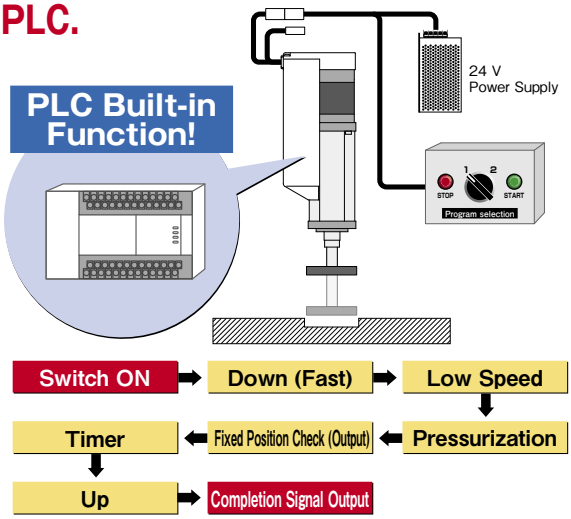

Cable


24 V power supply

Switch

* The self-control function can be used only when the product is used on one axis.
* Please clearly state at the time of the order that you want to use the self-control function.

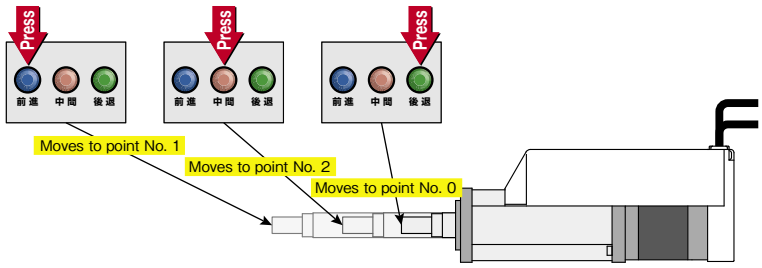
Example of work press fitting motion



Pneumatic Cylinder Compatible Function

Two-point or three-point movement can be achieved simply by using the switches!

The start, middle, and end points can be set arbitrarily.

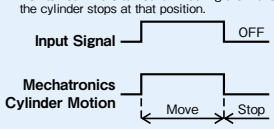


* The backward movement end, forward movement end, and middle point commands can be set arbitrarily.

Two modes are available depending on the input signal.

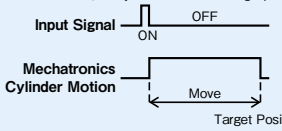
Air Compatible Mode 1 (Level Signal)

The ON status of the move command input must be maintained. If it is turned OFF during the movement, the cylinder stops at that position.

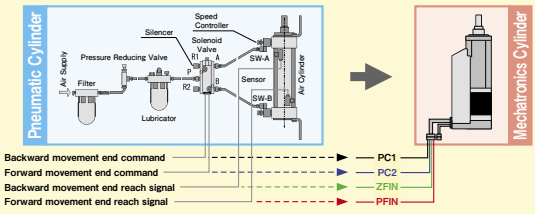


Air Compatible Mode 2 (Pulse Signal)

The ON signal of the move command input is a pulse signal (10 ms or longer). If the input signal is turned OFF after that, the cylinder moves to the target position.



If the four signal wires of the pneumatic cylinder are connected to the mechatronics cylinder, the same movement can be reproduced.
The existing wires and programs for the pneumatic cylinder can be used without modification!



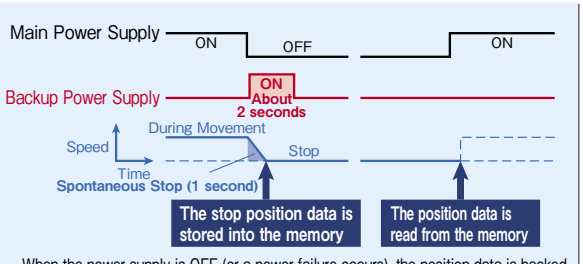
Code	Air Compatible Mode 1 (Level Signal)	Air Compatible Mode 2 (Pulse Signal)
PC1	Backward movement end command input (Point No. 0)	
PC2	Forward movement end command input (Point No. 1)	
PC4	Middle point command input (Point No. 2)	
PC8	Will not function	
CSTR	Will not function	
PFIN	Backward movement end reach output	
ZFIN	Forward movement end reach output	
ZONE	Middle point reach output	
ALM	Alarm output	
ILK	Will not function (Connection to 0V is necessary)	Interlock input (Movement distance cancel)

Battery-less Absolute Function

No Origin Return! No Battery!

Since the stop position is stored if the power supply is interrupted during a movement motion, the cylinder can be restarted from the stop position without origin return after the power supply is recovered.

- No battery replacement is required.
- A highly reliable absolute sensor is realized.
  (No malfunction because a very small electric current is not used.)
- High noise tolerance: No electricial energy is used during data backups.
- The price is equal to that of the incremental version.



When the power supply is OFF (or a power failure occurs), the position data is backed up during the inertial motion only (about 1 second), and after the mechatronics cylinder stops, the data are stored in memory. However, if the cylinder may be moved from outside when the power supply is OFF, please select the model with a brake.

Compatible Model:
SCN6-050-□□□-B/BW、SCN6-060-□□□-B/BW、SCLL5-010-□□□-B、SCLG5-010-□□□-B、SCLG6-030-□□□-B、
SCLT4-015-□□□-SBR、SCLT4-030-□□□-SBR、SCLT6-025-□□□-BBR、SCLT6-050-□□□-BBR

* The incremental/absolute version can be changed in the PC Setting Software (TBVST Ver.3.30 or later).

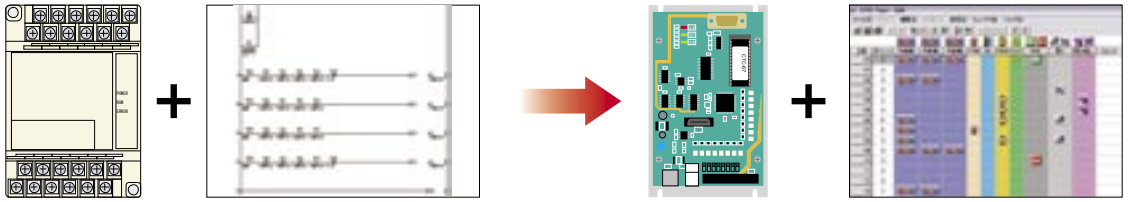
CTC-67 Control

The time required for programming can be reduced substantially when compared to that with the PLC+ ladder program.

Reduced to 1/50 - 1/200!

This is a general-purpose controller that does not require the ladder program and can be used easily by anyone.

The actuator and the peripheral equipment can be controlled simultaneously via an external I/O .

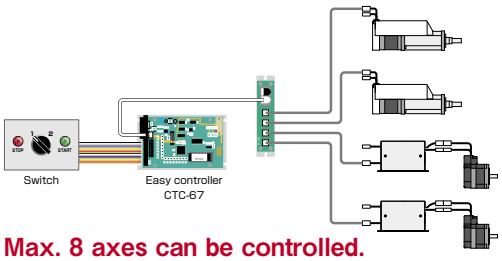


PLC　Ladder program　CTC-67　CTC tool

■ CTC-67 Specification

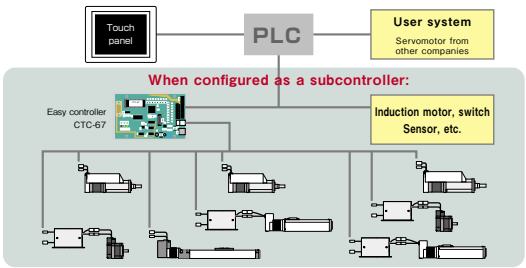
Program control method		Stored program　Process stepping type
Program capacity		100 process
Max. number of control axes / max. number of positioning points		8 axes / 128 position
Input	Number of standard positioning points	Dedicated: 2 point, general purpose: 6 points
	Number of extension positioning points	General purpose: 10 points (when the extended I/O unit is mounded)
	Signal current	About 3 mA
Output	Number of standard positioning points	DNumber of dedicated inputs: 2, Number of general purpose inputs: 6
	Number of extension positioning points	Numbetr of general purpose inputs: 10　(when the extended I/O unit is mounded)
	Max. load	30 mA / each output (Sum of output currents: 2 A/Unit)
Controller power supply		Supplied from the actuator
I/O power supply		DC 24 V -30% / +15%
Environmental condition	Service temperature	0° C to 55° C
	Storage temperature	-20° C to 60° C
	Service/storage humidity	20% RH to 80%RH, no condensation
	Allowable vibration/shock	0.5 G / 2 G (3 times)

Small-scale equipment



Max. 8 axes can be controlled.

Adoption example for large-scale line



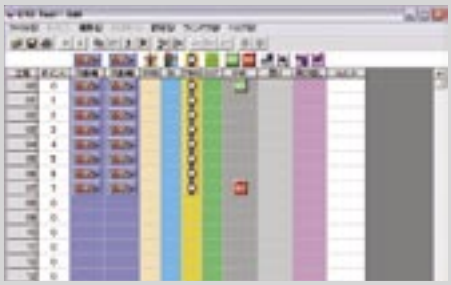
Comparison of CTC Tool and Conventional Ladder Program

(Condition: The 2-axis servo is stopped at 8 positions and the timer is set at each point.)

Ladder program:

The conventional ladder program requires 250 steps for a whole sequence and, thus, only 1/15 of the entire program can be seen on one screen.

CTC tool:

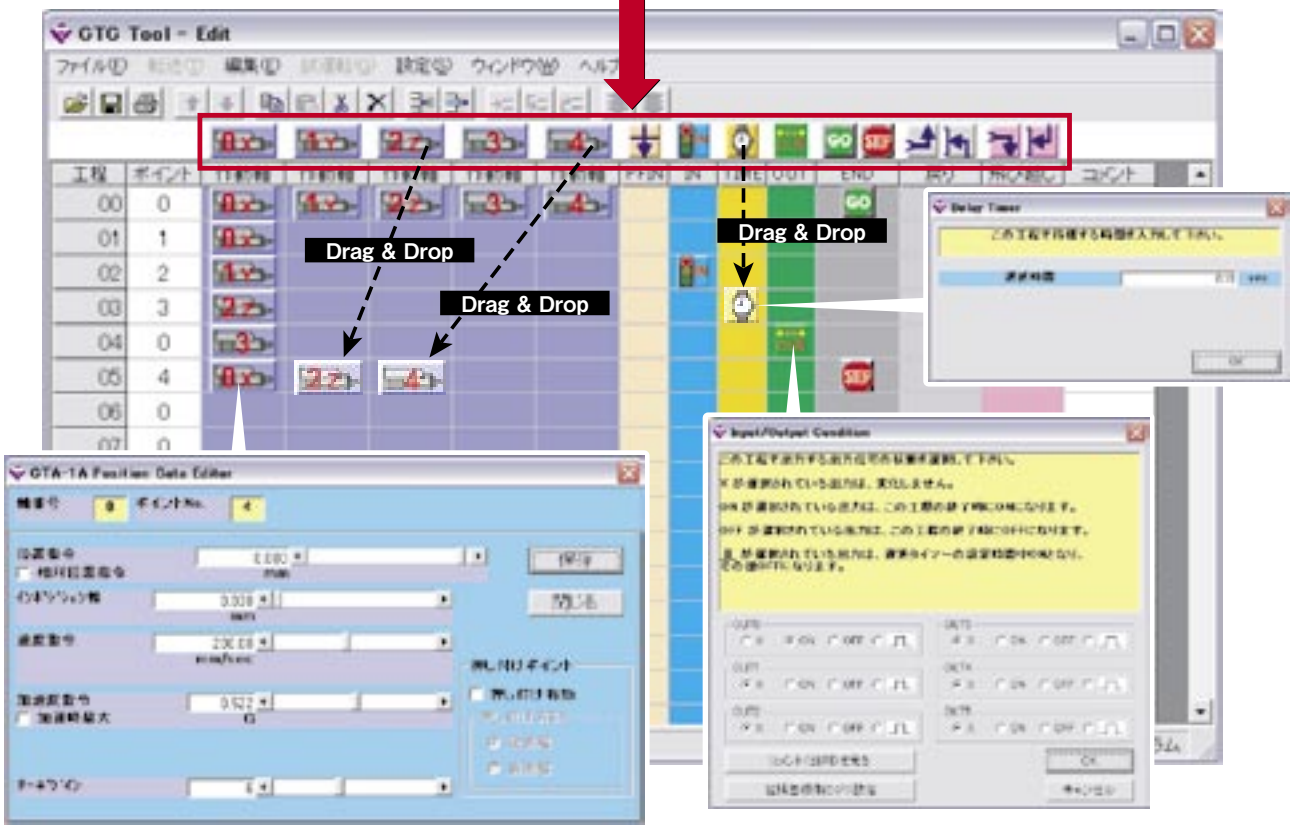


With the CTC tool, the entire sequence program requires just 8 steps and all the operations are obvious at a glance.

Creation of Program No special programming language is required.

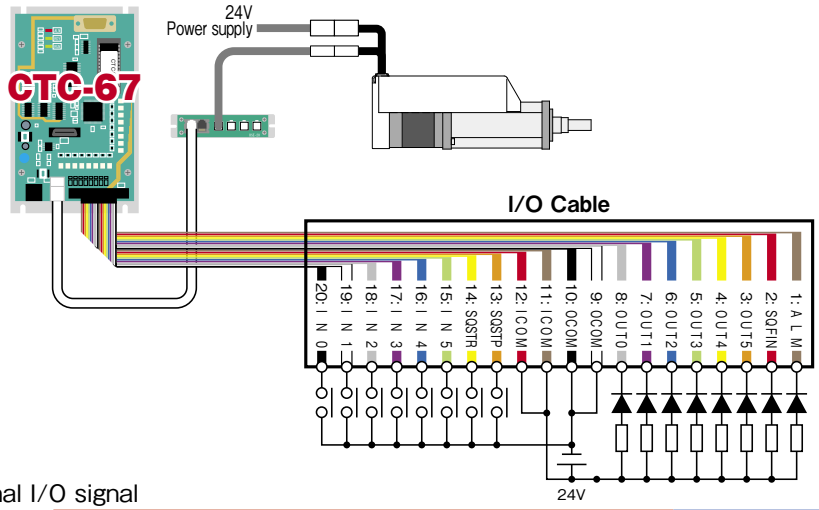
Patented

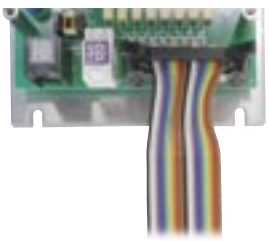
Drag these icons to the process to be used!



