

Touch Panel Teaching CON-PTA, CON-PDA, CON-PGA, CON-PGAS

Operation Manual Fourteenth Edition



IAI America, Inc.



Please Read Before Use

Thank you for purchasing our product.

This Operation Manual explains the handling methods, structure and maintenance of this product, among others, providing the information you need to know to use the product safely.

Before using the product, be sure to read this manual and fully understand the contents explained herein to ensure safe use of the product.

The CD or DVD that comes with the product contains Operation Manuals for IAI products.

When using the product, refer to the necessary portions of the applicable operation manual by printing them out or displaying them on a PC.

After reading the Operation Manual, keep it in a convenient place so that whoever is handling this product can reference it quickly when necessary.

[Important]

- This Operation Manual is original.
- The product cannot be operated in any way unless expressly specified in this Operation Manual. IAI shall assume no responsibility for the outcome of any operation not specified herein.
- Information contained in this Operation Manual is subject to change without notice for the purpose of product improvement.
- If you have any question or comment regarding the content of this manual, please contact the IAI sales office near you.
- Using or copying all or part of this Operation Manual without permission is prohibited.
- The company names, names of products and trademarks of each company shown in the sentences are registered trademarks.





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Safety Guide

"Safety Guide" has been written to use the machine safely and so prevent personal injury or property damage beforehand. Make sure to read it before the operation of this product.

Safety Precautions for Our Products

The common safety precautions for the use of any of our robots in each operation.

No.	Operation Description	Description
1	Model Selection	 This product has not been planned and designed for the application where high level of safety is required, so the guarantee of the protection of human life is impossible. Accordingly, do not use it in any of the following applications. 1) Medical equipment used to maintain, control or otherwise affect human life or physical health. 2) Mechanisms and machinery designed for the purpose of moving or transporting people (For vehicle, railway facility or air navigation facility) 3) Important safety parts of machinery (Safety device, etc.) Do not use the product outside the specifications. Failure to do so may considerably shorten the life of the product. Do not use it in any of the following environments. 1) Location where there is any inflammable gas, inflammable object or explosive 2) Place with potential exposure to radiation 3) Location where radiant heat is added from direct sunlight or other large heat source 5) Location where there is any corrosive gas (sulfuric acid or hydrochloric acid) 7) Location exposed to significant amount of dust, salt or iron powder 8) Location subject to direct vibration or impact For an actuator used in vertical orientation, select a model which is equipped with a brake. If selecting a model with no brake, the moving part may drop when the power is turned OFF and may cause an accident such as an injury or damage on the work piece.



No.	Operation Description	Description
2	Transportation	 When carrying a heavy object, do the work with two or more persons or utilize equipment such as crane. When the work is carried out with 2 or more persons, make it clear who is to be the leader and who to be the follower(s) and communicate well with each other to ensure the safety of the workers. When in transportation, consider well about the positions to hold, weight and weight balance and pay special attention to the carried object so it would not get hit or dropped. Transport it using an appropriate transportation measure. The actuators available for transportation with a crane have eyebolts attached or there are tapped holes to attach bolts. Follow the instructions in the operation manual for each model. Do not step or sit on the package. Do not put any heavy thing that can deform the package, on it. When using a crane capable of 1t or more of weight, have an operator who has qualifications for crane operation and sling work. When using a crane or equivalent equipments, make sure not to hang a load that weighs more than the equipment's capability limit. Use a hook that is suitable for the load. Consider the safety factor of the hook in such factors as shear strength. Do not leave a load hung up with a crane. Do not stand under the load that is hung up with a crane.
3	Storage and Preservation	 The storage and preservation environment conforms to the installation environment. However, especially give consideration to the prevention of condensation. Store the products with a consideration not to fall them over or drop due to an act of God such as earthquake.
4	Installation and Start	 (1) Installation of Robot Main Body and Controller, etc. Make sure to securely hold and fix the product (including the work part). A fall, drop or abnormal motion of the product may cause a damage or injury. Also, be equipped for a fall-over or drop due to an act of God such as earthquake. Do not get on or put anything on the product. Failure to do so may cause an accidental fall, injury or damage to the product due to a drop of anything, malfunction of the product, performance degradation, or shortening of its life. When using the product in any of the places specified below, provide a sufficient shield. 1) Location where high electrical or magnetic field is present 3) Location with the mains or power lines passing nearby 4) Location where the product may come in contact with water, oil or chemical droplets



No.	Operation Description	Description
4	Installation and Start	 (2) Cable Wiring Use our company's genuine cables for connecting between the actuator and controller, and for the teaching tool. Do not scratch on the cable. Do not bend it forcibly. Do not pull it. Do not coil it around. Do not insert it. Do not put any heavy thing on it. Failure to do so may cause a fire, electric shock or malfunction due to leakage or continuity error. Perform the wiring for the product, after turning OFF the power to the unit, so that there is no wiring error. When the direct current power (+24V) is connected, take the great care of the directions of positive and negative poles. If the connection direction is not correct, it might cause a fire, product breakdown or malfunction. Connect the cable connector securely so that there is no disconnection or looseness. Failure to do so may cause a fire, electric shock or malfunction of the product. Never cut and/or reconnect the cables supplied with the product for the purpose of extending or shortening the cable length. Failure to do so may cause the product to malfunction or cause fire. (3) Grounding The grounding operation should be performed to prevent an electric shock or electrostatic charge, enhance the noise-resistance ability and control the unnecessary electromagnetic radiation. For the ground terminal on the AC power cable of the controller and the grounding plate in the control panel, make sure to use a twisted pair cable with wire thickness 0.5mm² (AWG20 or equivalent) or more for grounding work. For security grounding, it is necessary to select an appropriate wire thickness D for the load. Perform wiring that satisfies the specifications (electrical equipment technical standards). Perform Class D Grounding (former Class 3 Grounding with ground resistance 100Ω or below).



No.	Operation	Description
	Description	·
4	Installation and Start	 (4) Safety Measures When the work is carried out with 2 or more persons, make it clear who is to be the leader and who to be the follower(s) and communicate well with each other to ensure the safety of the workers. When the product is under operation or in the ready mode, take the safety measures (such as the installation of safety and protection fence) so that nobody can enter the area within the robot's movable range. When the robot under operation is touched, it may result in death or serious injury. Make sure to install the emergency stop circuit so that the unit can be stopped immediately in an emergency during the unit operation. Take the safety measure not to start up the unit only with the power turning ON. Failure to do so may start up the machine only with the emergency stop cancellation or recovery after the power failure. Failure to do so may result in an electric shock or injury due to unexpected power input. When the installation or adjustment operation; Do not turn ON the power!" etc. Sudden power input may cause an electric shock or injury. Take the measure so that the work part is not dropped in power failure or emergency stop. Wear protection gloves, goggle or safety shoes, as necessary, to secure safety. Do not insert a finger or object in the openings in the product. Failure to do so may cause an injury, electric shock, damage to the product. Failure to do so may cause an injury, electric shock, damage to the product. Failure to do so may cause an injury, electric shock, damage to the product.
5	Teaching	 When the work is carried out with 2 or more persons, make it clear who is to be the leader and who to be the follower(s) and communicate well with each other to ensure the safety of the workers. Perform the teaching operation from outside the safety protection fence, if possible. In the case that the operation is to be performed unavoidably inside the safety protection fence, prepare the "Stipulations for the Operation" and make sure that all the workers acknowledge and understand them well. When the operation is to be performed inside the safety protection fence, the worker should have an emergency stop switch at hand with him so that the unit can be stopped any time in an emergency. When the operation is to be performed inside the safety protection fence, in addition to the workers, arrange a watchman so that the machine can be stopped any time in an emergency. Also, keep watch on the operation so that any third person can not operate the switches carelessly. Place a sign "Under Operation" at the position easy to see. When releasing the brake on a vertically oriented actuator, exercise precaution not to pinch your hand or damage the work parts with the actuator dropped by gravity. * Safety protection Fence : In the case that there is no safety protection



No.	Operation Description	Description
6	Trial Operation	 When the work is carried out with 2 or more persons, make it clear who is to be the leader and who to be the follower(s) and communicate well with each other to ensure the safety of the workers. After the teaching or programming operation, perform the check operation one step by one step and then shift to the automatic operation. When the check operation is to be performed inside the safety protection fence, perform the check operation using the previously specified work procedure like the teaching operation. Make sure to perform the programmed operation check at the safety speed. Failure to do so may result in an accident due to unexpected motion caused by a program error, etc. Do not touch the terminal block or any of the various setting switches in the power ON mode. Failure to do so may result in an electric shock or malfunction.
7	Automatic Operation	 Check before starting the automatic operation or rebooting after operation stop that there is nobody in the safety protection fence. Before starting automatic operation, make sure that all peripheral equipment is in an automatic-operation-ready state and there is no alarm indication. Make sure to operate automatic operation start from outside of the safety protection fence. In the case that there is any abnormal heating, smoke, offensive smell, or abnormal noise in the product, immediately stop the machine and turn OFF the power switch. Failure to do so may result in a fire or damage to the product. When a power failure occurs, turn OFF the power switch. Failure to do so may cause an injury or damage to the product, due to a sudden motion of the product in the recovery operation from the power failure.



No.	Operation	Description
	Description	Description
8	Maintenance and Inspection	 When the work is carried out with 2 or more persons, make it clear who is to be the leader and who to be the follower(s) and communicate well with each other to ensure the safety of the workers. Perform the work out of the safety protection fence, if possible. In the case that the operation is to be performed unavoidably inside the safety protection fence, prepare the "Stipulations for the Operation" and make sure that all the workers acknowledge and understand them well. When the work is to be performed inside the safety protection fence, basically turn OFF the power switch. When the operation is to be performed inside the safety protection fence, the worker should have an emergency stop switch at hand with him so that the unit can be stopped any time in an emergency. When the operation is to be performed inside the safety protection fence, in addition to the workers, arrange a watchman so that the machine can be stopped any time in an emergency. Also, keep watch on the operation so that any third person can not operate the switches carelessly. Place a sign "Under Operation" at the position easy to see. For the grease for the guide or ball screw, use appropriate grease according to the Operation Manual for each model. Do not perform the dielectric strength test. Failure to do so may result in a damage to the product. When releasing the brake on a vertically oriented actuator, exercise precaution not to pinch your hand or damage the work parts with the actuator dropped by gravity. The slider or rod may get misaligned OFF the stop position if the servo is turned OFF. Be careful not to get injured or damaged due to an unnecessary operation. Pay attention not to lose the cover or untightened screws, and make sure to put the product back to the original condition after maintenance and inspection works. Use in incomplete condition may cause damage to the product or an injury.
9	Modification and Dismantle	 Do not modify, disassemble, assemble or use of maintenance parts not specified based at your own discretion.
10	Disposal	 When the product becomes no longer usable or necessary, dispose of it properly as an industrial waste. When removing the actuator for disposal, pay attention to drop of components when detaching screws. Do not put the product in a fire when disposing of it. The product may burst or generate toxic gases.
11	Other	 Do not come close to the product or the harnesses if you are a person who requires a support of medical devices such as a pacemaker. Doing so may affect the performance of your medical device. See Overseas Specifications Compliance Manual to check whether complies if necessary. For the handling of actuators and controllers, follow the dedicated operation manual of each unit to ensure the safety.



Alert Indication

The safety precautions are divided into "Danger", "Warning", "Caution" and "Notice" according to the warning level, as follows, and described in the Operation Manual for each model.

Level	Degree of Danger and Damage		Symbol	
Danger	This indicates an imminently hazardous situation which, if the product is not handled correctly, will result in death or serious injury.	Â	Danger	
Warning	This indicates a potentially hazardous situation which, if the product is not handled correctly, could result in death or serious injury.	Â	Warning	
Caution	This indicates a potentially hazardous situation which, if the product is not handled correctly, may result in minor injury or property damage.	Â	Caution	
Notice	This indicates lower possibility for the injury, but should be kept to use this product properly.	(!)	Notice	



Handling Precautions

- In this touch panel teaching, the language to be displayed can be changed. Refer to the following for how to change it.
 - CON related controllers 5.1 Displayed Language Change
 - SEP related controllers 6.1 Displayed Language Change
 - MEC related controllers 7.1 Displayed Language Change
- Be careful not to apply mechanical shocks on this touch-panel teaching pendant CON-PTA/CON-PDA/CON-PGA/CON-PGAS. Failure may occur.
- When operating this touch-panel teaching pendant CON-PTA/CON-PDA/CON-PGA/CON-PGAS, be sure to hold the teaching pendant to prevent the cables from receiving unnecessary tensile loads.
- For CON related controllers, do not touch [↑] key or [↓] key too fast to switch the windows in the table to edit the position data.

'0' is occasionally shown to the data values that are already registered.

The data is not lost even though '0' is displayed. Touch [\uparrow] key and [\downarrow] key to switch the window and come back, and you will find the data showing the right values.

Edit Position ooo <u>Actuator set</u> Axis No. 00					
No.	Position(mm)	Vel(mm/s)	Acc(G)	Del(G)	
000	0.00	50.00	0.30	0.30	
001	200.00	100.00	0.30	0.30	
002	100.00	35.00	0.30	0.30	
003	150.00	25.00	0.30	0.30	
004	50.00	25.00	0.30	0.30	
005	200.00	300.00	0.30	0.30	
006	****.**	****.**	*.**	*.**	
007	****.**	****.**	*.**	*.**	
↑ Specify No All Clear ↓					
Menu1					

Position Data Table

Caution

 This touch-panel teaching pendant CON-PTA/CON-PDA/CON-PGA/CON-PGAS is exclusively designed for use with IAI controllers. Never connect it to other equipment. Failure may occur.

Product Check

This product, if adopting a standard configuration, consists of the parts listed below.

1. Component (excluding options)

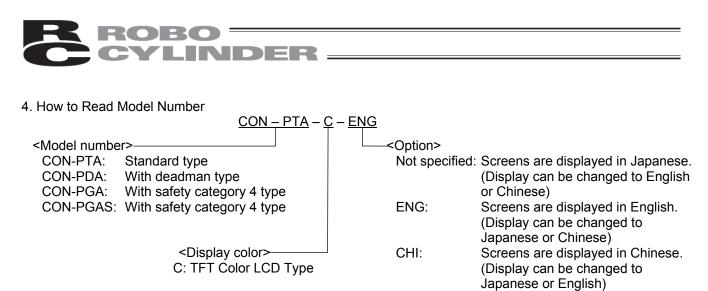
No.	Product name	Model number	Remarks
1	Teaching pendant	Refer to "How to Read Model Nameplate" and "How to Read Model Number."	
Access	ories		
2	Touch pen	Built into teaching pendant	
3	First step guide		
4	Operation manual (CD/DVD)		
5	Safety guide		

2. Operation manual related to this product, stored in the CD/DVD

No.	Name	Control number
1	Operation manual for touch-panel teaching pendant CON-PTA/CON-PDA/CON-PGA/CON-PGAS	ME0295
2	Operation manual for actuator integrated with ERC2 controller (PIO type)	ME0158
3	Operation manual for actuator integrated with ERC2 controller (SIO type)	ME0159
4	Operation manual for actuator integrated with ERC3 controller	ME0297
5	Operation manual for PCON-CA controller	ME0289
6	Operation manual for PCON-C/CG/CF controller	ME0170
7	Operation manual for PCON-CY controller	ME0156
8	Operation manual for PCON-SE controller	ME0163
9	Operation manual for PCON-PL/PO controller	ME0164
10	Operation manual for ACON-C/CG controller	ME0176
11	Operation manual for ACON-CY controller	ME0167
12	Operation manual for ACON-SE controller	ME0171
13	Operation manual for ACON-PL/PO controller	ME0166
14	Operation manual for ACON-CA/DCON-CA controller	ME0326
15	Operation manual for SCON controller	ME0161
16	Operation manual for SCON-CA controller	ME0243
17	Operation manual for ROBONET	ME0208
18	Operation manual for ASEP/PSEP/DSEP controller	ME0267
19	Operation manual for PMEC/AMEC controller	ME0245
20	Operation manual for MSEP controller	ME0299
21	Operation manual for MSCON controller	ME0306

3. How to Read Model Nameplate

Model number MODEL CON-PTA Serial number SERIAL No.900109940 A1 MADE IN JAPAN



Supported Models

The table below lists supported models.

List of Supported Models			
Controller model			
ERC2 ^{*1}	PCON-CYB		
ERC3	PCON-PLB		
RCP6S	PCON-POB		
ACON	SCON-C		
ACON-CA	SCON-CA		
ACON-CB	SCON-CAL/CGAL		
ACON-CYB	SCON-CB		
ACON-PLB	RACON		
ACON-POB	RPCON		
DCON-CA	ASEP		
DCON-CB	PSEP		
DCON-CYB	DSEP		
DCON-PLB	MSEP		
DCON-POB	AMEC		
PCON	PMEC		
PCON-CA	MSCON		
PCON-CB MCON			

*1 Whether or not ERC2 is supported can be checked on the sticker attached to the left side face of the cover (as viewed from the rear).

Information on sticker				
I/O type Not supported Supported		Supported		
NP NP U5 M		NP T1 4904, 4905, 6302		
PN	PN U3 M	PN T1 4904, 4905, 6302		

Note that touch-panel teaching pendants can be connected to ERC2 controllers of SIO type via a SIO converter regardless of their version.

1. Basic Specification

This touch-panel teaching pendant is a display operation unit you can use to display or edit data saved in the controller as a result of communication with the controller (parameter data, position data, etc.). This unit is used for checking teaching alarms or performing other tasks in an offline state when no host PLC, etc., is connected.

Item	Specifications	
Screen	TFT Color LCD Type	
Font	Japanese Bitmap Font Gothic Fonts supplied by LIM Corporation Ltd. are used.	
Power supply voltage range	DC24V $\pm 10\%$ (supply than the controller)	
Power consumption	3.6 W or less (150 mA or less)	
Ambient operating temperature, humidity	Temperature 0 to 40°C, humidity 20 to 85% RH (non-condensing)	
Ambient storage temperature, humidity	Temperature -20 to 60°C, humidity 10 to 85% RH (non-condensing)	
Vibration resistance	10 to 55 Hz (5-minute period) (Test Condition) 0.35 mm in X, Y and Z directions for 50 minutes	
Impact resistance	(Test Condition) 9.8 m/s ² or more, applied 4 times each in X, Y and Z directions	
Environmental resistance	IP 40 or equivalent	
Dimension	180 mm (H) × 132 mm (W) × 92.1 mm (D)	
WeightCON-PTA: Approx. 570 g (including 5 m of ca CON-PDA/PGA/PGASCON-PDA/PGA/PGAS: Approx. 600 g (including 5 m of ca		
Cable length	5 m (standard)	
Accessories	Touch pen	
Recommended SD Memory Card ^(Note 1)	SD, SDHC (manufactured by Toshiba) 1G to 8G byte	

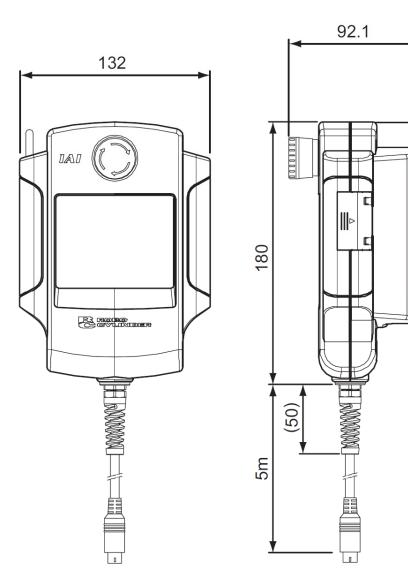
Note 1 Secure Digital card is a registered trademark for SD-3C, LLC and SDA.

Language Change

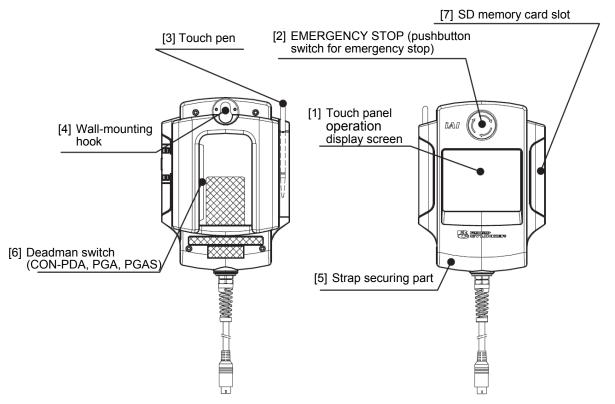
Model	Display Language (in Delivery)	Available Language
CON-PTA-C	English	Japanese or Chinese



External Dimensions



2. Explanation of Each Part



- [1] Touch-panel operation display screen The screen consists of a TFT Color LCD Type and a touch panel. Various settings that have been edited or taught are displayed. To operate the screen, use a finger or the touch pen to touch ^(Note 1) desired parts of the touch panel.
 - (Note 1) In a use of the LCD display for a long term, the brightness may drop. To maximize the life of the LCD display, remove it from the controller when it is not in use. Set the turn-off time in the environment setting so it automatically turns OFF.
 - (Note 2) This touch panel is of analog resistance membrane type, so do not touch two or more locations on the screen at the same time. If two or more locations are touched at the same time, the centers of all touched locations may respond and trigger multiple operations.
 - (Note 3) When operating the touch panel, do not apply a force exceeding 0.5 N. If any greater force is applied, the touch panel may be damaged.
 - (Note 4) The life of touch panel is approx. 1 million touches at the same location. (Assuming a use environment of 25°C)
- [2] EMERGENCY STOP (Pushbutton switch for emergency stop) This switch actuates an emergency stop.
- [3] Touch pen This touch pen is used to touch the touch-panel operation display screen.
- [4] Wall-mounting hook This hook is used to mount the touch panel on a wall.



[5] Strap securing part This part is used to attach a strap (optional).

[6] Deadman switch (CON-PDA, PGA, PGAS)

The deadman switch has three conditions corresponding to three levels. The meaning of ON/OFF in each condition is explained below.

Level 1	Switch OFF	The hand is off the switch, or the switch is pressed with a very small force.
Level 2	Switch ON	The switch is pressed with an appropriate force.
Level 3	Switch OFF	The switch is pressed with a strong force.

When the switch is ON, the servo can be turned ON.

When the switch is OFF, the drive source is cut off and the servo remains OFF.

Even when the switch is OFF, operation is still possible in modes where the servo need not be ON (such as in the edit mode).

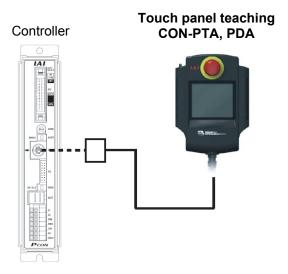
[7] SD memory card slot

It is a slot to insert the Secure Digital cards.

3. Connection and Disconnection to/from Controller

Make sure to turn OFF the power to the controller before inserting/removing Touch Panel Teaching CON-PTA.

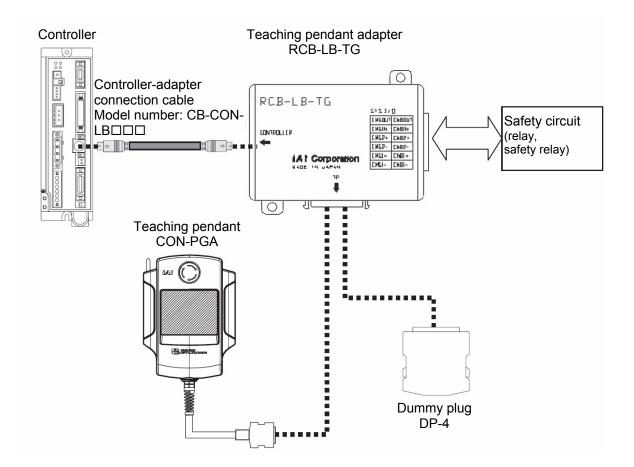
- \bigtriangleup Caution: It may cause to malfunction if the teaching is put in or taken out while the power is ON.
 - Make sure to check the matching position of the connector to ensure not to apply load in wrong direction while the connector is put in or taken out. Do not attempt to put in the connector forcefully when it does not go smoothly. Doing so may cause to malfunction.





4. Connection of CON-PGA/PGAS and Controller

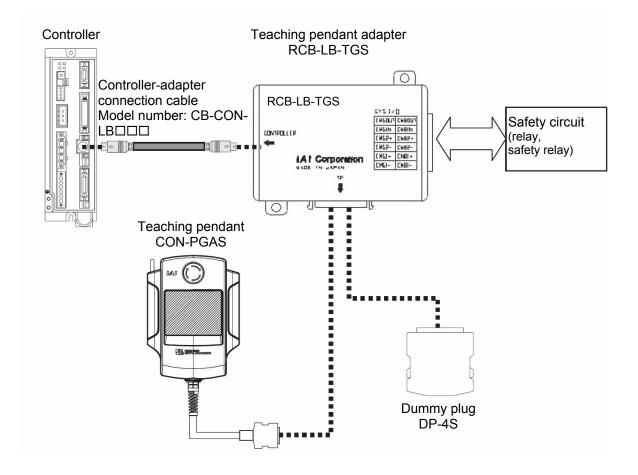
[Connection of CON-PGA and RCB-LB-TG]



Caution: While the teaching pendant CON-PGA is not connected, be sure to connect the dummy plug DP-4 to the teaching pendant adapter.



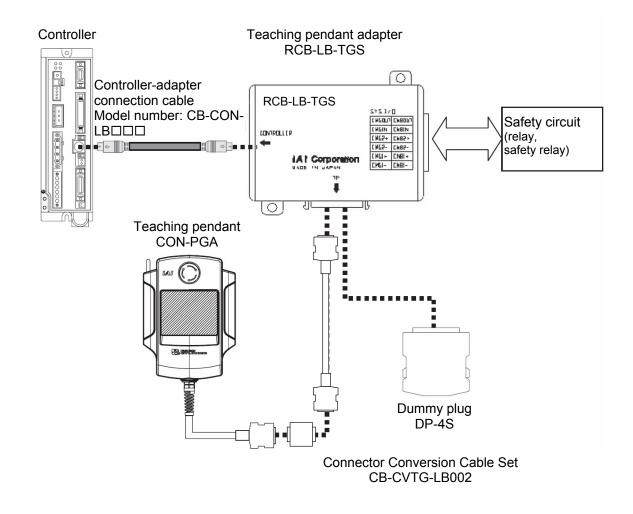
[Connection of CON-PGAS and RCB-LB-TGS]



Caution: While the teaching pendant CON-PGAS is not connected, be sure to connect the dummy plug DP-4S to the teaching pendant adapter.



[Connection of CON-PGA and RCB-LB-TGS]



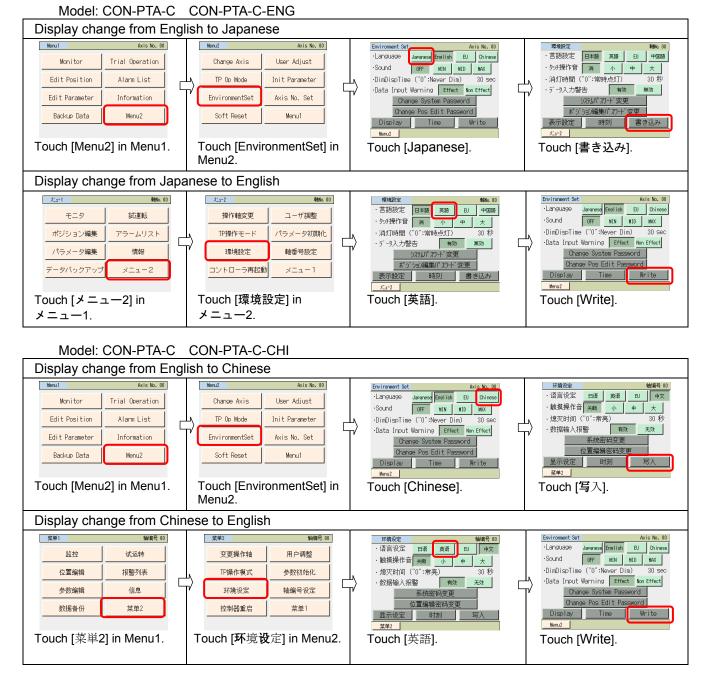
Caution: While the teaching pendant CON-PGA is not connected, be sure to connect the dummy plug DP-4S to the teaching pendant adapter.

5. Operation of CON Related Controllers

CON related controllers: ERC2, ERC3, ACON, ACON-CA, DCON-CA, PCON, SCON-C, SCON-CA, SCON-CAL/CGAL, RACON, RPCON and MSCON

5.1 Displayed Language Change

The language can be changed by following the steps below. For the operations after the language change, please refer to the operation manual written in each language.

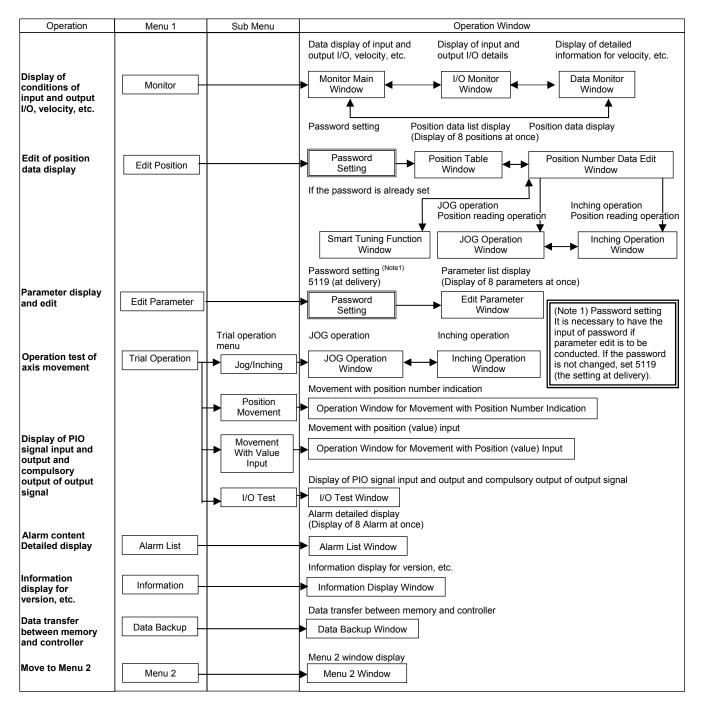


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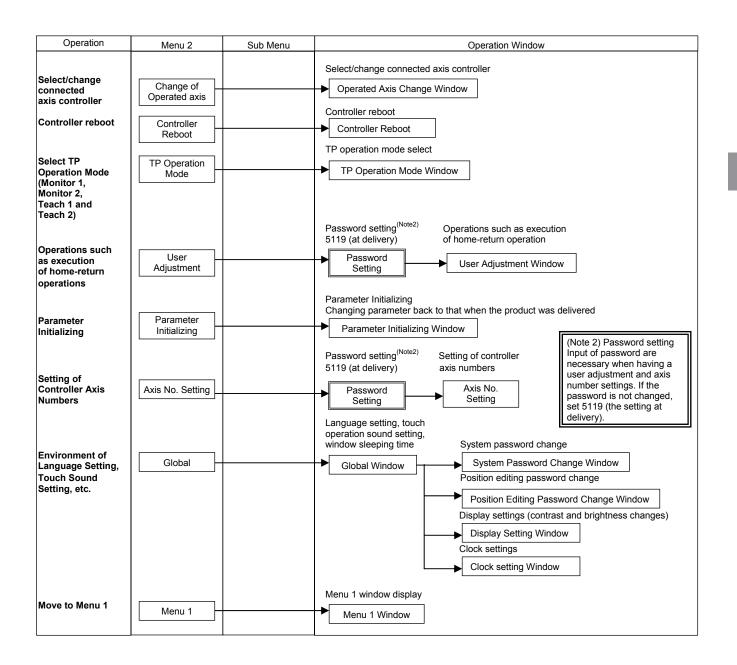


5.2 Operating Menu

Operating menu when the touch-panel teaching pendant CON-PTA is connected to a CON controller is shown.





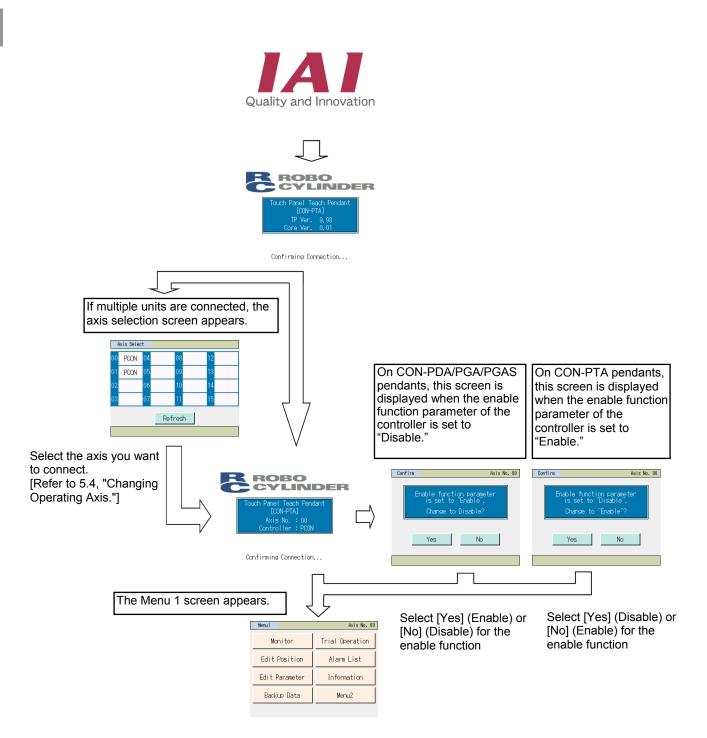




5.3 Initial Screen

Upon connection to the controller, power is supplied to the touch-panel teaching pendant and processing starts.

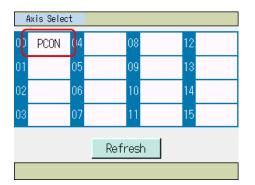
When the power is turned on, the IAI logo is displayed for approx. 1 second on the operation display screen (hereinafter referred to as " operation screen") of the touch-panel teaching pendant, after which version information is displayed.