Cylinder (Allocate the axis No.)	Specification of program start step (Program selection from the external I/O)
Ignore the positioning completion signal	Program end step
Waiting for external input conditions (6 points, can be extended up to 16 points)	Return assignment / condition comparison / repetition process (loop) assignment depending on the external input condition
Delay timer	Skip assignment / condition comparison / subprogram assignment and call depending on the external input condition
External output condition (6 points, can be extended up to 16 points)	

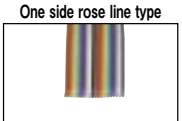
● I/O Connection Cable (used when input and output with outside are necessary)





Model	Length
RP9170-030	3m
RP9170-050	5m
RP9170-100	10m

One side terminal stand type



Model	Length
RP9161-030	3m
RP9161-050	5m
RP9161-100	10m

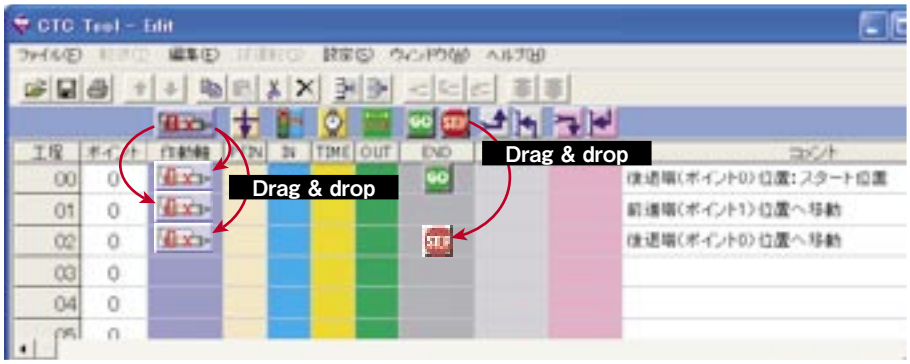
One side rose line type

External I/O signal

	Input signal										Output signal									
PIN No.	20	19	18	17	16	15	14	13	12	11	8	7	6	5	4	3	2	1	10	9
Sign	IN0	IN1	IN2	IN3	IN4	IN5	SQSTR	SQSTP	ICOM	ICOM	OUT0	OUT1	OUT2	OUT3	OUT4	OUT5	SQFIN	ALM	OCOM	OCOM
Cable color	Black	White	Gray	Purple	Blue	Green	Yellow	Orange	Red	Brown	Gray	Purple	Blue	Green	Yellow	Orange	Red	Brown	Black	White
Terminal stand No.	B10	A10	B9	A9	B8	A8	B7	A7	B6	A6	B4	A4	B3	A3	B2	A2	B1	A1	B5	A5
Name	General-purpose input signal 0	General-purpose input signal 1	General-purpose input signal 2	General-purpose input signal 3	General-purpose input signal 4	General-purpose input signal 5	Sequence start	Sequence compulsion stop	Inputting common (+24V に接続)	Inputting common (+24V に接続)	General-purpose output signal 0	General-purpose output signal 1	General-purpose output signal 2	General-purpose output signal 3	General-purpose output signal 4	General-purpose output signal 5	Sequence completion output	Alarm output signal	Outputting common (0V に接続)	Outputting common (0V に接続)

Moving Mechatronics Cylinder

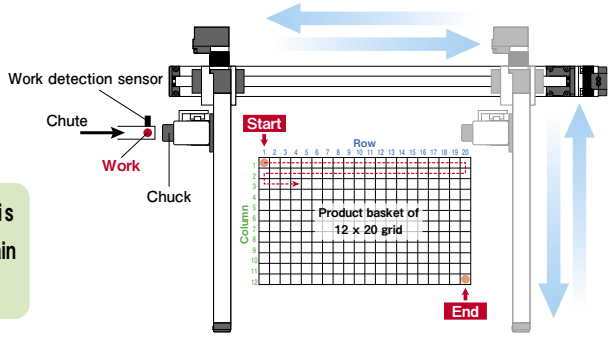
Easy programming is possible with “Drag & drop.”



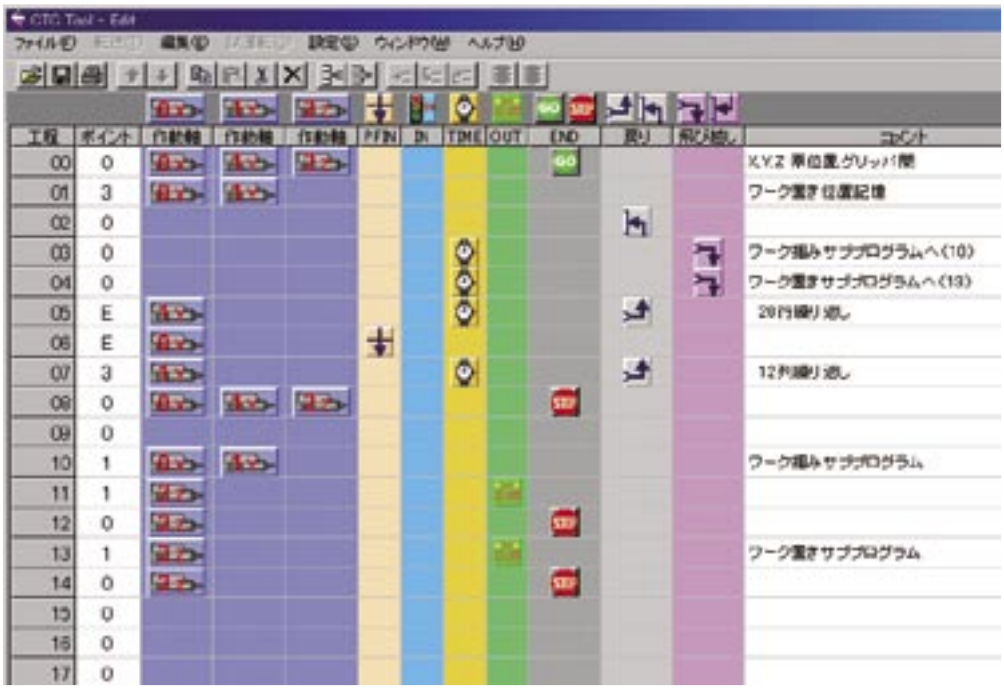
Palletizing

“Palletizing” is possible with a few steps.

Programming of 12 x 20 grid is possible with 14 steps (9 steps of main program and 5 steps of sub program).



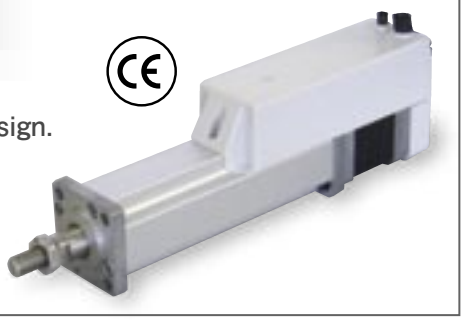
Example: The electrical gripper is mounted on the vertical axis



SCN5

10kgf type

This is a Mechatronics Cylinder with integrated amplifier and compact design.
Equivalent to pneumatic cylinder models with inner diameter of φ16 - 20.
Max. thrust: 10 kgf/102 N (typ. value)
Max. speed: 400 mm/sec at 25° C (typ. value)

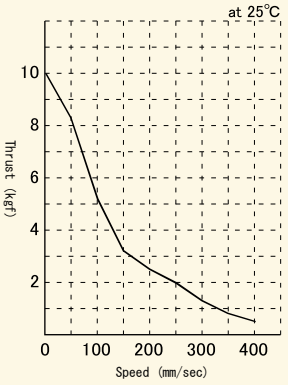


System type meaning **SCN5-010-□□□-AS03**
Model / Max. Thrus (kgf) / Stroke (mm) / A: PNP Blank: NPN / S03: Standard

Specification

System type * □□□ is stroke and 050 indicates 50 mm.			SCN5–010–□□□–S03
Stroke (mm)			50/100/150/200/250/300
Max. thrust (N)/(kgf): typ. value			100/10.2
Maximam vertical transportable mass (kg) when power-on			7
Push mode max. thrust (N)/(kgf): typ. value			70/7.1
Screw lead (mm)			6
Max. speed (mm/s): typ. value at 25°C			400/400/400/200/160/120
Repeatable positioning accuracy (mm)			±0.01 Note 1 & Note 2
Lost motion (mm)			0.3
Allowable radial load (N)			15/10/5/4/3/2.5
Rod diameter (mm)			Ø15
Screw diameter of rod tip			M10, pitch 1.25 (made of metal SUS303)
Number of positioning point			16 (No limit for serial connection)
Power supply			DC 24 V ±10% (Max. 2.0 A)
Life assurance			Three years after delivery or 10,000 km (provided that the product shall be used within the specification)
Input/output signal	Descrete input signal	Signal name	DC 24 V classed descrete input (connector PIO), axis travel interlock (ILK) Target position no. (4-bit binary code: PC1, PC2, PC4, PC8), start (CSTR)
		Input current	Max. 4 mA/port (to be connected to an output circuit of sink type)
	Descrete output signal	Signal name	DC 24 V classed descrete output (connector PIO), completion of positioning (PFIN), completion of return to home (ZFIN), zone (ZONE), alarm (ALM)
		Output current	Max. 30 mA/port (open collector output for Mechatronics Cylinders)
	Serial communication signal		Serial interface (connector SIO), +5 V, 0 V, S+, S-
Protection function			Overspeed, main power supply overvoltage, regeneration voltage abnormality, overload, sensor abnormality, servo abnormality
Environmental condition	Temperature		Service temp.: 0°C to 40°C, storage temp.: -20°C to 60°C
	Humidity		Service/storage humidity: 90%RH or lower No condensation
	Protection structure		IP-40 equivalent
	Allowable vibration/shock		2G / 10 G (2 times)
Weight (kg)			1.1/1.2/1.4/1.6/1.8/2.0

Speed - Thrust Characteristics

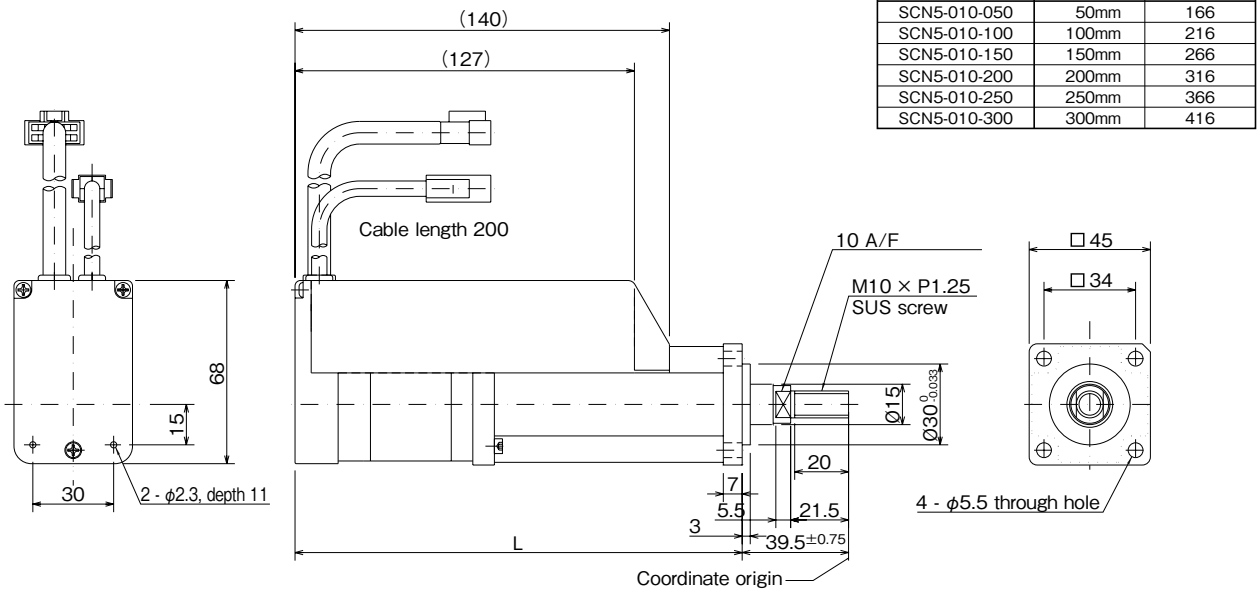


Note 1) When the return to home operation is performed, the cylinder perform the Push operation to one of the stopper at both ends of stroke. The reference position of the coordinate system is determined at the stopped position of this operation. At the reason that the material of the stopper is the urethane rubbers (Shore 90). The deterioration of the rubber with age is estimated 0.05 - 0.07 mm/1–2 years at maximum. Consequently, it is likely that the home position shifts about 0.05 mm at a maximum due to the deterioration with age, so an action such as data compensation may be required depending on the use. Note 2) This is the value of positioning from one direction.

SCN5 Outline Drawing

Unit (mm)

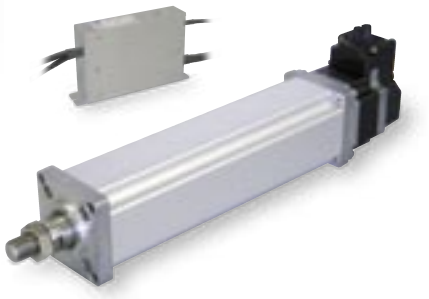
Model number	Stroke	L
SCN5-010-050	50mm	166
SCN5-010-100	100mm	216
SCN5-010-150	150mm	266
SCN5-010-200	200mm	316
SCN5-010-250	250mm	366
SCN5-010-300	300mm	416



SCN6

20kgf type 40kgf type 50kgf type 60kgf type

Equivalent to pneumatic cylinder models with inner diameter of φ25 - 40.
The servo amplifier is mounted separately.
Max. thrust: 20–65 kgf (typ. value)
Max. speed: 100–200 mm/sec at 25° C (typ. value)
The dust/drip proof model (IP54 equivalent) is also available.

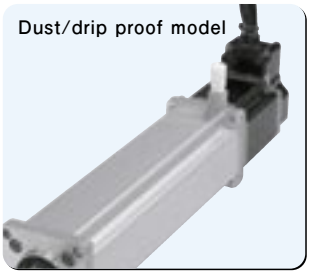


System type meaning **SCN6 - □□□ - □□□ - A□□**
Model / Max. Thrus (kgf) / Stroke (mm) / A: PNP Blank: NPN / B: Standard BW: Dust/drip proof model

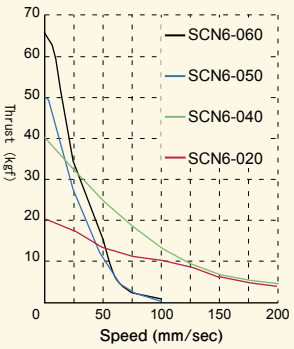
Specification

System type * □□□ is stroke and 050 indicates 50 mm.			SCN6-020-□□□-B SCN6-020-□□□-BW	SCN6-040-□□□-B SCN6-040-□□□-BW	SCN6-050-□□□-B SCN6-050-□□□-BW	SCN6-060-□□□-B SCN6-060-□□□-BW
Stroke (mm)			50/100/150/200/250/300			
Max. thrust (N)/(kgf): typ. value			200/20.4	400/40.8	500/51.0	650/66.3
Maximam vertical transportable mass (kg) when power-on			14	28	30	45
Push mode max. thrust (N)/(kgf): typ. value			140/14.2	280/28.5	350/35.5	450/45.9
Screw lead (mm)			8		3	
Max. speed (mm/s): typ. value at 25°C			200		100 (SCN6-050-□□□-BWは、80)	
Repeatable positioning accuracy (mm)			±0.01 (Short-time Repeatable positioning accuracy) Note 1 & Note 2			
Lost motion (mm)			0.3			
Allowable radial load (N)			30/20/10/10/10/10	75/50/25/18/15/12 (SCN6-020-□□□-B/BWは、30/20/10/10/10/10)		
Rod diameter (mm)			Ø22			
Screw diameter of rod tip			M14, pitch 1.5 (made of metal SUS303)			
Number of positioning point			16 (No limit for serial connection)			
Power supply			DC 24 V ±10% (Drive power supply: Max. 3.0 A, Control power supply: Max. 0.2 A)			
Life assurance	Effective period of the sealing of the dust/drip proof model		6 months or 2,500 km			
	Mechatronics Cylinder main body		Three years after delivery or 10,000 km (provided that the product shall be used within the specification)			
Input/output signal	Descrete input signa	Signal name	DC 24 V classed descrete input (connector PIO), axis travel interlock (ILK) Target position no. (4-bit binary code: PC1, PC2, PC4, PC8), start (CSTR)			
		Input current	Max. 4 mA/port (to be connected to an output circuit of sink type)			
	Descrete output signal	Signal name	DC 24 V classed descrete output (connector PIO), completion of positioning (PFIN), completion of return to home (ZFIN), zone signal (ZONE), alarm (ALM), completion position number (4-bit binary code: PM1, PM2, PM4, PM8)			
		Output current	Max. 30 mA/port (open collector output for Mechatronics Cylinders)			
	Serial communication signal		Serial interface (connector SIO), +5 V, 0 V, S+, S-			
Protection function			Overspeed, main power supply overvoltage, regeneration voltage abnormality, overload, sensor abnormality, servo abnormality, encoder wire break			
Environmental condition	Temperature		Service temp.: 0°C to 40°C, storage temp.: -20°C to 60°C			
	Humidity		Service/storage humidity: 90%RH or lower No condensation			
	Protection structure		Standard model: IP-40 equivalent Dust/drip proof model: IP-54			
	Allowable vibration/shock		2G / 10 G (2 times)			
Weight (kg)			1.6/1.9/2.2/2.5/2.8/3.1	1.9/2.2/2.5/2.8/3.1/3.4		
Amplifier weight (kg)			0.5			

Dust/drip proof model



Speed-Thrust Characteristics

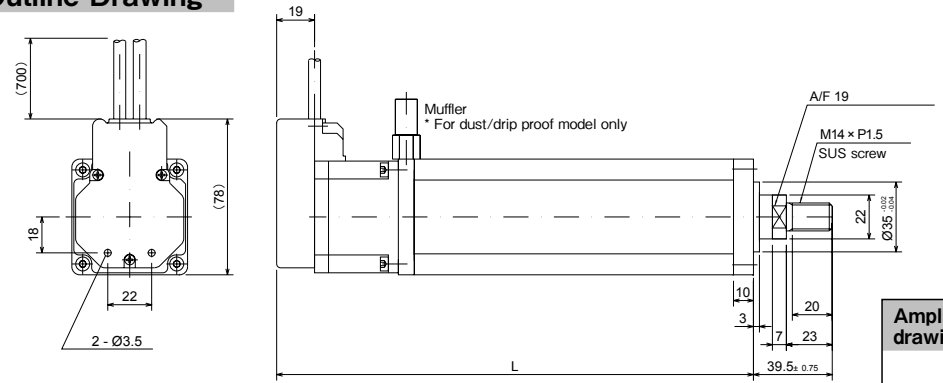


* The dust/drip proof model is not waterproof. The mode may not be used depending on the type of the additives in the coolant or oil.

Note 1) When the return to home operation is performed, the cylinder perform the Push operation to one of the stopper at both ends of stroke. The reference position of the coordinate system is determined at the stopped position of this operation. At the reason that the material of the stopper is the urethane rubbers (Shore 90). The deterioration of the rubber with age is estimated 0.05–0.07 mm/1–2 years at maximum. Consequently, it is likely that the home position shifts about 0.05 mm at a maximum due to the deterioration with age, so an action such as data compensation may be required depending on the use. Note 2) This is the value of positioning from one direction.

SCN6 Outline Drawing

Unit (mm)



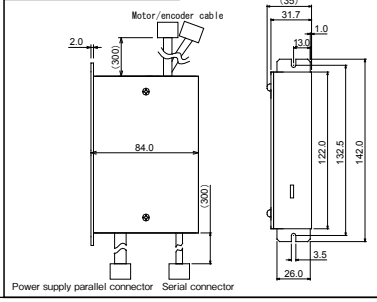
Model number	Stroke	L
SCN6-020-050-B/BW	50	189
SCN6-040-050-B/BW		223
SCN6-050-050-B/BW		201
SCN6-060-050-B/BW		223
SCN6-020-100-B/BW	100	239
SCN6-040-100-B/BW		273
SCN6-050-100-B/BW		251
SCN6-060-100-B/BW		273

Model number	Stroke	L
SCN6-020-150-B/BW	150	289
SCN6-040-150-B/BW		323
SCN6-050-150-B/BW		301
SCN6-060-150-B/BW		323
SCN6-020-050-B/BW	200	339
SCN6-040-050-B/BW		373
SCN6-050-050-B/BW		351
SCN6-060-050-B/BW		373

Model number	Stroke	L
SCN6-020-250-B/BW	250	389
SCN6-040-250-B/BW		423
SCN6-050-250-B/BW		401
SCN6-060-250-B/BW		423
SCN6-020-300-B/BW	300	439
SCN6-040-300-B/BW		473
SCN6-050-300-B/BW		451
SCN6-060-300-B/BW		473

Amplifier outline drawing

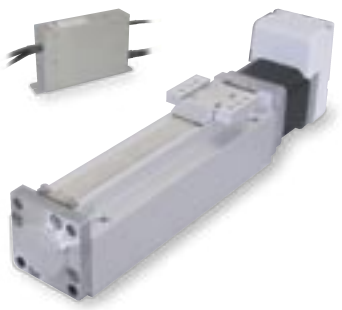
This specification is common for all the <amplifier separate type> Mechatronics Cylinders and servomotors.



SCLL5

10kgf type

- Short stroke cylinder
- Space saving
- Maintenance-free for a long period
- Low price
- Suitable for single axix application



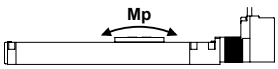
System type meaning **SCLL5-010-□□□-AB**

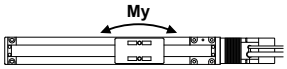
Model / Max. Thrus (kgf) / Stroke (mm) / A: PNP, Blank: NPN / B: Standard

Specification

System type * □□□ is stroke and 050 indicates 50 mm.			SCLL5–010–□□□–B
Stroke (mm)			50/100/150/200/300 * 250 mm stroke model is not available.
Max. thrust (N)/(kgf): typ. value			50/5
Maximam vertical transportable mass (kg) when power-on			1
Push mode Max. thrust (N)/(kgf): typ. value			30/3
Screw lead (mm)			6
Max. speed (mm/s): typ. value at 25°C			300
Repeatable positioning accuracy (mm)			±0.01 Note 1 & Note 2
Lost motion (mm)			0.3
Horizontal max. transportable weight (kg)			5
Acceptable load moment (Nm)/(kgfcm)			Mp = 0.5/5.1, My = 0.5/5.1, Mr = 2/20.4 Note 3)
Overhanging load length (mm)			100 or less Note 4)
Number of positioning point			16 (No limit for serial connection)
Power supply			DC 24 V ±10% (Drive supply: Max. 2.0 A, Control power supply: Max. 0.2 A)
Input/output signal	Descrete input signa	Signal name	DC 24 V classed descrete input (connector PIO), axis travel interlock (ILK) Target position no. (4-bit binary code: PC1, PC2, PC4, PC8), start (CSTR)
		Input current	Max. 4 mA/port (to be connected to an output circuit of sink type)
	Descrete output signal	Signal name	DC 24 V classed descrete output (connector PIO), completion of positioning (PFIN), completion of return to home (ZFIN), zone signal (ZONE), alarm (ALM), completion position number (4-bit binary code: PM1, PM2, PM4, PM8)
		Output current	Max. 30 mA/port (open collector output for Mechatronics Cylinders)
	Serial communication signal		Serial interface (connector SIO), +5 V, 0 V, S+, S-
Protection function			Overspeed, main power supply overvoltage, regeneration voltage abnormality, overload, sensor abnormality, servo abnormality, encoder wire break
Environmental condition	Temperature		Service temp.: 0°C to 40°C, storage temp.: -20°C to 60°C
	Humidity		Service/storage humidity: 90%RH or lower No condensation
Weight (kg)			1.0/1.2/1.3/1.5/1.8
Amplifier weight (kg)			0.5

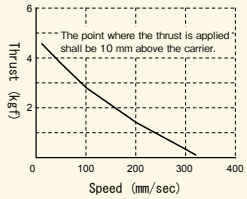
* Do not use this product in a place where there is a lot of dust or water drops fall on it. Note 1) When the return to home operation is performed, the cylinder perform the Push operation to one of the stopper at both ends of stroke. The reference position of the coordinate system is determined at the stopped position of this operation. At the reason that the material of the stopper is the urethane rubbers (Shore 90). The deterioration of the rubber with age is estimated 0.05–0.07 mm/1–2 years at maximum. Consequently, it is likely that the home position shifts about 0.05 mm at a maximum due to the deterioration with age, so an action such as data compensation may be required depending on the use. Note 2) This is the value of positioning from one direction. Note 3) Load moment: The load that occurs when the work (m kg) is attached with an overhang (L cm) from the slider (carrier) portion (Calculation of load moment (kgfcm): m (kg) x L (cm) < Mp, My, Mr). Note that the load moments in 3 directions (Mp, My, Mr) act on in combination in reality. Note 4) Overhanging load length: The acceptable length of the work when it overhangs from the slider (carrier) portion.





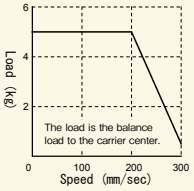
* This model has designed so that it can be used with an external guide. Therefore, the carrier has a gap.

Thrust–Speed Characteristics



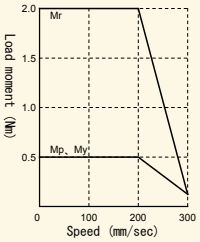
Load Weight–Speed Characteristics

(Horizontal)



Load Moment–Speed Characteristics

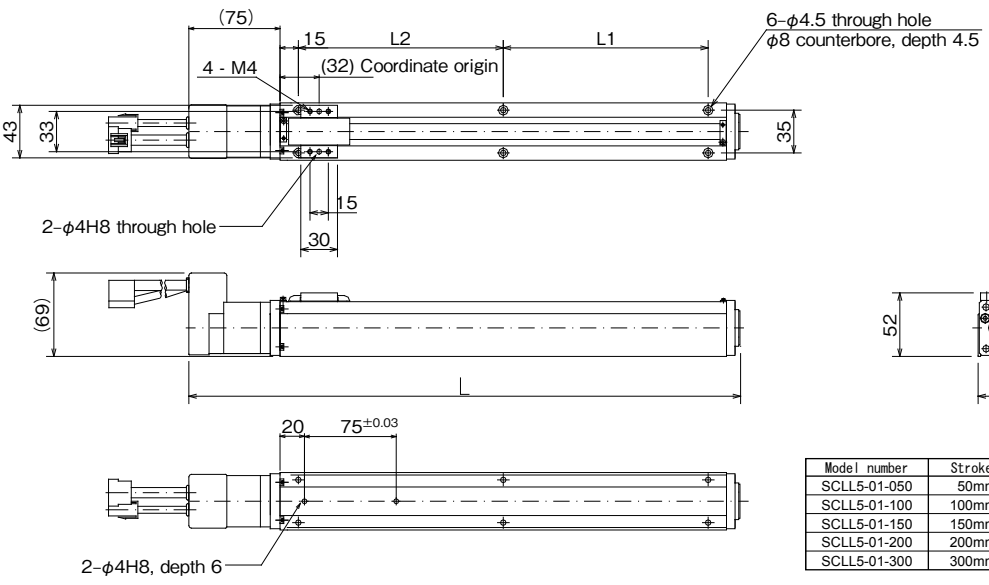
(Horizontal)



SCLL5 Outline Drawing

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

Unit (mm)

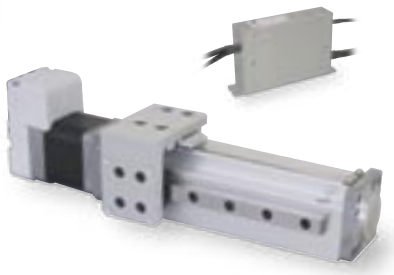


Model number	Stroke	L	L1	L2
SCLL5-01-050	50mm	201	85	
SCLL5-01-100	100mm	251	135	
SCLL5-01-150	150mm	301	185	
SCLL5-01-200	200mm	351	117.5	117.5
SCLL5-01-300	300mm	451	167.5	167.5

SCLG5

10kgf type

THK's mini LM guide is mounded on the SCLL 5 series as standard equipment.



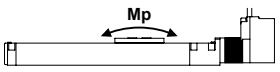
System type meaning **SCLG5-010-□□□-□B**

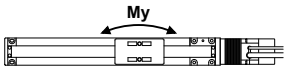
Model: SCLG5 | Max. Thrus (kgf): 010 | Stroke (mm): □□□ | A: PNP, Blank: NPN | B: Standard

Specification

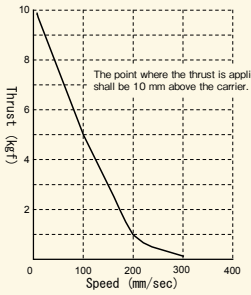
System type * □□□ is stroke and 050 indicates 50 mm.			SCLG5–010–□□□–B
Stroke (mm)			50/100/150/200/300 * 250 mm stroke model is not available.
Max. thrust (N)/(kgf): typ. value			100/10.2
Maximam vertical transportable mass (kg) when power-on			3
Push mode max. thrust (N)/(kgf): typ. value			70/7.1
Screw lead			6
Max. speed (mm/s): typ. value at 25°C			300
Repeatable positioning accuracy (mm)			±0.01 Note 1 & Note 2
Lost motion (mm)			0.3
Horizontal max. transportable weight (kg)			10
Acceptable load moment (Nm)/(kgfcm)			Mp = 1.5/15, My = 1.5/15, Mr = 5/51 Note 3)
Overhanging load length (mm)			150 or less Note 4)
Number of positioning point			16 (No limit for serial connection)
Power supply			DC 24 V ±10% (Drive power supply: Max. 2.0 A, Control power supply: Max. 0.2 A)
Input/output signal	Descrete input signa	Signal name	DC 24 V classed descrete input (connector PIO), axis travel interlock (ILK) Target position no. (4-bit binary code: PC1, PC2, PC4, PC8), start (CSTR)
		Input current	Max. 4 mA/port (to be connected to an output circuit of sink type)
	Descrete output signal	Signal name	DC 24 V classed descrete output (connector PIO), completion of positioning (PFIN), completion of return to home (ZFIN), zone signal (ZONE), alarm (ALM), completion position number (4-bit binary code: PM1, PM2, PM4, PM8)
		Output current	Max. 30 mA/port (open collector output for Mechatronics Cylinders)
	Serial communication signal		Serial interface (connector SIO), +5 V, 0 V, S+, S-
Protection function			Overspeed, main power supply overvoltage, regeneration voltage abnormality, overload, sensor abnormality, servo abnormality, encoder wire break
Environmental condition	Temperature		Service temp.: 0°C to 40°C, storage temp.: -20°C to 60°C
	Humidity		Service/storage humidity: 90%RH or lower No condensation
Weight (kg)			1.3/1.5/1.7/1.9/2.3
Amplifier weight (kg)			0.5

* Do not use this product in a place where there is a lot of dust or water drops fall on it. Note 1) When the return to home operation is performed, the cylinder perform the Push operation to one of the stopper at both ends of stroke. The reference position of the coordinate system is determined at the stopped position of this operation. At the reason that the material of the stopper is the urethane rubbers (Shore 90). The deterioration of the rubber with age is estimated 0.05–0.07 mm/1–2 years at maximum. Consequently, it is likely that the home position shifts about 0.05 mm at a maximum due to the deterioration with age, so an action such as data compensation may be required depending on the use. Note 2) This is the value of positioning from one direction. Note 3) Load moment: The load that occurs when the work (m kg) is attached with an overhang (L cm) from the slider (carrier) portion (Calculation of load moment (kgfcm): m (kg) x L (cm) < Mp, My, Mr). Note that the load moments in 3 directions (Mp, My, Mr) act on in combination in reality. Note 4) Overhanging load length: The acceptable length of the work when it overhangs from the slider (carrier) portion.