5.4 Changing Operating Axis

If multiple controllers are connected to the communication line, the axis selection screen appears. This screen also appears when [Change Axis] is touched on the Menu 2 screen. If only one controller is connected, you need not select an axis.

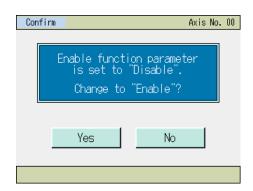


Select and touch the axis you want to connect the touch-panel teaching pendant to.

Connection with the selected controller axis starts.



Confirming Connection...



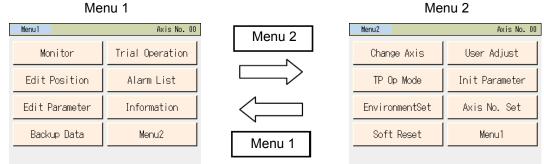
Menul Axis No.		
Monitor	Trial Operation	
Edit Position	Alarm List	
Edit Parameter	Information	
Backup Data	Menu2	

This screen appears when the enable function parameter of the controller, other than CON-PTA, is set to [Disable]. Select and touch [Yes] (Enable) or [No] (Disable) for the enable function.

When connection with the controller is established, the Menu 1 screen appears.



5.5 Menu Selection



Two menu selection screens, Menu 1 and Menu 2, are available.

Setting."]

Touching [Menu2] on the Menu 1 screen changes the display to the Menu 2 screen.

Touching [Menu1] on the Menu 2 screen changes the display to the Menu 1 screen.

The Menu 1 screen and Menu 2 screen provide seven menu items, respectively. Select and touch one of these items.

The screen changes to the one corresponding to the menu item you have touched.

Menu 1 list

Monitor	Display the controller status. [Refer to 5.6, "Monitor."]
 Edit Position 	Display and edit the position data table. [Refer to 5.7, "Position Editing."]
Edit Parameter	Display and edit zone boundary+ and other parameters. [Refer to 5.8, "Parameter Editing."]
Trial operation	Perform operation test for jogging, inching and axis movement. [Refer to 5.9, "Trial Operation."]
 Alarm List 	Display alarm details. [Refer to 5.11, "Alarm List."]
Information	Display controller information such as the version. [Refer to 5.16, "Information Display."]
Backup Data	Transfer data between SD memory card and the controller. [Refer to 5.18 "Data Backup."]
Menu 2 list	

[Refer to 5.4, "Changing Operating Axis."]

to 5.17, "Environment Setting."]

Restart the controller. [Refer to 5.12, "Controller Restart."]

Execute home return, etc. [Refer to 5.13, "User Adjustment."]

Initialize parameters. [Refer to 5.14, "Parameter Initialization."] Set the axis number of the controller. [Refer to 5.15, "Axis Number

- Change Axis
- Soft Reset
- TP Op Mode
- User Adjust
- Init Parameter
- Axis No. Set
- Environment Set

Menul Axis No. 00		
Monitor	Trial Operation	
Edit Position	Alarm List	
Edit Parameter	Information	
Backup Data Menu2		
AlarmCode: OC1 (Serbo Error)		

When an alarm generates, the corresponding alarm code and message will appear at the bottom of the screen and the backlight color will change to orange. If an emergency stop is detected, the background color will change to red.

Select the controller axis to connect the touch-panel teaching pendant to.

Select a desired TP operation mode. [Refer to 5.10, "TP Operation Mode."]

Set the language and touch tone, change the system password, etc. [Refer



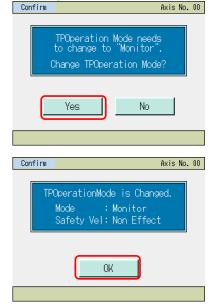
5.6 Monitor

The I/O statuses, current position and other information of the controller connected to the serial communication line are displayed.

Menul Axis No. 00		
Monitor	Trial Operation	
Edit Position	Alarm List	
Edit Parameter	Information	
Backup Data	Menu2	

Touch [Monitor] on the Menu 1 screen.

If the TP operation mode is not Monitor Mode 1 or 2, the following message screen appears.

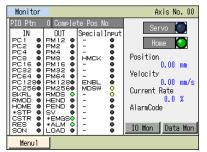


Touch [Yes] to change to Monitor Mode 1 or 2. If not, touch [No].

 (Note) The safety speed does not change.
 If the current mode is Teaching Mode 1, it changes to Monitor Mode 1.
 If the current mode is Teaching Mode 2, it changes to Monitor Mode 2.

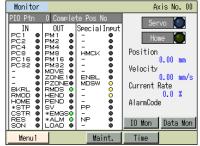
Touch [OK].

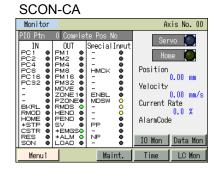
Models other than SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 and MSCON

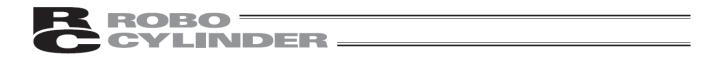


The main monitor screen appears.

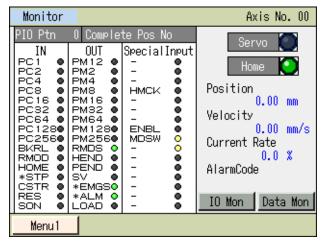
PCON-CA, ACON-CA, DCON-CA, ERC3, MSCON and SCON-CAL/CGAL







The main monitor screen appears. Models other than SCON-CA, PCON-CA, ACON-CA, DCON-CA, ERC3 and MSCON



Touching [IO Mon] changes the display to one showing only I/Os.

Touching [Data Mon] changes the display to one showing only the current position, etc.

Touching Axis No. switches to the axis selection screen.

PCON-CA, ACON-CA, DCON-CA, ERC3, MSCON and SCON-CAL/CGAL

Monitor Axis No. 00					
PC1 PM1 PC2 PM2 PC4 PM4 PC8 PM8 PC16 PM32 - MOVE - ZONE10 BKRL RMDS BKRL RMDS HOME PEND +STP SV	Pos No Pecial Input - - HMCK - ENBL MDSW - PP - NP - NP -	Velocity	e ().00 mm).00 mm/s ate 0.0 %		
Menu 1	Maint.	Time			

Touching [IO Mon] changes the display to show only I/Os.

Touching [Maintenance] changes the display to show maintenance information.

Touching [Data Mon] changes the display to show data such as the current position and control voltage.

Touching Axis No. switches the screen to one where you can select an axis

Touching [Time] shows the window for time edit adjustment.



SCON-CA

Monitor Axis No. 00				
PIO Ptn IN PC1 • PC2 • PC4 • PC32 • - - BKRL • RMOD • HOME • *STP • CSTR • RES • SON •		te Pos No Special Input - • HMCK • - • ENBL • MDSW • - • PP • NP •	Velocity	ne () 0.00 mm 0.00 mm/s Rate 0.0 %
Menu 1		Time	LC Mon	

Touching [IO Mon] changes the display to show only I/Os.

Touching [Maintenance] changes the display to show maintenance information.

Touching [Data Mon] changes the display to show data such as the current position and control voltage. Touching [LC Mon] changes the display to show data such as the current position and force feedback.

Touching Axis No. switches the screen to one where you can select an axis

[Displayed Items]

•

•

.

- PIO Pattern
 - The PIO pattern number set to the controller is shown.
- Complete Pos No The position number achieved upon completion of positioning is shown.
 - IN The status of each input port is shown. ON is lit. OFF is unlit.
 - OUT The status of each output port is shown. ON is lit. OFF is unlit.
 - SpecialInput The statuses of the enable switch, etc., are shown. ON is lit. OFF is unlit. (The displayed items vary depending on the model.)
 - The servo ON status is shown. ON is lit. OFF is unlit.
 - The home return status is shown. Lit, if home return has completed.
 - Position The current position is shown.
 - Velocity The speed is shown.
 - Current Rate The command value of electrical current is shown as a percentage of the rated current.
- AlarmCode

Servo

Home

The applicable alarm code is shown.



Models other than SCON-C, SCON-CA, SCON-CAL/CGAL and MSCON IQ monitor screen

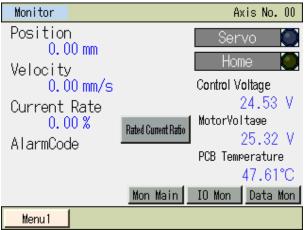
Monitor						Axis No. 00	
Input				Output			
Name	Stat	Name	Stat	Name	Stat	Name	Stat
PC1		PC256	٠	PM1		PM250	ô 🔴 🗌
PC2		BKRL		PM2		RMDS	0
PC4		RMOD		PM4		HEND	
PC8		HOME		PM8		PEND	
PC16		*STP		PM16		SV	
PC32		ICSTR		PM32		*EMG	3 O
PC64		RES		PM64		*ALM	0
PC128		SON		PM12	8 🔍	LOAD	
●:OFF ○:ON			Mon	Mon Main IO Mo			ta Mon
Menu	1						

- InputOutput
- The status of each input port is shown. ON is lit. OFF is unlit. The status of each output port is shown. ON is lit. OFF is unlit.

display.

screen.

SCON-C, SCON-CA, SCON-CAL/CGAL and MSCON Data monitor screen



Touching [Mon Main] switches to the main monitor display

Touching [Mon Main] switches to the main monitor

Touching [Data Mon] changes the display to one

Touching Axis No. switches to the axis selection

showing only the current position, etc.

Touching [IO Mon] changes the display to one showing only I/Os.

Touching [Axis No.] switches the screen to one where you can select an axis.

Touch [Current] to display [Rated Current Ratio]. Touch [Rated Current Ratio] to display [Current].

- Position
- The current position is shown.
- Velocity The speed is shown.
- Pulse count The pulse count is shown. Touching [Pulse Count] displays the pulse count.
 - (It is shown on the pulse train control controllers such as PCON-PL/PC.)
- Current Rate The command value of electrical current is shown as a percentage of the rated current.
- Current The command value of electrical current is shown. Touch [Current] to display the command value.
- Alarm Code The applicable alarm code is shown.
- Servo The servo ON status is shown. ON is lit. OFF is unlit.
 - Home The home return status is shown. Lit, if home return has completed.
- ControlVoltage The voltage of the control power supply is shown.
- MotorVoltage
 The voltage of the motor power supply is shown.
- PCB Temperature The PCB temperature is shown.



SCON-C IO monitor screen

Monitor Axis No. 00							
Input				Output			
Name	Stat	Name	Stat	Name	Stat	Name	Stat
PC1	\circ	-	•	PM1	•	PZONE	
IPC2		BKRL		PM2		RMDS	0
PC4		RMOD		PM4	•	HEND	
PC8		HOME		PM8	•	PEND	
PC16		*STP	\circ	PM16		SV	
PC32		CSTR		PM32		*EMG	30
-		RES		MOVE	•	*ALM	0
-		SON	•	ZONE	1 🔍	LOAD	0
•:OFF ::ON				Main	IO Mo	n Dar	ta Mon
Menu	1						

Touching [Mon Main] switches to the main monitor display

Touching [Data Mon] changes the display to show data such as the current position and control voltage.

Touching [Axis No.] switches the screen to one where you can select an axis.

- Input
- Output

The status of each input port is shown. ON is lit. OFF is unlit. The status of each output port is shown. ON is lit. OFF is unlit.

SCON-C Data monitor screen

Monitor		A)	kis No. 00
Position 0.00 mm		Ser	
Velocity 0.00 mm/s		Hon	ie 💟
Current Rate		∎ MotorVol	tage
AlarmCode	Current		71.00 V
mannoodo		PCB Temm	erature 46.00 °C
	Mon Main	IO Mon	Data Mon
Menu 1			

Touching [Mon Main] switches to the main monitor display

Touching [IO Mon] changes the display to one showing only I/Os.

Touching [Axis No.] switches the screen to one where you can select an axis.

Touch [Current] to display [Current Rate]. Touch [Current Rate] to display [Current].

- Position
- The current position is shown.
- VelocityThe speed is shown.Pulse countThe pulse count is shown.

The pulse count is shown. Touching [Pulse Count] displays the pulse count.

- (The pulse count is shown in the pulse-train control mode.)
- Current Rate The command value of electrical current is shown as a percentage of the rated current.
- Current The command value of electrical current is shown. Touch [Current Rate] to display the command value.
- Alarm Code The applicable alarm code is shown.
- Servo The servo ON status is shown. ON is lit. OFF is unlit.
- Home The home return status is shown. Lit, if home return has completed.
- MotorVoltage The voltage of the motor power supply is shown.
- PCB Temperature The PCB temperature is shown.



SCON-CA IO monitor screen

Monit	Monitor Axis No. 00						
	Input				Out	put	
Name	Stat	Name	Stat	Name	Stat	Name	e Stat
PC1	\circ	-	•	PM1	•	I PZOI	
PC2		BKRL		PM2	•	RMD	S O
PC4		RMOD	•	PM4		HEN	Ō O
PC8		HOME		PM8		PEN	Ō •
PC16		*STP	0	PM16		ISV	•
PC32		ICSTR	•	PM32		I ∗ÉM(GS 🔾
-		RËS	•	IMÖVE		*ALI	-:-
-	•	SON	٠	ZÕNE	1 🔍	LOA	
•:0FF	●:OFF ○:ON			Main	IO Mo	n D)ata Mon
Menu1 LC Mor						LC Mon	

Touching [Mon Main] switches to the main monitor display

Touching [Data Mon] changes the display to show data such as the current position and control voltage. Touching [LC Mon] changes the display to show data such as the current position and force feedback.

Touching [Axis No.] switches the screen to one where you can select an axis.

- Input
- Output

The status of each input port is shown. ON is lit. OFF is unlit. The status of each output port is shown. ON is lit. OFF is unlit.

SCON-CA

Data monitor screen

Monitor		A)	cis No. 00
Position 0.00 mm		Ser	
Velocity 0.00 mm/s		Horr	ie 💟
Current Rate 0.00% AlarmCode	Current	PCB Temp	1.00 V
	Mon Main	IO Mon	Data Mon
Menu 1			LC Mon

Touching [Mon Main] switches to the main monitor display

Touching [IO Mon] changes the display to one showing only I/Os.

Touching [LC Mon] changes the display to show data such as the current position and force feedback.

Touching [Axis No.] switches the screen to one where you can select an axis.

Touch [Current] to display [Current Rate]. Touch [Current Rate] to display [Current].

- Position The current position is shown.
 - Velocity The speed is shown.
- Pulse count

The pulse count is shown. Touching [Pulse Count] displays the pulse count.

- (The pulse count is shown in the pulse-train control mode.)
- Current Rate The command value of electrical current is shown as a percentage of the rated current.
- Current The command value of electrical current is shown. Touch [Current Rate] to display the command value.
- AlarmCode The applicable alarm code is shown.
- Servo The servo ON status is shown. ON is lit. OFF is unlit.
- Home The home return status is shown. Lit, if home return has completed.
- MotorVoltage The voltage of the motor power supply is shown.
- PCB Temperature The PCB temperature is shown.

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SCON-CA LC monitor screen

Monitor		Ax	ais No. 00
Position 0.00 mm Velocity 0.00 mm/s Current Rate 0.00 %	Current	Ser Hom Calibra	le 🦲 ation 🥘
AlarmCode	Mon Main	IO Mon	Data Mon
Menu 1			LC Mon

Touching [Mon Main] switches to the main monitor display

Touching [IO Mon] changes the display to one showing only I/Os.

Touching [Data Mon] changes the display to show data such as the current position and control voltage.

Touch [Current] to display [Current Rate]. Touch [Current Rate] to display [Current].

- Position The current position is shown.
- Velocity The speed is shown.
- Pulse count
 The pulse count is shown. Touching [Pulse Count] displays the pulse count. (The pulse count is shown in the pulse-train control mode.)
 Current Rate
 The command value of electrical current is shown as a percentage of the rated
- Current
 Current
 The command value of electrical current is shown. Touch [Current Rate] to display the command value.
- Alarm Code
 The applicable alarm code is shown.
- Servo The servo ON status is shown. ON is lit. OFF is unlit.
- Home The home return status is shown. Lit, if home return has completed.
- Calibration The calibration status of the load cell is shown. Lit, if calibration of the load cell has been completed.
- Force feedback The force feed back from the load cell is shown.



MSCON and SCON-CAL/CGAL IO monitor screen

Monit	Monitor Axis No. 00							
Input				Output				
Name	Stat	Name	Stat	Name	Stat	Name	Stat	
PC1	\circ	-	•	PM1		PZONE		
PC2		BKRL		PM2		RMDS		
PC4		RMOD		PM4		HEND		
PC8		HOME		PM8		PEND		
PC16		*STP	\circ	PM16		SV		
PC32		ICSTR		PM32		*EMGS		
-		RES		MOVE		*ALM	0	
-	•	SON	۲	ZONE1		LOAD	0	
●:OFF ○:ON Mon Main IO Mon Data Mon								
Menu	1							

Touching [Mon Main] switches to the main monitor display

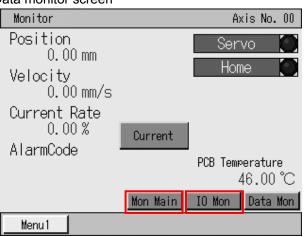
Touching [Data Mon] changes the display to show data such as the current position and control voltage.

Touching [Axis No.] switches the screen to one where you can select an axis.

- Input
- Output

The status of each input port is shown. ON is lit. OFF is unlit. The status of each output port is shown. ON is lit. OFF is unlit.

MSCON and SCON-CAL/CGAL Data monitor screen



Touching [Mon Main] switches to the main monitor display

Touching [IO Mon] changes the display to one showing only I/Os.

Touching [Axis No.] switches the screen to one where you can select an axis.

Touch [Current] to display [Current Rate]. Touch [Current Rate] to display [Current].

- Position The current position is shown.
- Velocity The speed is shown.
 - Pulse count The pulse count is shown. Touching [Pulse Count] displays the pulse count. (The pulse count is shown in the pulse-train control mode.)
- Current Rate
 The command value of electrical current is shown as a percentage of the rated
- Current
 Current
 The command value of electrical current is shown. Touch [Current Rate] to display the command value.
- Alarm Code
 The applicable alarm code is shown.
- Servo The servo ON status is shown. ON is lit. OFF is unlit.
- Home The home return status is shown. Lit, if home return has completed.
- PCB Temperature The PCB temperature is shown.

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SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 and MSCON Maintenance information screen

Maint. Info		Axis No. 02
•Total M	loved Count 0	
•Total R	Run Dist. 9.450 km	
1	Info Edit	
Menu	Change Axis	
PCON-CF	A	
Maint. Info		Axis No. 00
	loved Count 1696461	
•Total R	Run Dist. 21.431 km	
	al Driving :22:26 d:h:m	
1	Info Edit	

Touch [Info Edit] to show the password setting screen. The display is switched to the edit window of the maintenance information.

- Total number of movements The cumulative total number of actuator movements is shown.
- Total travelled distance
- The cumulative total distance travelled by the actuator is shown.
- FAN Total Driving Time Shows the total driving time of the fan on the controller. The above values can be changed on the maintenance information editing screen.

[Thresholds for Total Number of Movements and Total Travelled Distance]

You can set thresholds for total number of movements and total travelled distance in the parameters specified below, to cause an alarm to generate when each threshold is exceeded.

Parameter No.	Name
147	Threshold for total number of movements
148	Threshold for total travelled distance

Message-level alarms

Alarm code	Name	Description
4E	Movements threshold exceeded	This alarm generates when the total number of movements exceeds the threshold set in parameter No. 147.
4F	Travelled distance threshold exceeded	This alarm generates when the total travelled distance exceeds the threshold set in parameter No. 148.



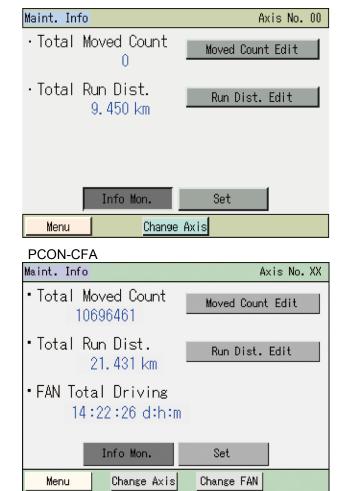
[Example of use for Total Drive Distance Times]

For an instance, it is recommended to have a grease supply on the scraper area every 300km in the regular inspections when the drive distance exceeds 300km within 3 months for RCPW Rod Type Actuator. (Have a supply every 3 months for those which do not exceed it.)

In this case, set '300' in Parameter No. 148 at the start of the first run, and an alarm notifies that grease supply is required when the drive distance exceeds 300km.

After the grease supply, set multiple numbers of 300, such like 600, 900, in Parameter 148, and the notification continues to be made for the timings of grease supply.

Editing maintenance information SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 and MSCON



Maint	Âx	cis No. (00					
• To	tal	Move	d Cour 0	nt 🛽	Move	d Count	Edit	l
• Total Run Dist. Run Dist. Edit								I
	1 2 3 4 5 CLR ESC							
6 7 8 9 0 BS ENT								
h	Menu Change Axis							

Touching [Info Mon.] without touching [Set] first returns you to the maintenance information screen showing the original value. The setting will not change to the value you have entered.

Touching [Moved Count Edit] or [Run Dist. Edit]

Enter a desired value and touch [ENT], and the

current setting will change to the value you have

Touching [Set] display returns you to the previous

displays the numeric keys screen.

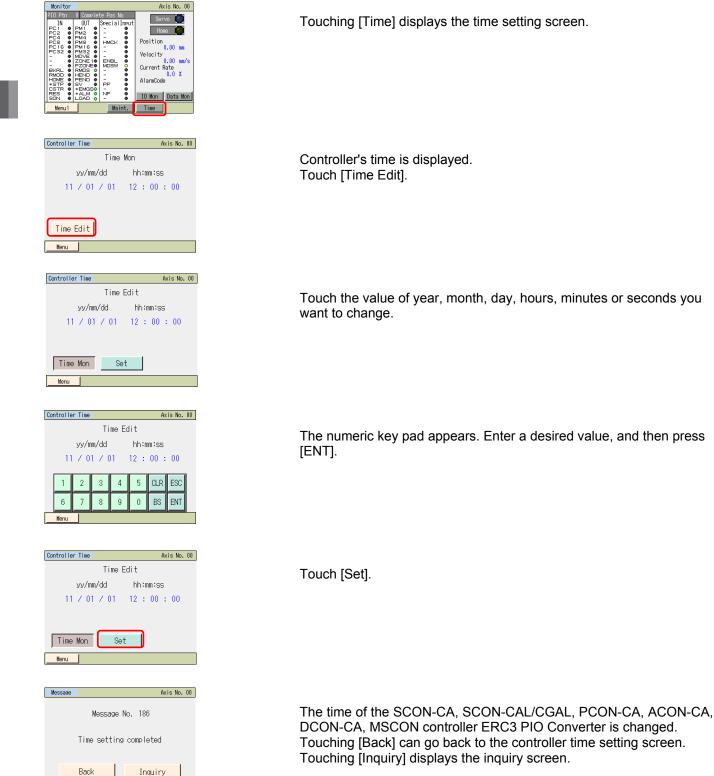
maintenance information screen.

entered.

ROBO CYLINDER __



Time setting on the controller can be done at the SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON. [How to Set Time]



ROBO CYLINDER

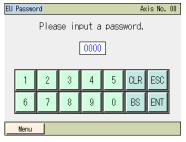
5.7 Position Editing

Set/edit the target position, speed, acceleration, deceleration and other data related to positions. You can move the axis by jogging or inching.

Menul Axis No. 00						
Monitor	Trial Operation					
Edit Position	Alarm List					
Edit Parameter	Information					
Backup Data	Menu2					

Touch [Edit Position] on the Menu 1 screen.

If a position password is set, the password setting screen appears.



Enter the position password.

The default password is "0000."

A position data table appears.

	Edit	Position o	oo <u>Actuat</u>	or set 🛛 A:	kis No. 00
	No	Position(mm)	Vel(mm/s)	Acc(G)	Dc1(G)
Position No	000	0.00	50.00	0.30	0.30
	001	200.00	100.00	0.30	0.30
	002	100.00	35.00	0.30	0.30
	003	150.00	25.00	0.30	0.30
	004	50.00	25.00	0.30	0.30
	005	200.00	300.00	0.30	0.30
	006	****.**	****.**	*.**	*.**
	007	****.**	****.**	*.**	*.**
	1	Specif	y No All	Clear	\downarrow
	Mei	nu 1 🔤 🕺 KTouc	h PosNo, the	n go to def	tail edit

Touch Specify No. to set the position number you want to set, and a table showing the position number you have just set appears.

To set data other than the target position, speed, acceleration and deceleration shown in the table, touch other position number such as "000."

Data of the selected position number appears.

Edit Position			Axis No. 00
Pos No. ()	Pos No. 000 Clear C/T optimizatio		
Position(mm)	0.00	Zone+(mm)	100.00
Vel(mm/s)	50.00	Zone-(mm)	20.00
Acc (G)	0.30	LoTh(%)	0
Del (G)	0.30	AccDc Mode	0
Push(%)	0	StopMode	0
Range(mm)	0.10	Gain Set	0
Increment	0	VSup No.	0
1 Mu	Iti Pos	Jog	\downarrow
Menu 1			

Touching [Multi Pos] returns the screen to the position data table display.



5.7.1 Position Data

Position data table screen

Edit	Edit Position ooo <u>Actuator set</u> Axis No. 00						
No.	Position(mm)	Vel(mm/s)	Acc (G)	Del (G)			
000	0.00	50.00	0.30	0.30			
001	200.00	100.00	0.30	0.30			
002	100.00	35.00	0.30	0.30			
003	150.00	25.00	0.30	0.30			
004	50.00	25.00	0.30	0.30			
005	200.00	300.00	0.30	0.30			
006	****.**	****.**	*.**	*.**			
007	****.**	****.**	*.**	*.**			
↑ Specify No All Clear ↓							
Menu1 XTouch PosNo, then go to detail edit							

Data display screen showing the selected position number

Edit Position			Axis No. 00
Pos No. ()	0 Cle	ear C/T o	ptimization
Position(mm)	0.00	Zone+(mm)	100.00
Vel(mm/s)	50.00	Zone-(mm)	20.00
Acc(G)	0.30	LoTh(%)	0
Dc1(G)	0.30	AccDclMode	0
Push(%)	0	StopMode	0
Range(mm)	0.10	Gain Set	0
Increment	0	VSup No.	0
Mu	ılti Pos	Jog	\downarrow
Menu 1			

The items set in the position data table include target position, speed, acceleration, deceleration, push, positioning band, incremental, zone+, zone-, threshold, acceleration/deceleration mode, stop mode and command mode.

The settings of zone+, zone-, threshold, acceleration/deceleration mode and stop mode are enabled or disabled depending on the controller type, as shown in the table.

			A	cc/Dcl Mo	de	Stop	mode		
Model		Zone +/-	Trapezoid	S-motion	Primary delay	Full Servo	Automati c servo OFF	Gain set	Vibration Control
ERC2	0	PIO pattern: 3	0	×	×	0	0	×	×
ERC2-SE	0	-	0	×	×	0	×	×	×
ERC3	0	PIO pattern: 2	0	0	0	0	0	×	×
ERC3 PIO Converter	0	PIO pattern: 0, 1, 2, 4, 5	0	0	0	0	0	×	×
PCON-C/CG/CF	0	PIO pattern: 0, 1, 2, 4, 5	0	×	×	0	0	×	×
PCON-CA	0	PIO pattern: 0, 1, 2, 4, 5	0	0	0	0	0	×	×
-CY	0	PIO pattern: 1	0	×	×	0	0	×	×
-SE	0	-	0	×	×	0	×	×	×
ACON-C/CG	0	PIO pattern: 0, 1, 2, 4, 5	0	0	0		0	×	×
-CY	0	PIO pattern: 1	0	0	0		0	×	×
-SE	0	-	0	0	0		×	×	×
ACON-CA	0	PIO pattern: 0, 1, 2, 4, 5	0	0	0		0	0	0
DCON-CA	0	PIO pattern: 0, 1, 2, 4, 5	0	0	0		0	×	×
SCON-C	0	PIO pattern: 0, 1, 2, 4, 5	0	0	0		0	×	×
SCON-CA SCON-CAL/CGAL	0	PIO pattern: 0, 1, 2, 4, 5, 6, 7	0	0	0		0	0	0
MSCON	0	-	0	0	0	\bigcirc	0	0	0

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(1) No. The position data number is shown.

2	Warning: Be sure to specify absolute coordinates on PCON-C/CG/CF, PCON-CA, ACON-C/CG, ACON-CA, DCON-CA, SCON-C, SCON-CA, SCON-CA, CON-CAL, ROBONET, ERC3 PIO Converter, MSCON (Remote I/O mode) controllers of solenoid valve mode 2, or PCON-CY and ACON-CY controllers of solenoid valve mode 1. If incremental coordinates are specified on these controllers, a position data error occurs. Also note that completion of push motion cannot be determined when the push is specified if incremental coordinates are specified.
(2)	 Target position [mm] Enter the target position to move the actuator to. Absolute coordinate specification Enter the target position you want to move the actuator to, based on the distance from the home. A negative value cannot be entered.
	 Incremental coordinate specification: Enter the target position you want to move the actuator to, based on the distance from the current position. A negative value can also be entered. (Negative direction on displayed coordinate system)
(3)	Speed [mm/sec] Enter the speed at which to move the actuator. The default value varies depending on the actuator type. (Note) For SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 and MSCON, an alarm will be displayed if the set value is lower than the minimum velocity.
(4)	Acceleration/deceleration [G] Enter the acceleration/deceleration at which to move the actuator. Basically you should set acceleration/deceleration not exceeding the rated value shown in the catalog. The input range permits entry of values larger than the rated value shown in the catalog, but this is because "shorter tact time when the transferring mass is significantly lighter than the rated value" is assumed. If the load vibrates during acceleration/deceleration to present problems, decrease the value set here.
	(Reference) Acceleration is explained. The same concept applies to deceleration. 1 G = 9800 mm/s ² : Acceleration at which the actuator can increase its speed up to 9800 mm/s per second. 0.3 G: Acceleration at which the actuator can increase its speed up to 2940 mm/s (9800 mm/s × 0.3) per second. 9800mm/s 2940mm/s 1G 1G 1G 1G 1G 1G 1G 1G 1G 1G
	Is (Note) For SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 and MSCON, an alarm will be displayed if the set value exceeds the rated acceleration/deceleration.

	will be displayed if the set value exceeds the rated acceleration/deceleration.
/ Ca	ution: Acceleration/deceleration setting
(1)	Set accelerations/decelerations not exceeding the rated acceleration/deceleration specified in the
	catalog or this operation manual. If any acceleration/deceleration is set that exceeds the rated
	acceleration/deceleration, the life of the actuator may be significantly reduced.
(2)	If the actuator or work part receives impact or generates vibration, lower the acceleration/deceleration.
	If the system is used continuously with the actuator or work part receiving impact or generating
	vibration, the life of the actuator may be significantly reduced.
(3)	If the load transferred by the actuator is significantly lighter than the rated payload capacity, you may
	be able to set accelerations/decelerations exceeding the rating. If this is the case, the tact time can be
	reduced, so contact IAI. When contacting IAI, tell us the weight, shape and installation method of your
	work part and installation condition (horizontal/vertical) of your actuator.



(5) Push

Select "Positioning operation" or "Push-motion operation." The factory setting is 0. 0

: Normal positioning operation

Other than 0: A current limiting value is indicated, meaning that this is a push-motion operation.

Caution: With PCON, ACON, ACON-CA, DCON-CA, SCON-C, SCON-CA, SCON-CAL/CGAL, ERC2, ERC3, ROBONET and MSCON controllers, the value entered in the "Push" field may be rounded to a multiple of the controller's minimum resolution. (When data is acquired from the controller)

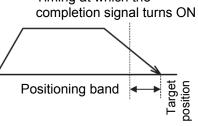
(6) Positioning band

What this setting means is different between "Positioning operation " and "Push-motion operation." "Positioning operation":

Define how far before the target position you want to turn the completion signal ON. The factory setting is 0.1 mm. Timing at which the

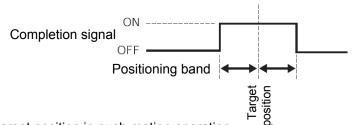
Standard type

Increasing the value of positioning band guickens the start of the next sequence operation, so the tact time can be reduced. Set an optimal value by considering the balance of the entire system.



Note that on PCON-C/CG/CF, PCON-CA, ACON-C/CG, ACON-CA, DCON-CA, SCON-C, SCON-CA, SC CAL/CGAL, ROBONET, ERC3 PIO Converter and MSCON (Remote I/O mode) controllers of solenoid valve mode 1 or PCON-CY and ACON-CY controllers of solenoid valve mode 1, set the band after which the completion signal turns ON.

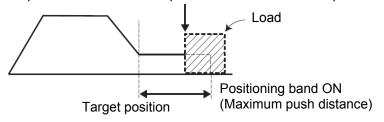
PCON-C/CG/CF, PCON-CA, ACON-C/CG, ACON-CA, DCON-CA, SCON-C, SCON-CA, SCON-C CAL/CGAL, ROBONET, ERC3 PIO Converter and MSCON (Remote I/O mode) in solenoid valve mode 2, PCON-CY, or ACON-CY in solenoid valve mode 1



"Push-motion operation":

Define the maximum push distance from the target position in push-motion operation. Set an appropriate positioning band by considering the mechanical variation of the work part, by making sure positioning will not complete before the actuator contacts the work part.

Position at which the load is contacted and completion of push-motion operation is deemed complete and therefore the completion signal turns ON



(Note) For PCON-CA and ERC3, a smaller value than the minimum positioning band width cannot be set.



(7) Incremental

Specify absolute coordinates or incremental coordinates.