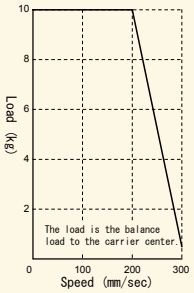


Thrust–Speed Characteristics



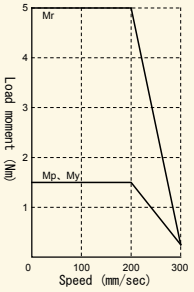
Load Weight–Speed Characteristics

(Horizontal)



Load Moment–Speed Characteristics

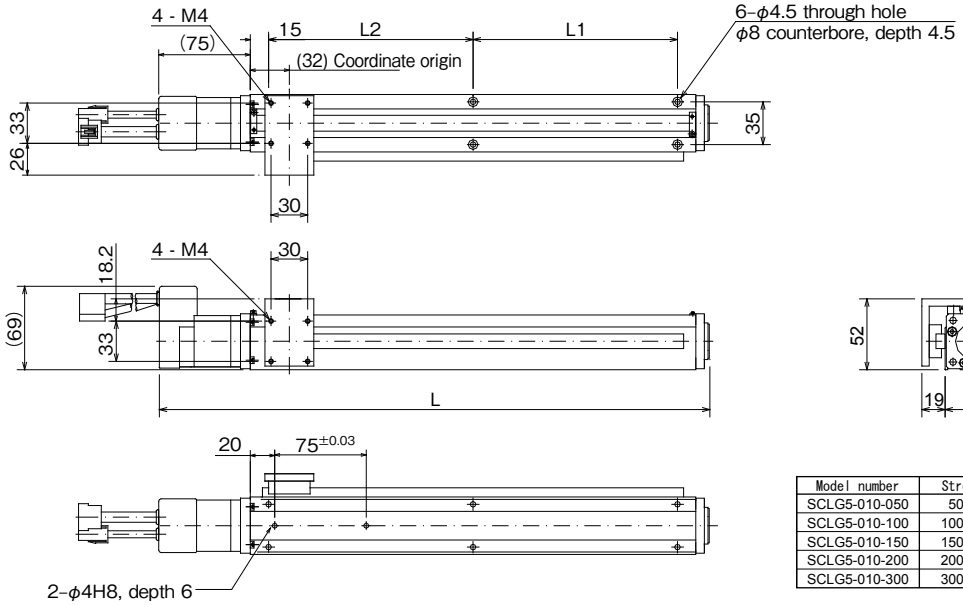
(Horizontal)



SCLG5 Outline Drawing

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

Unit (mm)



Model number	Stroke	L	L1	L2
SCLG5-010-050	50mm	201	85	
SCLG5-010-100	100mm	251	135	
SCLG5-010-150	150mm	301	185	
SCLG5-010-200	200mm	351	117.5	117.5
SCLG5-010-300	300mm	451	167.5	167.5

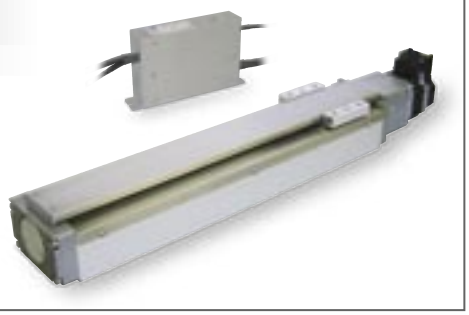
SCLG6

20kgf type 30kgf type

Rod-less cylinder for single axis application

Max. transportable weight: 20 kg (Horizontal)

Stroke: 200–1,000 mm



System type meaning **SCLG6-□□□-□□□-AB**

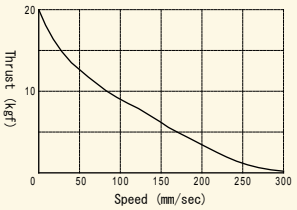
Model / Max. Thrus (kgf) / Stroke (mm) / A: PNP Blank: NPN / B: Standard

Specification

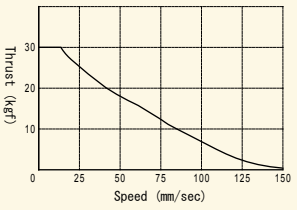
System type (* □□□ is stroke 050 indicates 50 mm, and A00 indicates 1000 mm.)			SCLG6–020–□□□–B	SCLG6–030–□□□–B
Stroke (mm)			200/300/400/500/600/700/800/1000	
Max. thrust (N)/(kgf): typ. value			200/20.4	300/30.6
Maximam vertical transportable mass (kg) when power-on			140/14.2	280/28.6
Push mode Max. thrust (N)/(kgf): typ. value			140/14.2	280/28.6
Screw lead (mm)			8	4
Max. speed (mm/s): typ. value at 25°C			300/300/300/300/300/280/220/150	150/150/150/150/150/140/110/75
Repeatable positioning accuracy (mm)			±0.01 Note 1 & Note 2	
Lost motion (mm)			0.3	
Horizontal max. transportable weight (kg)			20	
Vertical max. transportable weight (kg)			10	20
Acceptable load moment (Nm)/(kgfcm)			Mp = 6/60, My = 6/60, Mr = 10/100 Note 3)	
Number of positioning point			16 (No limit for serial connection)	
Power supply			DC 24 V ±10% (Drive power supply: Max. 3.0 A, Control power supply: Max. 0.2 A)	
Input/output signal	Descrete input signa	Signal name	DC 24 V classed descrete input (connector PIO), axis travel interlock (ILK) Target position no. (4-bit binary code: PC1, PC2, PC4, PC8), start (CSTR)	
		Input current	Max. 4 mA/port (to be connected to an output circuit of sink type)	
	Descrete output signal	Signal name	DC 24 V classed descrete output (connector PIO), completion of positioning (PFIN), completion of return to home (ZFIN), zone signal (ZONE), alarm (ALM), completion position number (4-bit binary code: PM1, PM2, PM4, PM8)	
		Output current	Max. 30 mA/port (open collector output for Mechatronics Cylinders)	
	Serial communication signal		Serial interface (connector SIO), +5 V, 0 V, S+, S-	
Protection function			Overspeed, main power supply overvoltage, regeneration voltage abnormality, overload, sensor abnormality, servo abnormality, encoder wire break	
Environmental condition	Temperature		Service temp.: 0°C to 40°C, storage temp.: -20°C to 60°C	
	Humidity		Service/storage humidity: 90%RH or lower No condensation	
Weight (kg)			2.7/3.7/4.7/5.7/6.7/7.7/8.7/10.7	
Amplifier weight (kg)			0.5	

Thrust–Speed Characteristics

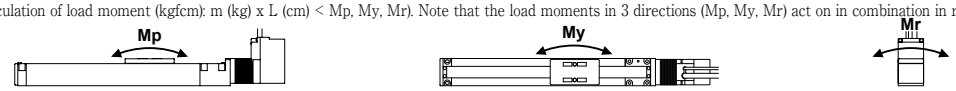
SCLG6-020



SCLG6-030



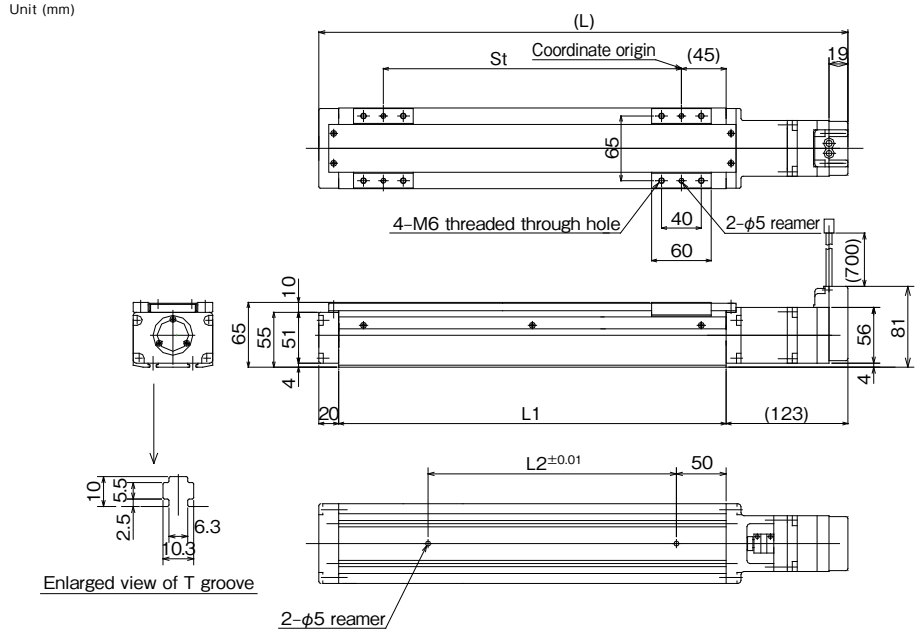
* Do not use this product in a place where there is a lot of dust or water drops fall on it. Note 1) When the return to home operation is performed, the cylinder perform the Push operation to one of the stopper at both ends of stroke. The reference position of the coordinate system is determined at the stopped position of this operation. At the reason that the material of the stopper is the urethane rubbers (Shore 90). The deterioration of the rubber with age is estimated 0.05–0.07 mm/1–2 years at maximum. Consequently, it is likely that the home position shifts about 0.05 mm at a maximum due to the deterioration with age, so an action such as data compensation may be required depending on the use. Note 2) This is the value of positioning from one direction. Note 3) Load moment: The load that occurs when the work (m kg) is attached with an overhang (L cm) from the slider (carrier) portion (Calculation of load moment (kgfcm): m (kg) x L (cm) < Mp, My, Mr). Note that the load moments in 3 directions (Mp, My, Mr) act on in combination in reality.

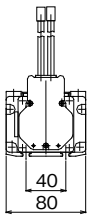


SCLG6 Outline Drawing

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

Unit (mm)





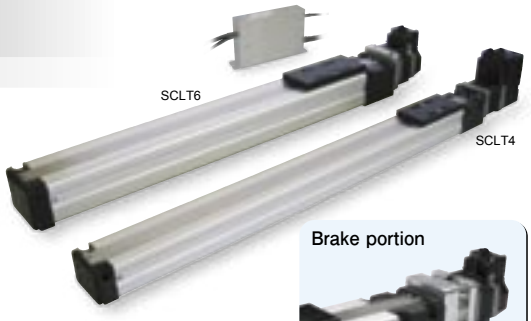
Number of attached M6 nut for T groove
Stroke 200 mm , 300 mm: 4 pcs
Stroke 400–700 mm: 6 pcs
Stroke 800 mm: 8 pcs
Stroke 1,000 mm: 10 pcs

Model number	Stroke	L	L1
SCLG6-$^{020}_{030}$-200	200mm	533	390
SCLG6-$^{020}_{030}$-300	300mm	633	490
SCLG6-$^{020}_{030}$-400	400mm	733	590
SCLG6-$^{020}_{030}$-500	500mm	833	690
SCLG6-$^{020}_{030}$-600	600mm	933	790
SCLG6-$^{020}_{030}$-700	700mm	1033	890
SCLG6-$^{020}_{030}$-800	800mm	1133	990
SCLG6-$^{020}_{030}$-A00	1000mm	1233	1090

SCLT4 / 6

SCLT4: 15kgf type 30kgf type / SCLT6: 25kgf type 50kgf type

High-load and high-speed travel is made possible with the feed mechanism by the strong LM guide and ball screw drive.
This model can be used as a base machine for an orthogonal robot.



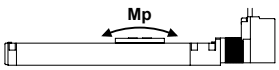
System type meaning **SCLT□-□□□-□□□-A□□□**

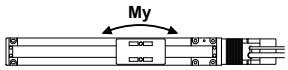
Model / Max. Thrus (kgf) / Stroke (mm) / A: PNP, Blank: NPN / S: Standard (SCLT4) B: Standard (SCLT6) / SBR: Model with brake (SCLT4) BBR: Model with brake (SCLT6)

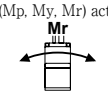
Specification

System type * □□□ is stroke and 050 indicates 50 mm.			SCLT4-015-□□□-S SCLT4-015-□□□-SBR	SCLT4-030-□□□-S SCLT4-030-□□□-SBR	SCLT6-025-□□□-B SCLT6-025-□□□-BBR	SCLT6-050-□□□-B SCLT6-050-□□□-BBR
Stroke (mm)			50/100/150/200/250/300/350/400/450/500		50/100/150/200/250/300/350/400/450/500/550/600/700	
Max. thrust (N)/(kgf): typ. value			150/15	300/30	250/25	500/50
Maximam vertical transportable mass (kg) when power-on			105/10.5	210/21	175/17.5	350/35
Push mode max. thrust (N)/(kgf): typ. value			105/10.5	210/21	175/17.5	350/35
Screw lead (mm)			12	6	12	6
Max. speed (mm/s): typ. value at 25°C			700 (Stroke 500 mm: 680)	400 (Stroke 500 mm: 340)	600 (Stroke 700 mm: 500)	350 (Stroke 600 mm: 340) (Stroke 700 mm: 250)
Repeatable positioning accuracy (mm)			±0.02 Note 1 & Note 2			
Lost motion (mm)			0.1			
Horizontal max. transportable weight (kg)			5	10	16	30
Vertical max. transportable weight (kg)			1.5/5 (when using external regeneration unit)	2.5/10 (when using external regeneration unit)	4/16 (when using external regeneration unit)	6/30 (when using external regeneration unit)
Acceptable load moment (Nm)/(kgfcm)			Mp = 12/120, My = 12/120, Mr = 31/310 Note 3)		Mp = 25.7/257, My = 25.7/257, Mr = 58/580 Note 3)	
Number of positioning point			16 (No limit for serial connection)			
Power supply			DC 24 V ±10% (Drive power supply: Max. 2.0 A, Control power supply: Max. 0.2 A)		DC 24 V ±10% (Drive power supply: Max. 3.0 A, Control power supply: Max. 0.2 A)	
Brake power supply (Only for the types whose last characters are -SBR or -BBR)			DC 24 V ±15% Excitation open type Max. 0.3 A when opened (SCLT6 series with brake: Max. 0.4 A when opened)			
Input/output signal	Descrete input signal	Signal name	DC 24 V classed descrete input (connector PIO), Target position no. (4-bit binary code: PC1, PC2, PC4, PC8), start (CSTR), axis travel interlock (ILK)			
		Input current	Max. 4 mA/port (to be connected to an output circuit of sink type)			
	Descrete output signal	Signal name	DC 24 V classed descrete output (connector PIO), completion position number (4-bit binary code: PM1, PM2, PM4, PM8 * Except for SCLT4 series), completion of positioning (PFIN), completion of return to home (ZFIN), zone signal(ZONE), alarm (ALM)			
		Output current	Max. 30 mA/port (open collector output for Mechatronics Cylinders)			
	Serial communication signal		Serial interface (connector SIO), +5 V, 0 V, S+, S-			
Protection function			Overspeed, main power supply overvoltage, regeneration voltage abnormality, overload, sensor abnormality, servo abnormality, encoder wire break (Except for SCLT4 series)			
Environmental condition	Service/storage temperature		Service temp.: 0°C to 40°C, storage temp.: -20°C to 60°C			
	Service/storage humidity		Service/storage humidity: 90%RH or lower No condensation			
Amplifier weight (kg)			—		0.5	

* Do not use this product in a place where there is a lot of dust or water drops fall on it. Note 1) When the return to home operation is performed, the cylinder perform the Push operation to one of the stopper at both ends of stroke. The reference position of the coordinate system is determined at the stopped position of this operation. At the reason that the material of the stopper is the urethane rubbers (Shore 90). The deterioration of the rubber with age is estimated 0.05–0.07 mm/1–2 years at maximum. Consequently, it is likely that the home position shifts about 0.05 mm at a maximum due to the deterioration with age, so an action such as data compensation may be required depending on the use. Note 2) This is the value of positioning from one direction. Note 3) Load moment: The load that occurs when the work (m kg) is attached with an overhang (L cm) from the slider (carrier) portion (Calculation of load moment (kgfcm): m (kg) x L (cm) < Mp, My, Mr). Note that the load moments in 3 directions (Mp, My, Mr) act on in combination in reality.

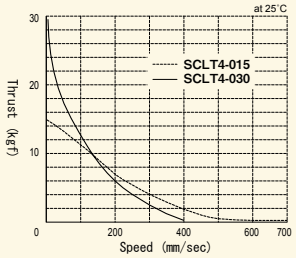




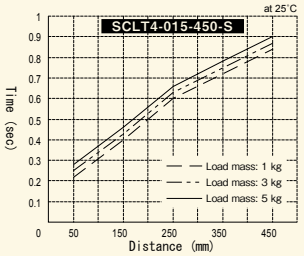


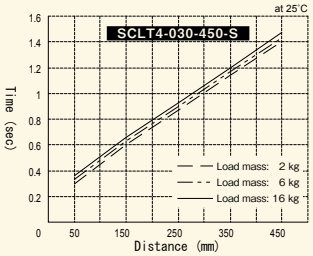
Speed–Thrust Characteristics

SCLT4

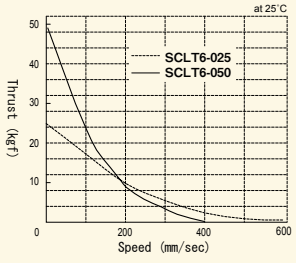


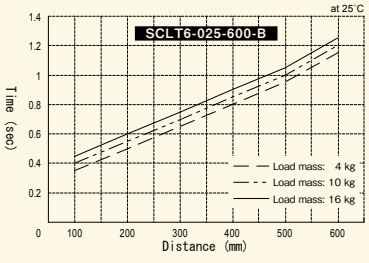
Reference Value Horizontal Load–Positioning Time Characteristics

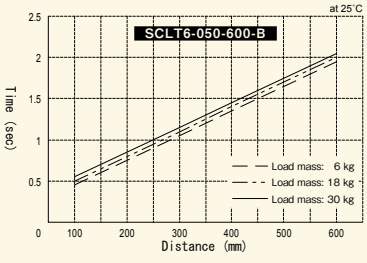




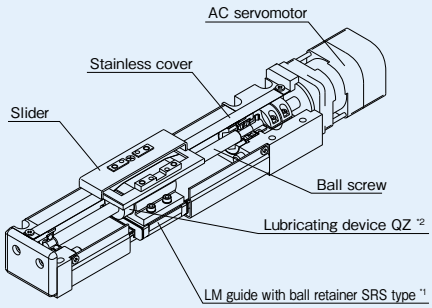
SCLT6



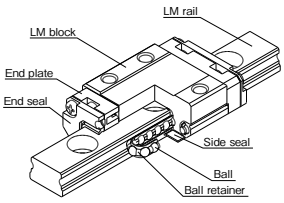




SCLT4 / 6 Structural Drawing



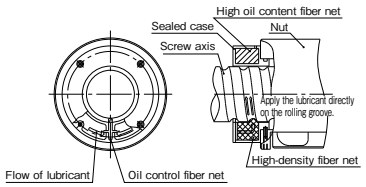
*1 LM guide with ball retainer SRS type



The SRS type employs ball retainers to eliminate the mutual friction between balls, and the following effects can be obtained.

1. **Low noise and good sound quality**
2. **Maintenance-free for a long period**
3. **Excellent high-speed performance and long life**
4. **Excellent lubrication and motility**
5. **Low dust generation**

* 2 Lubricating device QZ



1. Substantial increase in the maintenance interval is possible.

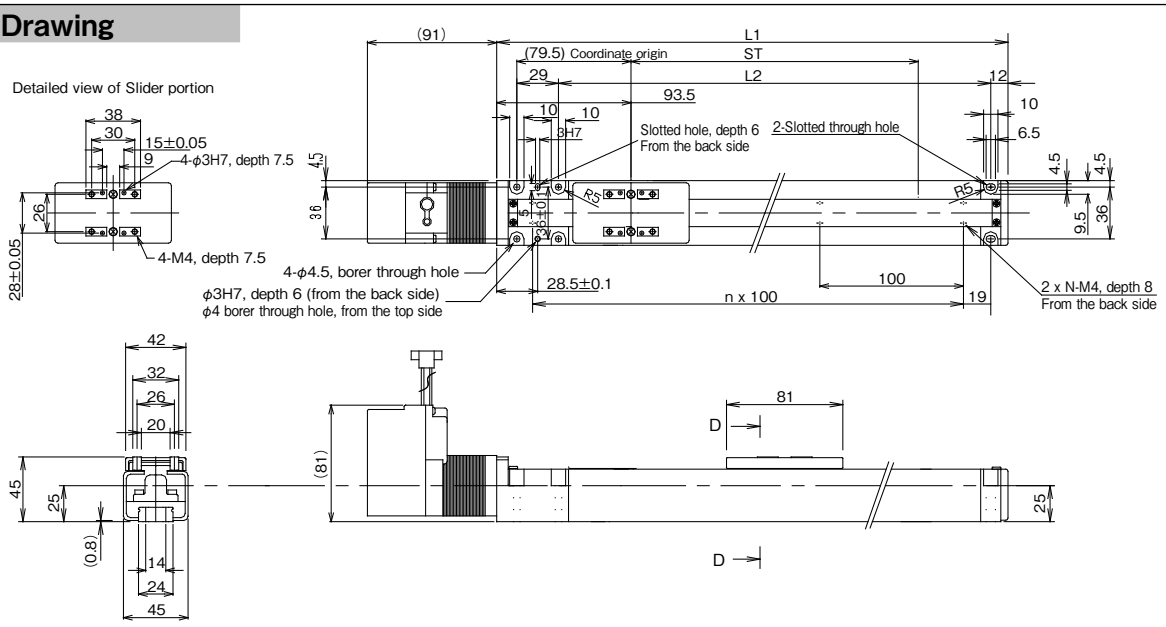
The standard grease lubrication for a ball screw loses a small amount of oil during travel. Installation of the lubricating device QZ can supplement the oil lost during a long period and increase the maintenance interval substantially.

2. Environmentally friendly lubrication system

Since the lubricating device QZ supplies an adequate amount of oil to the appropriate point using the high-density fiber net, there is no wasted oil and it is an environmentally friendly lubrication system.

SCLT4 Outline Drawing

Unit (mm)



Series	Stroke	L1	L2	n	N	Weight
STLT4-***-050-S	50	206	151	1	2	1.5kg
STLT4-***-100-S	100	256	201	2	3	1.6kg
STLT4-***-150-S	150	306	251	2	3	1.7kg
STLT4-***-200-S	200	356	301	3	4	1.8kg
STLT4-***-250-S	250	406	351	3	4	1.9kg
STLT4-***-300-S	300	456	401	4	5	2.0kg
STLT4-***-350-S	350	506	451	4	5	2.1kg

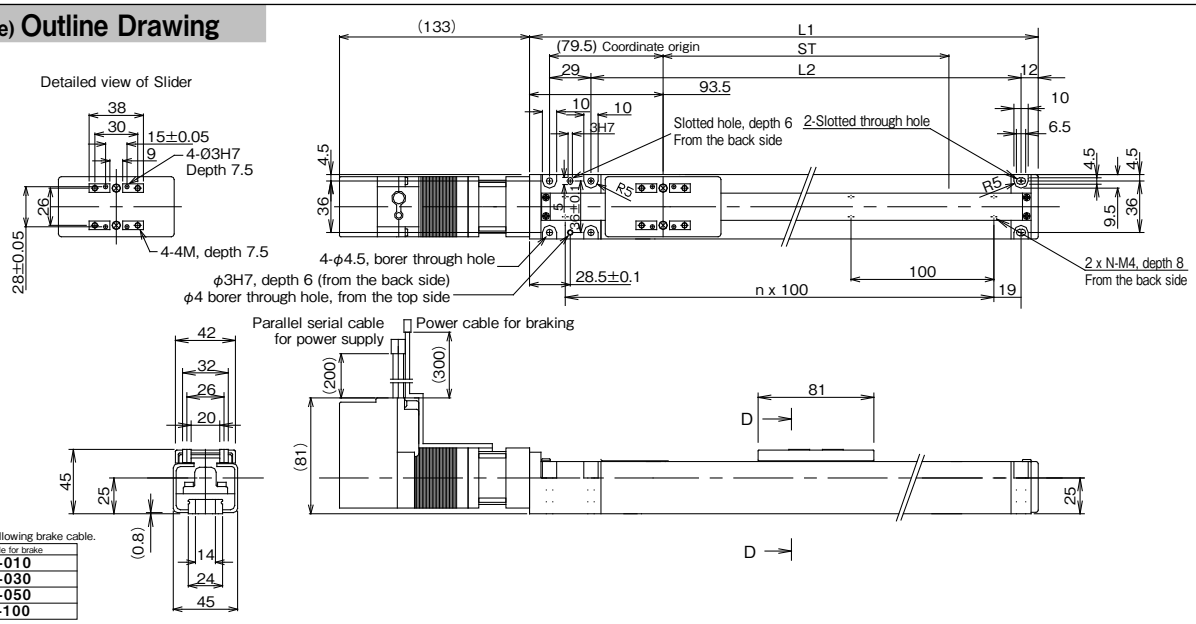
Series	Stroke	L1	L2	n	N	Weight
STLT4-***-400-S	400	556	501	5	6	2.2kg
STLT4-***-450-S	450	606	551	5	6	2.3kg
STLT4-***-500-S	500	656	601	6	7	2.4kg
STLT4-***-550-S	550					
STLT4-***-600-S	600					
STLT4-***-700-S	700					

* Can be selected by the type number as shown below.

Motor direction			
			
	(Seen from the motor side when the Slider side is oriented upward.)		
Type	-S01	-S02	-S03

SCLT4 (with Brake) Outline Drawing

Unit (mm)



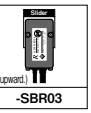
* The model with brake requires the following brake cable.

Length (m)	Type of power cable for brake
1	RP9023-010
3	RP9023-030
5	RP9023-050
10	RP9023-100

Series	Stroke	L1	L2	n	N	Weight
STLT4-***-050-SBR	50	206	151	1	2	1.8kg
STLT4-***-100-SBR	100	256	201	2	3	1.9kg
STLT4-***-150-SBR	150	306	251	2	3	2.0kg
STLT4-***-200-SBR	200	356	301	3	4	2.1kg
STLT4-***-250-SBR	250	406	351	3	4	2.2kg
STLT4-***-300-SBR	300	456	401	4	5	2.3kg
STLT4-***-350-SBR	350	506	451	4	5	2.4kg

Series	Stroke	L1	L2	n	N	Weight
STLT4-***-400-SBR	400	556	501	5	6	2.5kg
STLT4-***-450-SBR	450	606	551	5	6	2.6kg
STLT4-***-500-SBR	500	656	601	6	7	2.7kg
STLT4-***-550-SBR	550					
STLT4-***-600-SBR	600					
STLT4-***-700-SBR	700					

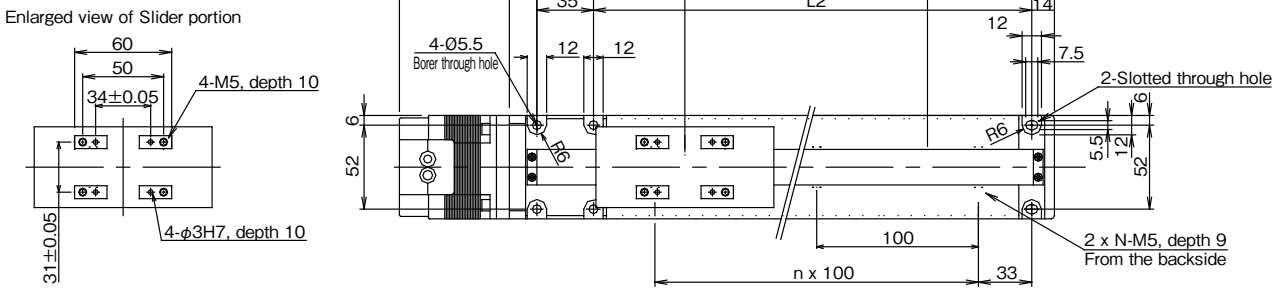
* Can be selected by the type number as shown below.

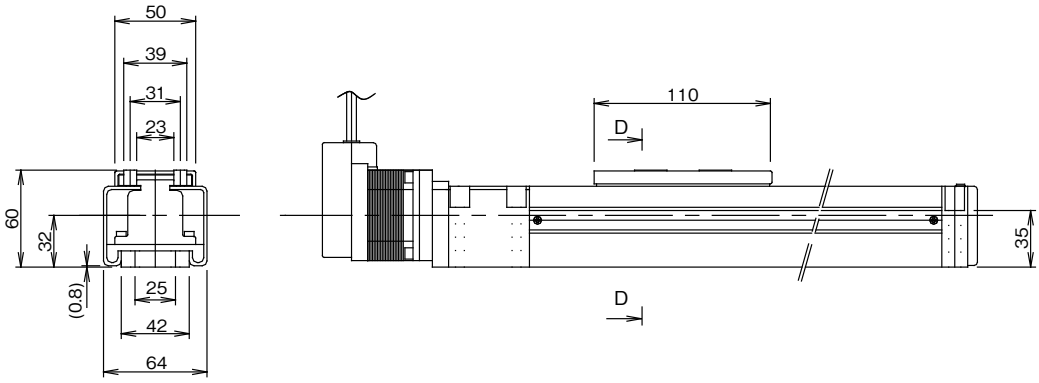
Motor direction			
			
	(Seen from the motor side when the Slider side is oriented upward.)		
Type	-SBR01	-SBR02	-SBR03

SCLT6 Outline Drawing

Unit (mm)

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.





* The user can change the mounting direction of the motor.