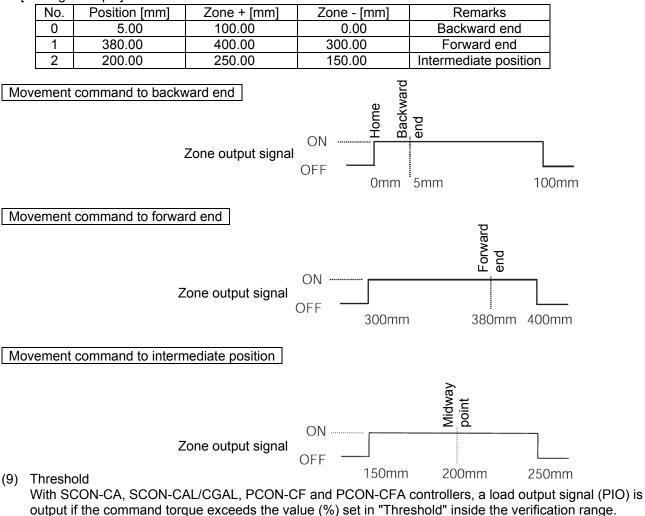
The factory setting is 0.

- 0: Absolute coordinate specification
- 1: Incremental coordinate specification

Warning: Be sure to specify absolute coordinates on PCON-C/CG/CF, PCON-CA, ACON-C/CG, ACON-CA, DCON-CA, SCON-C, SCON-CA, SCON-CAL/CGAL, ROBONET, ERC3 PIO Converter and MSCON (Remote I/O mode) controllers of solenoid valve mode 2, or PCON-CY and ACON-CY controllers of solenoid valve mode 1. If incremental coordinates are specified on these controllers, a position data error occurs.

(8) Zone +/-

Define, for the standard type, the zone in which the zone output signal turns ON. For added flexibility, these parameters can be set differently for each target position. [Setting example]



The verification range is set by "Zone+/Zone-."

It is used to determine if press-fitting action was performed successfully.

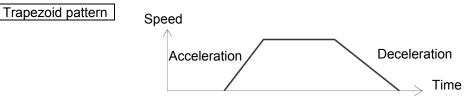
For details, refer to the operation manual for your SCON-CA, SCON-CAL/CGAL, PCON-C/CF and PCON-CA/CFA controller.



(10) Acceleration/deceleration mode

Define the acceleration/deceleration pattern.

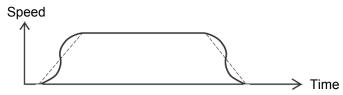
- The factory setting is 0.
- 0: Trapezoid pattern
- 1: S-motion
- 2: Primary delay filter



Set the acceleration and deceleration in the "Acc" and "Dcl" fields of the position table.

S-motion

The acceleration curve rises gradually at first and then suddenly shoots up in the middle. Use this mode if you want to set high acceleration/deceleration to meet the required tact time, but want to move the actuator gradually at the start of movement and immediately before stopping.



* The S-motion level is set by parameter No. 56 [S-motion ratio setting]. The setting unit is %, while the setting range is 0 to 100.

(The graph above assumes that the parameter is set to 100%.)

If 0 is set, the S-motion control is disabled.

Note that the setting made here is not reflected in jogging or inching feed performed from a PC or teaching pendant.

(Note) This setting is not available on ERC2 and PCON (except for PCON-CA/CFA) controllers. On these controllers, parameter No. 56 is reserved.

Primary delay filter

The acceleration/deceleration curve becomes more gradual than linear acceleration/deceleration (trapezoid pattern).

Use this mode if you don't want to apply fine vibration to the work part during acceleration/deceleration. Speed



* The primary delay level is set by parameter No. 55 [Primary filter time constant for position commands]. The setting unit is 0.1 msec, while the setting range is 0.0 to 100.0.

If 0 is set, the primary delay filter is disabled.

Note that the setting made here is not reflected in jogging or inching feed performed from a PC or teaching pendant.

(Note) This setting is not available on ERC2 and PCON (except for PCON-CA/CFA) controllers. On these controllers, parameter No. 55 is reserved.



(11) Stop mode

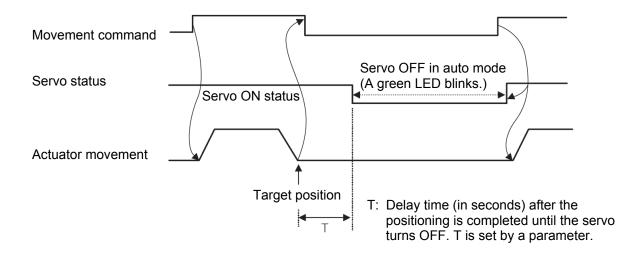
Define the power-saving mode to be used while the actuator is standing by after completion of positioning to the target position set in the "Position" field of the applicable position number.

- 0: Disable power-saving mode * The factory setting is 0 (Disable).
- 1: Auto servo OFF mode, with the delay time defined by parameter No. 36
- 2: Auto servo OFF mode, with the delay time defined by parameter No. 37
- 3: Auto servo OFF mode, with the delay time defined by parameter No. 38
- 4: Full servo control mode

Auto servo OFF mode

The servo is turned OFF automatically upon elapse of a specified time after completion of positioning. (Since holding current does not flow, power consumption is reduced.)

When the PLC issues the next movement command, the servo is turned ON and then the actuator starts moving.



(Note) For RACON and RPCON cannot be setting.

Full servo control mode

The holding current can be decreased by servo-controlling the pulse motor.

Although the rate of decrease in holding current varies depending on the actuator model, loading condition, etc., the holding current decreases to approx, one-half to one-quarter.

Note that the servo remains ON, meaning that unwanted position shift does not occur.

The actual holding current can be checked on the current monitor screen of the PC software.

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5.7.2 Entering New Data

You can enter new position data in one of four ways.

(1)	Numerical input	Enter position data directly as numerical values from the numerical keypad on the teaching pendant. (Example of entry: P. 49)
(2)	Direct teaching	Turn off the servo control, move the slider by hand to the target position, and then acquire the achieved position (current position) into the position table and specify that position. (Example of entry: P. 57)
(3)	Jogging	Use [Jog+] or [Jog-] to jog the actuator to the target position, and then acquire the achieved position (current position) into the position data table and specify that position. (Example of entry: P. 59)
(4)	Inching	Use [Jog+] or [Jog-] to inch the actuator to the target position, and then acquire the achieved position (current position) into the position data table and specify that position. (Example of entry: P. 61) Touching [Inching+] or [Inching-] once moves the actuator by the specified feed pitch (0.01, 0.10, 0.50, 1.00 or 5.00 (mm)). Touching and holding the key for 2 seconds will start jogging movement at 1 mm/sec. Thereafter, the speed increases every second. This way, the actuator can be moved more finely than when jogged.

Warning: To enter position data after the power is turned on, or enter position data beforehand using the method of (2), (3) or (4), you must perform home return first. (Increment specification) Before home return is completed, jogging/inching is possible only to the mechanical end. Operate the actuator by visually checking for potential interference.



(1) Basic operation

[Data entry on the position data table screen] You can set the target position, speed, acceleration and deceleration in the position data table.

Touch [\uparrow] and [\downarrow] to display the table showing the desired position data number. Or, touch [Specify No] and set the desired position data number to display the table.

	Edit	Position	000	Actuat	or set 🛛 4	Axis No. 00
	No.	Position(mm)) Vel(n	nm/s)	Acc(G)	Del (G)
	000	0.00	25(0.00	0.30	0.10
	001	****.**	***	*. **	*.**	*.**
	002	****	***	*. **	*.**	*.**
Touch.	003	****.**	***	*. **	*.**	*.**
i ouoin.	004	****.**	***	*. **	*.**	*.**
	005	****.**	***	*. **	*.**	*.**
	006	****.**	***	*. **	*.**	*.**
	007	****.**	***	*. **	*.**	*.**
	1) Speci	fy No	ALI	Clear	
	Me	nu1 🛛 🛛 ※To	uch PosN	lo, the	n go to de	etail edit

Touch a value in the target position or other field of the desired position data number. When the numeric keypad appears, key in the desired value and touch [ENT], and the value will be entered.

Touching Axis No. switches to the axis selection screen.

Touching [All Clear] clears all position data. (Example of entry: P. 66)

[Important]

Do not touch [\uparrow] key or [\downarrow] key too fast to switch the windows.

'0' is occasionally shown to the data values that are already registered.

The data is not lost even though '0' is displayed. Touch [\uparrow] key and [\downarrow] key to switch the window and come back, and you will find the data showing the right values.



[Data entry on the data display screen of the selected position number] All items can be set on the data display screen of the selected position number.

Iouch.				
	Edit Position			Axis No. 00
	Pos No. 00	0 Cle	ar C/T d	petimization
	Position	0.00	Zone+(mm)	100.00
	Vel(mm/s)	50.00	Zone-(mm)	20.00
	Acc(G)	0.30	LoTh(%)	0
	Del(G)	0.30	AccDc1Mode	0
	Push(%)	0	StopMode	0
	Range(mm)	0.10	Gain Set	0
	Increment	0	VSup No.	0
	↑ Mu	ulti Pos	Jog	\downarrow
	Menu1			

Touch a value in the target position or other desired field.

When the numeric keypad appears, key in the desired value and touch [ENT], and the value will be entered.

Touch $[\uparrow]$ or $[\downarrow]$ to change to the screen of the previous or next position number. Touching [Multi Pos] returns the screen to the position data table display.

Touching Axis No. switches to the axis selection screen.

Touching [Jog] changes to the jog operation screen where you can acquire position data via jogging operation.



[Jog operation]

You can acquire position data via jogging operation.

Joa					Axis No. 00
Position	No.		0		SV OFF 🚫
Current P	os	C).30 mr	n	HOME
Jog-	Jc	ıg+	Chg	Vel	Jog Vel 1 mm/s 10 mm/s 30 mm/s 50 mm/s 100 mm/s
Back		Tea	ach		Inching
Menu1					

Operation on the jog screen

- [Jog-], [Jog+]: The axis jogs while each button is touched. [Jog-] moves the axis in the negative direction, while [Jog+] moves the axis in the positive direction.
- [SV ON]: Touching [SV ON] while the servo is off turns on the axis servo and O becomes lit. Touching [SV OFF] while the servo is on turns off the axis servo and O becomes unlit.
- [HOME]: Touching [HOME] while home return is not yet completed causes the axis to return home and O becomes lit.
- [Chg Vel]: The jog speed changes in the order of 1, 10, 30, 50 and 100 mm/s every time [Chg Vel] is touched.
- [Inching]: Touching [Inching] changes to the inching screen.

Position acquisition operation

Touch [Teach]. A confirmation screen appears. You can touch [\uparrow] or [\downarrow] to change the position number. Touching [Yes] acquires the current position.

Confirm		Axis No. 00				
Position No.	0	\uparrow				
Target Pos	0.00 mm					
Current Pos	0.30 mm					
Do you want to teach current position?						
Yes	No	þ				



[Inching operation]

You can acquire position data via inching operation.

Inching		Axis No. 00
Position No.	000	SV OFF 🚫
Current Pos	0.30 mm	HOME
Inching- Inch	ing+∫ Chg Dis	Dis Inc • 0.01 mm • 0.10 mm • 0.50 mm • 0.10 mm • 0.10 mm
Back	Teach	Jog
Menu 1		

Operation on the inching screen

- [Inching-], [Inching+]: Touching each button once moves the axis by inching. [Inching-] moves the axis in the negative direction, while [Inching+] moves the axis in the positive direction.
 [SV ON]: Touching [SV ON] while the servo is off turns on the axis servo and O becomes
 - lit. Touching [SV OFF] while the servo is on turns off the axis servo and O becomes unlit.
 - [HOME]: Touching [HOME] while home return is not yet completed causes the axis to return home and O becomes lit.
 - [Chg Dis]: The inching distance changes in the order of 0.01, 0.10, 0.50, 1.00 and 5.00 mm every time [Chg Dis] is touched.
 - Touching [Jog] changes to the jog screen.

Position acquisition operation

[Jog]:

.

•

Touch [Teach]. A confirmation screen appears.

You can touch $[\uparrow]$ or $[\downarrow]$ to change the position number. Touching [Yes] acquires the current position.

Confirm		Axis No. 00			
Position No.	0	$\square \uparrow \square$			
Target Pos	0.00 mm				
Current Pos	0.30 mm				
	Do you want to teach current position?				
Yes		No			



(2) Examples of position setting operations Respective operation s are explained by giving specific examples.

1) Home return

No.	Operation	Screen	Remarks
1	Touch [Trial operation].	Merul Akis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Meru2	
2	Touch [Jog_Inching].	Trial Deeration Axis No. 00 Jog_Inching Position Move Direct Move I/O Test	
3	Check the screen and if the servo is off, touch [SV ON].	Jog Avis No. 00 Current Pos 0.00 mm Jog- Jog+ Chg Vel 1 mm/s 100 mm/s 30 mm/s 100 mm/s 100 mm/s MV_Menu Inching Menu1 1	O indicating a servo ON status on the screen becomes lit.
4	Touch [HOME].	Jog Akis No. 00 Current Pos 0.00 mm Jog- Jog+ Chg Vel 1 mm/s 30 mm/s 30 mm/s 100 mm/s 10 mm/s MV_Menu Inching Merul Inching	
5	Touch [Menu1].	Jog Avis No. 00 Current Pos 0.00 mm Jog- Jog+ Che Vel 100 mm/s 100 mm/s 50 mm/s 100 mm/s 100 mm/s MV_Menu Inching Menu Inching	
6	The display returns to the Menu 1 screen.	Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	



2) Numerical input

Move back and forth between the two points of 30 mm and 250 mm at a speed of 300 mm/sec. Example 1

No.	Operation	Screen	Remarks
1	Touch [Edit Position].	MenulAxis No. 00MonitorTrial OperationEdit PositionAlarm ListEdit ParameterInformationBackup DataMenu2	
2	If the password is not "0000," the password screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 QLR ESC 6 7 8 9 0 BS ENT	The default password is "0000."
3	The position data table screen appears.	Edit Position oco Actistor set Acis No. 00 No. Position(mm) Vel (mm/s) Acc(0) Del(0) 000 0.00 0.00 0.30 0.10 001 00.00 0.30 0.10 002 ****.** ****** ************************************	
4	Touch [↑] and [↓] to display the table showing the position number you want to set.	Edit Position ooo Actuator set Axis No. 00 No. Position(mm) Vel(mm/s) Poc(3) Dcl(6) 000 0.00 0.00 0.00 0.00 Dcl(6) 001 00.00 0.00 0.00 0.00 Dcl(6) Dcl(6) 002 0.00 0.00 0.00 0.00 Dcl(6) Dcl(6) 003 0.00 0.00 0.00 0.00 Dcl(6) Dcl(6) 003 0.00 0.00 0.00 0.00 Dcl(6) Dcl(6) 003 0.00 0.00 0.00 0.00 Dcl(6) Dcl(6) 004 0.00 0.00 0.00 0.00 Dcl(6) Dcl(6) 005 0.00 0.00 0.00 0.00 Dcl(6) Dcl(6) 005 0.00 0.00 0.00 Dcl(6) Dcl(6) Dcl(6) 005 0.00 0.00 0.00 Dcl(6) Dcl(6) Dcl(6)	Position data fields in which no data is registered yet contain an "*" (asterisk).
5	Touch the target position of the desired position number. In this example, data is entered for No. 0. When the numerical keypad appears, touch [3], [0] and then touch [ENT].	Edit Position Oco Actis No. OD No. Position(nm) Vel (sm/s) Acc (0) Dol (0) OOO 0.00 100.00 0.20 0.10 OOI 00.00 100.00 0.20 0.10 OOI 00.00 0.20 0.10 0.10 OOI 00.00 0.20 0.20 0.10 OOI 00.00 0.20 0.20 0.10 OOI 00.00 0.20 0.20 0.20 OOI 00.00 0.20 0.20 0.20 OOI 0.00 0.20 0.20 0.20 OOI 0.00 0.20 0.20 0.20 OOI 0.20 0.20 0.20	To reenter the value, touch [ESC].
6		Edit Position ooo Actuator set Axis No. 00 000 90.00 100.00 0.90 0.90 0.90 001 ****** ***** **** **** **** 002 ****** **** **** **** **** 003 ******* **** **** **** **** 003 ******** **** **** **** **** 004 ******* **** **** **** **** 005 ******* **** **** **** **** 005 ***** **** **** **** **** 005 ***** **** **** **** **** 005 **** **** **** **** **** 005 **** **** **** **** **** 005 **** **** **** **** **** 1 Speci fly No Alll	When registering a new position data, the default values set by user parameters are automatically entered for the velocity, acceleration, deceleration, etc. In this example, the default value is 100 mm/s.



No.	Operation	Screen	Remarks
7	Next, touch the velocity of position No. 0.	Edit Position oco Actuator set Axis No. 00 No. Position(m) Vol(*****) Acc(0) Dcl(0) 000 90.00 100.00 0.30 0.30 001 ************************************	
8	When the numerical keypad appears, touch [3], [0], [0] and then touch [ENT].	Edit Position ooo Actuator set Axis No. 00 No. Position(m) Vet(m/c) Acc(3) Del(4) 000 9300.00 0.30 0.30 0.30 001 ******* ******* ******* 002 ************************************	
9	Next, touch the target position of position No. 1. When the numerical keypad appears, touch [2], [5], [0] and then touch [ENT].	Edit Position ooo Actuator set Akis No. 00 No. Position(mn) Vel(mn/s) Acc(G) Dcl(G) 000 8000 300.00 0.80 0.30 001 ****** ***** ***** ***** 002 ****** ***** ***** ***** 003 ****** ***** ***** ***** 003 ****** ***** ***** ***** 003 ****** ***** ***** ***** 003 ****** ***** ***** ***** 003 ****** ***** ****** ****** 005 ******* ****** ******* ****** 005 ****** ****** ****** ********** 005 ****** ********* ************************************	To reenter the value, touch [ESC].
10		Edit Position oon Actuator set Axis No. 00 000 90.00 0.00 0.00 0.00 001 250.00 100.00 0.90 0.90 001 250.00 100.00 0.90 0.90 002 ****** ****** ****** ****** 003 ******* ****** ************************************	When registering a new position data, the default values set by user parameters are automatically entered for the velocity, acceleration, deceleration, etc. In this example, the default value is 100 mm/s.
11	Next, touch the velocity of position No. 1.	Edit Position oco Actuator set Axis No. 00 No. Position(mn) Vel(mn/s) Acc(0) Dcl(0) 000 300.00 0.30 0.30 0.30 001 250.00 100.00 0.30 0.30 002 ***** **** **** 003 ***** **** **** 004 ***** **** **** 005 ***** **** **** 005 ***** **** **** 007 ***** **** **** 007 ***** **** **** 007 ***** **** **** 007 ***** **** **** 1 Speci fy No All Clear ↓ Menul %Kouch PosNo, then go to detail edit #	
12	When the numerical keypad appears, touch [3], [0], [0] and then touch [ENT].	Edit Position ooo Actuator set Axis No. 00 No. Position(m) Yel (m/s) for (s) Ocl (s) 000 80.00 300.00 0.30 0.30 001 250.00 300.00 0.30 0.30 002 ************************************	



No.	Operation	Screen	Remarks
13	Touch [Menu1].	Edit Position ooo Actuator set Axis No. 00 No. Position(mn) Vel(mu(s) Acc(0) Dcl(0) 000 90.00 900.00 0.30 0.30 001 280.00 800.00 0.30 0.30 002 ****.** *.** *.** *.** 003 ****.** *.** *.** *.** 004 ****.** *.** *.** *.** 005 ****.** *.** *.** *.** 006 ****.** *.** *.** *.** 007 ****.** *.** *.** *.** 007 ****.** *.** *.** *.** 007 ****.** *.** *.** *.** 007 **** *.** *.** *.** 1 Specify No All Clear J Menul %Touch PosNo, then so to detail edit *.**	
14		Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	

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Example 2 Move back and forth between the two positions of 10 mm and 80 mm via push-motion operation (push width: 5 mm).

No.	Operation	Screen	Remarks
1	Touch [Edit Position].	Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	
2	If the password is not "0000," the password screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 00000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT	The default password is "0000."
3	The position data table screen appears.	Edit Position ooo Actuator set Axis No. 00 No. Position(m) Val(sm/s) Acc(6) Del(6) 000 0.00 100.00 0.30 0.30 001	
4	Touch [↑] and [↓] to display the table showing the position number you want to set.	Edit Position ooo Actuator set Axis No. 00 No. Position(m) Val(m/s) Pec(6) Del(6) 000 0.00 0.00 0.00 0.00 001 0.00 0.00 0.00 0.00 002 ************************************	Position data fields in which no data is registered yet contain an "*" (asterisk).
5	Touch the target position of the desired position number. In this example, data is entered for No. 0. When the numeric keypad appears, touch [1], [0] and then touch [ENT].	Edit Position ooo Actuator set Axis No. 00 No. Position(m) Yei(6m/s) Acc(0) Del(0) DOD 0.00 100.00 0.20 0.20 DOI 0.00 100.00 100.00 0.20 DOI 0.00 100.00 100.00 100.00 DOI 0.00 100.00 100.00 100.00 DOI 0.00 All Clear J Menul %Touch PosNo. then so to detail edit	To reenter the value, touch [ESC].
6		Edit Position oco Actuator set Arkis No. 00 No. Position(mm) Vel (mm/s) Acc(G) Dcl(G) Ooo 100.00 0.30 0.30 0.30 Oo1 ************************************	When registering a new position data, the default values set by user parameters are automatically entered for the velocity, acceleration, deceleration, etc. In this example, the default value is 100 mm/s.



No.	Operation	Screen	Remarks
7	Next, touch the target position of position No. 1. When the numeric keypad appears, touch [8], [0] and then touch [ENT].	Edit Position ooo Actuator set Axis No. 00 100 Position(==) Vol (mm/2) Acc(0) 00 (0) 00 (0) 000 10.00 250.00 0.00 0.50 0.50 001 ************************************	To reenter the value, touch [ESC].
8		Edit Position ooo #ctuator set Axis No. 00 000 10.00 250.00 0.00 0.00 250.00 0.	When registering a new position data, the default values set by user parameters are automatically entered for the velocity, acceleration, deceleration, etc. In this example, the default value is 100 mm/s.
9	Next, touch No. "001" of position No. 1.	Edit Position ooo Return set Axis No. 00 No. Position(m) Val (m/2) Acc(t) Del (t) 000 0.00 250.00 0.30 0.50 OOI 10.00 250.00 0.30 0.50 0.30 0.50 OOI 10.00 250.00 0.30 0.50 0.50 OOI 10.00 250.00 0.30 0.50 0.50 OOI 10.00 250.00 0.30 0.50 0.50 OOI 200.00 10.00 250.00 0.30 0.50 OOI 200.00 250.00 0.30 0.50 0.50 OOI 200.00 200.00 200.00 0.30 0.50 OOI 200.00 200.00 200.00 200.00 200.00 200.00 OOI 200.00 200.00 200.00 200.00 200.00 200.00 OOI 200.00 200.00 200.00 200.00 200.00 200.00	
10	Touch the value in the Push. When the numerical keypad appears, touch [3], [0] and then touch [ENT].	Edit Position Axis No. 00 Pos No. 001 Clear D/T ortimization Position(cm) 80. 000 Zors+(cm) 100. 00 Vel (cm/s) 100. 00 Zors+(cm) 100. 00 Acc (G) 0. 30 LoTh (X) 0 D cl (G) 0. 30 LoTh (X) 0 Position 30 Stoellode 0 Refree (min) 5. 0U Sain Set 0 Increment 0 Vsize No. 0 T Multi Pos Jog ↓ Merul Vsize No. 1 Vsize No.	To reenter the value, touch [ESC].
11	Touch the value for the positioning band. When the numerical keypad appears, touch [5] and then touch [ENT].	Edit Position Axis No. 00 Pos No. 001 Clear D/T ortimization Position/um 80.00 Zores (um) 100.00 Vel (um/s) 100.00 Zores (um) 105.00 Acc (s) 0.30 LoTkC2 0 Dcl (g) 0.30 LoTkC2 0 Pash (g) 30 StoetMode 0 Pared(um) 5.00 Bain Set 0 Increment U Ysue No. 1 Multi Pos Jog J Menul	To reenter the value, touch [ESC].
12	Touch [Menu1].	Edit Position Axis No. 00 Pos No. 001 Clear 2/T optimization Position (mm) 80.00 Zmark (mm) 100.00 Vel (mm/c) 100.00 Zmark (mm) 105.00 Acc (s) 0.30 Accele Mode 0 Push (x) 30 StoelMode 0 Push (x) 30 StoelMode 0 Parek(m) 5.00 Fain Set 0 Increment 0 Ysue No. 1 Multi Pos Jog 4	



No.	Operation	Scr	reen	Remarks
13		Menu 1	Axis No. 00	
		Monitor	Trial Operation	
		Edit Position	Alarm List	
		Edit Parameter	Information	
		Backup Data	Menu2	

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Example 3 Move from 30 mm to 40 mm and to 50 mm by pitch feed based on incremental coordinate specification.

No.	Operation	Screen	Remarks
1	Touch [Edit Position].	Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	
2	If the password is not "0000," the password screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT	The default password is "0000."
3	The position data table screen appears.	Edit Position oco Actis No. 00 No. Position(mm) Val(mm/s) Acc(0) Dcl(0) 000 0.00 0.00 0.30 Dcl(0) 001 00.00 0.30 0.30 002 ************************************	
4	Touch [↑] and [↓] to display the table showing the position number you want to set.	Edit Position oco Actis No. 00 No. Position(mm) Vol(mm/s) Acc(0) Ccl(0) 000 0.00 0.00 0.30 Col(0) 001 00.00 0.30 Col(0) Ccl(0) 002 ****.* ****** ************************************	Position data fields in which no data is registered yet contain an "*" (asterisk).
5	Touch the target position of the desired position number. Enter data for No. 0. When the numerical keypad appears, touch [3], [0] and then touch [ENT].	Edit Position oco Actis No. 00 No. Position Val (mm/s) Acc (b) Dc1 (b) 000 0.00 100.00 0.80 0.80 001 00.00 0.80 0.80 0.80 002 ****.** *.** *.** *.** 003 ****.** *.** *.** *.** 004 ****.** *.** *.** *.** 005 ****.** *.** *.** *.** 005 ****.** *.** *.** *.** 005 ****.** *.** *.** *.** 005 ****.** *.** *.** *.** 005 ****.** *.** *.** *.** 007 ****.** *.** *.** *.** 1 Specify No All Clear J Menul **Touch PosNo. then so to detail edit ***	To reenter the value, touch [ESC].
6		Edit Position declastor set Axis No. 00 No. Position(m) Vel (nm/s) Acc(0) Dcl(0) 000 30.00 100.00 0.80 0.80 001 ************************************	When registering a new position data, the default values set by user parameters are automatically entered for the velocity, acceleration, deceleration, etc. In this example, the default value is 100 mm/s.



No.	Operation	Screen	Remarks
7	Next, touch the target position of position No. 1. When the numerical keypad appears, touch [1], [0] and then touch [ENT].	Edit Position Oco Actuator sat Axis No. 00 No. Position(mm) Vel (mm/s) Acc (3) Dcl (3) 000 30,00 100.00 0.30 0.30 001 30,00 100.00 0.30 0.30 002 ************************************	To reenter the value, touch [ESC].
8		Edit Position ooo Actuator set Acts No. 00 No. Position(mm) Vet (mm/s) Acc (S) Dct (G) 000 30.00 100.00 0.30 0.30 001 10.00 100.00 0.30 0.30 002 ****** ***** ************************************	When registering a new position data, the default values set by user parameters are automatically entered for the velocity, acceleration, deceleration, etc. In this example, the default value is 100 mm/s.
9	Next, touch No. [001] of position No. 1.	Edit Position Ood Actiator set Actis No. 00 No. Position(mm) Vel (mm/s) Acc(6) Dcl (6) Ocd 0. 00 000 90.00 100.00 0. 90 0. 90 000 90.00 100.00 0. 90 0. 90 000 ****** ***** ***** ***** **** 003 ******* ****** ****** **** 005 ********* ****** ***************** 005 ************************************	
10	Touch the value for the Increment. When the numerical keypad appears, touch [1] and then touch [ENT].	Edit Position Axis No. 00 Pos No. 001 Clear DT ortimization Position(am) 10.00 Zmet(am) 100.00 Vel(am/s) 100.00 Zonet(am) 100.00 Acc(s) 0.30 LoTh(x) 0 Del(s) 0.30 AcceleNode 0 Prack(x) 0.30 AcceleNode 0 Prack(x) 0.30 AcceleNode 0 Prace(m) 0.10 Bain Set 0 Increment 1 Vale No. 1 Multi Pos Jog ↓	
11	Touch [Menu1].	Edit Position Axis No. 00 Pos No. 001 Clear D/T antimization Position (am) 10.00 Zranst (am) 100.00 Vet (am/s) 100.00 Zonet (am) 105.00 Acct(s) 0.30 Accte Mode 0 Peter (am) 0.30 Acce Mode 0 Peter (am) 0.10 Bain Set 0 Increasent 1.92a No. 1 Multi Pos Jog J Menul 0	
12		Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	



3) Direct teaching (move the slider to the target position and then acquire the achieved position (current position) into the position data table and specify that position)

To perform direct teaching immediately after turning on the power, home return must be performed first. (Refer to page 48.) (Incremental specification)

No.	Operation	Screen	Remarks
1	Touch [Edit Position].	Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	
2	If the password is not "0000," the password screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 00000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	The default password is "0000."
3	The position data table screen appears.	Edit Position ooo Actuator set Axis No. 00 No. Position(mn) Vel(mn/2) Acc (3) Del(5) 000 0.00 250.00 0.30 0.10 001 0.00 250.00 0.30 0.10 002 0.00 4.00 0.00 0.00 003 0.00 0.00 0.00 0.00 004 0.00 0.00 0.00 0.00 005 0.00 0.00 0.00 0.00 006 0.00 0.00 0.00 0.00 007 0.00 0.00 0.00 0.00 007 0.00 0.00 0.00 0.00 1 Specify No All Clear J Menul %Touch PosNo. then so to detail edit detail	
4	Touch [↑] and [↓] to display the table showing the position number you want to set.	Edit Position ooo Actuator set Axis No. 00 000 0.00 250.00 0.30 0.10 001 0.00 250.00 0.30 0.10 002 0.00 250.00 0.30 0.10 003 0.00 250.00 0.30 0.10 004 ****.* *.** *.** *.** 003 ****.* *.** *.** *.** 004 ****.* *.** *.** *.** 005 ****.* *.** *.** *.** 005 ****.* *.** *.** *.** 005 ****.* *.** *.** *.** 005 ****.* *.** *.** *.** 005 ****.* *.** *.** *.** 007 ****.** *.** *.** *.** 1 Speci fy No All Clear J Menul %Touch PosNo. then so to detail edit ***	If data is already entered, the current data is overwritten. Position data fields in which no data is registered yet contain an "*" (asterisk).
5	Next, touch No. "000" of position No. 0.	Edit Position ooo Actuator set Aris No. 00 Position(mn) Vel(mn/s) Acc(G) Dcl(G) Coci 0.00 250.00 0.30 0.10 Coci 0.00 250.00 0.30 0.10 Coci 0.00 250.00 0.40 0.10 Coci 0.00 250.00 0.40 0.40 Coci 0.00 1.00 1.00 0.00 Coci 0.00 1.00 1.00 1.00 Coci 0.00 1.00 1.00 1.00 Coci 0.00 1.00 1.00 1.00 Coci 0.00 0.00 1.00 1.00 Coci 0.00 0.00 0.00	
6	Touch [Jog].	Edit Position Akis No. 00 Pos No. 000 Clear D/T ortimization Position fam 0.00 Zone+(mm) 60.00 Vel (ms/s) 250.00 Zone+(mm) 40.00 Acc(G) 0.30 Loft(S) 0 Del (G) 0.10 AccC(Mode 0 Push(G) 0 StomMode 0 Increment 0 Veim No. 0 1 Multi Pos Jog 4	



No.	Operation	Screen	Remarks
7	Manually move the slider to the target position. If the servo is currently on, touch [SV OFF] to turn off the servo.	Joe Akis No. 00 Position No. 000 Current Pos 100.00 mm Jog Jog Vel Jog Jog+ Chg Vel 10 mm/s 90 mm/s 90 mm/s 90 mm/s 90 mm/s 90 mm/s 10 mm/s	
8	Touch [Teach].	Jog Akis No. 00 Position No. 000 EV OFF Image: Comparison of the second sec	
9	Touch [Yes].	Confirm Axis No. 00 Position No. 000 Target Pos 100.00 mm Current Pos 100.00 mm Do you want to teach current position? Yes No	The default values set by user parameters are automatically entered for the velocity, acceleration, deceleration, etc. (Note) If a position is acquired before home return, the error message "Home return not yet complete" appears. On the error message screen, touch [Back] to return to the jog screen, and then perform home return.
10	Touch [Menu1].	Edit Position Axis No. 00 Pos No. 000 Clear D/T optimization Position (am) 100.00 Zona+(am) 60.00 Vel (am/s) 250.00 Zona+(am) 40.00 Acc (6) 0.30 LoTn(x) 0 Dcl (6) 0.10 Acct Mode 0 Ranse(am) 0,10 Basin Set 0 Increasent 0 Vian No. 0 Multi Pos Jog ↓	
11		Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	



4) Jogging, Use [Jog+] or [Jog-] to jog the actuator to the target position, and then acquire the achieved position (current position) into the position data table and specify that position. Note that if the maximum speed is smaller than the specified speed, the speed is clamped at the maximum speed.