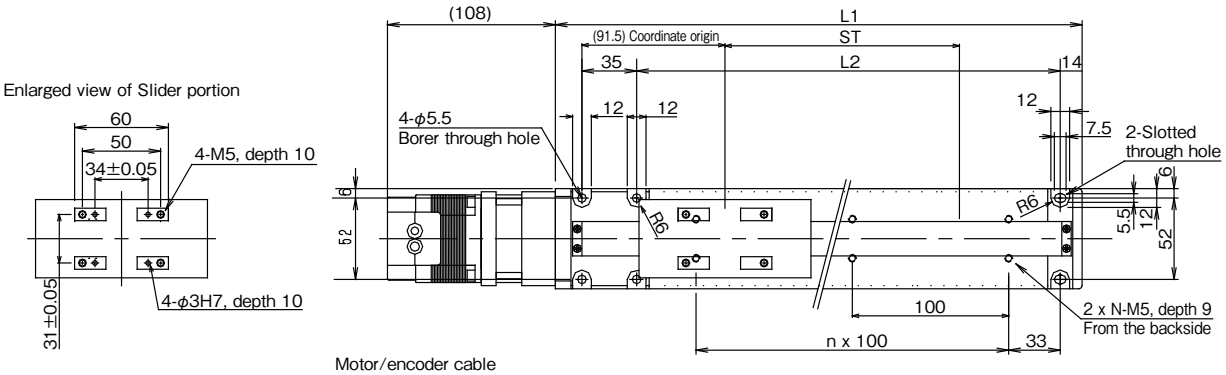
Series	Stroke	L1	L2	n	N	Weight
STLT6-***-050-B	50	237	171	1	2	2.4kg
STLT6-***-100-B	100	287	221	2	3	2.6kg
STLT6-***-150-B	150	337	271	2	3	2.8kg
STLT6-***-200-B	200	387	321	3	4	3.0kg
STLT6-***-250-B	250	437	371	3	4	3.2kg
STLT6-***-300-B	300	487	421	4	5	3.4kg
STLT6-***-350-B	350	537	471	4	5	3.6kg

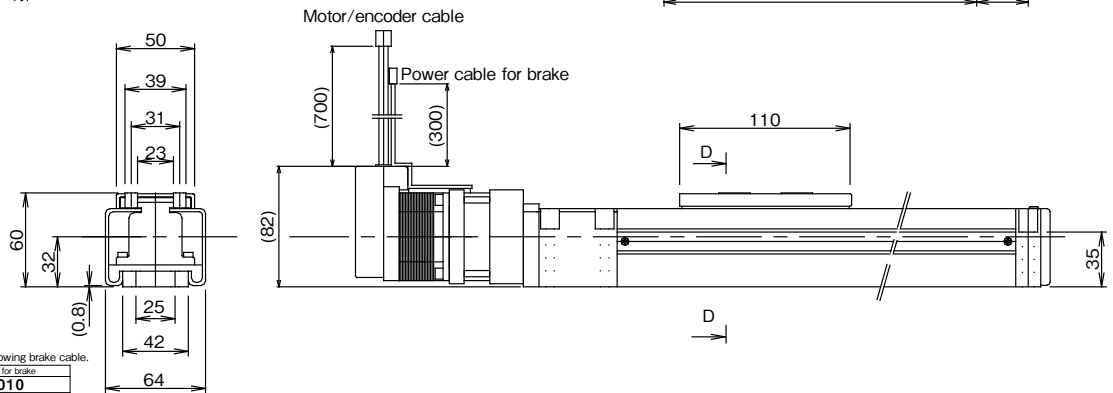
Series	Stroke	L1	L2	n	N	Weight
STLT6-***-400-B	400	587	521	5	6	3.8kg
STLT6-***-450-B	450	637	571	5	6	4.0kg
STLT6-***-500-B	500	687	621	6	7	4.2kg
STLT6-***-550-B	550	737	671	6	7	4.5kg
STLT6-***-600-B	600	787	721	7	8	4.7kg
STLT6-***-700-B	700	887	821	8	9	5.1kg

SCLT6 (with Brake) Outline Drawing

Unit (mm)

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.





* The model with brake requires the following brake cable.

Length (m)	Type of power cable for brake
1	**RP9023-010**
3	**RP9023-030**
5	**RP9023-050**
10	**RP9023-100**

* Can be selected by the type number as shown below.

Motor direction			
	(Seen from the motor side when the Slider side is oriented upward.)		
Type	-BBR01	-BBR02	-BBR03

Series	Stroke	L1	L2	n	N	Weight
STLT6-***-050-BBR	50	237	171	1	2	3.3kg
STLT6-***-100-B	100	287	221	2	3	3.5kg
STLT6-***-150-B	150	337	271	2	3	3.7kg
STLT6-***-200-B	200	387	321	3	4	3.9kg
STLT6-***-250-B	250	437	371	3	4	4.1kg
STLT6-***-300-B	300	487	421	4	5	4.3kg
STLT6-***-350-B	350	537	471	4	5	4.5kg

Series	Stroke	L1	L2	n	N	Weight
STLT6-***-400-BBR	400	587	521	5	6	4.7kg
STLT6-***-450-BBR	450	637	571	5	6	4.9kg
STLT6-***-500-BBR	500	687	621	6	7	5.1kg
STLT6-***-550-BBR	550	737	671	6	7	5.4kg
STLT6-***-600-BBR	600	787	721	7	8	5.6kg
STLT6-***-700-BBR	700	887	821	8	9	6.0kg

SCLL7

15kgf type

Belt-driven Rod-less Long Cylinder Capable of High-speed Feed

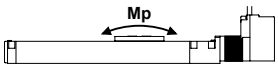
System type meaning **SCLL7-015-□□□□-AB01**

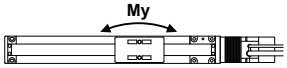
- SCLL7: Model
- 015: Max. Thrus (kgf)
- □□□□: Stroke (mm)
- A: PNP, Blank: NPN
- B01: Standard

Specification

System type * □□□□ is stroke 1000 indicates 1000 mm.			SCLL7–015–□□□□–B01
Stroke (mm)			1000～5100
Max. thrust (N)/(kgf): typ. value			150/15
Maximam vertical transportable mass (kg) when power-on			9
Push mode Max. thrust (N)/(kgf): typ. value			140/14.2
Max. speed (mm/s): typ. value at 25°C			900
Repeatable positioning accuracy (mm)			±0.5 Note 2
Lost motion (mm)			1
Horizontal max. transportable weight (kg)			20
Vertical max. transportable weight (kg)			Mp=2, My=0.3, Mr=0.1 Note 3
Acceptable load moment (Nm)/(kgfcm)			150 or lower Note 4)
Number of positioning point			16 (No limit for serial connection)
Power supply			DC 24 V ±10% (Drive power supply: Max. 3.0 A, control circuit power supply: Max. 0.2 A)
Life assurance			Three years after delivery or 10,000 km (provided that the product shall be used within the specification)
Input/output signal	Descrete input signal	Signal name	DC 24 V classed descrete input (connector PIO), axis travel interlock (ILK) Target position no. (4-bit binary code: PC1, PC2, PC4, PC8), start (CSTR)
		Input current	Max. 4 mA/port (to be connected to an output circuit of sink type)
	Descrete output signal	Signal name	DC 24 V classed descrete output (connector PIO), completion of positioning (PFIN), completion of return to home (ZFIN), zone signal (ZONE), alarm (ALM), completion position number (4-bit binary code: PM1, PM2, PM4, PM8)
		Output current	Max. 30 mA/port (open collector output for Mechatronics Cylinders)
	Serial communication signal		Serial interface (connector SIO), +5 V, 0 V, S+, S-
Protection function			Overspeed, main power supply overvoltage, regeneration voltage abnormality, overload, sensor abnormality, servo abnormality, encoder wire break
Environmental condition	Temperature		Service temp.: 0°C to 40°C, storage temp.: -20°C to 60°C
	Humidity		Service/storage humidity: 90%RH or lower No condensation
Weight (kg)	Basic weight		2.4
	Weight (kg) per stroke of 100 mm		0.32
Amplifier weight (kg)			0.5

* Do not use this product in a place where there is a lot of dust or water drops fall on it. Note 2) This is the value of positioning from one direction. Note 3) Load moment: The load that occurs when the work (m kg) is attached with an overhang (L cm) from the slider (carrier) portion (Calculation of load moment (kgfcm): m (kg) x L (cm) < Mp, My, Mr). Note that the load moments in 3 directions (Mp, My, Mr) act on in combination in reality. Note 4) Overhanging load length: The acceptable length of the work when it overhangs from the slider (carrier) portion.

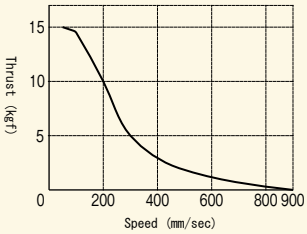




※Weight of cylinder = Basic weight + $\frac{\text{Stroke}}{100}$ * Weight per stroke of 100 mm

※The cylinder can also be used in combination with external guides. Therefore, the carrier has a small gap.

Speed-Thrust Characteristics



Caution: The point to apply the thrust shall be the position of the mounting surface

SCLL7 Outline Drawing

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

Unit (mm)

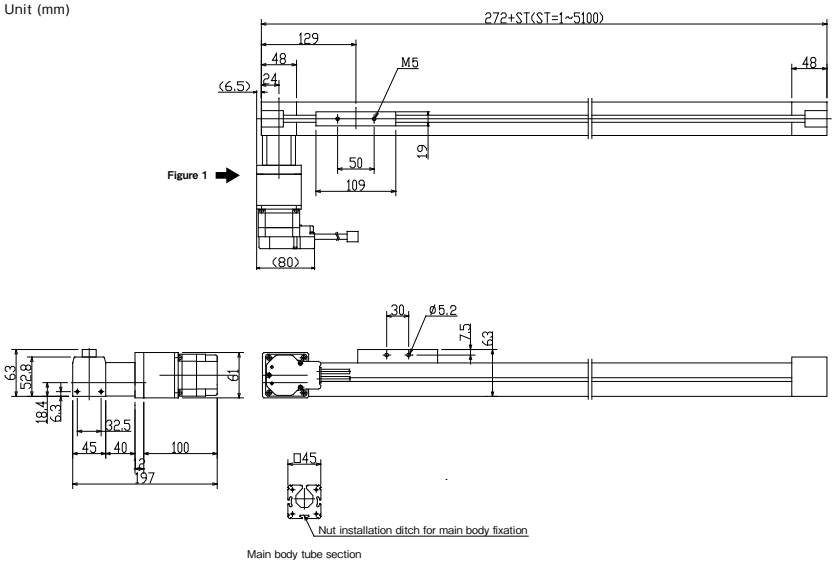
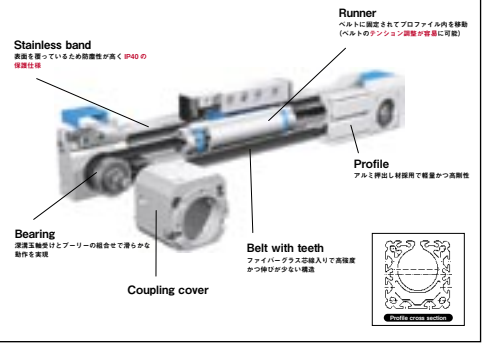


Figure 1
* Can be selected by the type number as shown below.

Motor direction	Slider Motor	Motor Slider
Type	-B01	-B02

Construction



AC Servomotor

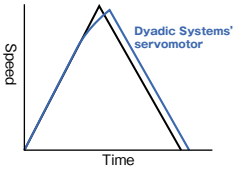
20W type 50W type 60W type 90W type 100W type

Except for RCB0411

AC servomotor for positioning/transfer applications

Can be set easily as is the case with Mechatronics Cylinders.

Any 16 points can be positioned with ON/OFF signals.



Standard Specification of Servomotor

System type	RSA0211	RCB0411	RSA0411	RSA0611	RSA0911	RSA1211-0101
Motor type	RMJ0211	Motor/amplifier integrated type	RMJ0411	RMJ0611	RMJ0911	RMJ1211-01
Amplifier type	RAD0211		RAD0111	RAD0311	RAD1311	RAD2311-01
Output (Equivalent value of LB motor) (W) Note 1)	20	50	50	90	60	100
Max. revolution speed (r/min)	4500	4500	4500	4500	3500	4500
Max. toque (N•m)	0.11/1.1	0.3/3.1	0.3/3.1	0.6/6.1	0.9/9.2	1.2/12.2
Rotor inertia (kg•m2)	0.018×10^{-4}	0.076×10^{-4}	0.076×10^{-4}	0.115×10^{-4}	0.118×10^{-4}	0.269×10^{-4}
Max. acceptable load inertia limit (kg•m2)	Refer to the "Revolution speed–Max. acceptable inertia" graph.					
Acceptable friction load (N•m)	0.03	0.083	0.083	0.229	0.36	0.5
Acceptable unbalance load (Nm) Note 2)	0.03	0.075	0.075	0.229	0.36	0.5
Allowable radial load (N (kgf))	19.6(2)or lower			49(5)or lower		
Acceptable thrust load (N (kgf))	4.9(0.5)or lower	9.8(1)or lower		19.6(2)or lower		
Positional speed detector	Incremental encoder 200 P/R (4 multiplication 800P/R)					
Amplifier/motor weight (g)	About 400/250	About 550 (incl. motor)	About 400/500	About 400/650	About 400/850	About 400/1200

Specification of Servomotor with Gear

System type	RSA0611-G1	RSA0611-G2
Motor type	RMJ0611-G1	RMJ0611-G2
Amplifier type	RAD0311	RAD0311
Max. revolution speed (r/min)	600	300
Reduction gear ratio	1/5	1/10
Max. toque (N•m)	1.5/15.3	2.5/25.5
Rotor inertia (kg•m2)	0.14×10^{-4}	
Allowable radial load (N (kgf) Note 2)	49(5)or lower	
Acceptable thrust load (N (kgf))	29.4(3)or lower	
Positional speed detector (Incremental encoder)	1000P/R(4multiplication 4000P/R)	
Backlash (min)	120	
Amplifier/motor weight (g)	About 400/900	

Specification of Servomotor with High-precision Gear

System type	RSA0211-G5-10-0101	RCB0411-G5-06-02	RSA0411-G5-06-0201	RSA0611-G5-05-0201	RSA1211-G5-05-0201
Motor type	RMJ0211-G5-10-01	Motor/amplifier integrated type	RMJ0411-G5-06-02	RMJ0611-G5-05-02	RMJ1211-G5-05-02
Amplifier type	RAD0211-01		RAD0111-01	RAD0311-01	RAD2311-01
Max. revolution speed (r/min)	450	750	750	800	800
Reduction gear ratio	1/10	1/6	1/6	1/5.6	1/5.6
Max. toque (N•m)	0.8/8.2	1.4/14.3	1.4/14.3	2.6/26.5	4.8/48.9
Rotor inertia (kg•m2)	0.018×10^{-4}	0.078×10^{-4}	0.078×10^{-4}	0.135×10^{-4}	0.289×10^{-4}
Allowable radial load (N (kgf) Note 2)	49or lower	118or lower	118or lower	294or lower	294or lower
Acceptable thrust load (N (kgf))	24.5or lower	59or lower	59or lower	147or lower	147or lower
Positional speed detector (Incremental encoder)	2000P/R(4multiplication 8000P/R)	1200P/R(4multiplication 4800P/R)	1200P/R(4multiplication 4800P/R)	1120P/R(4multiplication 4480P/R)	1120P/R(4multiplication 4480P/R)
Backlash (min)	60	30	30	48	48
Amplifier/motor weight (g)	400/350	900 (incl. motor)	400/850	400/1000	400/2000

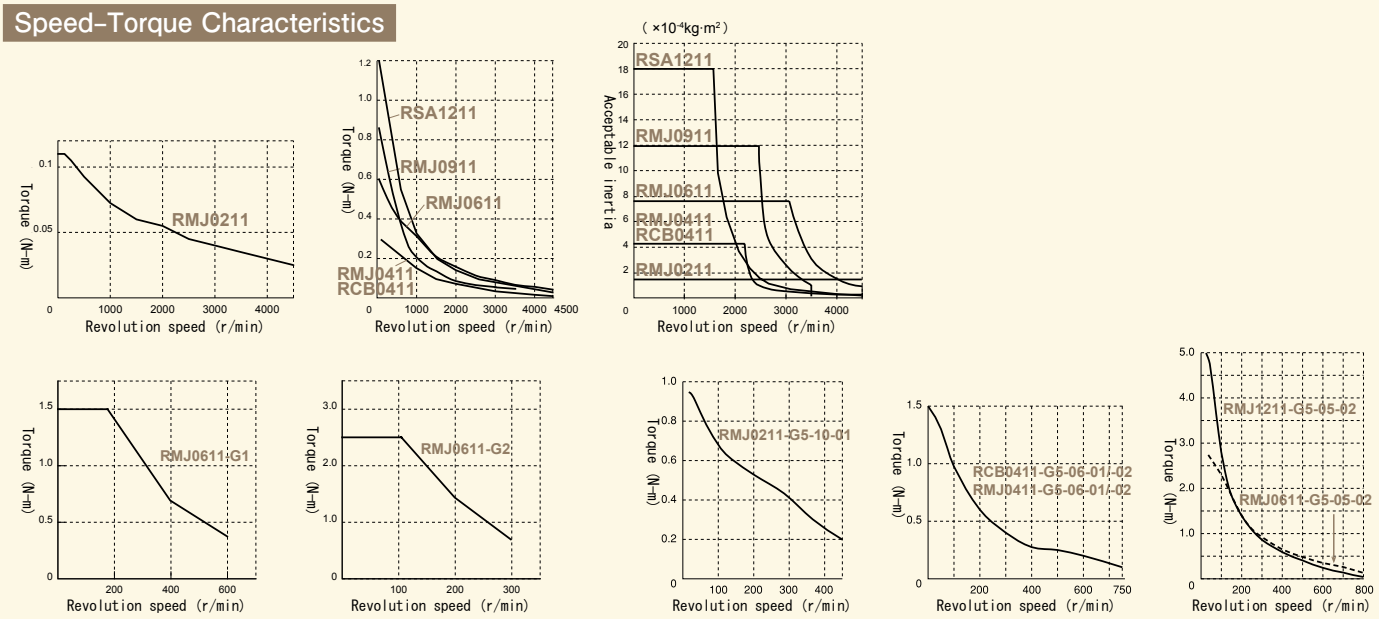
Electric Specification Common for All Motors

System type			For all the series of servomotors
Number of positioning point			16 (No limit for serial connection)
Power supply			DC 24 V ±10% (Drive power supply: Max. 3.0 A [* 2.0 A for RSA0211, RCB0411, RSA0411, RSA0211-G5, RCB0411-G5 and RSA0411-G5], Control power supply: Max. 0.2 A)
Input/output signal	Descrete input signal	Signal name	DC 24 V classed descrete input (connector PIO), +/- direction rotation inhibited (INH+, INH-), target position no. (4-bit binary code: PC1, PC2, PC4, PC8), start (CSTR), axis travel interlock (ILK)
		Input current	Max. 4 mA/port (to be connected to an output circuit of sink type)
	Descrete output signal	Signal name	DC 24 V classed descrete output (connector PIO), completion of positioning (PFIN), completion of return to home (ZFIN), zone signal (ZONE), alarm (ALM), completion position number (4-bit binary code: PM1, PM2, PM4, PM8 * Note that there is no completion position number for RCB0411 & RCB0411-G5.)
		Output current	Max. 30 mA/port (open collector output for Mechatronics Cylinders)
	Serial communication signal		Serial interface (connector SIO), +5 V, 0 V, S+, S-
Protection function			Bank data error, encoder stop judgment error, encoder counter abnormality, setting overspeed at home adjustment, E2PROM checksum error, overspeed, runaway, main power overvoltage, regeneration voltage abnormality, deviation counter abnormality, overload, encoder wire break, (Common for A & B, A only, B only) * There is no encoder wire break function for RCB0411 & RCB0411-G5.
LED display (Except for RCB0411 & RCB0411-G5)			RDY: ready、ALM: alarm
Amplifier structure (Except for RCB0411 & RCB0411-G5)			Base mount
Motor insulation class			Class E * Class B for RSA0211
Motor protection type			IP-40

Environmental condition		
	Temperature	Service temp.: 0°C to 40°C Storage temp.: -20°C to 60°C
	Humidity	90%RH or lower * No condensation
	Vibration resistance/shock resistance Note 3)	2.5 G/10 G (2 times)
Motor mounting method		Flange mount

Note 1) The values are when driven by a triangle signal with a revolution speed of max. 1000 r/min. Note 2) The point where the radial load is applied is 10 mm inside from the edge of the axis. * Please consult us when your service condition includes repetition of forward/reverse rotations or repetition of abrupt acceleration/deceleration. Note 3) The allowable vibration/shock resistance of the motor is when the axis of the servomotor is installed horizontally. The value of the shock resistance is that when a shock is applied in the vertical direction.

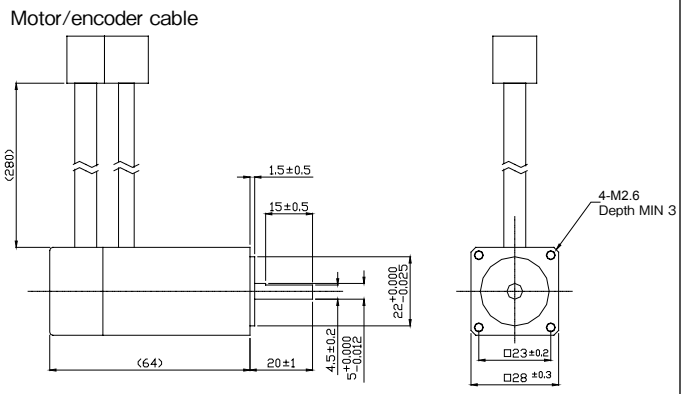
Speed-Torque Characteristics



RSA0211

Unit (mm)

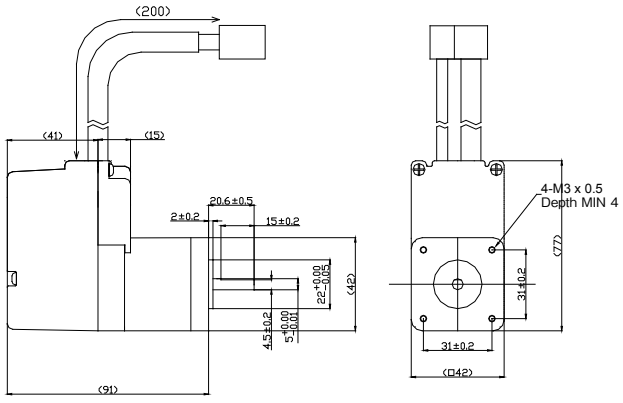
* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.



RCB0411

Unit (mm)

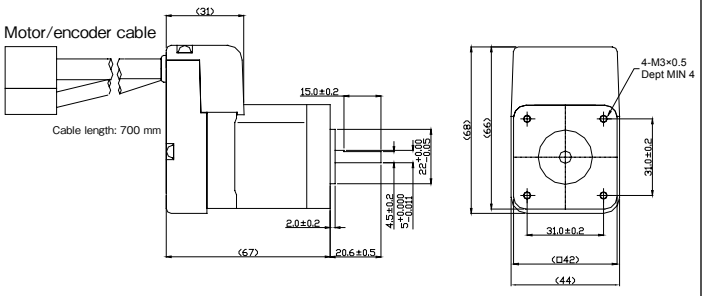
* Motor/amplifier integrated type



RSA0411

Unit (mm)

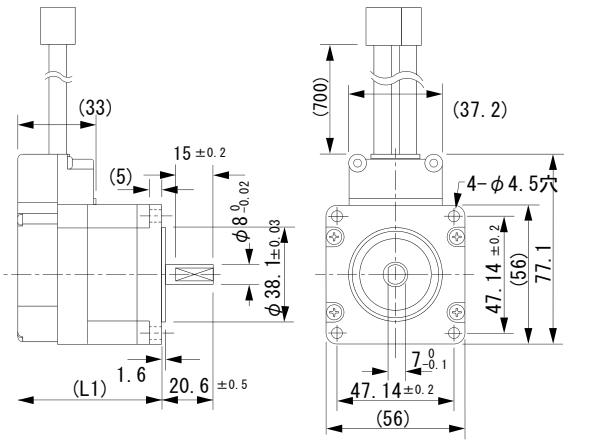
* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.



RSA 0611/0911/1211

Unit (mm)

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

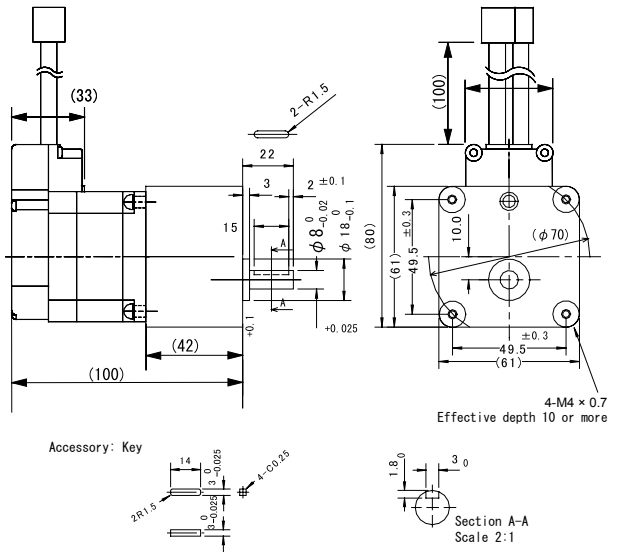


	L1
RMJ0611	61
RMJ0911	73
RMJ1211	95

RSA0611-G1/G2

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

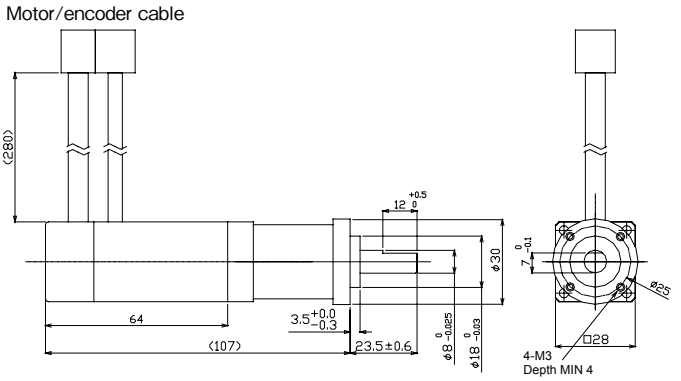
Unit (mm)



RSA0211-G5-10-0101

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

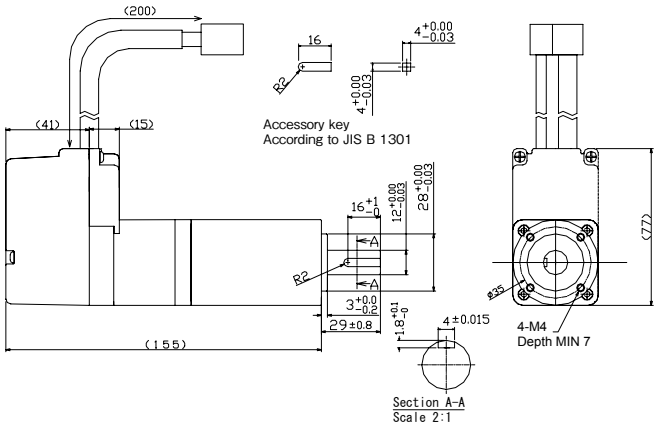
Unit (mm)



RCB0411-G5-06-02

* Motor/amplifier integrated type

Unit (mm)

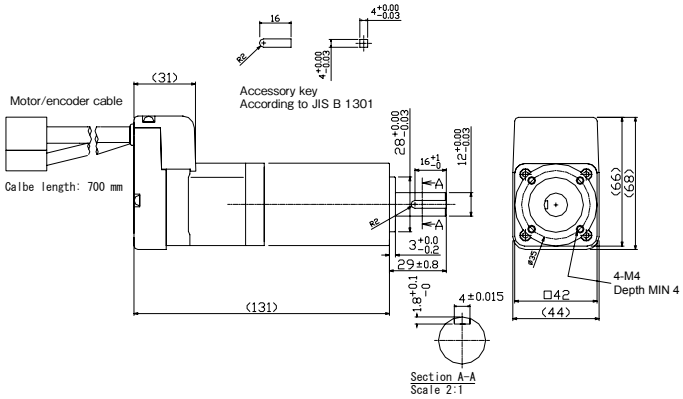


* The shaft D cut version is made-to-order.

RSA0411-G5-06-0201

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

Unit (mm)

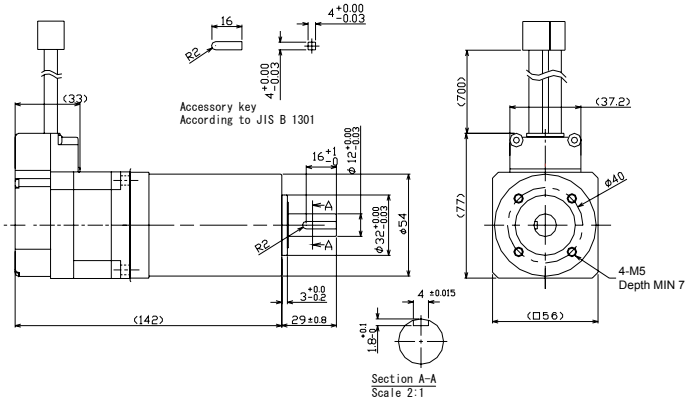


* The shaft D cut version is made-to-order.

RSA0611-G5-05-0201

* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

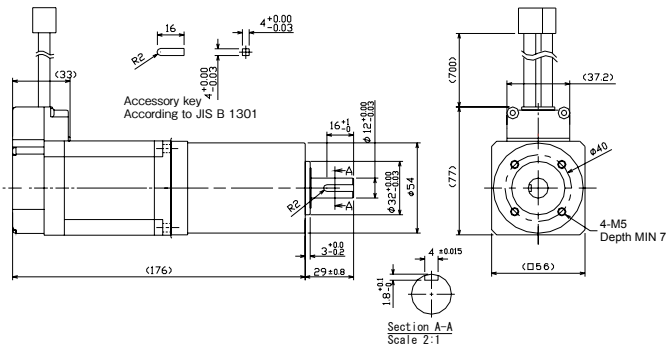
Unit (mm)



RSA1211-G5-05-0201

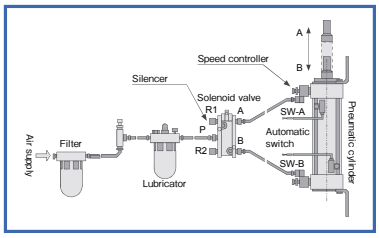
* The drawing of the servo amplifier is the same as that of SCN6 on p. 10.

Unit (mm)

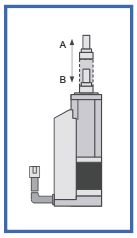


Operation Application

Simpler than pneumatic cylinder

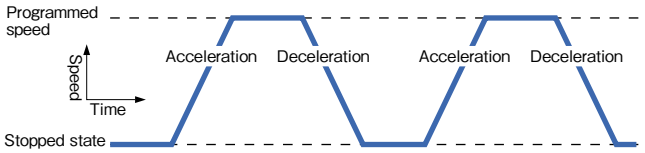


The system is substantially simpler than that of an pneumatic cylinder.



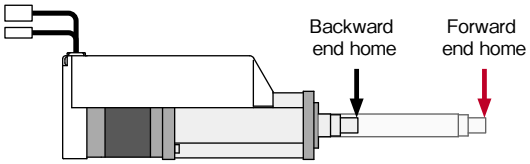
Positioning Operation

Position, speed, acceleration etc. can be set for each position.



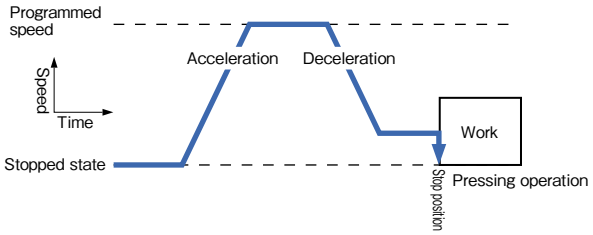
Change of home Direction

Select the forward end or backward end.