To perform jog operation immediately after turning on the power, home return must be performed first. (Refer to page 48.) (Incremental specification)

No.	Operation	Screen	Remarks
1	Touch [Edit Position].	Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	
2	If the password is not "0000," the password screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	The default password is "0000."
3	The position data table screen appears.	Edit Position ooo Actuator set Axis No. 00 No. Position(nm) Vel(nm/s) Acc(G) Dcl(G) 000 0.00 255.00 0.30 0.10 001 0.00 255.00 0.30 0.10 002 0.00 255.00 0.40 0.00 003 0.00 255.00 0.30 0.10 004 ****.** **** **** **** 005 ****.** **** **** **** 006 ****.** **** **** **** 005 ****.** **** **** **** 005 ****.** **** **** **** 005 ****.** **** **** **** 005 ****.** **** **** **** 005 ****.** **** **** **** 007 ***** **** **** **** 007 ***** ***** </td <td></td>	
4	Touch [↑] and [↓] to display the table showing the position number you want to set.	Edit Position ooo Actuator set Axis No. 00 No. Position(nm) Vel(nm/s) Acc(G) Dcl(G) 000 0.00 255.00 0.80 0.10 001 0.00 255.00 0.80 0.10 002 0.00 255.00 0.80 0.10 003 0.00 255.00 0.80 0.10 004 0.00 0.00 0.00 0.00 005 0.00 0.00 0.00 0.00 006 0.00 0.00 0.00 0.00 008 0.00 0.00 0.00 0.00 003 0.00 0.00 0.00 0.00 004 0.00 0.00 0.00 0.00 005 0.00 0.00 0.00 0.00 005 0.00 0.00 0.00 0.00 005 0.00 0.00 0.00 0.00 002 0.00 0.00 0.00	If data is already entered, the current data is overwritten. Position data fields in which no data is registered yet contain an "*" (asterisk).
5	Next, touch No. "000" of position No. 0.	Edit Position ooo Actuator set Axis No. 00 No. Position(mm) Vel(mm/s) Acc(G) Dcl(G) 000 0.00 255.00 0.80 0.10 001 ******* ******* ******* ************************************	
6	Touch [Jog].	Edit Position Akis No. 00 Pos No. 000 Clear D/T optimization Position (mm) 100.00 Zone+(mm) 60.00 Vel (mm/s) 250.00 Zone+(mm) 40.00 Acc(G) 0.30 LoTn(s) 0 Dcl(G) 0.10 AccCelMode 0 Push(x) 0 StorMode 0 Increment 0 YSue No. 0 1 Multi Pos Jog J	



No.	Operation	Screen	Remarks
7	Touch [Chg Vel] to select a desired jog speed. Touch [Jog-] and [Jog+] to move the axis to the target position.	Jos Axis No. 00 Position No. 000 Current Pos 100.00 mm Jog- Jog+ Chg Vel 1 mm/s Jog- Jog+ Chg Vel 1 mm/s Mome 30 mm/s Back Teach Menul Menul	
8	Touch [Teach].	Jog Aris No. 00 Position No. 000 Current Pos 100.00 mm Jog Vel Jog Vel Jog Vel Back Teach Menul	
9	Touch [Yes].	Confirm Akis No. 00 Position No. 000 Target Pos 100.00 mm Current Pos 100.00 mm Do you want to teach current position? Yes No	The default values set by user parameters are automatically entered for the velocity, acceleration, deceleration, etc. (Note) If a position is acquired before home return, the error message "Home return not yet complete" appears. On the error message screen, touch [Back] to return to the jog screen, and then perform home return.
10	Touch [Menu1].	Edit Position Axis No. 00 Pos No. 000 Clear D/T ortimization Position (mn) 100.00 Zone+(mn) 60.00 Ver (mn/s) 250.00 Zone-(mn) 40.00 Acids (G) 0.30 LoTin(X) 0 Dc1(G) 0.10 Acids (Mode 0 Prane (mn) 0,10 Esin Set 0 Increasent 0 Van No. 0 Image Jog J Multi Pos Jog	
11		Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	



5) Inching, Use [Inching+] or [Inching-] to inch the actuator to the target position, and then acquire the achieved position (current position) into the position data table and specify that position.

To perform inching operation immediately after turning on the power, home return must be performed first. (Refer to page 48.) (Incremental specification)

No.	Operation	Screen	Remarks
1	Touch [Edit Position].	Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	
2	If the password is not "0000," the password screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 00000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT	The default password is "0000."
3	The position data table screen appears.	Edit Position ooo Actuator set Axis No. 00 No. Position (mm) Vel (sm/s) Acc (3) Pcl (4) 000 0.00 250.00 0.30 0.10 001 ************************************	
4	Touch [↑] and [↓] to display the table showing the position number you want to set.	Edit Position oco Actuator set Axis No. 00 No. Position(mm) Vol(mm/s) Acc (3) Pc1 (6) 000 0.00 250.00 0.00 0.10 001 ******* ****** ****** 002 ******* ****** ****** 003 ******* ****** ****** 003 ******* ****** ****** 004 ******* ****** ****** 005 ******* ****** ****** 005 ******* ****** ****** 007 ******* ****** ******* 007 ******* ********** ************************************	If data is already entered, the current data is overwritten. Position data fields in which no data is registered yet contain an "*" (asterisk).
5	Next, touch No. "000" of position No. 0.	Edit Position oco Actuator set Axis No. 00 No. Position(mm) Vol(mm/s) Acc (3) Pcl (6) 0000 0.00 250.00 0.00 0.10 001 ************************************	
6	Touch [Jog].	Edit Position Axis No. 00 Pos No. 000 Clear D/T ortimization Position(mm) 0.00 Zone+(mm) 60.00 Ver (mm/s) 250.00 Zone-(mn) 40.00 Acc(6) 0.30 LoTh(3) 0 0 0.10 Acc(6) 0.30 LoTh(3) 0 Push(3) 0 Stonbide 0 Raree(mm) 0.10 Eain Set 0 Thereent 0 Your No. 0 1 Multi Pos Jog ↓	



No.	Operation	Screen	Remarks
7	Touch [Inching].	Jos Axis No. 00 Position No. 000 Current Pos 0.30 mm Jog Jog+ Jog 10 mm/s Back Teach Menul Inchine	
8	Touch [Chg Dis] to select a desired jog speed. Touch [Inching-] and [Inching+] to move the axis to the target position.	Inchine Axis No. 00 Position No. 000 Current Pos 0.30 mm Inchine- Inchine+ Che Dis 0.10 mm Back Teach Jog Menul	
9	Touch [Teach].	Inching Axis No. 00 Position No. 000 Current Pos 0.30 mm HOME ○ District ○ Inching- Inching+ Che Dis ● Back Teach Menul Jog	
10	Touch [Yes].	Confirm Axis No. 00 Position No. 000 Target Pos 100.00 mm Current Pos 100.00 mm Do you want to teach current position? Yes No	The default values set by user parameters are automatically entered for the velocity, acceleration, deceleration, etc. (Note) If a position is acquired before home return, the error message "Home return not yet complete" appears. On the error message screen, touch [Back] to return to the jog screen, and then perform home return.
11	Touch [Menu1].	Edit Position Axis No. 00 Pos No. 000 Clear D/T outimization Position (mm) 100, 00 Zonet (mm) 60, 00 Vei (mm/s) 250, 00 Zonet (mm) 40, 00 Acc (s) 0, 30 Loin(x) 0 Del (s) 0, 10 Accel Mode 0 Push(x) 0 StoeMode 0 Barned (mm) 10 Bain Set 0 Increment 0 Ysue No. 0 1 Multi Pos Jog J	
12		Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	



5.7.3 Changing Position Data

You can change all position data by overwriting the current values. Accordingly, four cases are considered just like when data is entered anew.

- (1) Numerical input --- Enter position data directly as numerical values from the numeric keypad.
- (2) Direct teaching --- Turn off the servo control, move the slider by hand to the target position, and then acquire the achieved position (current position) into the position data table and specify that position.
- (3) Jogging --- Use [Jog+] or [Jog-] to jog the actuator to the target position, and then acquire the achieved position (current position) into the position data table and specify that position.
- (4) Inching ---- Use [Inching-] or [Inching-] to inch the actuator to the target position, and then acquire the achieved position (current position) into the position data table and specify that position. The axis moves by the specified pitch (0.01, 0.10, 0.50, 1.00 or 5.00 (mm)) every time an arrow key is touched. Thereafter, the speed increases every second. This way, the actuator can be moved more finely than when jogged.

Take note of the following points when performing a data change operation:

- * In the case of numerical input, only the items overwritten from the numeric keypad will change.
- * In the case of direct teaching, jogging or inching, only the target position will be updated after the current position is acquired. The speed, etc., will remain unchanged.
- * Once the position data is cleared, none of the previously set data will remain. Accordingly, the default data values will be applied, other than positions, the next time you register position data. To clear the position data table specified for push-motion operation and register data again, be sure to check all position data items and enter necessary data.



5.7.4 Clearing Position Data, Clearing All Position Data

(1) Clearing position data

Position data of the selected position number can be cleared. The position becomes unregistered and an "*" (asterisk) is shown in the fields.

1) Clear (Operation to return a desired position data number to an unregistered condition.)

Example Clear data of position data No. 1.

No.	Operation	Screen	Remarks
1	Touch [Edit Position].	Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	
2	If the password is not "0000," the password screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	The default password is "0000."
3	The position data table screen appears.	Edit Position ooo Actuator set Axis No. 00 No. Position(mm) Vel(mm/s) Acc(3) Del(3) 000 0.00 250.00 0.30 0.30 001 100.00 120.00 0.30 0.10 002 ************************************	
4	Touch [↑] and [↓] to display the table showing the position number you want to set.	Edit Position ooo Actuator set Axis No. 00 No. Position(nm) Yel (nm/s) Acc (3) Del (3) 000 0.00 250.00 0.30 0.30 001 100.00 120.00 0.30 0.10 002 ****** ****** ****** ***** 004 ******* ************************************	Position data fields in which no data is registered yet contain an "*" (asterisk).
5	Next, touch No. "001" of position No. 1.	Edit Position ooo Actuator set Aris No. 00 100 Position(nm) Vel(nm/s) Acc(3) Del(3) 1000 0.00 250.00 0.30 0.30 1000 0.20 0.0.30 0.10 002 ************************************	
6	Touch [Clear].	Edit Position Axis No. 00 Pos No. 000 Clear £/1 ortimization Position(mm) 100,00 Zone+(mm) 60,00 Vel(mm/s) 250,00 Zone-(mm) 40,00 Acc(G) 0,30 Loft#(x) 0 Dcl(G) 0,10 AccbcHode 0 Push(x) 0 StoeMode 0 Ranae(mm) 0,10 Gain Set 0 Increment 0 Vsue No. 0 Multi Pos Jog J Merul	



No.	Operation	Screen	Remarks
7	Touch [Yes].	Confirm Axis No. 101 Position No. 001 Tarset Pos 100,00 mm Do you want to clear this position data? Yes No	Touching [No] cancels the clear.
8	Touch [Menu1].	Edit Position Axis No. 00 Pos No. 001 Clear D/T optimization Position(ma) *****.** Zorret(ma) ***.** Vel(mn/s) *****.** Zorret(ma) ***.** Vel(mn/s) ***.** Zorret(ma) ***.** Dc1(G) *.** Enth(X) * Dc1(G) *.** Rance(Mode) * Rance(ma) *.** StoeNode * Increment * Youe No. * Multi Pos Jog J Marul	The position number data is cleared. An "*" (asterisk) is shown in the fields.
9		Menul Avis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	

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2) All clear (operation to clear all position data)

No.	Operation	Screen	Remarks
1	Touch [Edit Position].	Menul Axis No. 00 Monitor Trial Operation Edit Position Alarm List Edit Parameter Information Backup Data Menu2	
2	If the password is not "0000," the password screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 00000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT	The default password is "0000."
3	The position data table screen appears.	Edit Position oco Actuator set Axis No. 00 No. Position(mn) Vel(am/s) Acc(0) Dcl(0) 000 0.00 250.00 0.10 0.10 001 000 .00 250.00 0.10 002 002 003 004 005 005 005 005 005 007 007	
4	Touch [All Clear].	Edit Position Ood Actuator set Axis No. 00 No. Position(m) Vol(sm/s) Acc(0) Dol(0) DOD 0.00 250.00 0.10 0.10 DO2 ************************************	
5	Touch [Yes].	Confirm Axis No. 00 Do you want to clear all position data? Yes No	Touching [No] cancels the clear.
6	Touch [Menu1].	Edit Position ooo Actuator set Aris No. 00 000 ***** ***** ***** ****** ****** 001 ***** ***** ****** ****** ****** 001 ****** ****** ****** ******** ************************************	All position number data is cleared. An "*" (asterisk) is shown in the fields.



No.	Operation	Screen	Remarks
7		Menul Axis No. 00	
		Monitor Trial Operation	
		Edit Position Alarm List	
		Edit Parameter Information	
		Backup Data Menu2	



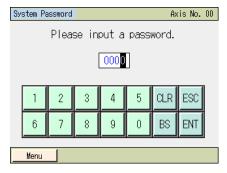
5.8 Parameter Editing

Parameters are displayed and edited.

Axis No. 00
Trial Operation
Alarm List
Information
Menu2

Touch [Edit Parameter] on the Menu 1 screen.

If a system password is set, the password setting screen appears.



Input a system password.

The default password is "5119."
You can set a password on the setting screen.

A user parameter table is displayed.

Edit Parameter	Axis No. 00
1. Zone output position +	200.30 _{MM}
2.Zone output position -	-0.30mm
3.Soft limit +	200.30 _{MM}
4.Soft limit -	-0.30mm
5.Home direction (0:CW 1:CCW)	1
6.Push recognition time	255 MSec
7. Servo gain selection	5
8. Velocity initial value	300mm/sec
↑ Specify No	\downarrow
Menu 1	

* The types of parameters vary from one controller to another. Refer to the operation Manual for each controller.



(1) Basic operation

Edit Parameter	Axis No. 00
1. Zone output position +	200.30 _{MM}
2. Zone output position -	-0.30mm
3.Soft limit +	200.30 _{MM}
4.Soft limit -	-0.30mm
5.Home direction (0:CW 1:CCW)	1
6.Push recognition time	255 msec
7. Servo gain selection	5
8.Velocity initial value	300mm/sec
↑ Specify No	\downarrow
Menu 1	

Touch $[\uparrow]$ to return to the previous screen.

Touch $[\downarrow]$ to move to the next screen.

Touch [Specify No] and enter a desired user parameter number, and the screen showing the user parameter you want to set will appear.

In this example, soft limit+ is set.

	Edit Parameter	Axis No. 00
	1. Zone output position +	200.30 _{MM}
_	2.7one output position -	-0.30mm
L	3.Soft limit +	200.30mm
I	4.Soft limit -	-0.30mm
	5.Home direction (0:CW 1:CCW)	1
	6. Push recognition time	255 msec
	7. Servo gain selection	5
	8.Velocity initial value	300mm/sec
	↑ Specify No	\downarrow
	Menu 1	

Touch Soft limit+, and the numeric keypad will appear. Enter a value and then touch [ENT] on the numeric keypad.

Touching [Menu1] opens a confirmation screen with a message asking if you want to restart the controller.

				_
Soft Reset		Axis	No.	00
De	you want :	to rootart		
	the contr	io restarit allor2		
	une contra	orrer:		
	Yes	No		
	Tes	INO		
				_

Touch [Yes].

Touch [No] to return to the user parameter screen without restarting the controller or reflecting the parameter you have set. To reflect the parameter you have set, you must restart the controller.

Caution: If the controller is not restarted, the parameter that has been rewritten does not translate to the intended action. The parameter will become effective once the controller is restarted or power is

reconnected.

The controller is restarted, after which the parameter you have set will be reflected.

Restarting the controller. Please wait a minute.



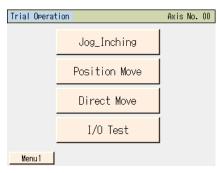
5.9 Trial operation

You can perform jogging/inching operations, move to a position or continuously to multiple positions registered in the position table, or move to a position by specifying the position directly.

Menu 1	Axis No. 00
Monitor	Trial Operation
Edit Position	Alarm List
Edit Parameter	Information
Backup Data	Menu2

Touch [Trial Operation] on the Menu 1 screen.

The movement menu screen appears.



Select and touch [Jog_Inching] or other item you want to operate.



(1) Jog_Inching

Perform jog/inching operation.

(2) Position Move

Move to a position or continuously to multiple positions registered in the position table.

• Move

The actuator moves, in a single step, from the current position to the position corresponding to an arbitrary position data number registered in the position table.

• Continuous

The actuator operates continuously from the specified position data number through successive position data numbers.

* What is continuous movement?

Assume that the following position table has been set. If a continuous movement command is issued from position No. 2, the actuator operates over a group of positions from the position at which the movement command is issued through successive positions where data is available (until the position before the one where no data is registered(*)), such as position No. $2 \rightarrow No. 3 \rightarrow No. 1 \rightarrow No. 2$, and so on.

Edit Position ooo Actuator set Axis No. 00					
No.	Position(mm)	Vel(mm/s)	Acc (G)	Del(G)	
000	*	*	*	*	
001	100.00	20	0.05	0.05	
002	200.00	30	0.11	0.11	
003	333.33	100	0.22	0.22	
004	*	*	*	*	
005	555.55	333	0.22	0.22	
006	666.66	444	0.11	0.11	
007	777.77	777	0.07	0.07	
1) Specif	y No All	Clear	\downarrow	
Menu1					

On a touch-panel teaching pendant, continuous movement is only permitted over 64 positions from position No. 000 to 063, 064 to 127, etc.

As shown in the example, the actuator returns to position No. 061 after No. 063 (returns to the beginning of a group of successive positions where position data is entered), and moves continuously. It does not move from position No. 063 to No. 064.

No.	Target position (mm)	Speed (mm/s)	
000	*	*	
001	100.00	20	
	I		
	I.		
060	*	*	
061	300.00	30	
062	400.00	40	
063	500.00	50	V
064	600.00	60	
065	700.00	70	
	I		
	I		

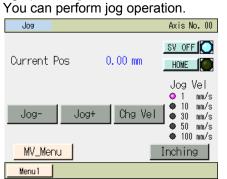
(3) Direct Move

Target position: Move the actuator by entering a speed from the numerical keypad.



5.9.1 Jog/Inching Operation

[Jog operation]



operation on the jog screen

- [Jog-], [Jog+] :The axis jogs while each button is touched. [Jog-] moves the axis in the negative direction, while [Jog+] moves the axis in the positive direction.
- [SV ON] :Touching [SV ON] while the servo is off turns on the axis servo and O becomes lit. Touching [SV OFF] while the servo is on turns off the axis servo and O becomes unlit.
- [HOME] :Touching [HOME] while home return is not yet completed causes the axis to return home and O becomes lit.
- [Chg Vel] :The jog speed changes in the order of 1, 10, 30, 50 and 100 mm/s every time [Chg Vel] is touched.
- [Inching] :Touching [Inching] changes to the inching screen.
- [Menu1] :Move to the Menu 1 screen.
- [MV_Menu] :Touch [MV_Menu] menu to return to the test run menu.



[Inching Operation]

You can perform inching operation.

Inching	Axis No. 00
Current Pos	0.00 mm
Inching- Inchi	ng+ Chg Dis
MV_Menu	Jog
Menu 1	

Operation on the jog screen

- [Inching-], [Inching+] :Touching each button once moves the axis by inching. [Inching-] moves the actuator in the negative direction. [Inching+] moves the actuator in the positive direction.
- [SV ON] :Touching [SV ON] while the servo is off turns on the axis servo and O becomes lit. Touching [SV OFF] when the servo is on turns off the axis servo and O becomes unlit.
- [HOME] :Touching [HOME] while home return is not yet completed causes the axis to return home and O becomes lit.
- [Chg Dis] :The inching distance changes in the order of 0.01, 0.10, 0.50, 1.00 and 5.00 mm every time [Chg Dis] is touched.
- [Jog] :Touching [Jog] changes to the jog screen.
- [Menu1] :Move to the Menu 1 screen.
- [MV_Menu] :Touch [MV_Menu] menu to return to the test run menu.

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5.9.2 Position Movement Operation

Move to a position or continuously to multiple positions registered in the position table.

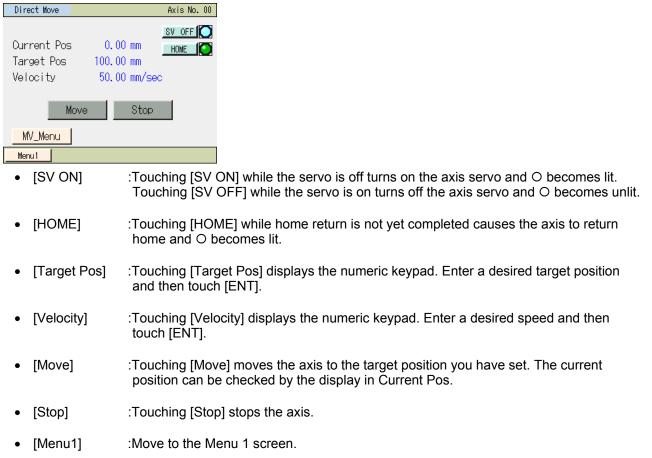
Position Move		Axis No. 00			
Position No.	0	SV OFF 🚫			
Current Pos	0.00 mm	HOME I			
Target Pos	0.00 mm				
Vel Override	10 %				
↑	Chg Vel	\downarrow			
Move	Continuous	Stop			
MV_Menu					
Menu 1					

- [SV ON] :Touching [SV ON] while the servo is off turns on the axis servo and O becomes lit. Touching [SV OFF] while the servo is on turns off the axis servo and O becomes unlit.
- [HOME] :Touching [HOME] while home return is not yet completed causes the axis to return home and O becomes lit.
- $[\uparrow], [\downarrow]$:Touch $[\uparrow]$ and $[\downarrow]$ to select a desired position number. The target position of the selected position number appears.
- [Chg Vel] :The speed override changes to 10%, 50% and 100% every time [Chg Vel] is touched.
- [Move] :Touching [Move] moves the axis to the target position. The current position can be checked by the display in Current Pos.
- [Continuous] :Touching [Continuous] moves the axis continuously until Stop is touched.
- [Stop] :Touching [Stop] stops the axis.
- [Menu1] :Move to the Menu 1 screen.
- [MV_Menu] :Touch [MV_Menu] menu to return to the test run menu.



5.9.3 Direct Movement Operation

A position is specified directly to move the axis.





5.9.4 I/O test

PIO input signals can be monitored.

You can also touch OUT00 to OUT15 to forcibly turn ON/OFF the corresponding output signals.

I/OTest涨Turn on Output by pushing 「OUT」Axis No. 00					
INOO	IN08	Input	Output	OUTOO	OUT08
IN01	IN09			OUT01	OUT 09
IN02	IN10			OUT02	OUT 10
IN03	IN11			OUT03	OUT11
IN04	IN12			OUT04	OUT 12
IN05	IN13			OUT05	OUT 13
IN06	IN14			OUT06	OUT 14
IN07	IN15			OUT07	OUT 15
Menu 1	OFF	: IN	OUT ON	I: IN	OUT

Touching [Menu 1] switches the screen to [Menu 1].



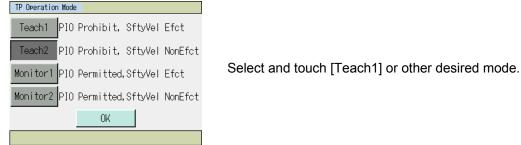
5.10 TP Operation Mode

An operation mode is set if the manual (MANU) mode is selected.

Menu2 Axis No.				
Change Axis	User Adjust			
TP Op Mode	Init Parameter			
EnvironmentSet	Axis No. Set			
Soft Reset	Menu1			

Touch [TP Op Mode] on the Menu 2 screen.

The TP operation mode screen appears.



Select a manual operation mode from the menu containing the following four items:

- Teach1 (SftyVel Efct/PIO Prohibit)
 PIO Prohibit :You can write position data, parameters, etc., to the controller and issue actuator operation commands.

 SftyVel Efct :The maximum speed corresponds to the safety speed set by a parameter, regardless of the speed specified in the position data table.
 Teach2 (SftyVel NonEfct / PIO Prohibit)
 PIO Prohibit :You can write position data, parameters, etc., to the controller and issue actuator operation commands.

 SftyVel NonEfct / PIO Prohibit)
 PIO Prohibit :You can write position data, parameters, etc., to the controller and issue actuator operation commands.

 SftyVel NonEfct :You can move the actuator at the speed (greater than the safety speed) set in the position data table.
- Monitor1 (SftyVel Efct/PIO Permitted)
- PIO Permitted:Only monitoring is permitted. You cannot write position data, parameters, etc.,
to the controller or issue actuator operation commands. operation commands
(jog, home return, etc.) cannot be issued from the touch panel teaching pendant.SftyVel Efct:The maximum speed corresponds to the safety speed set by a parameter,
regardless of the speed command from the PLC.
- Monitor2 (SftyVel NonEfct / PIO Permitted)
 PIO Permitted
 :Only monitoring is permitted. You cannot write position data, parameters, etc., to the controller or issue actuator operation commands. operation commands (jog, home return, etc.) cannot be issued from the touch panel teaching pendant.
 SftyVel NonEfct
 :You can move the actuator at the speed (greater than the safety speed) according to the command from the PLC.

5.11 Alarm List

A list of alarms that may generate after the controller power is turned on is shown. [For alarm details, refer to 8, "Error Display."]

Menul Axis No. 00		
Monitor	Trial Operation	
Edit Position	Alarm List	
Edit Parameter	Information	
Backup Data Menu2		
AlarmCode: OC1 (Serbo Error)		

Touch [Alarm List] on the Menu 1 screen.

The controller's alarm list appears. The alarm list consists of pages 0 to 15. Model other than SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON

Con	Controller Alarm List Axis No. 00						
No	Code	Message	Adrs	Detail	Time		
00	FFF	PowerUP No Error	****	****	0:00:00		
01	0A2	Pos Data Error	1214	0021	0:04:38		
02	FFF	PowerUP No Error	****	****	0:00:00		
03	000		****	****	0:00:00		
04	000		****	****	0:00:00		
05	000		****	****	0:00:00		
06	000		****	****	0:00:00		
07	07 000 **** **** 0:00:						
	↓ Clear						
	Menu						

Touching $[\downarrow]$ displays the next page.

Con	Controller Alarm List Axis No. 00						
No	Code	Message	Adrs	Detail	Time		
08	000		****	****	0:00:00		
09	000		****	****	0:00:00		
10	000		****	****	0:00:00		
11	000		****	****	0:00:00		
12	000		****	****	0:00:00		
13	000		****	****	0:00:00		
14	000		****	****	0:00:00		
15	000		****	****	0:00:00		
	1 Clear						
	Menu						

Touching $[\uparrow]$ displays the previous page.

Touching Erase clears all alarm details.

(Note) PowerUP No Error indicates that the controller power was turned on. It does not indicate an error.

The time of occurrence of each alarm is indicated by an elapsed time from this PowerUP No Error.



SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON

Cont	roller	Alarm List	Axis No. 00		
No	Alarm Code	<u>Address</u> Detail Code			
00	FFF	**** ****	<u>11/08/03_18:32:13</u> PowerUP No Error		
01	0E8	<u>****</u> ****	11/08/03_17:21:22 A,B disconnect		
02	FFF	<u>****</u> ****	<u>11/08/03_17:15:12</u> PowerUP No Error		
03	03 0E8 **** A,B disconnect				
	↑ ↓ Clear				
M	Menu				

Touch $[\uparrow]/[\downarrow]$ to move through the list. Touching [Clear] clears all alarms.

(Note) "PowerUP No Error" indicates that the controller power was turned off. The occurrence time corresponds to the time each error occurred.



5.12 Controller Restart

The controller is restarted.

Axis No. 00	
User Adjust	
Init Parameter	
Axis No. Set	
Menu1	

Touch [Soft Reset] on the Menu 2 screen.

Soft Reset	Axis	No.	00
Do you want to resta the controller?	rt		
Yes No			
Confirm	Axis	No.	00
Servo must be off to restart the controlle			

Touch [Yes].

Touch [No] to return to the Menu 2 screen without restarting the controller.

Touch [Yes].

Touch [No] to return to the Menu 1 screen without restarting the controller.

The controller is restarted.

No

Yes



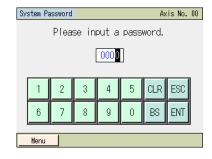
5.13 User Adjustment

You can perform home return, etc.

Menu2 Axis No		
Change Axis	User Adjust	
TP Op Mode	Init Parameter	
EnvironmentSet	Axis No. Set	
Soft Reset	Menu1	

Touch [User Adjust] on the Menu 2 screen.

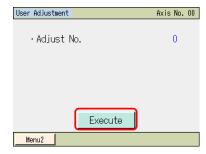
If a system password is set, the password setting screen appears.



Input a system password.

The default password is "5119." You can set a password on the setting screen.

The user adjustment screen appears.



Touch [Adjust No.] and the numeric key pad opens. Set [Adjust No.] and touch [Execute.]

- [Adjust No.]
- 1: Home return Home return can be performed.
- 2: Axis number setting The operation is the same as what you do on the axis number setting screen.
 3: Alarm list clear
 - The operation is the same as what you do on the alarm list screen.
- 4: Controller restart The operation is the same as what you do when restarting the controller on the Menu 2 screen.
- 6: Load Cell Calibration Perform the load cell calibration on actuator equipped with load cell. (SCON-CA)
- Time setting You can move to the time setting screen to set time. (SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON)
- 8: Maintenance information Maintenance information can be displayed. (SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON)



5.14 Parameter Initialization

The parameters are reset to their factory default settings (initialized).

Caution: Once the parameters are initialized (to their factory default settings), all parameters the user has set will return to the values set at the factory. Exercise caution.

Menu2	Axis No. 00
Change Axis	User Adjust
TP Op Mode	Init Parameter
EnvironmentSet	Axis No. Set
Soft Reset	Menu1

Touch [Init Parameter] on the Menu 2 screen.

If a system password is set, the password setting screen appears.

Init Parameter	Axis No. 00
Initialize to shipment parameter?	
Password : 5119	
Yes No	
Menu	

Touching Password displays the numerical keypad. Input "5119" and touch [ENT].

Touch [Yes].

Soft Reset	Axis I	No.	00
		_	
Do	you want to restart the controller?		
	Yes No		

Touch [Yes].

Touch [No] to return to the Menu 2 screen without restarting the controller.





Touch [Yes].

Touch [No] to return to the Menu 1 screen without restarting the controller.

The controller is restarted.

Caution: If the controller is not restarted, the parameters that have been rewritten to their factory settings do not translate to the factory-set operations. The factory settings will become effective once the controller is restarted or power is reconnected.

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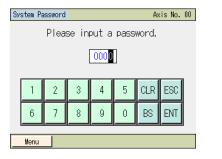
5.15 Axis Number Setting

The axis number of the controller is set.

Menu2	Axis No. 00
Change Axis	User Adjust
TP Op Mode	Init Parameter
EnvironmentSet	Axis No. Set
Soft Reset	Menu1

Touch [Axis No. Set] on the Menu 2 screen.

If a system password is set, the password setting screen appears.



Input a system password.

The default password is "5119." You can set a password on the setting screen.

The axis number setting screen appears.



Touching [Axis No.] displays the numerical keypad. Set a desired axis number and then touch [ENT].

Touch [Execute].



5.16 Information Display

Version and other information of the controller are set.

Menu 1	Axis No. 00
Monitor	Trial Operation
Edit Position	Alarm List
Edit Parameter	Information
Backup Data	Menu2

Touch [Information] on the Menu 1 screen.

The information screen appears.

Information	Axis No. 00
Series/Type	DCON-CA(FB)
Controller Version	AC50FFD0
Core Version	AC85FFF9
TP Version	Ver.2.10
TP Core Version	Ver.0.00
MAC Address	B8:DC:87:00:00:18
Menu 1	

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5.17 Environment Setting

You can change or display the language, sound, light off time, change system password, change pos edit password and time setting.

Menu2	Axis No. 00
Change Axis	User Adjust
TP Op Mode	Init Parameter
EnvironmentSet	Axis No. Set
Soft Reset	Menu1

Touch [EnvironmentSet] on the Menu 2 screen.

The environment setting screen appears.

			•	
Environment Set			f	Axis No. 00
•Language	Japanese	English	EU	Chinese
•Sound	OFF	MIN	MID	MAX
•DimDispTime	("0":N	lever D	im)	30 sec
·Data Input Warning Effect Non Effect				
Change System Password				
Change Pos Edit Password				
Display	Т	ime	Ų	Vrite
Menu2				

[Language]

You can select a desired language to change to that language. Display for Japanese/English/EU/Chinese languages setting change (Option model code: ENG)

Environment Set			A	xis No. 00
•Language	Japanese	English	EU	Chinese
•Sound	OFF	MIN	MID	MAX
•DimDispTime	("0":N	lever D	im)	30 sec
·Data Input Warning Effect Non Effect				
Change System Password				
Change Pos Edit Password				
Display Time Write				
Menu2				

Select and touch [Japanese], etc.

Touch [Write].

(Note) If writing is not conducted, the values will go back to those before making a change when moving to another window.

[Sound]

You can select whether or not to output a touch tone.

Environment Set			f	Axis No. 00		
•Language	Japanese	English	EU	Chinese		
•Sound	OFF	MIN	MID	MAX		
•DimDispTime	("0":N	lever D	im)	30 sec		
•Data Input	·Data Input Warning Effect Non Effect					
Change System Password						
Change Pos Edit Password						
Display Time Write						
Menu2						

Touch [OFF]. A touch tone is not output.

Touch either of [MAX], [MID] or [MIN]. A touch tone is not output.

Touch [Write].

(Note) If writing is not conducted, the values will go back to those before making a change when moving to another window.



[Dim Display Time]

Environment Set			A	xis No. 00		
 Language 	Japanese	English	EU	Chinese		
•Sound	OFF	MIN	MID	MAX		
•DimDispTime	("0":N	lever D	lim)	30 sec		
•Data Input	·Data Input Warning Effect Non Effect					
Change System Password						
Change Pos Edit Password						
Display Time Write						
Menu2						

[Data Input Warning]

Environment Set			A	xis No. 00
				1 1
 Language 	Japanese	English	EU	Chinese
•Sound	OFF	MIN	MID	MAX
•DimDispTime	e ("0":N	lever D	im)	30 sec
•Data Input	Warning) Effe	et Nor	n Effect
Cha	nge Syst	tem Pas	sword	
Chan	ge Pos B	Edit Pa	issword	ł
Display	T	ime	V	Irite
Menu2				

[Change System Password] You can change the system password.