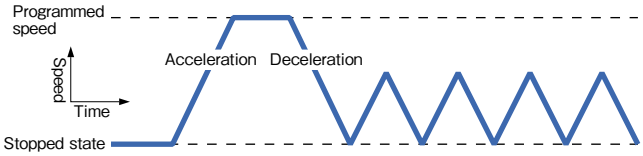
Pressing Operation

Entering the force (% of max. thrust) allows the use of the pressing operation.



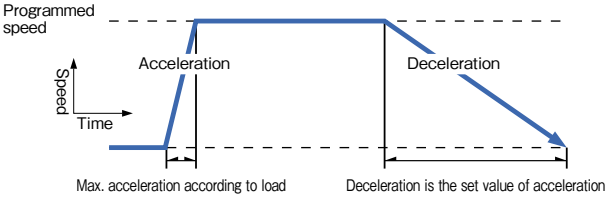
Pitch Feed Operation

In addition to the positioning operation using the coordinate values from the home, Repeatable travel for a specified distance can be done using the current position as a starting point. By specifying the distance of repeated travel, positioning with an equal pitch interval of 16 points or more can be achieved.



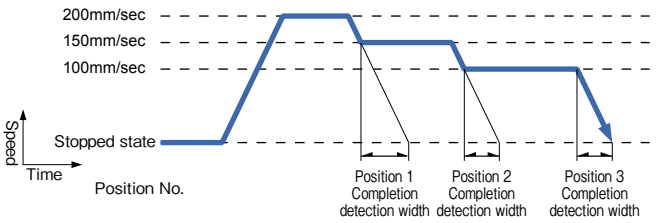
Setting of Acceleration/Deceleration

The setting changes of the acceleration and deceleration of the Mechatronics Cylinder and servomotor can be set for each position data. The factory setting works for normal application, but the acceleration/deceleration times can be changed by modifying the setting. Additionally, rapid acceleration and gradual deceleration are possible by setting the acceleration to its max. acceleration.



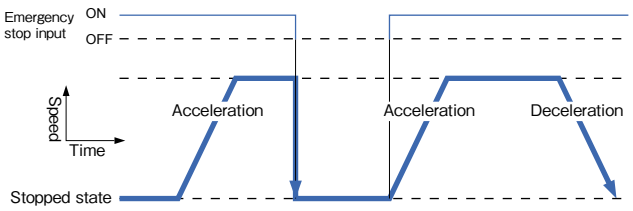
Change of Speed

By widening the width of the positioning completion detection signal (PFIN) to detect the signal in advance and by specifying the next position, the speed during travel can be changed continuously.



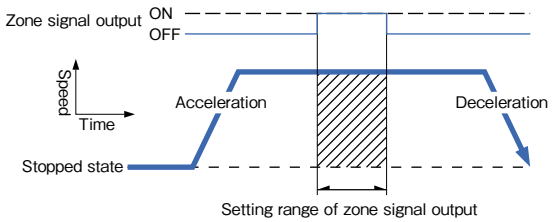
Sudden Stop Input

Emergency stop occurs when the sudden stop input (ILK) is interrupted. Depending on the setting, it can be selected that the remaining travel resumes after the emergency stop input is connected or travel does not resume.



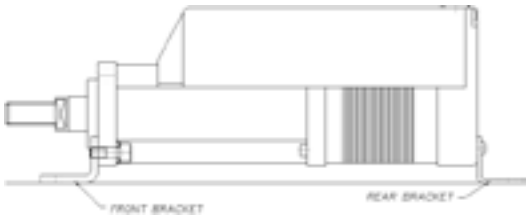
Zone signal output

Since the signal can be output at any position (the range is set by parameters) during travel, this can be used for setting of a dangerous area, management of the home position during press-fit, etc.



Mounting hardware

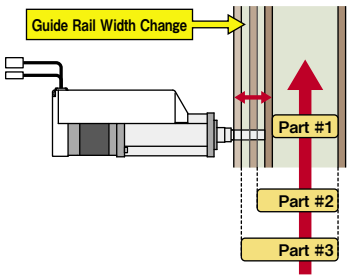
The mounting hardware for SCN5 and SCN6 are available.



Introduction Example:

By adopting the Mechatronics Cylinder, improvement of the functions of mechanical equipment can be achieved easily and at a lower cost.

Guide Rail Width Change



Small Board/Tray Loader/Unloader

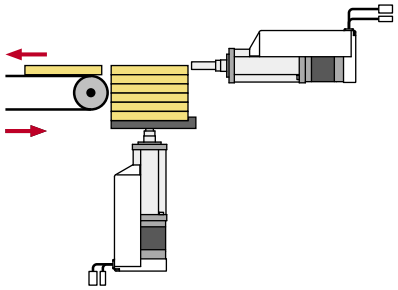
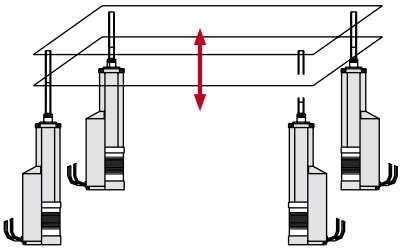
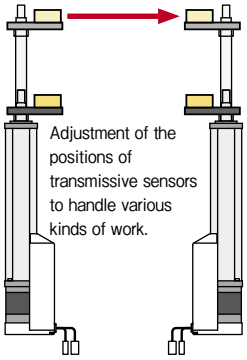


Plate Position Change

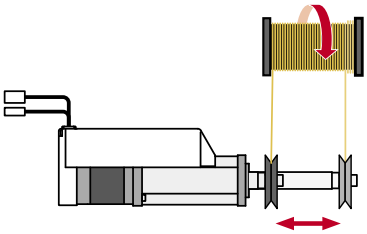
Multiple Mechatronics Cylinders can lift a large plate.



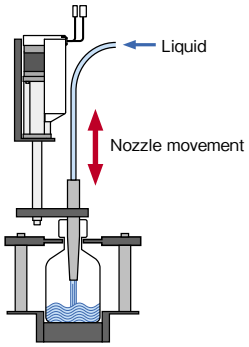
Sensor Position Change



Wire Feeding of Winding Machine

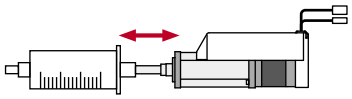


Fill Nozzle Positioning



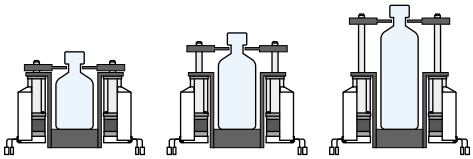
Liquid Injection

Constant volume injection is effectively possible.

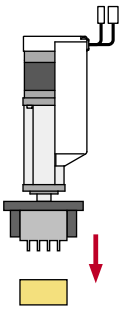


Bottle Guide Height Change

The height of the bottle guide can be moved to the programmed and prescribed position.



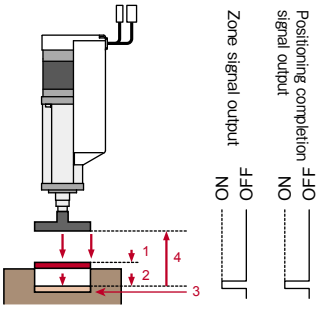
Pressing Machine



Judgment of acceptance/rejection of press-fit is possible.

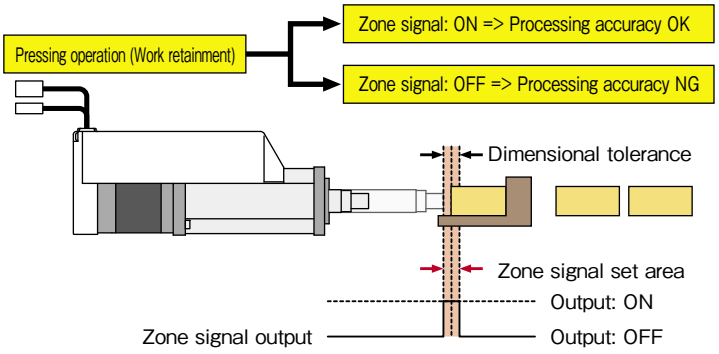
(1) High-speed travel to the place in front of the work → (2) Pressing with the set force → (3) Completion signal & zone signal output → (4) High-speed return → (1)

Pressing Operation & Inspection

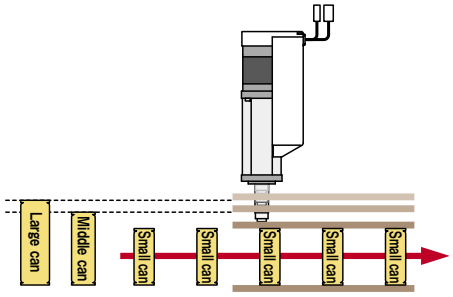


Dimensional Inspection of Work

If the processing error range of the work is set to the zone signal, the work can be inspected.



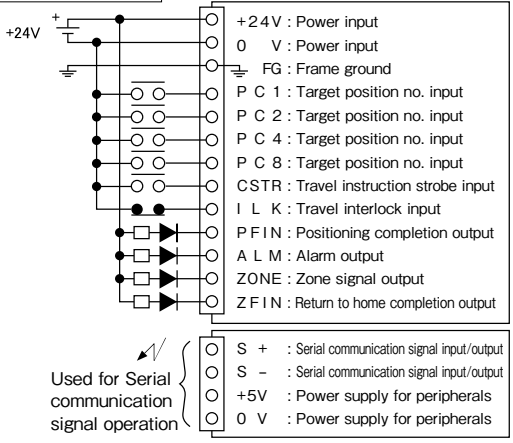
Upper Guide Height Adjustment

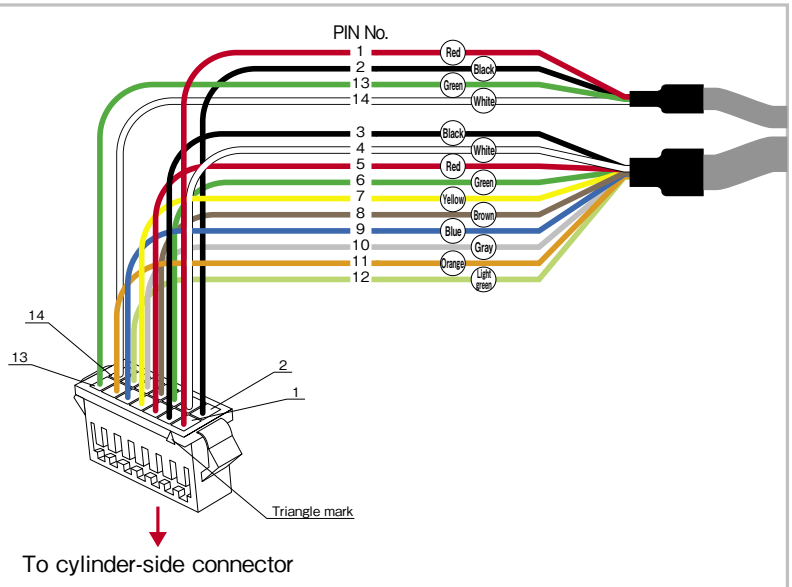


Parallel Connection Cable for I/O Control

For SCN5: RP9100-***

External connection diagram



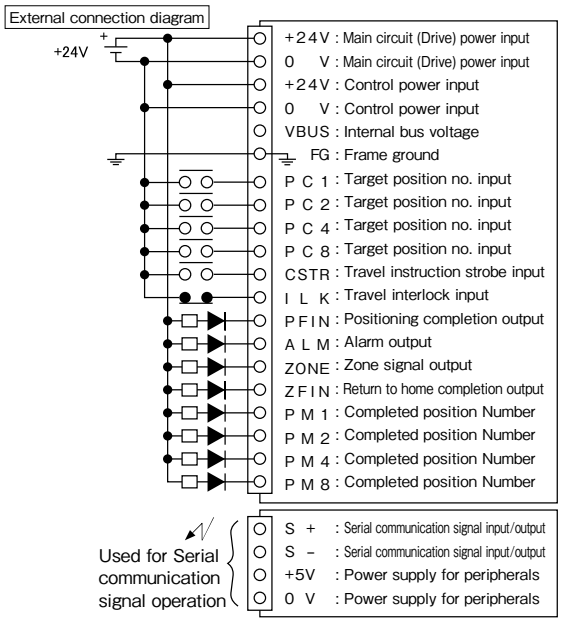


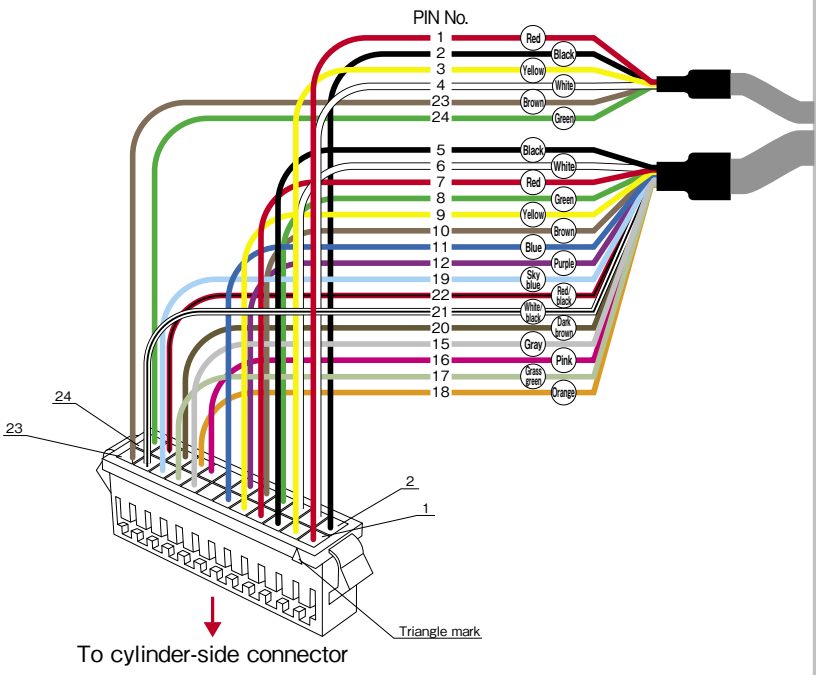
PIN No.	1	2	13	14
Signal name	+24V	0V	FG	FG
Cable color	Red	Black	Green	White

3	4	5	6	7	8	9	10	11	12
PC1	PC2	PC4	PC8	CSTR	ILK	PFIN	ZFIN	ZONE	ALM
Black	White	Red	Green	Yellow	Brown	Blue	Gray	Orange	Light green

For other than SCN5: RP9120-***

External connection diagram





PIN No.	1	2	3	4	23	24
Signal name	+24V	0V	+24V	0V	VBUS	FG
Cable color	Red	Black	Yellow	White	Brown	Green

5	6	7	8	9	10	11	12	15	16	17	18	19	20	21	22
PC1	PC2	PC4	PC8	CSTR	INH+	INH-	ILK	PM1	PM2	PM4	PM8	PFIN	ZFIN	ZONE	ALM
Black	White	Red	Green	Yellow	Brown	Blue	Purple	Gray	Pink	Grass green	Orange	Sky blue	Dark brown	White/ black	Red/ black

Parallel Cable for Serial Control/CTC-67 Control

For SCN5: RP9103-***

PIN No.	1	2	8	9	12	14
Signal name	+24V	0V	ILK	PFIN	ALM	FG
Cable color	Red	Black	White	Yellow	Brown	Green

For other than SCN5: RP9123-***

PIN No.	1	2	3	4	10	11	12	19	22	24
Signal name	+24V	0V	+24V	0V	INH+	INH-	ILK	PFIN	ALM	FG
Cable color	Red	Black	Yellow	White	Blue	Gray	Brown	Orange	Sky blue	Green

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