Environment Set			A	xis No. 00
 Language 	Japanese	English	EU	Chinese
•Sound	OFF	MIN	MID	MAX
•DimDispTime	("0":N	lever Di	im)	30 sec
•Data Input	Warning	Effe	et Nor	n Effect
Char	nge Syst	tem Pass	sword	
Chang	;e Pos B	Edit Pas	ssword	1
Display	Т	ime	W	Irite
Menu2				

Touching [Dim Display Time] displays the numerical keypad. Enter a desired time after which the screen light turns off when no operation has been performed, and then touch [ENT].

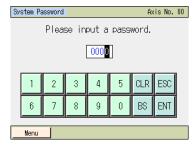
Touch [Write].

(Note) If writing is not conducted, the values will go back to those before making a change when moving to another window.

Touch [Effect] to activate it, and an alarm can be generated if a value below the minimum velocity or above the rated acceleration /deceleration is input in the position data. Even though, it is possible to input a value below the minimum velocity or above the rated acceleration/deceleration. Touch [Non Effect] to inactivate it, and an alarm will not occur.

Touch [Change System Password].

If the system password is set, you must enter the password currently set.



Enter the new password to change to. Touch [ENT].



Change System Password
New Password : 5119
Change
Menu
Notice

Touch [Change].

Notice System Password change complete. New Password : 5119 OK

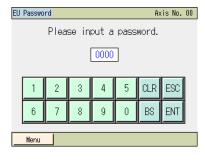
Touch [OK].

[Change Pos Edit Password]



Touch [Change Pos Edit Password].

If the system password function is enabled, you must enter the password currently set.



New Password : 0000

5 CLR ESC

0

BS ENT

Change Pos Edit Password

2 3 4

6 7 8 9

Menu

Input a password. Touch [ENT].

The default password is "5119." You can set a password on the setting screen.

Enter the new password to change to. Touch [ENT].



Change Pos Edit Password	Touch [Change].
New Password : 0000	
Change Menu]
Notice Pos Edit Password change complete.	Touch [OK].
New Password : 0000	
OK	

[Display]

Adjustment of contrast and brightness of the screen, position tuning for touch panel and LCD screen check can be performed.

Environment Set			1	Axis No. 00
•Language	Japanese	English	EU	Chinese
•Sound	OFF	MIN	MID	MAX
•DimDispTime	("0":N	ever D	im)	30 sec
•Data Input	Warning	Effe	ct No	n Effect
Char	ige Syst	iem Pas	sword	
Chang	ie Pos E	dit Pa	sswor	d
Display	Ti	ime		Write
Menu2	•			

Touch [Display].

Display menu Window is displayed.

Display Set	ting	
	Contrast/Brightness	
	Touch calibration	
	LCD check	
Menu		

Select Display Setting menu.

Touch [Menu] and the display returns to EnvironmetSet screen.



•Change the Contrast/Brightness

Display Setting	Touch [Contrast/Brightness]
Contrast/Brightness	
Touch calibration	
LCD check	
Menu	
Display Setting •Contrast	Contrast adjustment Touch [–] and [+] under Contrast to adjust the contrast of the screen.
- + +	Brightness adjustment Touch [–] and [+] under Brightness to adjust the brightness of the screen.
Menu	Touch [Menu] and the display returns to Display menu screen.

Touch calibration

A calibration for the position detection of the touch panel is performed.

Contrast/Brightness	Т
Touch calibration	
LCD check	
Menu	

Touch [Touch Calibration].

2	1
Touch the target sequentially. (from 1 to 4)	
3 ■	4

Touch $[\cdot]$ in the order of 1, 2, 3 and 4.

Touch [Menu] and the display returns to Display menu screen.



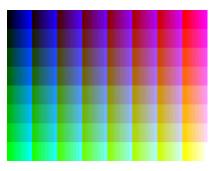
•LCD Check

LCD display can be checked in the order of Color Pattern, White Only and Black Only.

Display Setting Contrast/Brightness Touch calibration LCD check

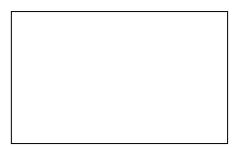
Touch [LCD check].

Color Pattern is displayed



Touch any point on the screen.

White Only is displayed



Touch any point on the screen.

Black Only is displayed



Touch any point on the screen. The display returns to Display menu screen.



[Time Setting]

You can set the time for CON-PTA/PDA/PGA/PGAS or SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON. 1) Time setting for CON-PTA/PDA/PGA/PGAS.

Environment Set Axis No. 00 •Language Japanese English EU Chinese
-Sound OFF MIN MID MAX
·DimDispTime ("0":Never Dim) 30 sec
·Data Input Warning Effect Non Effect
Change System Password
Change Pos Edit Password
Display Time Write
Menu2
Teaching Time Axis No. 00
Time Mon
yy/mm/dd hh:mm:ss
00 / 01 / 01 00 : 00 : 00
Time Edit
tilenu
Teaching Time Axis No. 00
Time Edit
yy/mm/dd hh:mm:ss
00 / 01 / 01 00 : 00 : 00
Time Mon Set Set to controller
,
Menu
Teaching Time Axis No. 00
Teaching Time Axis No. 00 Time Edit
Time Edit
Time Edit yy/mm/dd hh:mm:ss
Time Edit yy/mm/dd hh:mm:ss
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 CLR ESC
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu Menu Axis No. 00
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 0 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Weru Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 6 7 8 9 0 BS ENT Meru Meru Meru Axis No. 00 Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 Time Edit yy/mm/dd hh:mm:ss 00 00 / 01 / 01 00 : 00 00
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru Meru Teaching Time Axis No. 00 Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 Time Mon Set set to controller
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 6 7 8 9 0 BS ENT Meru Meru Meru Axis No. 00 Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 Time Edit yy/mm/dd hh:mm:ss 00 00 / 01 / 01 00 : 00 00
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru Meru Teaching Time Axis No. 00 Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 Time Mon Set set to controller
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 0 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru Meru Meru Meru Meru Meru
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 0 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru Meru Meru Meru Meru Meru
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 0 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru Meru Teachine Time Axis No. 00 Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 Time Mon Set Axis No. 00 Message Axis No. 00 Message No. 186 Message No. 186
Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 0 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru Meru Teachine Time Axis No. 00 Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 Time Mon Set Axis No. 00 Message Axis No. 00 Message No. 186 Message No. 186

Touch [Time].

The time of teaching CON-PTA/PDA/PGA/PGAS is displayed. Touch [Time Edit].

Touch the value of year, month, day, hour, minute or second that is required to be changed.

Numeric keys are displayed Input a value and touch [ENT]

Touch [Set].

.

The time of the CON-PTA/PDA/PGA/PGAS is changed. Touching [Back] can go back to the controller time setting screen. Touching [Inquiry] displays the inquiry screen.



2) Time setting for SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON.

Environment Set Axis No. 00 -Language Javanese Environment Set Dimoles Final Share Second OFF MIN MID Max -DimDispTime ("O":Never Dim) 30 sec -Data Input Warning Effect Non Effect Change System Password Change Pos Edit Password Display Time Write Menu2	Touch [Time].
Tesching Time Axis No. 00 Time Mon yy/mm/dd yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00	Teaching time is displayed. Touch [Time Edit].
Time Edit	
Teaching Time Axis No. 00 Time Edit yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00	You don't need to change the time in the case of setting the time of the teaching to the controller. Touch the value of year, month, day, hour, minute or second that is required to be changed.
Time Mon Set Set to controller Menu	
Teaching Time Axis No. 00 Time Edit yy/mm/dd yy/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT	Numeric keys are displayed Input a value and touch [ENT]
Teaching Time Axis No. 00 Time Edit yy/mm/dd yu/mm/dd hh:mm:ss 00 / 01 / 01 00 : 00 : 00	Touch [Set to controller].
Time Mon Set Set to controller	
Message No. 186 Time setting completed Back Inquiry	The time of the SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON is changed. Touching [Back] can go back to the controller time setting screen. Touching [Inquiry] displays the inquiry screen.

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5.18 Data Backup

Data is transferred between the Secure Digital memory card in the touch panel teaching pendant and the controller.

(Note) Type of Stored Data

This includes the position data, parameters and alarm list.

It is not applicable to the backup data storable in the RC PC software.

(Note) Extensions of the Stored Data

• The file extensions of the data stored to the Secure Digital card are the same as those dealt in RC PC software, and are compatible. For instance, the position data for the PCON-C controllers is ptpc and the parameters are prpc.

[Refer to the details of the file extensions in the RC PC Software Instruction Manual]

• The alarm list can only have the backup. It cannot be restored. Data is in a CSV file.

(Note) Directories of the Stored Data

The folders to store the backup data of the controller and the folder to read the data from when restoring the data to the controller are as listed below. The directories to store the files cannot be changed. The files existing in other directories other than the specified folders cannot be listed up in the file name list in the file select at the initial setting or restore.

If the folder does not exist, it is automatically created.

- Position Data : \CONPTA\Position\File Name
- Parameter : \CONPTA\Parameter\File Name
- Alarm List : \CONPTA\Alarmlist\File Name



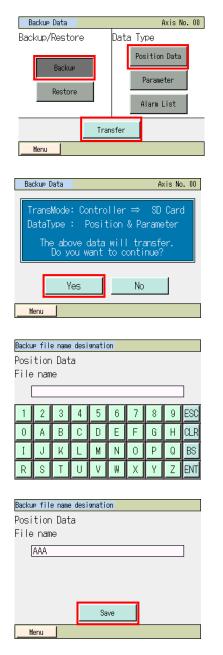
5.18.1 Data Backup of the Controller

The data in the controller is transferred to the Secure Digital memory card for backup.

Menu 1	Axis No. 00
Monitor	Trial Operation
Edit Position	Alarm List
Edit Parameter	Information
Backup Data	Menu2

Touch [Backup Data] on the Menu 1 screen.

A window for data transfer appears.



Touch [Backup].

Select the data type for the backup such as [Position Data] and touch it.

Touch [Transfer].

Touch [Yes].

If [No] is touched, the screen goes back to the data backup window.

Numeric keys show up. Input a file name. The file name is to be typed with 32 characters at maximum in letters and numbers.

Touch [Save].



File name confirmation
File name
AAA.ptpc
The above file is saved. Are you sure to continue?
Yes No
Menu
File name confirmation
File name
AAA.ptpc
A file of the same name already exists. Do you want to replace it?
Yes No
Menu
Backup Data Axis No. 00
Backup Data Axis No. 00
Backup Data Axis No. 00
Backup Data Axis No. 00 Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card
Backup Data Axis No. 00 Transferring Data. Please wait a minute. 100%
Backup Data Axis No. 00 Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card
Backup Data Axis No. 00 Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter
Backup Data Axis No. 00 Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card
Backup Data Axis No. 00 Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter
Backup Data Axis No. 00 Transferring Data. Please wait a minute. 100% 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter Message Axis No. 00
Backup Data Axis No. 00 Transferring Data. Please wait a minute. 100% 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter Message Axis No. 00 Message No. 184 184

The screen below appears if the same name is not found.

Touch [Yes].

If [No] is touched, the screen goes back to the previous one to indicate the backup file name in which the numeric keys were shown.

The screen below appears if the same name is not found.

Touch [Yes].

If [No] is touched, the screen goes back to the previous one to indicate the backup file name in which the numeric keys were shown.

Data transfer screen will be shown.

A message to tell the data transfer is complete pops up and the backup process is finished.

Touching [Back] can go back to the Backup Data screen.



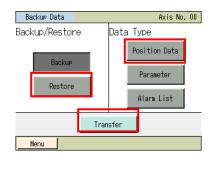
5.18.2 Restore to Controller

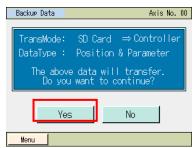
Data in the Secure Digital card is transferred to the controller.

Menu 1	Axis No. 00		
Monitor	Trial Operation		
Edit Position	Alarm List		
Edit Parameter	Information		
Backup Data	Menu2		

Touch [Backup Data] on the Menu 1 screen.

A window for data transfer appears.





Restore File Select		Axis	No.	00
Position Data				
File Select				
AAA				
AAA BBB				
CCC		▼		
	Transfer			
Menu		•		

Touch [Restore].

Select the data type to transfer to the controller, such as [Position Data], and touch it.

Touch [Transfer].

Touch [Yes].

If [No] is touched, the screen goes back to the data backup window.

Touch \blacktriangle and \blacktriangledown to select a file to transfer to the controller from the list of the backed up file names.

Touch [Transfer].



File name confirmation					
File name					
AAA.ptpc					
The file's data transfer to controller. Are you sure to continue?					
Yes No					
Menu					
Backup Data Axis No. 00					
Transferring Data. Please wait a minute.					
100%					
100% TransMode: SD Card ⇒ Controller DataType: Position Data					
TransMode: SD Card ⇒ Controller					
TransMode: SD Card ⇒ Controller					
TransMode: SD Card ⇒ Controller					
TransMode: SD Card ⇒ Controller DataType: Position Data					
TransMode: SD Card ⇒ Controller DataType: Position Data Message Axis No.00					
TransMode: SD Card ⇒ Controller DataType: Position Data Message Axis No. 00 Message No. 184					

Touch [Yes].

If [No] is touched, the screen goes back to the previous one for the restore file select.

Data transfer screen will be shown.

A message to tell the data transfer is complete pops up and the data transfer process to the controller is finished.

Touching [Back] can go back to the Backup Data screen.



5.19 Smart Tuning Function

With the Smart Tuning Function, the following 2 operations can be performed.

- 1) Setting of maximum acceleration/deceleration speed considering the indicated transported load and velocity
- 2) Setting of acceleration/deceleration speed to provide the shortest operation time figured out from the indicated transported load and moving distance
- (1) Setting of maximum acceleration/deceleration speed considering the indicated transported load and velocity

It is the function to set the maximum acceleration/deceleration speed available at the indicated transported load and velocity.

(2) Setting of acceleration/deceleration speed to provide the shortest operation time figured out from the indicated transported load and moving distance

It is the function to set the combination of velocity and acceleration/deceleration that provide the shortest operation time for the indicated moving distance in several patterns of selectable combinations of the velocity and acceleration/deceleration with accordance with the transported load.

When 12.0 [Kg] is indicated for the transported load, for an instance, the combination of the velocity and acceleration/deceleration to provide the shortest operation time for each moving distance is as shown below:

- 1) When 30.00 [mm] is indicated
- \Rightarrow Velocity and acceleration for shortest operation time : 250.00 [mm/sec], 0.70 [G]
- 2) When 40.00 [mm] is indicated
 - \Rightarrow Velocity and acceleration for shortest operation time : 300.00 [mm/sec], 0.50 [G]
- (Note) The search of the combination of velocity and acceleration/deceleration for the shortest operation time refers to the operation schedule time.

For a reference, the following table shows the list of the operation time for each moving distance.

Carrier load [Kg]	Movement distance [mm]	Velocity [mm/sec]	Acceleration/ Deceleration [G]	Operation time [msec]			
12.0	30.00	250.00	0.70	156			
		300.00	0.50	161			
	40.00	250.00	0.70	196			
		300.00	0.50	195			

List of Operation Time for Each Moving Distance



- 5.19.1 Setting Operation for Max. Acceleration/Deceleration for Indicated Transported Load and Velocity
 - 1) Basic Information Settings

Set the model code, lead stroke and the posture of the applicable actuator in "Setting of Actuator Applicable for Velocity and Acceleration/Deceleration Settings" window.

Edit	Position o	oo Actuat	or set 🛛 A	xis No. 00
No.	Position(mm)	Vel(mm/s)	Acc(G)	Del (G)
000	*	*	*	*
001	100.00	20	0.05	0.05
002	200.00	30	0.11	0.11
003	333.33	100	0.22	0.22
004	*	*	*	*
005	555.55	333	0.22	0.22
006	666.66	444	0.11	0.11
007	777.77	777	0.07	0.07
1	Specif	y No Al	l Clear	\downarrow
Me	nu1 🛛 🛪 Touc	h PosNo, the	n go to de	tail edit

Touch [Actuator set].

Axis Se	tting(Sma	rt Tun	ing)			Axis	No.	00
	Model		ISB-S	SXM-6	30			
BasicInfo	Lead(mm)		4					
Dasiciniu	Stroke(m	n)	100					
	Axis Dire	ection	Horiz	onta				
	B	asic I	nfo Se	ttin				
	Load No.	0	55.	000	Kg			
Load	Load No.	1	20.	000	Kg			
Load	Load No.:	2	10.	000	Kg			
	Load No.3	3	1.	000	Ka			
Load Setting								
Menu								

Touch [Basic Info Setting].

Basic Info Set	ting Axis No. 00
Series	ISB
Model	ISB-SXM-60
Lead(mm)	4
Stroke(mm)	100
Axis Direction	🖲 Horizontal 🔘 Vertical
OK	Cancel
Menu	

Axis Se	Axis No. 00				
	Model	RCP4-RA5C			
PaoloInfo	Lead(mm) Stroke(mm)	12			
Dasicinio	Stroke(mm)	300			
	Axis Direction	Horizontal			
Basic Info Setting					
	Load No.0	55.000 Kg			
Load	Load No.1	20.000 Kg			
Load	Load No.2	10.000 Kg			
	Load No.3	1.000 Kg			
Load Setting					
Menu					

Touch \checkmark and \blacktriangle to select the applicable series, model type, lead (mm). For the stroke, numeric keys will appear if touch it. Input a value on the numeric keys.

Select the actuator posture from either horizontal or vertical. Touch [OK].

The screen goes back to Basic Information Setting and Transported Load Setting window.



2) Setting of Carrier Load Set the carrier load.

Axis Setting(Smart Tuning)				No.	00
	Model	RCP4-RA5C			
BasicInfo	Lead(mm)	12			
basicinio	Stroke(mm)	300			
	Axis Direction	Horizontal			
Basic Info Setting					
	Load No.0	55.000 Kg			
Load	Load No.1	20.000 Kg			
Load	Load No.2	10.000 Kg			
	Load No.3	1.000 Kg			
Load Setting					
Menu					

Touch [Load Setting].

Load Setting	Axis No. 00
Load No.0	55.000 Kg
Load No.1	20.000 Kg
Load No.2	10.000 Kg
Load No.3	1.000 Kg
OK	Cancel
Menu	

Touch the number input areas for Transported Load No.0 to No.3. The numeric keys will appear. Set the transported loads. Touch [OK].

Axis Setting(Smart Tuning) Axis No. (
Model		RCP4-RA5C					
PasiaInfa	Lead(mm) Stroke(mm)	12					
Dastcinto	Stroke(mm)	300					
	Axis Direction	Horizontal					
Basic Info Setting							
	Load No.0	25.000 Kg					
Load	Load No.1	15.000 Kg					
Load	Load No.2	10.000 Kg					
	Load No.3	5.000 Kg					
Load Setting							
Monu	Hanu						

The screen goes back to Basic Information Setting and Transported Load Setting window. Touch [Menu] to return to Position Edit window.

-

Edit	Position c	oo <u>Actuat</u>	or set 🛛 A	xis No. 00
No.	Position(mm)	Vel(mm/s)	Acc (G)	Del (G)
000	*	*	*	*
001	100.00	20	0.05	0.05
002	200.00	30	0.11	0.11
003	333.33	100	0.22	0.22
004	*	*	*	*
005	555.55	333	0.22	0.22
006	666.66	444	0.11	0.11
007	777.77	777	0.07	0.07
1	Specif	y No All	Clear	\downarrow
Me	nu1 XTouc	h PosNo, the	n go to de	tail edit



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3) Way to Handle Smart Tuning Function

Set the velocity and carrier load number to the set position number. Select "Automatically Tune Acceleration from Transported Load and Velocity" from the ways for tuning.

			-	
Edit	Position c	ioo <u>Actuat</u>	or set 🛛 A:	kis No. 00
No.	Position(mm)	Vel(mm/s)	Acc (G)	Del(G)
000	*	*	*	*
001	100.00	20	0.05	0.05
002	200.00	30	0.11	0.11
003	333.33	100	0.22	0.22
004	*	*	*	*
005	555.55	333	0.22	0.22
006	666.66	444	0.11	0.11
007	777.77	777	0.07	0.07
1	Specif	y No All	Clear	\downarrow
Mei	nu 1 🔤 💥 Touc	h PosNo, the	n go to def	tail edit

Select the position to have Smart Tuning Function and touch it.

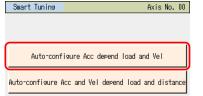
Edit Position Axis No. 00 Pos No. 000 Clear Smart Tuning 0.00 0.00 100.00 0.00 0.30 LoTh(%) 0.30 Del (G). 0.10 0 Multi Pos Jog \downarrow Menu1

Set the velocity.

Select one from 0 (Transported Load No. 0) to 3 (Transported Load No. 3) and set to the transported load.

Set the necessary items except for acceleration and deceleration such as target position.

Touch [C/T optimization].



Touch [Auto-configure Acc depend load and Vel].

Co	nfirm		Axis N	o. OO
Γ	Distance(mm)	100.00		
	Load (Kg)	40.000		
	Vel(mm/s)	100.00		
	ACC/DCL (G)	1.00		
	The data wil Do you want t	l overwride. co continue?		
	Yes	No		

Menu

The confirmation screen appears. Touch [Yes].

4) Maximum acceleration speed and maximum deceleration speed are set for the indicated velocity and transported load number.

Edit Position			A	xis No. 00
Pos No. ()	0 Cle	Clear Sma		t Tuning
Position(mm)	0.00	Zone+(mm)	0.00
Vel(mm/s)	100.00	Zone-(mm)	0.00
Acc (G)	1.00	LoTh(X)	0
Del(G)	1.00	AccDe I N	lode	0
Push(%)	0	StopMa	ode	0
Range(mm)	0.10	Load	ł	0
Increment	0	VSup N	lo.	0
↑ Mu	ılti Pos	Jo	g	\downarrow
Menu1				



5.19.2 Operation to Automatically Set Velocity and Acceleration Speed from Moving Distance

1) Basic Information Settings

Set the model code, lead stroke and the posture of the applicable actuator in "Setting of Actuator Applicable for Velocity and Acceleration/Deceleration Settings" window.

Edit	Position	000	Actuat	or set 🛛 A	xis No. OO
No.	Position(m	n) Vel	(mm/s)	Acc(G)	Del(G)
000		*	*	*	*
001	100.0	D	20	0.05	0.05
002	200.0	D	30	0.11	0.11
003	333.3	з	100	0.22	0.22
004		*	*	*	*
005	555.5	5	333	0.22	0.22
006	666.6	Б	444	0.11	0.11
007	777.7	7	777	0.07	0.07
1	` Spec	ify N	All	Clear	\downarrow
Me	Menul ※Touch PosNo, then go to detail edit				

Touch [Actuator set].

Axis Setting(Smart Tuning)			Axis No.	00
	Model	ISB-SXM-60		
BasicInfo	Lead(mm)	4		
Dasicinio	Stroke(mm)	100		
	Axis Direction	Horizontal		
Basic Info Setting				
	Load No.0	55.000 Kg		
Load	Load No.1	20.000 Kg		
Load	Load No.2	10.000 Kg		
	Load No.3	1.000 Kg		
Load Setting				
Menu	1			

Touch [Basic Info Setting].

Basic Info Set	ting Axis No. 00
Series	ISB
Model	ISB-SXM-60
Lead(mm)	4
Stroke(mm)	100
Axis Direction	🖲 Horizontal 🔘 Vertical
OK	Cancel
Monu	

Touch \checkmark and \blacktriangle to select the applicable series, model type, lead (mm). For the stroke, numeric keys will appear if touch it. Input a value on the numeric keys.

Select the actuator posture from either horizontal or vertical. Touch [OK].

Axis Setting(Smart Tuning)			Axis No.	00
	Model	RCP4-RA5C		
BasicInfo	Lead(mm)	12		
Dasicinio	Stroke(MM)	300		
	Axis Direction	Horizontal		
Basic Info Setting				
	Load No.0	55.000 Kg		
Load	Load No.1	20.000 Kg		
Load	Load No.2	10.000 Kg		
	Load No.3	1.000 Kg		
Load Setting				
Menu				

The screen goes back to Basic Information Setting and Transported Load Setting window.



2) Setting of Carrier Load Set the carrier load.

Axis Setting(Smart Tuning) Axis No. 00			
	Model	RCP4-RA5C	
BasicInfo	Lead(mm)	12	
Dasicinio	Stroke(mm)	300	
	Axis Direction	Horizontal	
Basic Info Setting			
	Load No.0	55.000 Kg	
Load	Load No.1	20.000 Kg	
Load	Load No.2	10.000 Kg	
	Load No.3	1.000 Kg	
Load Setting			
Menu			

Touch [Load Setting].

Load Setting	Axis No. 00
Load No.0	55.000 Kg
Load No.1	20.000 Kg
Load No.2	10.000 Kg
Load No.3	1.000 Kg
OK	Cancel
Menu	

Touch the number input areas for Transported Load No.0 to No.3. The numeric keys will appear. Set the transported loads. Touch [OK].

Axis Setting(Smart Tuning)			Axis No. 00
	Model	RCP4-RA5C	
BasicInfo	Lead(mm)	12	
Dastcinto		300	
	Axis Direction	Horizontal	
	Basic I	nfo Setting	
	Load No.0	25.000 Kg	
Load	Load No.1	15.000 Kg	
Load	Load No.2	10.000 Kg	
	Load No.3	5.000 Kg	
Load Setting			
Menu			

The screen goes back to Basic Information Setting and Transported Load Setting window. Touch [Menu] to return to Position Edit window.

Edit Position ooo Actuator set Axis No. 00 No. Position(mm) Vel(mm/s) Acc(G) Dcl(G) 00 * * 100.00 20 0.05 0.05 00 200.00 30 0.11 0.11 333. 33 100 0.22 0.22 * 555.55 0.22 0.22 333 0.11 0.11 666.66 444 777 0.07 777.77 00 0.07 Specify No All Clear ↓ ₩Touch PosNo, then go to detail edit Menu 1



3) Way to Handle Smart Tuning Function

Set the distance and carrier load number to the set position number. Select "Automatically Tune Acceleration from Transported Load and Velocity" from the ways for tuning.

No	Position(mm)	Vel(mm/s)	Acc (G)	Del(G)
000	*	*	*	*
001	100.00	20	0.05	0.05
002	200.00	30	0.11	0.11
003	333.33	100	0.22	0.22
004	*	*	*	*
005	555.55	333	0.22	0.22
006	666.66	444	0.11	0.11
007	777.77	777.77 777		0.07
↑ Specify No All Clear ↓				

Select the position to have Smart Tuning Function and touch it.

Edit Position				Axis No. 00
Pos No. ()(0 Cle	ar	Smar	rt Tuning
Position(mm)	0.00	Zone+ (mm)	0.00
Vel(mm/s)	100.00	Zone-(i	mm)	0.00
Acc(G)	0.30	LoTh (X)	0
Del(G)	0.30	AccDell	lode	0
Push(%)	0	StopMc	ode	0
Range(mm)	0.10	Load	1	0
Increment	0	VSup N	lo.	0
Mu	Ilti Pos	Jos	g	\downarrow
Menu 1				

Set the velocity.

Select one from 0 (Transported Load No. 0) to 3 (Transported Load No. 3) and set to the transported load.

Set the necessary items except for acceleration and deceleration such as target position.

Touch [C/T optimization].



Axis No. 00

Smart Tuning

Menu

Touch [Auto-configure Acc and Vel depend load and distance].



There are two ways to set up the moving distance. (Position Select)



Select Position Select. Touch the value on the start position and the numeric key will be shown. Set the Start Pos.

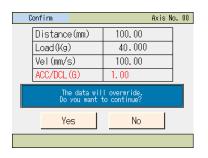
Touch the value on the end position and the numeric key will be shown. Set the End Pos.

(Note) For the end position, the position number to have Smart Tuning Function is shown. The end position can be changed. However, even if the end position is changed, it is set to the position where Smart Tuning Function is held by the calculation of the velocity, acceleration and deceleration from the distance between the set start position and end position.

(Distance Select)

Smart Tuning	Axis No. 00				
O Position Select					
Start Pos	0				
End Pos	1				
Distance Select Distance (mm) 100.00					
OK	Cancel				
Menu					

Select Distance Select. Touch the value on the moving distance and the numeric key will be shown. Set the Distance.



The confirmation screen appears. Touch [Yes].

4) The velocity, acceleration and deceleration are set to provide the shortest tact time to run between two points for the indicated transported load number.

Edit Position	1		Axis No. 00
Pos No. ())0 Cle	ar Sma	rt Tuning
Position(mm)	0.00	Zone+(mm)	0.00
Vel(mm/s)	100.00	Zone-(mm)	0.00
Acc (G)	1.00	LoTh(%)	0
Del(G)	1.00	AccDcIMode	0
Push(%)	U	StopMode	0
Range(mm)	0.10	Load	0
Increment	0	VSup No.	0
↑ Multi Pos		Jog	\downarrow
Menu1			

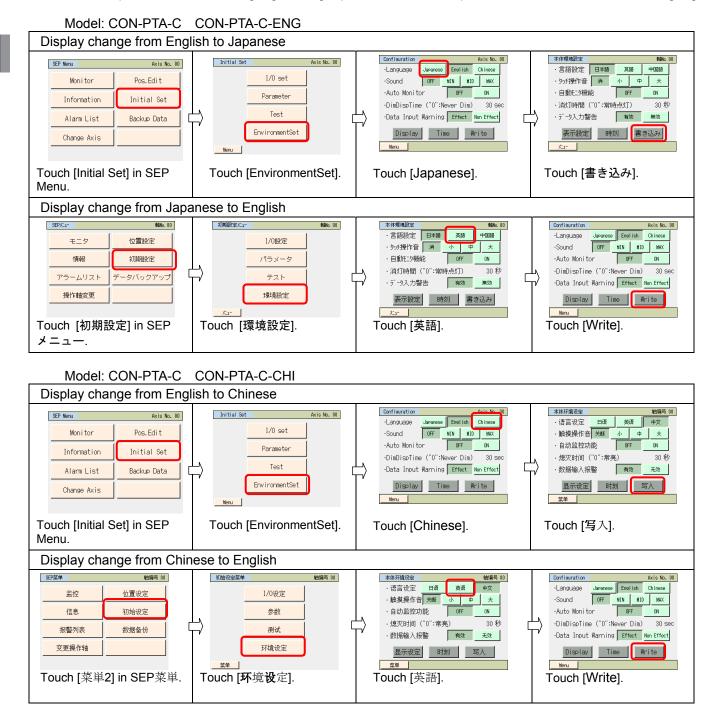


6. Operation of SEP Related Controllers

SEP related controllers: ASEP, PSEP, DSEP, MSEP

6.1 Transition of Operating States

The language can be changed by following the steps below. For the operations after the language change, please refer to the operation manual written in each language.



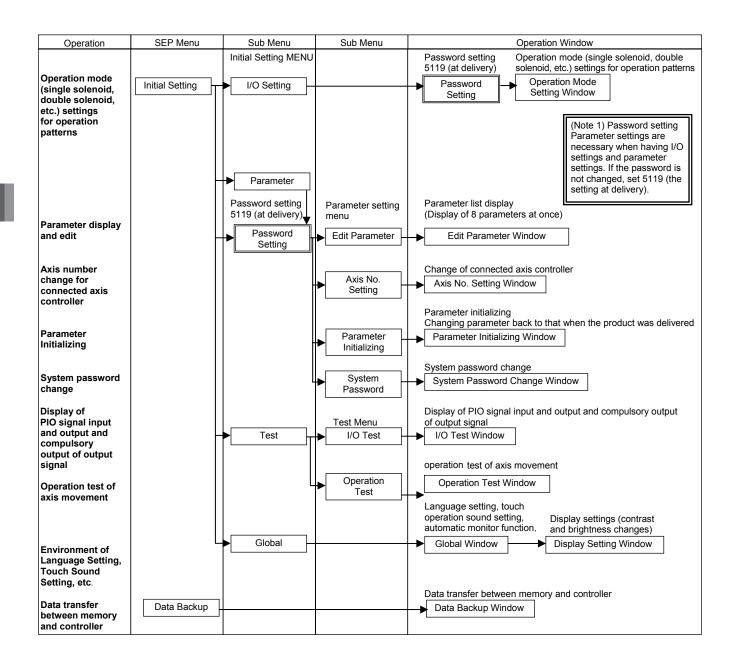


6.2 Operating Menu

Transition of operating states when the touch-panel teaching pendant CON-PTA is connected to a SEP controller is shown.

Operation	SEP Menu	Sub Menu	Sub Menu	Operation Window
Display of conditions of input and output I/O, velocity, etc.	Monitor			Data display of input and output I/O, velocity, etc. Monitor Window
Information displays for operation patterns, version, etc.	Information	Information Menu Setting Confirmation Version Information Manufacturing Information Contact Information		Display of setting details such for operation patterns Setting Confirmation Window Information display for version, etc. Version Information Window Display of manufacturing information such as serial number Manufacturing Information Window Contact information display Contact Information Display Window Alarm detailed display (Display of 8 alarm at once)
Alarm content Detailed display	Alarm List			Alarm List Window
Select/change connected axis controller	Change of Operated Axis			Select/change connected axis controller ● Operated Axis Change Window Password Position data list display Setting (Display corresponding to Correstions contents)
Edit of position data display	Position Settings			Operation pattern) Password Setting If the password is already set JOG operation Position reading operation Position reading operation Position reading operation Position reading operation Position reading operation Position reading operation Inching Operation Window



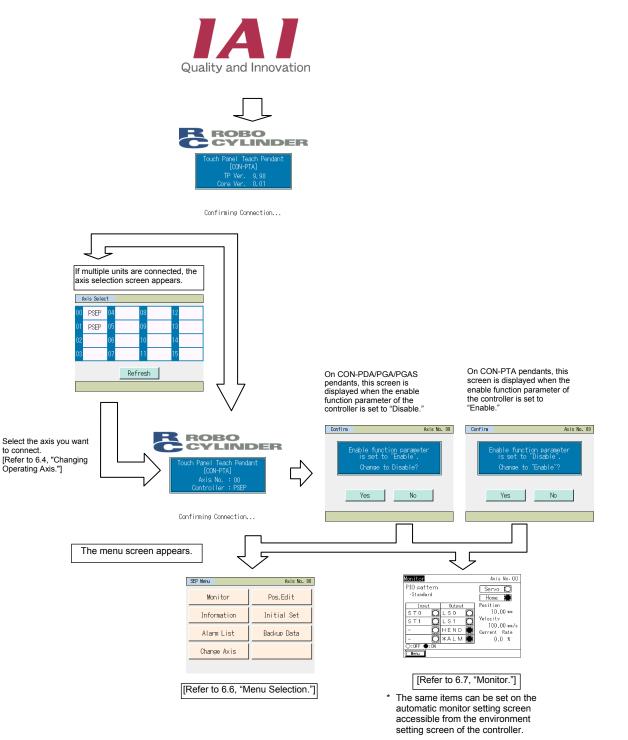


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6.3 Initial Screen

Upon connection to the controller, power is supplied to the touch-panel teaching pendant and processing starts.

When the power is turned on, the IAI logo is displayed for approx. 1 second on the operation display screen (here in after referred to as "operation screen") of the touch-panel teaching pendant, after which version information is displayed.

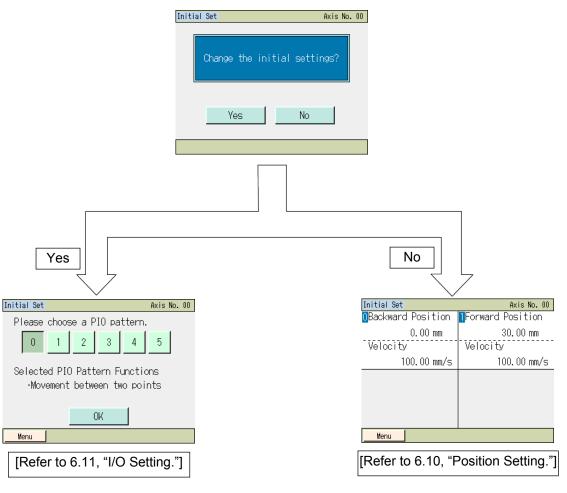




6.4 Initial Setting

When the power is turned on for the first time after the delivery of the controller, the initial setting screen will appear.

- Select [Yes], and the display will change to the I/O setting screen where you can set the operation pattern (PIO pattern). Select a desired operation pattern and, depending on the selected operation pattern, also set the single-solenoid, double-solenoid or other operation mode.
- Select [No], and the factory set operation pattern, or specifically operation pattern 0 of double-solenoid mode, will remain effective.



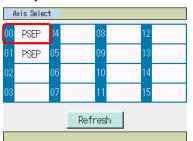
Factory settings

- Operation pattern 0
- Double-solenoid mode with continuous current flow
- No servo control
- Home return MANU
- Output mode LS



6.5 Changing Operating Axis

If multiple controllers are connected to the communication line, the axis selection screen appears. This screen also appears when [Change Operate Axis] is touched on the menu screen. If only one controller is connected, you need not select an axis.



Select and touch the axis you want to connect the touch-panel teaching pendant to.



Connection with the selected controller axis starts.

Confirming Connection...

SEP Menu	Axis No. 00
Monitor	Pos. Edit
Information	Initial Set
Alarm List	Backup Data
Change Axis	

When connection with the controller is established, the SEP menu screen appears.



6.6 Menu Selection

SEP menu

SEP Menu Axis No. 0	
Monitor	Pos.Edit
Information	Initial Set
Alarm List	Backup Data
Change Axis	

The SEP menu has seven items. Select and touch one of them. The screen changes to the one corresponding to the menu item you have touched.

Menu list

T.: 11:11 0.1

٠	Monitor	Display the controller status. [Refer to 6.7, "Monitor."]
•	Information	Display the operation pattern, version and other information. [Refer to 6.8, "Information."]
٠	Alarm List	Display alarm details. [Refer to 6.9, "Alarm List."]
•	Change Axis	Select the controller axis to connect the touch-panel teaching pendant to. [Refer to 6.5, "Changing Operating Axis."]
•	Pos. Edit	Set the position, push power, push band, etc. Move by jogging. [Refer to 6.10, "Position Setting."]
•	Backup Data	Transfer data between the touch-panel teaching pendant and controller. [Refer to 6.15, "Data Backup."]
٠	Initial Set	

Touching [Initial Set] switches to the next selection screen, which is the initial setting screen.

Initial Set		Axis No). 00
	I/O set		
	Parameter		
	Test		
	EnvironmentSet		
Menu			

The initial setting screen shows a menu consisting of four items. Select and touch one of them. The screen changes to the one corresponding to the menu item you have touched. Touch Menu to return to the previous SEP menu screen.

Initial setting menu list

•	I/O Set	Select an operation pattern (PIO pattern 0 to 5), set an operation mode (single solenoid, double solenoid), etc. [Refer to 6.11, "I/O Setting."]
•	Parameter	Set parameters such as the default positioning band. [Refer to 6.12, "Parameters."
•	Test	Perform I/O tests and operation tests for axis movement. [Refer to 6.13, "Test."]
•	EnvironmentSet	Set the environment such as touch tone. [Refer to 6.14, "Environment Setting."]

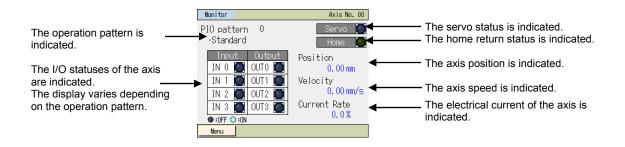


6.7 Monitor

The current position, speed, electrical current and system I/O statuses of the controller are displayed.

SEP Menu Axis No. 0	
Monitor	Pos.Edit
Information	Initial Set
Alarm List	Backup Data
Change Axis	

Touch [Monitor] on the SEP menu screen.



Touch [Menu] to return to the SEP menu screen.



I/O display on monitor screen					
PIO pattern Operation mode				IN0 (input)/OUT0 (output)	
Standard movement	Input	-/ SON (servo ON signal) *1	-/ RES (reset signal)	-/ *STP (pause signal)	ST0 (move signal)
between 2 points: 0 Single solenoid	Output	*ALM (alarm output signal)/ SV (servo ON output signal) *3	HEND (home return complete signal)/ SV (servo ON output signal) *3	LS1 (forward end position detection signal)/ PE1 (forward end positioning complete signal)*2	LS0 (backward end position detection signal)/ PE0 (backward positioning complete signal)*2
Standard movement	Input	-/ SON (servo ON signal) *1	-/ RES (reset signal)	ST1 (forward end movement signal) (-)	ST0 (backward end movement signal)
between 2 points: 0 Double solenoid	Output	*ALM (alarm output signal)/ SV (servo ON output signal) *3	HEND (home return complete signal)/ SV (servo ON output signal) *3	LS1 (forward end position detection signal)/ PE1 (forward end positioning complete signal)*2	LS0 (backward end position detection signal)/ PE0 (backward positioning complete signal)*2
Change travel speed: 1	Input	۔/ SON (servo ON signal) *1	SPDC (travel speed switching signal) RES (reset signal)	-/ *STP (pause signal)	ST0 (backward end movement signal)
Single solenoid	Output	*ALM (alarm output signal)/ SV (servo ON output signal) *3	HEND (home return complete signal)/ SV (servo ON output signal) *3	LS1 (forward end position detection signal)/ PE1 (forward end positioning complete signal)*2	LS0 (backward end position detection signal)/ PE0 (backward positioning complete signal)*2
Change travel speed: 1	Input	-/ SON (servo ON signal) *1	SPDC (travel speed switching signal) RES (reset signal)	ST1 (forward end movement signal) (-)	ST0 (backward end movement signal)
Double solenoid	Output	*ALM (alarm output signal)/ SV (servo ON output signal) *3	HEND (home return complete signal)/ SV (servo ON output signal) *3	LS1 (forward end position detection signal)/ PE1 (forward end positioning complete signal)*2	LS0 (backward end position detection signal)/ PE0 (backward positioning complete signal)*2
Position data change: 2	Input	-/ SON (servo ON signal) *1	CN1 (target position switching signal) RES (reset signal)	-/ *STP (pause signal)	ST0 (backward end movement signal)
Single solenoid	Output	*ALM (alarm output signal)/ SV (servo ON output signal) *3	HEND (home return complete signal)/ SV (servo ON output signal) *3	LS1 (forward end position detection signal)/ PE1 (forward end positioning complete signal)*2	LS0 (backward end position detection signal)/ PE0 (backward positioning complete signal)*2
Position	Input	-/ SON (servo ON signal) *1	CN1 (target position switching signal) RES (reset signal)	ST1 (forward end movement signal) (-)	ST0 (backward end movement signal)
data change: 2 Double solenoid	Output	*ALM (alarm output signal)/ SV (servo ON output signal) *3	HEND (home return complete signal)/ SV (servo ON output signal) *3	LS1 (forward end position detection signal)/ PE1 (forward end positioning complete signal)*2	LS0 (backward end position detection signal)/ PE0 (backward positioning complete signal)*2
Movement by 2	Input	-/ SON (servo ON signal) *1	-/ RES (reset signal)	/ ST1 (forward end movement signal)	ST0 (movement signal 1)
inputs among 3 points: 3	Output	*ALM (alarm output signal)/ SV (servo ON output signal) *3	LS2 (intermediate position detection signal)/ PE2 (intermediate positioning complete signal)*2	LS1 (forward end position detection signal)/ PE1 (forward end positioning complete signal)*2	LS0 (backward end position detection signal)/ PE0 (backward positioning complete signal)*2
Movement by 3 inputs among 3	Input	/ SON (servo ON signal) *1	ST2 (position movement 2) RES (reset signal)	ST1 (forward end movement signal) (-)	ST0 (backward end movement signal)
points: 4 Double solenoid	Output	*ALM (alarm output signal)/ SV (servo ON output signal) *3	LS2 (intermediate position detection signal)/ PE2 (intermediate positioning complete signal)*2	LS1 (forward end position detection signal)/ PE1 (forward end positioning complete signal)*2	LS0 (backward end position detection signal)/ PE0 (backward positioning complete signal)*2
Continueuro	Input	/ SON (servo ON signal) *1	-/ RES (reset signal)	-/ *STP (pause signal)	ASTR (continuous back-and- forth operation signal)
Continuous back-and-forth operation: 5	Output	*ALM (alarm output signal)/ SV (servo ON output signal) *3	HEND (home return complete signal)/ SV (servo ON output signal) *3	LS1 (forward end position detection signal)/ PE1 (forward end positioning complete signal)*2	LS0 (backward end position detection signal)/ PE0 (backward positioning complete signal)*2
	1	1	1		

I/O display on monitor screen

The signal name in parentheses indicates the signal state before home return.

*1

If the default I/O setting for servo control is set to "Control", the SON signal applies. If the default I/O setting for output signal type is set to "Limit Switch", LS is applied. If it is set to "Position End", PE *2 is applied.

*3 When "SV" is selected by the default I/O setting for output selection. In this case, the SV signal applies. Either OUT2 or OUT3 can be set depending on the operation parameter and operation mode.

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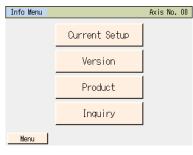
6.8 Information

The operation pattern, version and other information is displayed.

SEP Menu	Axis No. 00
Monitor	Pos.Edit
Information	Initial Set
Alarm List	Backup Data
Change Axis	

Touch [Information] on the SEP menu screen.

The information selection screen appears.



Touch the screen you want to display.

Touch [Menu] to return to the SEP menu screen.

[Current Setup]

You can confirm the operation pattern, operation mode and other information currently set.

Current Setup	Axis No.	00
		_
PIO pattern	0 (Standard)	_
Solenoid type	Double solenoid	- 1
Input signal	Level	
Control Servo	Non-use	
Homing MANU		
Output signal Limit Switch		
Menu		

[Version]

You can check the version information, etc.

Information Axis No. 00			
Series/Type	PSEP-NP		
Controller Version	AE00001E		
Core Version	AE800003		
TP Version	Ver. 9.98		
TP Core Version	Ver. 0. 01		
Menu 1			



[Product] You can check the serial number and other manufacturing information.

Product	Axis No. 00
Controller Serial No.	
1234-5678-90AB-C	
Controller PCB Revision	
M. REV:	
F. REV:	
Axis Serial No.	
FEDC-BA09-8765-4	
Menu	

[Inquiry] You can check how to contact IAI.

Inquiry
IAI Customer center "EIGHT"
6800-888-0088
OPEN 24 HOURS A DAY. Weekend open 9:00AM to 5:00PM
http://www.iai-robot.co.jp/



6.9 Alarm List

A list of alarms that may generate after the controller power is turned on is shown. [For alarm details, refer to 8, "Error Display."]

SEP Menu Axis No. 00		
Monitor	Pos.Edit	
Information	Initial Set	
Alarm List	Backup Data	
Change Axis		

Touch [Alarm List] on the SEP menu screen.

The controller's alarm list appears. The error list consists of errors 0 to 15.

Con	Controller Alarm List Axis No. 00						
No	Code	Message	Adrs	Detail	Time		
00	FFF	PowerUP No Error	****	****	0:00:00		
01	0A2	A,B disconnect	1214	0021	0:04:38		
02	FFF	PowerUP No Error	****	****	0:00:00		
03	000		****	****	0:00:00		
04	000		****	****	0:00:00		
05	000		****	****	0:00:00		
06	000		****	****	0:00:00		
07	000		****	****	0:00:00		
	↓ Clear						
	Menu						

Con	Controller Alarm List Axis No. 00							
No	Code	Message	Adrs	Detail	Time			
08	000		****	****	0:00:00			
09	000		****	****	0:00:00			
10	000		****	****	0:00:00			
11	000		****	****	0:00:00			
12	000		****	****	0:00:00			
13	000		****	****	0:00:00			
14	000		****	****	0:00:00			
15	000		****	****	0:00:00			
	↑ Clear							
	Menu							

Touching $[\downarrow]$ displays the next page.

Touching $[\uparrow]$ displays the previous page.

Touching [Erase] clears all alarm details.

(Note) PowerUP No Error indicates that the controller power was turned on. It does not indicate an error.

The time of occurrence of each alarm is indicated by an elapsed time from this PowerUP No Error.



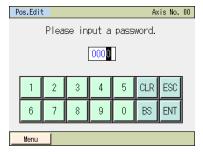
6.10 Position Setting (Setting of Position-related Data, Jog/Inching Operation)

Position-related data, such as position, push power and push band, are set. You can move the axis by jogging or inching.

SEP Menu	Axis No. 00
Monitor	Pos.Edit
Information	Initial Set
Alarm List	Backup Data
Change Axis	

Touch [Pos. Edit] on the SEP menu screen.

If the password is not "0000," the password entry screen appears before changing to the position setting screen.



Enter a password value from the numeric keypad, and then touch [ENT].

You can set a password from "Position edit password" on the parameter edit screen.

If the correct password has been entered, the display changes to the screen showing a position setting list. The display varies depending on the operation pattern.

Pos.Edit	Axis No. 00
Backward Position	Forward Position
0.00 mm	30.00 mm
Velocity	Velocity
100.00 mm/s	100.00 mm/s
2Intermediate Pos	
0.00 mm	
Velocity	
50.00 mm/s	
Monu	

Touch the position you want to set. Touch [Menu] to return to the SEP menu screen. The screen shown to the left is an example of operation pattern 3. The settings of various positions are shown.

Number of positions set					
Operation pattern	Move	Number of positions set			
Standard movement between 2 points: 0	Movement between two points	2			
Change travel speed: 1	Movement between two points	2			
Change position: 2	Movement between two points	4			
Movement by 2 inputs among 3 points: 3	Movement among two points	3			
Movement by 3 inputs among 3 points: 4	Movement among two points	3			
Continuous back-and-forth operation: 5	Movement between two points	2			
Positioner Mode: 6*1	-	256			

*1 It is available to set only for Fieldbus Type of MSEP Controllers.



Touching a desired position displays the screen for setting the target position/speed for the position you have touched.

Set the position, speed, push power, push band, acceleration and deceleration.

Pos.Edit Axis No. 00					
Backward Position	0 1				
Position	30.00 mm				
Velocity	100.00mm/s	- L			
PushPower	50%	Clear			
PushBand	10.00 mm				
Accelerate	0.20G				
Decelerate	0.20G	Jog			
Energy-saving	ON OFF				
Menu					

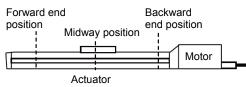
Touch [Menu] to return to the SEP menu screen.

You can perform jog operation on this setting screen.

[1] Position data

[3]

Set position data with which to operate the actuator.



	Position data								
Position Data		[1]	[2]	[3]	[4]	[5]	[6]	[7]	
		Position [mm]	Velocity [mm/s]	Accelerate [G]	Decelerate [G]	PushPower [%]	PushBand [mm]	Ecology	
[1]	Forward Position	200.00	50.00	0.1	0.1	70	1.00	Valid	
[2]	Backward Position	0.00	50.00	0.1	0.1	0	0	Valid	
[3]	Midway Position	100.00	50.00	0.1	0.1	0	0	Valid	

[1] Position (mm)--- Set the position to move the actuator to.

The positions must satisfy the following relationships: Backward position < Intermediate position < Forward position

			Setting position				
Operation pattern	Move	Forward	Backward	Intermediate			
		Position	Position	Position			
Standard movement between 2 points: 0	Movement between two points	0	0				
Change travel speed: 1	Movement between two points	0	0				
Position data change: 2	Movement between two points	0	0				
Movement by 2 inputs among 3 points: 3	Movement among three points	0	0	0			
Movement by 3 inputs among 3 points: 4	Movement among three points	0	0	0			
Continuous back-and-forth operation: 5	Movement between two points	0	0				

[2] Velocity [mm/s]--- Set the actuator speed.

Accelerate [G] --- Set the actuator acceleration.

The input range permits entry of values greater than what is specified in the catalog. Refer to the catalog or operation manual of your actuator.

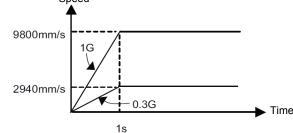


[4] Decelerate [G]--- Set the actuator deceleration. [G]

(Reference) Acceleration is explained. The same concept applies to deceleration.

1 G = 9800 mm/s^2 : Acceleration at which the actuator can increase its speed up to 9800 mm/s per second.

0.3 G: Acceleration at which the actuator can increase its speed up to 2940 mm/s (9800 mm/s x 0.3) per second. Speed

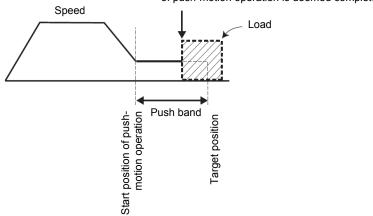


Caution: Acceleration/deceleration setting

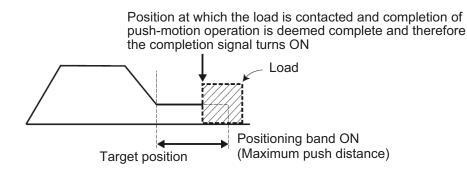
- (1) Set accelerations/decelerations not exceeding the rated acceleration/deceleration specified in the catalog or this operation manual. If any acceleration/deceleration is set that exceeds the rated acceleration/deceleration, the life of the actuator may be significantly reduced.
- (2) If the actuator or work part receives impact or generates vibration, lower the acceleration/deceleration. If the system is used continuously with the actuator or work part receiving impact or generating vibration, the life of the actuator may be significantly reduced.
- (3) If the load transferred by the actuator is significantly lighter than the rated payload capacity, you may be able to set accelerations/decelerations exceeding the rating. If this is the case, the tact time can be reduced, so contact IAI. When contacting IAI, tell us the weight, shape and installation method of your work part and installation condition (horizontal/vertical) of your actuator.

[5] Push force [%]	Set the push torque (current-limiting value) to be used in push-motion operation as a percent (%) value. Increasing the current-limiting value increases the push force. If "0" is set, positioning operation is performed. [For the relationship of push force and current-limiting value, refer to the catalog or the operation manual.
[6] Push band [mm]	Set the travel during push-motion operation. Except for CON method pressing in Fieldbus Type of MSEP Controllers, the actuator moves with the speed and the rated torque set in the parameters for the positioning as it is for the normal positioning operation until the remaining movement amount gets into the area set here. Once it gets in the area, the actuator performs a pressing movement to the position of [1]. The speed during push motion operation is 20 mm/s (when parameter number 7 is set as default). Do not specify the setting exceeding 20 mm/s. When the setting in [2] is less than the push-motion speed, push-motion will be performed at the speed of the setting value.

Position at which the load is contacted and completion of push-motion operation is deemed complete



If CON method pressing in Fieldbus Type of MSEP Controllers is selected, the maximum pressing amount in the pressing operation from the target position is defined in Position Mode. While considering the mechanical inconsistency of the work piece, set the positioning band so the positioning would not end before the work piece gets pressed towards the target.



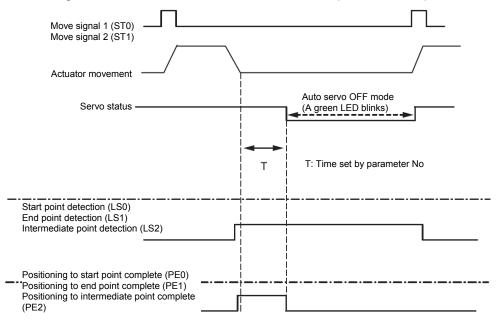


[7] Ecology... When Ecology is enabled, you can have the motor power (servo) turned off automatically upon elapse of a specified period to save power after completion of positioning. Set the applicable period beforehand using a parameter.

Parameter No.	Parameter name	Initial value	Setting range
10	Auto servo OFF delay time [sec]	1	0~9999

[Auto servo OFF]

The servo will turn off automatically upon elapse of a specified period after completion of positioning. When the next positioning command is issued, the servo turns on automatically and positioning is performed. Since no holding current flows while the motor is at standstill, power consumption can be reduced.





[Statuses of position detection output signals when the push function is not used] Even when the servo is turned off, as long as the actuator is positioned within the positioning band (parameter No. 1) the start point detection signal (LS0), end point detection signal (LS1) or intermediate point detection signal (LS2) will turn ON according to the applicable position, just like when a sensor is used. Accordingly, the position detection signal that has turned ON will remain ON after completion of positioning unless the actuator moves.

[Status of position complete signals when the push function is used]

In push-motion operation, the servo does not turn off automatically while the actuator is pushing the work part.

If the actuator has missed the work part, the servo turns off automatically.

Once the servo turns off, a position complete status is lost. Accordingly, the push complete signal 0 (PE0), push complete signal 1 (PE1) and push complete signal 2 (PE2) will all turn OFF regardless of the stop position.

Caution: No holding torque is applied in the auto servo OFF mode. Since the actuator will move in this condition if an external force is applied, pay due attention to contact and safety when setting any operation involving auto servo OFF.

To change the travel speed for operation pattern (PIO pattern) 1, set the position at which to change the speed, and the new speed, in addition to the position data.

Position setting screen	Speed Chg Pos				
Position Data	[8] Change position [mm]	[9] Change speed [mm]			
[0] Forward Position	60.00	30.00			
[1] Backward Position	40.00	30.00			

- [8] Speed Chg Pos --- Set the position at which to switch the speed while the actuator is moving to the forward end position or backward end position.
- [9] Speed Chg Vel --- Set the speed to change to.

To change the position data for operation pattern (PIO pattern) 2, set the new position data for forward end or backward end, in addition to the current position data for forward end position or backward end position.

 If CN1 (Operation switching signal) is OFF, the position data for forward end position becomes [1]: Forward end position.

If the signal is ON, the position data becomes [3]: Forward end position.

 If CN1 (Operation switching signal) is OFF, the position data for backward end position becomes [0]: Backward end position.

If the signal is ON, the position data becomes [2]: Backward end position.

Position Data	Position	Velocity	Accelerate	Decelerate	PushPower	PushBand	Ecology
[0]: Backward Position	0.00	50.00	0.1	0.1	0	0	Valid
[1]: Forward Position	200.00	50.00	0.1	0.1	70	1.00	Valid
[2]: Backward Position	10.00	50.00	0.1	0.1	0	0	Valid
[3]: Forward Position	100.00	50.00	0.1	0.1	60	1.00	Valid



[2] Basic operation

Pos.Edit	Axis No. 00	
Backward Position	1 2 3	
Position	0.00 mm	
Velocity	50.00mm/s	
PushPower	50% Clear	
PushBand	0.10mm	
Accelerate	0.30G	
Decelerate	0.30G Jog	
Energy-saving	ON	
Menu		

Touch the value of the position or other setting item. When the numeric keypad appears, enter a desired value and then touch [ENT].

Touching [0], [1] or [2] switches to the corresponding setting screen for 0 (backward end position), 1 (forward end position) or 2 (intermediate position).

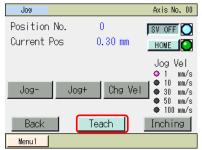
(Note) For the position, set a value meeting the condition "Home ≤ Backward end position ≤ Intermediate position ≤ Forward end position."

Touching [Jog] switches to jog operation.



[Jog operation]

You can acquire position data via jogging operation.



Operation on the jog screen

- [Jog-], [Jog+] :The axis jogs while each button is touched. [Jog-] moves the axis in the negative direction, while [Jog+] moves the axis in the positive direction.
- [SV ON] :Touching [SV ON] while the servo is off turns on the axis servo and O becomes lit. Touching [SV OFF] while the servo is on turns off the axis servo and O becomes unlit.
- [HOME] :Touching [HOME] while home return is not yet completed causes the axis to return home and O becomes lit.
- [Chg Vel] :The jog speed changes in the order of 1, 10, 30, 50 and 100 mm/s every time [Chg Vel] is touched.
- [Inching] :Touching [Inching] changes to the inching screen.

Position acquisition operation

Touch [Teach]. A confirmation screen appears. You can touch $[\uparrow]$ or $[\downarrow]$ to change the position number. Touching [Yes] acquires the current position.





[Inching operation]

You can acquire position data via inching operation.



Operation on the jog screen

- [Inching-], [Inching+] :Touching each button once moves the axis by inching. [Inching-] moves the actuator in the negative direction. [Inching+] moves the actuator in the positive direction.
- [SV ON] :Touching [SV ON] while the servo is off turns on the axis servo and O becomes lit. Touching [SV OFF] when the servo is on turns off the axis servo and O becomes unlit.
- [HOME] :Touching [HOME] while home return is not yet completed causes the axis to return home and O becomes lit.
- [Chg Dis] :The inching distance changes in the order of 0.01, 0.10, 0.50, 1.00 and 5.00 mm every time [Chg Dis] is touched.
- [Jog] :Touching [Jog] changes to the jog screen.

Position acquisition operation

Touch [Teach]. A confirmation screen appears. You can touch $[\uparrow]$ or $[\downarrow]$ to change the position number. Touching [Yes] acquires the current position.





- [3] Examples of position setting operations Respective operations are explained by giving specific examples.
 - Setting of position, speed, acceleration and deceleration An example of operation mode 0 (standard) is explained. Set positions to move the actuator back and forth between 10.0 mm and 100.0 mm.
 Forward end position: 100.0 mm, backward end position: 10.0 mm, back-and-forth speed: 50 mm/sec, back-and-forth acceleration: 0.3 G, back-and-forth deceleration: 0.3 G

No.	Operation	Screen	Remarks
1	On the SEP menu screen: Touch [Pos.Edit].	SEP Menu Axis No. 00 Monitor Pos.Edit Information Initial Set Alarm List Backup Data Change Axis Initial Set	
2	If the password is other than "0000," the password input screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 00000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT	You can set a password for position specification from "Position edit password" on the parameter edit screen.
3	Set the position, acceleration and deceleration relating to the backward end position. Touch [Backward Position].	Pos.Edit Axis No. 00 Backward Position 0.00 mm Velocity 20.00 mm/s Menu	Touch [Menu] to return to the SEP menu screen.
4	Touch the value in Position. The numeric keypad appears. Touch [1] and [0], and touch [ENT].	Pos.Edit Axis No. 00 DBackward Position 0 Position 0.00mm Velocity 20.00mm/S PushBond 0.10mm Accelerate 0.10G Decelerate 0.10G Energy-savine 0% Menu Menu	Touch [Menu] to return to the position setting screen.
5	10.00 is shown in Position.	Pos.Edit Acts No. 00 DBackward Position 0 Position 10.00 mm Velocity 20.00 mm/s PushPower 0% PushBand 0.10 mm Accelerate 0.106 Decelerate 0.106 Energy-saving DW Menu	Touch [Menu] to return to the position setting screen.



No.	Operation	Screen	Remarks
6	Touch the value in Velocity. The numeric keypad appears. Touch [5] and [0], and touch [ENT].	Pos.Edit Axis No. 00 Backward Position 0 Position 1 Position 10.00 mm Velocity 20.00 mm/s) Clear PushBand 0.10 mm Accelerate 0.106 Decelerate 0.106 Energy-saving 00.00 mF	Touch [Menu] to return to the position setting screen.
7	50.00 is shown in Velocity.	Pos.Edit Axis No. 00 Backward Position 0 Position 1 Velocity 50.00 mm/s PushPower 0% PushPand 0.10 mm Accelerate 0.106 Decelerate 0.106 Energy-saving 0M	Touch [Menu] to return to the position setting screen.
8	Touch the value in Accelerate. The numeric keypad appears. Touch [0], [.] and [3], and touch [ENT].	Pos.Edit Axis No. 00 DBackward Position 0 Position 10.00 mm Velocity 50.00 mm/s PushBand 0,10 mm Accelerate 0,10 G Decelerate 0,10 G Energy-saving 0K Menu	Touch [Menu] to return to the position setting screen.
9	0.30 is shown in Accelerate.	Pos.Edit Axis No. 00 DBackward Position 0 Position 10.00 mm Velocity 50.00 mm/s PushBand 0.10 mm Accelerate 0.30 G Decelerate 0.10 G Energy-saving 0N Menu	Touch [Menu] to return to the position setting screen.
10	Touch the value in Decelerate. The numeric keypad appears. Touch [0], [.] and [3], and touch [ENT].	Pos.Edit Axis No. 00 DBackward Position 0 Position 10.00 mm Velocity 50.00 mm/s PushBand 0.10 mm Accelerate 0.30 G Decelerate 0.10 G Understand 0.00 mm	Touch [Menu] to return to the position setting screen.
11	0.30 is shown in Decelerate.	Pos.Edit Axis No. 00 Backward Position 0 Position 10.00 mm Velocity 50.00 mm/s PushBand 0.10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-saving 00.07	Touch [Menu] to return to the position setting screen.



No.	Operation	Screen	Remarks
12	Touch [Menu].	Pos.Edit Axis No. 00 Backward Position 0 Position 10.00 mm Velocity 50.00 mm/s PusPPower 0% PusBand 0.10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-savine 0m Menu Menu	
13	Set the position, acceleration and deceleration relating to the forward end position. Touch [Forward Position].	Pos.Edit Avis No. 10 Backward Position 10.00 mm 10.00 mm 50.00 mm Velocity 50.00 mm/s 120.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.
14	The display switches to the forward end screen. Set the position, acceleration and deceleration relating to the forward end position.	Pos.Edit Axis No. 00 Forward Position 0 Position 50.00mm Velocity 120.00mm/s PushPower 0% PushBand 0.10% Accelerate 0.10G Decelerate 0.10G Energy-savina 00FF	Touch [Menu] to return to the position setting screen.
15	Touch the value in Position. The numeric keypad appears. Touch [1], [0] and [0], and touch [ENT].	Pos.Edit Axis No. 00 Forward Position 0 Position 50.00 mm/s PushPower 0% PushBand 0.10 mm Accelerate 0.10 G Decelerate 0.10 G Energy-savine 0W	Touch [Menu] to return to the position setting screen.
16	100.00 is shown in Position.	Pos.Edit Axis No. 00 Forward Position 0 Position 100.00mm/s Velocity 120.00mm/s PushPower 0% PushBand 0.10mm Accelerate 0.10G Decelerate 0.10G Energy-savine 0M Menu Menu	Touch [Menu] to return to the position setting screen.
17	Touch the value in Velocity. The numeric keypad appears. Touch [5] and [0], and touch [ENT].	Pos.Edit Axis No. 00 Forward Position 0 Position 100.00mm Velocity 120.00mm/s PusPPower 0% PusPBand 0.10mm Accelerate 0.10G Decelerate 0.10G Energy-savine 00FF	Touch [Menu] to return to the position setting screen.
18	50.00 is shown in Velocity.	Pos.Edit Axis No. 00 Forward Position 0 Position 100.00mm/s Velocity 120.00mm/s PushPower 0% PushBand 0.10mm Accelerate 0.10G Decelerate 0.10G Energy-saving 0% Menu	Touch [Menu] to return to the position setting screen.



No.	Operation	Screen	Remarks
19	Touch the value in Accelerate. The numeric keypad appears. Touch [0], [.] and [3], and touch [ENT].	Pos.Edit Axis No. 00 Forward Position 0 1 Position 100.00 mm Velocity 50.00 mm/s PushPower 0% Accelerate 0.10 G Decelerate 0.10 G Energy-saving 0% 0FF	Touch [Menu] to return to the position setting screen.
20	0.30 is shown in Accelerate.	Pos.Edit Axis No. 00 Forward Position 0 1 Position 100.00 mm 100.00 mm/s PushPower 0% 0% PushPower 0% 0% Decelerate 0.30 G Jog Energy-saving 0% 0%	Touch [Menu] to return to the position setting screen.
21	Touch the value in Decelerate. The numeric keypad appears. Touch [0], [.] and [3], and touch [ENT].	Pos.Edit Axis No. 00 Forward Position 0 Position 100.00 mm Velocity 50.00 mm/s PushBond 0,10 mm Accelerate 0,30 G Decelerate 0,10 G Energy-saving 00 Menu	Touch [Menu] to return to the position setting screen.
22	0.30 is shown in Decelerate.	Pos.Edit Axis No. 00 Forward Position 0 Position 100.00 mm Velocity 50.00 mm/s PushRower 0% PushRower 0% Accelerate 0.30 G Decelerate 0.30 G Energy-saving 0N Menu 0N	Touch [Menu] to return to the position setting screen.
23	Touch [Menu].	Pos.Edit Axis No. 00 Forward Position 0 Position 100 PushPower 0% PushBand 0,10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-saving 0N	Touch [Menu] to return to the position setting screen.
24		Pos.Edit Axis No. 00 Backward Position IForward Position 10.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 50.00 mm/s	Touch [Menu] to return to the SEP menu screen.

ROBO CYLINDER ——

2) Direct teaching (Manually move the slider to the target position and then acquire the achieved position (current position) as the forward end position or backward end position)
 An example of operation mode 0 (standard movement between 2 points) is explained.
 How to acquire the current position, or 50.0 mm, as the backward end position is explained.

No.	Operation	Screen	Remarks
1	On the SEP menu screen: Touch [Pos.Edit].	SEP Menu Axis No. 00 Monitor Pos.Edit Information Initial Set Alarm List Backup Data Change Axis Initial Set	
2	If the password is other than "0000," the password input screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 00000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	You can set a password for position setting from "Position edit password" on the parameter edit screen.
3	Set the position, acceleration and deceleration relating to the backward end position. Touch [Backward Position].	Proc.Edit Axis No. 00 IBackward Position IForward Position 0.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.
4	Touch [Jog].	Pos.Edit Axis No. 00 Backward Position 0 Position 0.00mm Velocity 50.00mm/s PushPower 0% PushBand 0.10mm Accelerate 0.306 Decelerate 0.306 Energy-saving 0mm	Touch [Menu] to return to the position setting screen. * Perform home return if not already completed.
5	If the servo is ON, touch [SV OFF] to turn off the servo.	Jog Axis No. 00 Position No. 000 Current Pos 0.00 mm Jog- Jog+ Chg Vel 91 mm/s 91 mm/s 91 mm/s 92 mm/s 91 mm/s 93 mm/s 91 mm/s 94 mm/s 91 mm/s 95 mm/s 91 mm/s 91 mm/s 91 mm/s	
6	Manually move the slider or rod to the target position of 50.0 mm. Touch [Teach].	Jos Axis No. 00 Position No. 000 Current Pos 50.00 mm Jog Vel Imm/s Jog- Jog+ Chg Vel 10 mm/s Strings 100 mm/s Back Teach Menul Menul	



No.	Operation	Screen	Remarks
7	Touch [Yes].	Confirm Axis No. 00 Position No. 000 Target Pos 0.00 mm Ourrent Pos 50.00 mm Do you want to teach current position? Yes No	
8	Touch [Menu].	Jog Akis No. 00 Position No. 000 Current Pos 50.00 mm Jog Vel Jog-Jog+ Chg Vel Back Teach Inching Menul	
9	50.00 is shown in Position. It is now confirmed that the position data has been acquired.	Pos.Edit Axis No. 00 Backward Position 0 Position 50.00 mm/ Velocity 50.00 mm/s PushPower 0% PushBand 0.10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-saving 0M	Touch [Menu] to return to the position setting screen.
10	Touch [Menu].	Pos.Edit Axis No. 00 DBackward Position 0 Position 50.00mm Velocity 50.00mm/s PushBand 0.10mm Accelerate 0.30G Decelerate 0.30G Energy-savine 0m Menu Menu	Touch [Menu] to return to the position setting screen.
11		Pos.Edit Axis No. 00 0]Backward Position 1]Forward Position 50.00 mm 100.00 mm Velocity 50.00 mm/s 120.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.

ROBO CYLINDER

 Jog (Use the arrow keys [Jog-] and [Jog+] to jog the actuator to the target position and then acquire the achieved position (current position) as the forward end position or backward end position). An example of operation mode 0 (standard movement between 2 points) is explained. How to acquire the current position, or 80.0 mm, as the backward end position is explained.

No.	Operation	Screen	Remarks
1	Touch [Pos. Edit] on the SEP menu screen.	SEP Menu Axis No. 00 Monitor Pos.Edit Information Initial Set Alarm List Backup Data Change Axis Initial Set	
2	If the password is other than "0000," the password input screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	You can set a password for position setting from "Position edit password" on the parameter edit screen.
3	Set the position, acceleration and deceleration relating to the backward end position. Touch [Backward Position].	Pos.Edit Akis No. 00 Backward Position Forward Position 0.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.
4	Touch [Jog].	Pos.Edit Axis No. 00 Backward Position 0 1 Position 0.00mm/s Velocity 50.00mm/s PushPower 0% PushBand 0.10mm Accelerate 0.306 Decelerate 0.306 Energy-saving 0	Touch [Menu] to return to the position setting screen. * Perform home return if not already completed.
5	If the servo is off, touch [SV ON] to turn on the servo.	Jog Akis No. 00 Position No. 000 Current Pos 0.00 mm Jog- Jog+ Jog- Jog+ Back Teach Inching Merul	
6	Touch [Chg Vel] to set a desired jog speed.	Joa Akis No. 00 Position No. 000 Current Pos 0.00 mm Jog Vel Jog- Jog+ Chg Vel 0 mm/s 610 mm/s 610 mm/s 100 m	



No.		Screen	Remarks
7	Operation Use [Jog-] and [Jog+] to move the slider or rod to the target position of 80.0 mm.	Jog Axis No. 00 Position No. 0 SV OFF C Current Pos 80.00 mm Howe C	
		Jog Vel Jog Jog+ Chg Vel 50 mm/s 50 mm/s 100 mm/s 100 mm/s 100 mm/s 100 mm/s 100 mm/s 100 mm/s	
8	Touch [Teach].	Jog Axis No. 00 Position No. 0 Current Pos 80.00 mm Jog Vel Jog 1 mm/s Jog 00 m/s Jog 00 m/s Jog 10 mm/s Back Teach Menul Inching	
9	Touch [Yes].	Confirm Axis No. 00 Position No. 000 Target Pos 0.00 mm Current Pos 80.00 mm Do you want to teach current position? Yes No	
10	Touch [Menu].	Jog Axis No. 00 Position No. 000 Current Pos 50.00 mm Jog Vel Jog-Jog+ Chg Vel 10 mm/s 50 mm/s 10 mm/s 10 mm/s 10 mm/s 10 mm/s 10 mm/s 10 mm/s	
11	80.00 is shown in Position. It is now confirmed that the position data has been acquired.	Pos.Edit Axis No. 00 Backward Position 0 Position 80.00 mm Velocity 50.00 mm/s PushPower 0% PushBand 0.10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-saving 0N Menu	Touch [Menu] to return to the position setting screen.
12	Touch [Menu].	Pos.Edit Avis No. 00 Backward Position 0 Position 80.00 mm Velocity 50.00 mm/s PushPower 0% PushBand 0,10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-savine 0% Menu 0	Touch [Menu] to return to the position setting screen.
13		Pos.Edit Axis No. 00 OBackward Position Forward Position 80.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.



4) Inching (Use the arrow keys [Inching-] and [Inching+] to inch the actuator to the target position and then acquire the achieved position (current position) as the forward end position or backward end position). An example of operation mode 0 (standard movement between 2 points) is explained. How to acquire the current position, or 30.0 mm, as the backward end position is explained.

No.	Operation	Screen	Remarks
1	On the SEP menu screen: Touch [Pos.Edit].	BEP Menu Akis No. 00 Monitor Pos.Edit Information Initial Set Alarm List Backup Data Change Axis Initial Set	
2	If the password is other than "0000," the password input screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	You can set a password for position setting from "Position edit password" on the parameter edit screen.
3	Set the position, acceleration and deceleration relating to the backward end position. Touch [Backward Position].	Pos.Edit Axis No. 00 dBackward Position TForward Position 0.00 mm 100.00 mm Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.
4	Touch [Jog].	Pos.Edit Axis No. 00 Backward Position 0 Position 0.00 mm Velocity 50.00 mm/s PushPower 0% PushBand 0.10 mm Accelerate 0.306 Decelerate 0.306 Decelerate 0.306 Inergy-saving 0N	Touch [Menu] to return to the position setting screen. * Perform home return if not already completed.
5	If the servo is off, touch [SV ON] to turn on the servo.	Jos Akis No. 00 Position No. 000 Current Pos 0.00 mm Jog Jog Vel Jog 0 mm/s Jog 0 mm/s Back Teach Menul Inching	
6	Touch [Inching]. The display switches to the inching screen.	Jog Axis No. 00 Position No. 000 Current Pos 0.00 mm Jog Jog Vel Jog 0 mm/s Jog 0 mm/s Jog 10 mm/s Back Teach Menul Inching	Touch [Menu] to return to the itemized position setting screen.



No.	Operation	Screen	Remarks
7	Touch [Chg Dis] and set a desired inching distance.	Inchine Axis No. 00 Position No. 000 USV OFF ○ Current Pos 0.00 mm HOME ○ Inching= Inching= Offer ○ Inching= Inching= ○ ○ ○ Back Teach Jog 0 0	
8	Use [Inching-] and [Inching+] to move the slider or rod to the target position of 30.0 mm.	Inching Akis No. 00 Position No. 000 Current Pos 0.30 mm Home 0 Dis Inc 0.01 mm Inching Inching+ Chg Dis 0.03 mm Back Teach Werul Jog	
9	Touch [Teach].	Inchine Akis No. 00 Position No. 000 Current Pos 0.30 mm Home 0 Inching- Inching+ Cheg Dis 0.10 mm 0.10 mm 0.10 mm 0.10 mm 0.10 mm Back Teach Menul Jog	
10	Touch [Yes].	Confirm Axis No. 00 Position No. 000 Target Pos 0.00 mm Current Pos 30.00 mm Do you want to teach current position? Yes No	
11	Touch [Menu].	Inchine Axis No. 00 Position No. 000 EV OFF 0 Current Pos 0.30 mm Bis Inc 0.01 mm Inching- Inching+ Chg Dis 0.10 mm Inching- Inching+ Chg Dis 0.10 mm Back Teach Jog Menul Menul Menul	
12	30.00 is shown in Position. It is now confirmed that the position data has been acquired.	Postait Axis No. 00 Backward Position 0 Position 30.00mm Velocity 50.00mm/s PustPower 0% PustBand 0.10mm Accelerate 0.306 Decelerate 0.306 Enercy-saving 00	Touch [Menu] to return to the position setting screen.
13	Touch [Menu].	Pos.Edit Axis No. 00 Backward Position 0 Position 30,00 mm Velocity 50,00 mm/s PushBand 0.10 mm Accelerate 0.30 G Decelerate 0.30 G Eneray-savine 00	Touch [Menu] to return to the position setting screen.



No.	Operation	Screen	Remarks
14		Pos.Edit Axis No. 00 Backward Position Forward Position 30.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.



5) Setting of push-motion operation (push power, push band)
An example of operation mode 0 (standard movement between 2 points) is explained.
An example of push-motion operation at the backward end is explained.
Push power: 50%, push band: 5.0 mm

No.	Operation	Screen	Remarks
1	On the SEP menu screen: Touch [Pos.Edit].	SEP Menu Axis No. 00 Monitor Pos.Edit Information Initial Set Alarm List Backup Data Change Axis Initial Set	
2	If the password is other than "0000," the password input screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	You can set a password for position setting from "Position edit password" on the parameter edit screen.
3	Set the position, acceleration and deceleration relating to the backward end position. Touch [Backward Position].	Pos.Edit Akis No. 00 Backward Position 0.00 mm Velocity 50.00 mm/s Menu	Touch [Menu] to return to the SEP menu screen.
4	Touch the value in [PushPower]. The numeric keypad appears. Touch [5] and [0], and touch [ENT].	Pos.Edit Axis No. 00 Backward Position 0 Position 0.00mm/s Velocity 50.00mm/s PushPower 0% PushBand 0.10mm Accelerate 0.30 G Decelerate 0.30 G Energy-saving 0%	Touch [Menu] to return to the position setting screen.
5	50 is shown in PushPower.	Pos.Edit Axis No. 00 DBackward Position 0 Position 0.00mm Velocity 50.00mm/s PushPand 0.10mm Accelerate 0.30 G Decelerate 0.30 G Energy-saving 00	Touch [Menu] to return to the position setting screen.
6	Touch the value in [PushBand]. The numeric keypad appears. Touch [5], and touch [ENT].	Pos.Edit Axis No. 00 Backward Position 0 Position 0.00mm Velocity 50.00mm/s PushPand 0.10mm Accelerate 0.30G Decelerate 0.30G Energy-saving 00	Touch [Menu] to return to the position setting screen.



No.	Operation	Screen	Remarks
7	5.00 is shown in Push Band.	Pos.Edit Axis No. 00 Backward Position 0 Position 0.00mm Velocity 50.00mm/s PushPower 50% PushBand 5.00mm Accelerate 0.30G Decelerate 0.30G Energy-saving ON Menu	Touch [Menu] to return to the position setting screen.
8	Touch [Menu].	Pos.Edit Axis No. 00 Backward Position 0 Position 0.00mm Velocity 50.00mm/s PushPower 50% PushPand 5.00mm Accelerate 0.30G Decelerate 0.30G Energy-saving DN	Touch [Menu] to return to the position setting screen.
9		Pos.Edit Axis No. 00 Backward Position Forward Position 0.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.



6) Setting of ecology function (automatic servo OFF function) An example of operation mode 0 (standard) is explained. How to turn off the servo automatically 5.0 seconds after stopping is explained.

No.	Operation	Screen	Remarks
1	On the SEP menu screen: Touch [Initial Set].	SEP Menu Axis No. 00 Monitor Pos.Edit Information Initial Set Alarm List Backup Data Change Axis Initial Set	
2	Set a desired automatic servo OFF delay time. Touch [Parameter].	Initial Set Axis No. 00 I/O set Parameter Test EnvironmentSet Menu	
3	Input a password.	Init.Set Akis No. 00 Please input a password. 00000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	The password is "5119" (default setting).
4	Touch [Edit Parameter].	Parameter Menu Axis No. 00 Edit Parameter Axis No. Set Init Parameter System Password Menu	
5	Touch $[\uparrow]$ and $[\downarrow]$ to navigate through the screens until the one for setting the automatic servo OFF delay time is displayed.	Edit Parameter Axis No. 00 1. Position band 0. 10 mm 2. Jos speed 100. 00 mm/sec 3. Servo sain selection 6 4. Torsue filter constant 0 5. Seed loop integral gain 548 6. Seed loop integral gain 548 7. Push seed 20. 00 mm/sec 9. Dack reconition time 255 mac 1 Specify No Menu 400	
6	Touch the value of automatic servo OFF delay time. The numeric keypad appears. Touch [5], and touch [ENT].	Edit Parameter Axis No. 00 9. Pushing fails current Push Cur 10. Auto servo OFF delay time 1 sec 11. Stop mode 1 sec 12. Default positioning cur limit 1 sec 13. Default home current limit 1 40 g 14. Pos. Execution - Wait 0.010 sec 15. Soft limit 30.00 16. Home offset 1.20 1 Specify No Menu 1	



No.	Operation	Screen	Remarks
7	5 is shown.	Edit Parameter Axis No. 00 8. Pushina fails current Push Cur 10. Auto servo OFF delay time 5 sec 11. Stop mode 12. Default positioning cur limit 13. Default home current limit 1 40 % 14. Hone, Execution - Wait 0.010 sec 15. Soft limit 80.00 16. Home offset 1.20	
8	Touch [Menu].	Edit Parameter Axis No. 00 9. Pushina fails current Push Cur Stor Cur 10. Auto servo OFF delay time 5 sec 11. Stor mode 1 12. Default positioning cur limit 140 % 14. Pos. Execution - Wait 0.010 sec 15. Soft limit 1.20 16. Home offset 1.20	
9	Touch [Yes].	Soft Reset Axis No. 00 Do you want to restart the control ler? Yes No	Touch [No], and the new setting will not be reflected in the controller until the power is reconnected.
10		Soft Reset Axis No. 00 Restarting the controller. Please wait a minute.	
11	The controller is restarted and the SEP menu screen will appear. Touch [Pos.Edit].	SEP Menu Axis No. 00 Monitor Pos.Edit Information Initial Set Alarm List Backup Data Change Axis	
12	If the password is other than "0000," the password input screen appears. Input a password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Meru	You can set a password for position setting with the "Position edit password" parameter on the parameter edit screen.
13	Set the ecology function at the backward end position. Touch [Backward Position].	Box Filt Axis No. 00 Backward Position Forward Position 0.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.



No.	Operation	Screen	Remarks
14	Touch [ON].	Pos.Edit Axis No. 00 Backward Position 0 Position 0.00mm Velocity 50.00mm/s PushPand 0.10mm Accelerate 0.30G Decelerate 0.30G Enersy-saving 0N Menu	Touch [Menu] to return to the position setting screen.
15	Touch [Menu].	Pos.Edit Axis No. 00 @Backward Position Forward Position 0.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the position setting screen.
16	Set the ecology function at the forward end position. Touch [Forward Position].	Pos.Edit Avia.No. M DBackward Position IForward Position 0.00 mm 100.00 mm Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.
17	The display switches to the forward end screen. Set the ecology function related to the forward end position.	Pos.Edit Axis No. 00 Backward Position 1 Position 100,00mm Velocity 120,00mm/s PushPower 0% PushPower 0% PushPand 0.10mm Accelerate 0.30G Decelerate 0.30G Energy-saving 0N	Touch [Menu] to return to the position setting screen.
18	Touch [ON].	Pos.Edit Axis No. 00 Backward Position 1 0 Position 100.00mm Velocity 120.00mm/s PushPower 0% PushBand 0.10mm Accelerate 0.30G Decelerate 0.20G Energy-saving 0N	Touch [Menu] to return to the position setting screen.
19	Touch [Menu].	Pos.Edit Axis No. 00 Backward Position 1 0 Position 100.00mm 0 Velocity 120.00mm/s Clear PushPand 0.10mm Accelerate 0.30G Decelerate 0.30G Jog Energy-saving DN DFF	Touch [Menu] to return to the position setting screen.
20		Pos.Edit Axis No. 00 DBackward Position DForward Position 0.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 120.00 mm/s	Touch [Menu] to return to the SEP menu screen.

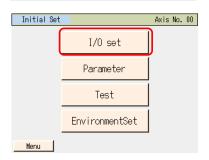
ROBOCYLINDER

6.11 I/O Setting (Setting of Operation Parameters, Etc.)

You can select an operation pattern (PIO pattern) (0 to 5), set an operation mode (single solenoid, double solenoid), etc.

SEP Menu	Axis No. 00
Monitor	Pos.Edit
Information	Initial Set
Alarm List	Backup Data
Change Axis	

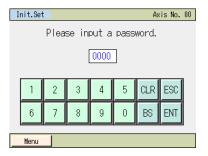
Touch [Initial Set] on the SEP menu screen.



Touch [I/O set]

Touch [Menu] to return to the SEP menu screen.

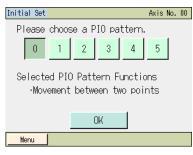
The password entry screen appears before the initial setting screen.



Enter a password value from the numeric keypad, and then touch [ENT].

The password is "5119" (default setting).

If the correct password has been entered, the display changes to the screen for setting the operation pattern.



Select and touch one of operation patterns [0] to [5], and then touch [OK].

(Note) If connected to Fieldbus Type in MSEP Controllers, [6] (Positioner Mode) is shown.

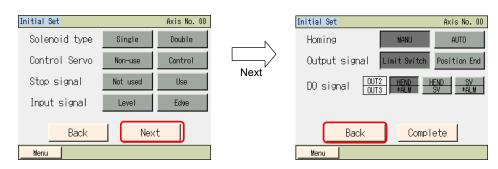
If selecting [6], it is not necessary to have an operation for the initial setting.

The operation is complete.

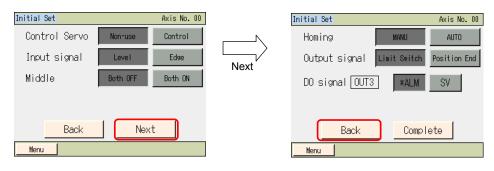


The screen corresponding to the selected operation pattern appears.

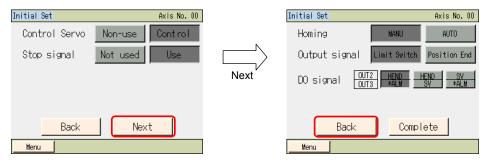
Operation pattern 0 (standard movement between 2 points), operation pattern 1 (change travel speed), operation pattern 2 (change position data)



Operation pattern 3 (movement by 2 inputs among 3 points), operation pattern 4 (movement by 3 inputs among 3 points)



Operation pattern 5 (continuous back-and-forth operation)



The items that can be set vary with each operation mode.

Touch [Back] to return to the operation pattern screen.



Setting item									
Operation pattern	Operation mode	Intermediate position Movement method	Double solenoid type	Pause Signal *STP	Control Servo SON	OUT2, OUT3	OUT3	Home return	DO signal
operation patient	Single solenoid/ double solenoid	Both OFF/ Both ON	Level/ Edge	Not used/ Use	Non-use/ Control	HEND,*ALM/ SV,*ALM/ HEND,SV	*ALM/ SV	MANU/ AUTO	Limit switch LS/ Positioning PE
PIO pattern 0 Standard movement between 2 points	0		Double solenoid is selected O	Single solenoid is selected O	0	0		0	0
PIO pattern 1 Change travel speed	0		Double solenoid is selected O	Single solenoid is selected O	0	0		0	0
PIO pattern 2 Position data change	0		Double solenoid is selected O	Single solenoid is selected O	0	0		0	0
PIO pattern 3 Movement by 2 inputs among 3 points		0			0		0	0	0
PIO pattern 4 Movement by 3 inputs among 3 points			0		0		0	0	0
PIO pattern 5 Continuous back-and- forth operation				0	0	0		0	0

For details on each setting item, refer to the operation manual for your "ASEP/PSEP/DSEP controller Operation Manual", "MSEP controller Operation Manual".



Operation pattern Equivalent air cylinder circuits are shown for your reference.

			cuits are shown for your refere
Operation pattern	Description	Motorized cylinder connection method	Air cylinder circuit (reference)
PIO pattern 0 Single solenoid type (Standard movement between 2 points)	The actuator can be moved between two points using the same control you normally use with an air cylinder. The target position (forward end, backward end) can be set. The travel speed and acceleration/deceleration can be specified. Push-motion operation can also be performed.	Motorized cylinder	Air cylinder PLC Backward end position detection signal (LS1) detection signal (LS1) Movement signal RT R2 PLC PLC Backward end signal (LS1) Movement signal R1 PLC PLC PLC PLC PLC PLC PLC PLC
PIO pattern 0 Double solenoid type (Standard movement between 2 points)		Motorized cylinder	Air cylinder PLC Backward end signal (LS0) Edection signal (LS1) Movement signal (S10) RT P2 RT P2 P (Air)
PIO pattern 1 Single solenoid type (Movement between 2 points) (Change travel speed)	The actuator can be moved between two points using the same control you normally use with an air cylinder. The speed can be changed during movement. The target position (forward end, backward end) can be set. The travel speed and acceleration/deceleration can be specified. Push-motion operation can also be performed.	PLC PLC Backward end Signal (LS1) Movement signal (ST0) Travel speed switching signal (SPDC)	Air cylinder PLC Backward end position detection isignal (LS0) Forward end position detection signal (LS1) Movement signal (LS0) Travel speed switching RT PC P (Air)
PIO pattern 1 Double solenoid type (Movement between 2 points) (Change travel speed)		Motorized cylinder	PLC Backward end position detection ignal (LS0) Forward end position detection signal (LS1) Forward end Backward end movement signal (ST0) Travel speed switching signal (SPDC)

(Note) The air cylinder circuits are drawn with signal symbols corresponding to those used by ASEP/PSEP/DSEP/MSEP controllers.

For details on signal symbols, refer to your "ASEP/PSEP/DSEP Operation Manual", "MSEP controller Operation Manual".



		Equivalent air cylinder cir	cuits are shown for your refere
Operation pattern	Description	Motorized cylinder connection method	Air cylinder circuit (reference)
PIO pattern 2 Single solenoid type (Movement between two points) (Position data change)	The actuator can be moved between two points using the same control you normally use with an air cylinder. You can switch between positioning operation and push- motion operation during operation. The target position (forward end, backward end) can be set. The travel speed and acceleration/deceleration can be	PLC Psice and position Forward end position Getection signal (LS1) Movement signal (LS1) Movement signal (LS1) Movemen	PLC PLC PLC P(Ai) Backward end position detection signal (LS0) Movement signal (S10) Target position total and total
PIO pattern 2 Double solenoid type (Movement between two points) (Position data change)	specified. Push-motion operation can also be performed.	PLC PLC Backward end Signal (LS1) detection signal (LS1) Movement signal (S1) Backward end movement signal (S1) Target position witching signal (CN1)	PLC PLC PLC Packward end position detection signal (LS0) P (Ain P (Ain) P (Ain P (Ain P (Ain P (Ain P (Ain) P (Ain P (Ain P (Ain) P (Ain P (Ain) P (Ain P (Ain) P (Ain P (Ain) P (Ain P (Ain) P (Ain P (Ain) P (Ain) P (Ain P (Ain) P (Ain) P (Ain) P (Ain) P (Ain P (Ain) P (Ain)
PIO pattern 3 Single solenoid type (Movement by 2 inputs among 3 points)	The actuator can be moved among three points using the same control you normally use with an air cylinder. The target position (forward end, backward end) can be set. The travel speed and acceleration/deceleration can be specified. Push-motion operation can also be performed.	PLC PLC Backward end position detection signal (LS1) Movement signal (LS2) Movement si	PLC Backward end position detection signal (LSD) Midway position detection signal (LS2) Movement signal 1 (ST0) Movement signal 2 (ST1) Pr(Air) Pr(Air)
PIO pattern 4 Double solenoid type (Movement by 3 inputs among 3 points)	The actuator can be moved among three points using the same control you normally use with an air cylinder. The target position (forward end, backward end) can be set. The travel speed and acceleration/deceleration can be specified. Push-motion operation can also be performed.	PLC Backward end position detection signal (LS1) Midway position detection signal (LS2) Midway position detection signal (LS2) Midway position Backward end movement signal (ST0) Backward end movement signal (ST0)	PLC Air cylinder Backward end position detection signal (S1) Midway position detection signal (S2) Midway position detection signal (S1) Poward end movement signal (S1) Backward end movement signal (S1) P (Air) P (Air)
PIO pattern 5 (Continuous back-and- forth operation)	The actuator moves back and forth between the two points of forward end and backward end. The target position (forward end, backward end) can be set. The travel speed and acceleration/deceleration can be specified. Push-motion operation can also be performed.	th signal symbols correspond	

Operation pattern **F**~...:

evlinder circuits are shown for your reference.

(Note) The air cylinder circuits are drawn with signal symbols corresponding to those used by ASEP/PSEP/DSEP/MSEP controllers. For details on signal symbols, refer to your "ASEP/PSEP/DSEP Operation Manual", "MSEP controller Operation Manual".



[1] Types of I/O setting (setting of operation parameters, etc.)

[Operation mode]

Select either the single-solenoid operation mode or double-solenoid operation mode.

[Intermediate move method]

Select whether to move to the intermediate position with both ST0 and ST1 turned ON, or OFF, when operation pattern 3 is set.

[Double solenoid type]

Select either Level or Edge as the condition for turning the double solenoids ON when the double-solenoid type operation mode and operation pattern 4 are set.

[Pause signal *STP]

Select whether to use or not use the pause signal *STP (input to IN2) when the single-solenoid type operation mode and operation pattern 5 are set.

[Servo control SON]

Select whether to use or not use the servo control (IN3 input signal SON (servo ON/OFF control)).

[Output signal selection, operation pattern 0, 1, 2, 5]

When operation pattern 0, 1, 2 or 5 is set, set the OUT2 and OUT3 output signals if you have selected to use the servo control.

Select from the three patterns shown in the table.

	Selection 1	Selection 2	Selection 3
OUT2	HEND	SV	HEND
	(home return complete signal)	(servo ON output signal)	(home return complete signal)
OUT3	*ALM	*ALM	SV
	(alarm output signal)	(alarm output signal)	(servo ON output signal)

[Output signal selection operation pattern 3, 4]

When operation pattern 3 or 4 is set, set the OUT3 output signal if you have selected to use the servo control.

* Select either ALM (alarm status signal) or SV (servo ON status signal).

[Home return operation]

Select a home return method.

- AUTO: Home return starts when the power is turned on.
- MANU: Home return starts when the first ST0 signal is input following the power on.

[Output signal]

Select the output signal to turn ON when the actuator moves and positioning is completed. Select either Limit Switch (LS) or Position End (PE).



[2] Basic operation

The setting method is explained using an example of operation pattern 0.

Initial Set Axis No. 00 Please choose a PIO pattern. 0 1 2 3 4 5 Selected PIO Pattern Functions •Movement between two points	Touch [0] and touch [OK]. Touch [Menu] to return to the initial setting menu screen.
OK	
Menu	
Initial Set Axis No. 00	
Solenoid type Single Double	Touch [Menu] to return to the initial setting menu screen.
Control Servo Non-use Control	
Stop signal Not used Use	
Input signal Level Edge	
Back Next	
Menu	
Initial Set Axis No. 00	
Solenoid type Single Double	
Control Servo Non-use Control	Select and touch either [Single] or [Double].
Stop signal Not used Use	
Input signal Level Edge	
Back	
Menu	

Hereafter, set one by one the items denoted by a O in the table of setting items (P. 146). When all items on this screen have been set, touch [Next].



Initial Set Axis No. 00 Homing MANU AUTO Output signal Limit Switch Position End D0 signal OUT2 HEND SV Back Complete Menu	When the setting is complete, touch [Complete]. Touch [Back] to return to the operation pattern selection screen. All settings you have made under the selected operation pattern become invalid.
Confirm Axis No. 00 Transmit Settings to Controller? Yes No	Touch [Yes]. Touch [No] to return to the initial setting screen. All settings you have made under the selected operation pattern become invalid.
Menu Soft Reset Axis No. 00 Do you want to restart the controller? Yes No	Touch [Yes]. The controller is restarted. The controller operates according to the operation pattern settings you have made. The display returns to the SEP menu screen.
Soft Reset Axis No. 00 Restarting the controller. Please wait a minute.	Touch [No], and the controller will not operate according to the operation pattern settings you have made until restarted.



[3] Examples of I/O setting operations Respective operations are explained by giving specific examples.

Example of operation mode 0 (standard movement between 2 points) Set as follows:

Operation mode	Single solenoid
Use of pause command (*STP)	Not used
Control Servo	Control
OUT2, OUT3 output signals	OUT2 HEND, OUT3 *ALM
Home	AUTO (start home return upon power on)
DO signal	LS0 (backward end position detection), LS1 (forward end position detection)

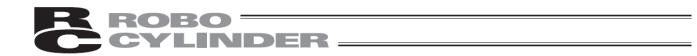
No.	Operation	Screen	Remarks
1	On the SEP menu screen: Touch [Initial Set].	SEP Menu Axis No. 00 Monitor Pos.Edit Information Initial Set Alarm List Backup Data Change Axis Initial Set	
2	Touch [I/O set].	Initial Set Axis No. 00 I/O set Parameter Test EnvironmentSet Menu	Touch [Menu] to return to the SEP menu screen.
3	Input a password.	Init.Set Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT	The password is "5119" (default setting).
4	Touch [0] and touch [OK]. Operation pattern 0 is selected.	Initial Set Axis No. 00 Please choose a PIO pattern. 0 1 2 3 4 5 Selected PIO Pattern Functions -Movement between two points 0K Menu	Touch [Menu] to return to the initial setting menu screen.
5		Initial Set Axis No. 00 Solenoid type Single Double Control Servo Non-use Control Stop signal Not used Use Input signal Level Edge Back Next	Touch [Menu] to return to the initial setting menu screen.



No.	Operation	Screen	Remarks
6	Touch [Single]. The single-solenoid operation mode is selected.	Initial Set Axis No. 00 Solenoid type Single Double Control Servo Non-use Control Stop signal Not used Use Input signal Level Edge Back Next	Touch [Menu] to return to the initial setting menu screen.
7	Touch [Control]. Servo control is selected.	Menu Initial Set Axis No. 00 Solenoid type Simale Control Servo Non-use Control Stop signal Not used Use Input signal Level Edge Back Menu Menu	Touch [Menu] to return to the initial setting menu screen.
8	Touch [Not used]. Non-use of pause command (*STP) is selected.	Initial Set Axis No. 00 Solenoid type Single Double Control Servo Non-use Control Stop signal Not used Use Input signal Level Edge Back Next	Touch [Menu] to return to the initial setting menu screen.
9	Touch [Next].	Initial Set Axis No. 00 Solenoid type Single Double Control Servo Non-use Control Stop signal Not used Use Input signal Level Edge Back Next Weru Weru	
10	Touch [AUTO]. AUTO home return is selected.	Initial Set Axis No. 00 Homing MANU Output signal Limit Switch D0 signal OUT2 HEND SV SV SV Back Complete Menu Menu	Touch [Menu] to return to the initial setting menu screen.
11	Touch [LimitSwitch]. LS0 (backward end position detection) and LS1 (forward end position detection) are selected as the output signals.	Initial Set Axis No. 00 Homing MANU Output signal Limit Switch D0 signal OUTS HEND SV Back Complete Meru Meru	Touch [Menu] to return to the initial setting menu screen.
12	Touch [HEND*ALM]. HEND and *ALM are selected as the OUT2 and OUT3 outputs.	Initial Set Axis No. 00 Homing MANU Output signal Limit Switch D0 signal OUT2 HEND SV Back Complete Menu Menu	Touch [Menu] to return to the initial setting menu screen.



No.	Operation	Screen	Remarks
13	Touch [Complete].	Initial Set Axis No. 00 Homing MANU AUTO Output signal Limit Switch Position End D0 signal OUTS HEND SV Back Complete Menu	Touch [Back] to return to the operation pattern selection screen. Touch [Menu] to return to the initial setting menu screen.
14	Touch [Yes].	Confirm Axis No. 00 Transmit Settings to Controller? Yes No Menu	
15	Touch [Yes].	Soft Reset Axis No. 00 Do you want to restart the control ler? Yes No	The controller does not operate according to the operation pattern settings you have made until restarted.
16		Soft Reset Axis No. 00 Restarting the controller. Please wait a minute.	
17		SEP Menu Axis No. 00 Monitor Pos.Edit Information Initial Set Alarm List Backup Data Change Axis Initial Set	After the controller has restarted, the display switches to the SEP menu screen.

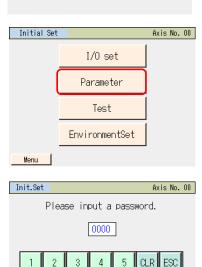


6.12 Parameters (Parameter Editing, Axis Number Setting, Parameter Initialization to Factory Default Settings, System Password)

Parameters and axis number are set. You can change the system password or reset the parameters to their factory default settings.

SEP Menu	Axis No. 00
Monitor	Pos.Edit
Information	Initial Set
Alarm List	Backup Data
Change Axis	

Touch [Initial Set] on the SEP menu screen.



9 0

Edit Parameter

Axis No. Set Init Parameter System Password BS ENT

Axis No. 00

7 8

6

Menu

Parameter Menu

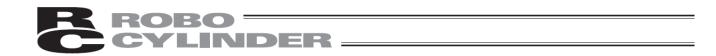
Menu

Touch [Parameter].

Enter a password value from the numeric keypad, and then touch [ENT].

The password is "5119" (default setting).

Select and touch [Edit Parameter], [Axis No. Set], [Init. Parameter] or [System Password].



The screen corresponding to the selected menu item appears.

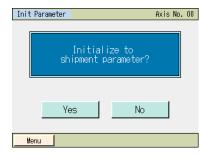
• Edit Parameter: Set 36 types of parameters.

Edit Parameter	Axis No. 00	
1. Position band	0.10 _{mm}	
2. Jog speed	100.00mm/sec	
3. Servo gain selection	6	
4. Torque filter constant	0	
5. Speed loop proportional gain	546	
6. Speed loop integral gain	4453	
7. Push speed	20.00mm/sec	
8. Push recognition time	255 msec	
↑ Specify No	\downarrow	
Menu		

• Axis No. Set: Set the axis number.

AxisNo. Set		Axis	No.	00
• Axis No.			0	
	Execute			
Menu				

• Init Parameter: You can reset the parameters to their factory settings (initialize the parameters).



• Change System Password: You can change the password for parameter editing.





[1] Types of parameter editing

For details on each parameter, refer to the operation manual for your ASEP/PSEP/DSEP controller or MSEP controller.

(Default positioning band) Set the default positioning band.

(Jog speed) Set the speed of jog operation.

(Servo gain number) Set the servo gain number that determines the response of position control loops in servo control.

(Torque filter constant)

Set the torque filter time constant that determines the filter time constant for torque commands in servo control.

(Speed loop proportional gain) Set the speed loop proportional gain that determines the response of speed control loops in servo control.

(Speed loop integral gain) Set the speed loop integral gain that determines the response of speed control loops in servo control.

(Push speed) Set the speed of push-motion operation.

(Push recognition time)

Set the push recognition time to recognize completion of operation after the work part was contacted in push-motion operation.

(Pushing fails current)

Set whether to use the push current or stop current as the current limiting value when the work part was missed in push-motion operation.

For ASEP/DSEP/MSEP (for servo motor), if the stop current is selected when the work part was missed in push-motion operation, the torque limit at the travel current limiting value is set.

(Auto servo OFF delay time)

Set the time until the servo turns off automatically when the ecology function is enabled.

ROBO CYLINDER —

(Stop mode) Displayed for PSEP, MSEP (for pulse motor) controllers

Set whether to implement servo stop based on the full servo control method or complete stop without servo control when the actuator stops.

(Note) When this parameter is changed, the new setting will not be reflected until the position data is written to the controller again.

(Current limiting value while stopped after positioning) <u>Displayed for PSEP, MSEP (for pulse motor) controller</u> Set the current limiting value to be applied while the actuator is stopped after positioning.

(Current limiting value during home return) Set the current limiting value to be applied during home return operation.

(Position execution wait time during continuous operation)

Set the stop time after the current movement is completed until the next movement is performed when operation pattern 5 (continuous operation) is set.

(Soft limit) Set the positive soft limit.

(Home return offset) Set the offset for home return.

(Home return direction)

Set whether to perform home return in the motor direction or front side direction. The home return direction cannot be changed for some actuators, such as rod-type actuators.

(Simple Absolute board) <u>Displayed for absolute specification controllers</u> Set whether to enable or disable this function when the controller is of absolute specification.

(Battery maintenance) <u>Displayed for absolute specification controllers</u> Set how long the data will be maintained by the absolute battery when the controller is of absolute specification.

(Position edit password) Set the password for editing position data.

ROBOCYLINDER

(Zone boundary 1+) Set the positive side in the area where the zone signal (ZONE1) turns ON.

(Zone boundary 1–)

Set the negative side in the area where the zone signal (ZONE1) turns ON.

(Zone boundary 2+)

Set the positive side in the area where the zone signal (ZONE2) turns ON.

(Zone boundary 2-)

Set the negative side in the area where the zone signal (ZONE2) turns ON.

(PIO inching distance)

Set the inching distance to the inching input command from PLC.

(Total moving count threshold)

An alarm will be generated if the total number of times of movement exceeds the setting value in this parameter.

(Total moving distance threshold)

An alarm will be generated if the total distance of movement exceeds the setting value in this parameter.

(High–output setting)

Set whether using high-output function. However, it is necessary to connect to an actuator (Note 1) applied to the high-output.

Note 1 High-output applicable actuators: RCP4, RCP5 series

(BU speed loop proportional gain)

When the high-output function is set activated, the settings in this parameter get effective for the velocity loop proportional gain.

(BU speed loop integral gain)

When the high-output function is set activated, the settings in this parameter get effective for the velocity loop integrated gain.

ROBO CYLINDER

(Overload caution load level ratio)

The overload warning (message level) turns on when the set rated current ratio is exceeded.

(Light error alarm output select)

If setting 0, ALM output will be made when the rated current ratio exceeds the value set in the overload level parameter.

If setting 1, an output will also be made even for a message level alarm such as the maintenance information error as well as the overload level result.

(Active / Inactive Axis Select)

When operation is desired with less number of axes than those purchased, set this parameter inactivated to make it defined as an inactive axis so no alarm can be occurred.

This can be utilized when operating with a specific axis for trial run, or can be kept as an axis for future extension.

(Excitation Phase Signal Detection Operation Initial Movement Direction)

Excitation detection (Note 1) is executed at the first servo-on after the power is turned on. The direction of detection at this time is to be defined.

It is not necessary to change this setting in ordinary use, however, the direction setting can be changed considering the motor movement in such cases that it is interfered with the mechanical end or peripherals when the power is turned on.

Note 1: Excitation detection is executed when the home-return operation is completed for Simple Absolute Type.

(Excitation Phase Signal Detection Time)

Excitation detection (Note 2) is executed at the first servo-on after the power is turned on. The duration of detection at this time is to be defined.

It is not necessary to change this setting in ordinary use, however, changing this parameter setting could be an effective way to solve when an excitation detection error or an abnormal operation is occurred. Contact IAI when it is necessary to change this parameter.

Note 2: Excitation detection is executed when the home-return operation is completed for Simple Absolute Type.

(Excitation Detection Type)

Excitation detection (Note 3) is executed at the first servo-on after the power is turned on, and this operation can be made even smoother and quieter with the new method (in our company's comparison).

Note 3: Excitation detection is executed when the home-return operation is completed for Simple Absolute Type.



[2] Basic operation Set parameters.

[Parameter]

· · · · · · ·	
Edit Parameter	Axis No. 00
1. Position band	0.10mm
2. Jog speed	100.00mm/sec
3. Servo gain selection	6
4. Torque filter constant	0
5. Speed loop proportional gain	546
6. Speed loop integral gain	4453
7. Push speed	20.00mm/sec
8. Push recognition time	255 msec
↑ Specify No	\downarrow
Menu	

Touch $[\uparrow]$ to return to the previous screen.

Touch $[\downarrow]$ to move to the next screen.

Three screens are available, including one showing the default positioning band and others used to edit position data and password.

Touch [Menu] to return to the parameter menu screen.

An example of setting a soft limit is explained. Touch [\uparrow] and [\downarrow] on the displayed screen until the soft limit setting screen appears.

Edit Parameter	Axis No. 00	
9. Pushing fails current Push Cu	ir 🛛 Stop Cur	
10. Auto servo OFF delay time	1 sec	
11.Stop mode		
12.Default positioning cur limit		
13.Default home current limit	140%	
14. Pos. Execution - Wait	0.010sec	
15.Soft limit	30.00	
16. Home offset	1.20	
↑ Specify No	\downarrow	
Menu		

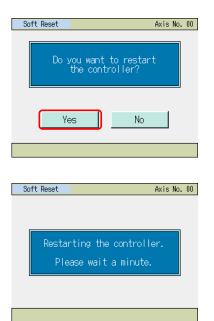
Touch the current value.

When the numeric keypad appears, enter a desired value and then touch [ENT].

Edit Parameter	Axis No. 00
9. Pushing fails current Pu	sh Cur 🛛 Stop Cur
10. Auto servo OFF delay time	1 sec
11.Stop mode	
12.Default positioning cur limi	t
13.Default home current limit	140%
14.Pos. Execution - Wait	0.010 _{Sec}
15.Soft limit	30.00
16.Home offset	1.20
↑ Specify No	\downarrow
Menu	

Change parameters and touch [Menu] to return to the controller restart screen.



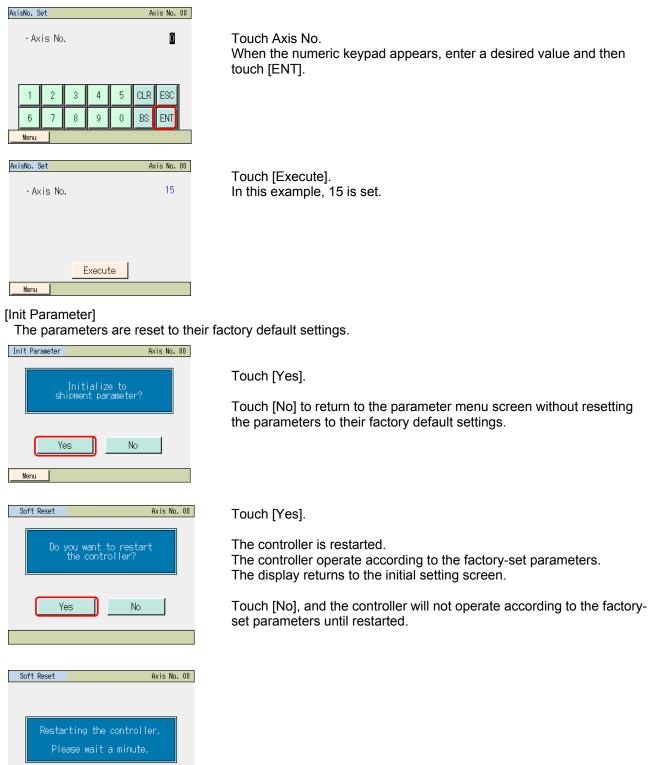


Touch [Yes]. The controller is restarted. The controller operates according to the operation pattern settings you have made. The display returns to the initial setting screen.

Touch [No], and the controller will not operate according to the operation pattern parameters you have set until restarted.



[Axis No. Set] Set the axis number.





[Change System Password] Change the password for parameter editing.

New Password : 5119							
1	2	3	4	5	CLR	ESC	
6	7	8	9	0	BS	ENT	
Menu							

Touch New Password. When the numeric keypad appears, enter a desired value and then touch [ENT].

Change	System	Password

Change System Password

New Password : 0000

Touch [Change].

1	2	3	4	5	CLR	ESC	
6	7	8	9	0	BS	ENT	
Menu							
meriu							



Parameter Mer	u	Axis No.	00
	Edit Parameter		
	Axis No. Set		
	Init Parameter		
	System Password		
Menu			

The system password changes. Touch [OK] to return to the parameter menu screen.



6.13 Test (I/O Tests, Operation Tests for Axis Movement)

You can perform I/O tests and operation tests for axis movement.

Test EnvironmentSet	EP Menu		Axis No. 00	
Alarm List Backup Data Change Axis Touch [Test]. I/0 set Touch [Menu] to return to the SEP menu screet Test Touch [Menu] to return to the SEP menu screet st Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay]	Monitor	- Pos	s.Edit	Touch [Initial Set] on the SEP menu screen.
Change Axis Initial Set Axis No. 00 I/O set Touch [Test]. Parameter Touch [Menu] to return to the SEP menu screet Test EnvironmentSet Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay]	Informati	ion Init	ial Set	
Initial Set Axis No. 00 I/O set Touch [Test]. Parameter Touch [Menu] to return to the SEP menu screet Test Touch [Menu] to return to the SEP menu screet Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay]	Alarm Lis	st Back	up Data	
I/0 set Touch [Test]. Parameter Touch [Menu] to return to the SEP menu scree Test EnvironmentSet Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay]	Change Ax	(is		
I/0 set Touch [Test]. Parameter Touch [Menu] to return to the SEP menu scree Test EnvironmentSet Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay]				
I/0 set Touch [Test]. Parameter Touch [Menu] to return to the SEP menu scree Test EnvironmentSet Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay]				
I/0 Set Parameter Touch [Menu] to return to the SEP menu scree Test Menu Set Menu Axis No. 00 I/0 Test	nitial Set		Axis No. 00	Touch [Test].
Test EnvironmentSet Menu est Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay].	_			
est Menu Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay].	_	Parameter		Touch [Menu] to return to the SEP menu scree
Menu Fest Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay].		Test		
Gest Menu Axis No. 00 Select and touch either [I/O Test] or [TestPlay].	F	EnvironmentSet	T I	
Select and touch either [I/O Test] or [TestPlay].	Menu		_	
Select and touch either [I/O Test] or [TestPlay].				
I/O Test	st Menu		Axis No. 00	
				Select and touch either [I/O Test] or [TestPlay].
TestPlay		I/O Test		

Menu

• I/O Test: PIO input signals can be monitored.

Also, the output signals can be forcibly turned ON or OFF by touching OUT0, OUT1, OUT2 and OUT3.

I/OTest				Axis No.	00
Input	IN3	IN2	IN1	INO	
Output	OUT3	OUT2	OUT1	OUTO	
‰Turn on	Output	by pus	hing Ol	JT butto	n.
	TN#	OUT*	OFF		
	IN*	OUT*	: ON		
Menu					



• Pos Test: Operation tests for axis movement can be performed. The screen corresponding to the selected operation pattern appears.

Operation pattern 0 (standard movement between 2 points)

Pos Test	Axis No. 00
Position	0.00 mm
Velocity	0.00 mm/s
Current Rate	139 mA
Vel Override	50 %
S Backward	top Forward
Menu	

Operation 1 (change travel speed)



Operation pattern 2 (change position data)

Pos Test	Axis No. 00
Position	0.00 mm
Velocity	0.00 mm/s
Current Rate	130 mA
Vel Override	50 %
Store Store	
Menu	

Operation pattern 4 (movement by 3 inputs among 3 points)

Pos Test	Axis No. 00
Position	0.00 mm
Velocity	0.00 mm/s
Current Rate	130 mA
Vel Override	50 %
	_
Stop	
Backward Forwar	d Middle
Menu	

Operation pattern 3 (movement by 2 inputs among 3 points)

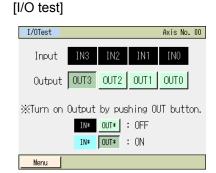
Pos Test	Axis No. 00
Position	0.00 mm
Velocity	0.00 mm/s
Current Rate	130 mA
Vel Override	50 %
Sto	qq
Backward Forw	ard Middle
Menu	

Operation pattern 5 (continuous back-and-forth operation)

Pos Test	Axis No. 00
Position	4.12 mm
Velocity	2.37 mm/s
Current Rate	118 mA
Vel Override	50 %
RT Counter	3
Start	Reset Stop
Menu	



[1] Basic operation



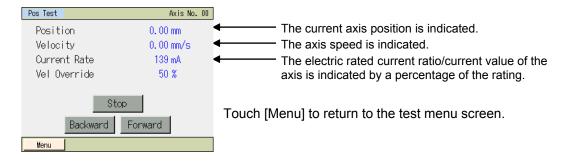
ON/OFF of input signals can be monitored.

The output signals OUT0 to OUT3 can be forcibly output by touching each signal.

Touch [Menu] to return to the test menu screen.

[Pos Test]

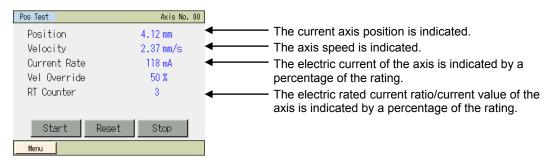
The operating method is explained using an example of operation pattern 0.



- Backward :Touching [Backward] moves the actuator backward.
 - Forward :Touching [Forward] moves the actuator forward.
- Stop :Touching [Stop] is stopped.
- Vel Override :The speed override changes to 10%, 50% and 100% every time [Vel Override] is touched.

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The settings of operation pattern 5 (continuous back-and-forth operation) vary partially from other operation patterns.



- Start :Continuous operation stops once the operation test screen appears. Touching [Start] causes the actuator to move back and forth continuously at the speed set by the override parameter.
- Stop :Touching [Stop] stops the actuator.
- Reset :Touching [Reset] resets the back-and-forth counter to 0.

Continuous operation resumes once the operation test screen closes.



6.14 Environment setting

(Sound, Language, Auto Monitor, Display (Screen Adjustment))

You can set the sound, language and auto monitor and adjust the screen.

SEP Menu Axis No. 00				
Pos.Edit				
Initial Set				
Backup Data				

Touch [Initial Set] on the SEP menu screen.

Initial Set		Axis	No.	00
	I/O set			
	Parameter			
	Test			
	EnvironmentSet			
Menu				

Touch [EnvironmentSet].

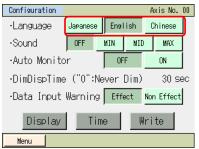
Touch [Menu] to return to the SEP menu screen.

The environment setting screen appears.

Configuration				Ĥ	ixis No.	00
 Language 	Japanese	Eng	lish	(hinese	
•Sound	OFF	MIN	MIC		MAX	Ī
•Auto Monito	br	OF	F		ON	ĺ
·DimDispTime ("0":Never Dim) 30 sec						
·Data Input Warning Effect Non Effect						
Display Time Write						
Menu						

INDER

- [1] Basic operation
- Language: Select Japanese or English as the display language. • Display for Japanese/English/Chinese languages setting change (Option model code: ENG)



Select and touch [Japanese] or other desired language.

Touch [Write].

- (Note) If writing is not conducted, the values will go back to those before making a change when moving to another window.
- Sound: Set whether to output or not output a touch tone. •

Configuration				A	ixis No.	00
 Language 	Japanes	Japanese English		0	hinese	
•Sound	OFF	MIN	MIC		MAX	
•Auto Monito	or	0	FF		ON	
DimDispTime ("0":Never Dim) 30 sec						
•Data Input	Warnir	ig Eft	fect	Nor	n Effect	
Display Time Write						
Menu						

Touch [OFF]. A touch tone is not output. Touch either of [MAX], [MID] or [MIN]. A touch tone is output.

Touch [Write].

- (Note) If writing is not conducted, the values will go back to those before making a change when moving to another window.
- Auto Monitor: You can have the monitor screen appear first after the touch-panel teaching pendant is • connected.

Configuration				Axis No.	00	
•Language	Japanes	e Engl	lish	Chinese		
•Sound	OFF	MIN MID		MAX		
•Auto Monito	o Monitor OFF ON					
·DimDispTime ("0":Never Dim) 30 sec						
·Data Input Warning Effect Non Effect						
Display Time Write						
Menu						

Touch [ON] to enable the auto monitor setting.

Dim Display Time: You can set a desired time after which the display of the touch-panel teaching • pendant will turn off. If "0 sec" is set, the display will remain lit at all times.

Configuration				Axis No.	00	
 Language 	Japanese	e Engl	ish	Chinese		
•Sound	OFF	MIN	MID	MAX		
•Auto Monito	Auto Monitor OFF ON					
DimDispTime ("0":Never Dim) 30 sec						
·Data Input Warning Effect Non Effect						
Display Time Write						
Menu						

Touch •DimDispTime ("0":Never Dim) 30 sec

When the numeric keypad is displayed, use the keypad to enter the light off time.

A desired value between 1 and 255 sec can be set.



• Data Input Warning: An alarm can be generated if a value below the minimum velocity or above the rated acceleration/deceleration is input in the position data. Even though, it is possible to input a value below the minimum velocity or above the rated acceleration/deceleration.

Configuration				Axis No.	00	
 Language 	Japanese	Engl	ish	Chinese		
•Sound	OFF	MIN	MID	MAX		
•Auto Monite	br	OF	F	ON		
·DimDispTime ("0":Never Dim) 30 sec						
·Data Input Warning Effect Non Effect						
Display Time Write						
Menu						

Touch [Effect] to activate it, and an alarm will be generated. Touch [Non Effect] to inactivate it, and an alarm will not occur.

[Display]

Adjustment of contrast and brightness of the screen, position tuning for touch panel and LCD screen check can be performed.

Configuration				A	xis No.	00
•Language	Japanese	Engl	English		hinese	
•Sound	OFF	MIN	MID		MAX	
•Auto Monito	r	OF	F		ON	
·DimDispTime ("0":Never Dim) 30 sec						
·Data Input Warning Effect Non Effect						
Display Time Write						
Menu						

Touch [Display].

Display menu Window is displayed.

Display Sett	ing	
	Contrast/Brightness	
	Touch calibration	
	LCD check	
Menu		

Select Display Setting menu.

Touch [Menu] and the display returns to EnvironmetSet screen.



•Change the Contrast/Brightness

Display Setting Contrast/Brightness Touch calibration LCD check	Touch [Contrast/Brightness].
Menu Display Setting	Contrast adjustment
•Contrast •Brightness	Touch [–] and [+] under Contrast to adjust the contrast of the screen. Brightness adjustment Touch [–] and [+] under Brightness to adjust the brightness of the screen.
+	Touch [Menu] and the display returns to Display menu screen.

Touch calibration

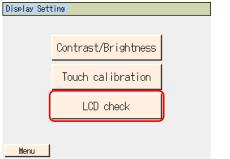
A calibration for the position detection of the touch panel is performed.

Display Setting		
Contrast/Brightness Touch calibration LCD check Menu		Touch [Touch Calibration].
2	1	Touch [\cdot] in the order of 1, 2, 3 and 4.
Touch the target sequentially. (from 1 to 4) ³	4	Touch [Menu] and the display returns to Display menu screen.



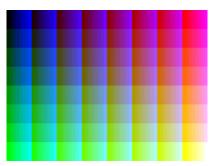
•LCD check

LCD display can be checked in the order of Color Pattern, White Only and Black Only.



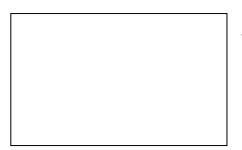
Touch [LCD Check].

Color Pattern is displayed.



Touch any point on the screen.

White Only is displayed.



Touch any point on the screen.

Black Only is displayed.

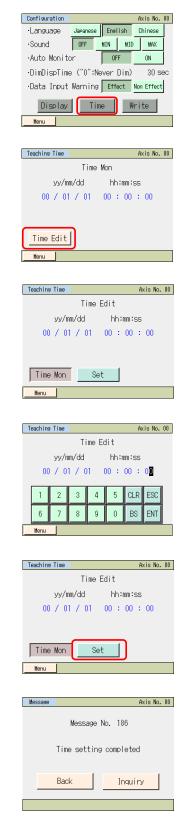


Touch any point on the screen. The display returns to Display menu screen.



[Time setting]

Time setting can be performed for CON-PTA/PDA/PGA/PGAS.



Touch [Time].

The time of teaching CON-PTA/PDA/PGA/PGAS is displayed. Touch [Time Edit].

Touch the value of year, month, day, hour, minute or second that is required to be changed.

Numeric keys are displayed. Input a value and touch [ENT].

Touch [Set].

The time of the CON-PTA/PDA/PGA/PGAS is changed. Touching [Back] can go back to the controller time setting screen. Touching [Inquiry] displays the inquiry screen.

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6.15 Data Backup

Data is transferred between the Secure Digital memory card in the touch panel teaching pendant and the controller.

(Note) Type of Stored Data

This includes the position data, parameters and alarm list.

It is not applicable to the backup data storable in the RC PC software.

(Note) Extensions of the Stored Data

• The file extensions of the data stored to the Secure Digital card are the same as those dealt in RC PC software, and are compatible. The position data for the ASEP controllers is ptas and parameters are pras. The position data for the PSEP controllers is ptps and parameters are prps.

[Refer to the details of the file extensions in the RC PC Software Instruction Manual]

• The alarm list can only have the backup. It cannot be restored. Data is in a CSV file.

(Note) Directories of the Stored Data

The folders to store the backup data of the controller and the folder to read the data from when restoring the data to the controller are as listed below. The directories to store the files cannot be changed. The files existing in other directories other than the specified folders cannot be listed up in the file name list in the file select at the initial setting or restore.

If the folder does not exist, it is automatically created.

- Position Data : \CONPTA\Position\File Name
- Parameter : \CONPTA\Parameter\File Name
- Alarm List : \CONPTA\Alarmlist\File Name



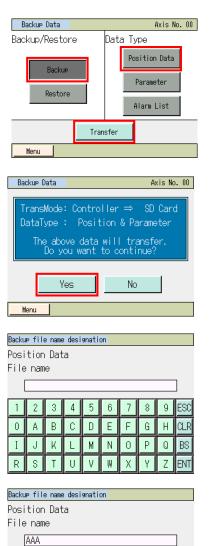
6.15.1 Data Backup of the Controller

The data in the controller is transferred to the Secure Digital memory card for backup.

SEP Menu	Axis No. 00
Monitor	Pos.Edit
Information	Initial Set
Alarm List	Backup Data
Change Axis	

Touch [Backup Data] on the SEP Menu screen.

A screen for data transfer appears.



Save

Menu

Touch [Backup].

Select the data type for the backup such as [Position Data] and touch it.

Touch [Transfer].

Touch [Yes].

If [No] is touched, the screen goes back to the data backup window.

Numeric keys show up. Input a file name. The file name is to be typed with 32 characters at maximum in letters and numbers.

Touch [Save].



File name confirmation
File name
AAA.ptpc
The above file is saved. Are you sure to continue? Yes No
Menu
File name confirmation
File name
AAA.ptpc
A file of the same name already exists. Do you want to replace it? Yes No
Menu
Backup Data Axis No. 00
Backup Data Axis No. 00 Transferring Data. Please wait a minute.
Transferring Data. Please wait a minute.
Transferring Data. Please wait a minute. 100%
Transferring Data. Please wait a minute.
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter Message Axis No. 00
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter Message Axis No. 00 Message No. 184

The screen below appears if the same name is not found.

Touch [Yes].

If [No] is touched, the screen goes back to the previous one to indicate the backup file name in which the numeric keys were shown.

The screen below appears if the same name is not found.

Touch [Yes].

If [No] is touched, the screen goes back to the previous one to indicate the backup file name in which the numeric keys were shown.

Data transfer screen will be shown.

A message to tell the data transfer is complete pops up and the backup process is finished.

Touching [Back] can go back to the Backup Data screen.



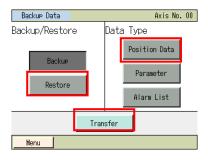
6.15.2 Restore to Controller

Data in the Secure Digital card is transferred to the controller.

Menu 1	Axis No. 00	
Monitor	Trial Operation	
Edit Position	Alarm List	
Edit Parameter	Information	
Backup Data	Menu2	

Touch [Backup Data] on the Menu 1 screen.

A window for data transfer appears.



Backup Data Axis No. 00
TransMode: SD Card ⇒ Controller
DataType : Position & Parameter
The above data will transfer. Do you want to continue?
Yes No
Menu

Restore File Select Axis No. 00
Position Data
File Select
AAA
BBB
CCC
Transfor
Menu

Touch [Restore].

Select the data type to transfer to the controller, such as [Position Data], and touch it.

Touch [Transfer].

Touch [Yes].

If [No] is touched, the screen goes back to the data backup window.

Touch \blacktriangle and \blacktriangledown to select a file to transfer to the controller from the list of the backed up file names.

Touch [Transfer].



File name confirmation				
File name				
AAA.ptpc				
The file's data transfer to controller. Are you sure to continue? Yes No				
Tes No				
Menu				
Backup Data Axis No. 00				
Transferring Data. Please wait a minute.				
100%				
100% TransMode: SD Card ⇒ Controller DataType: Position Data				
TransMode: SD Card \Rightarrow Controller				
TransMode: SD Card ⇒ Controller DataType : Position Data				
TransMode: SD Card \Rightarrow Controller				
TransMode: SD Card ⇒ Controller DataType : Position Data				
TransMode: SD Card ⇒ Controller DataType : Position Data 				
TransMode: SD Card ⇒ Controller DataType : Position Data Message Axis No. 00 Message No. 184				

Touch [Yes].

If [No] is touched, the screen goes back to the previous one for the restore file select.

Data transfer screen will be shown.

A message to tell the data transfer is complete pops up and the data transfer process to the controller is finished.

Touching [Back] can go back to the Backup Data screen.

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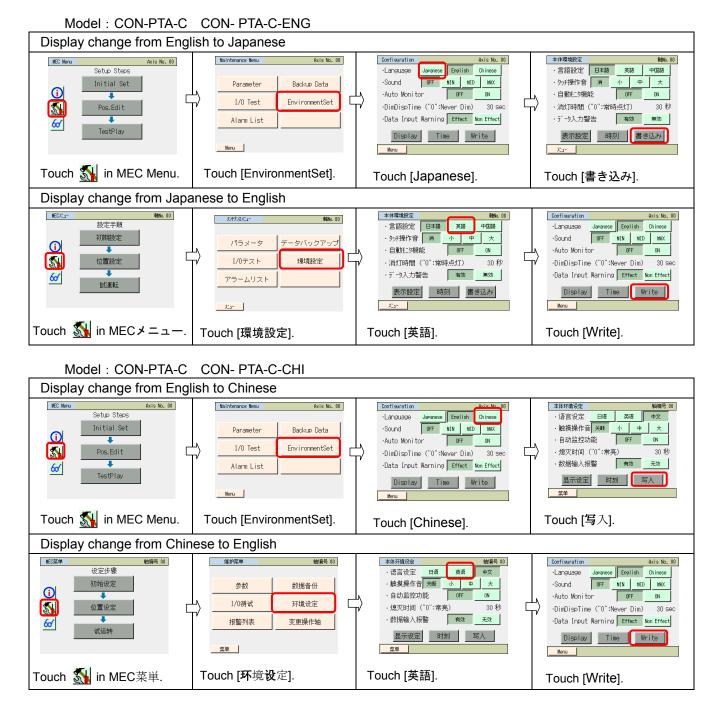
7. Operation of MEC Related Controllers

MEC related controllers: PMEC, AMEC and ERC3 (MEC mode)

7.1 Transition of Operating States

The language can be changed by following the steps below.

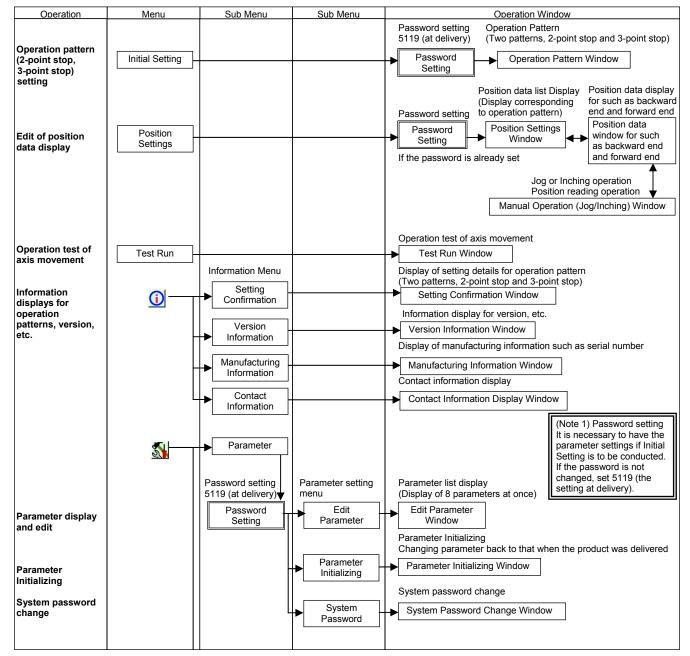
For the operation after the language change, please refer to the operation manual written in each language





7.2 Operating Menu

Transition of operating states when the touch-panel teaching pendant CON-PTA is connected to a MEC controller is shown.





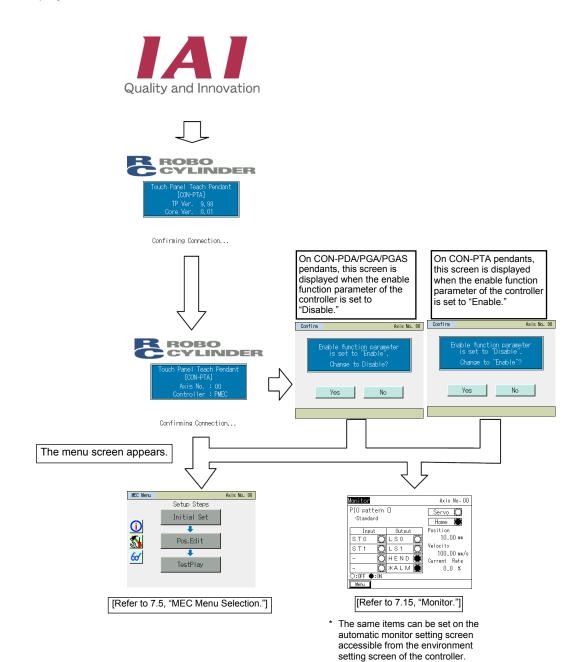
Operation	SEP Menu	Sub Menu	Sub Menu	Operation Window
Display of PIO signal input and output		I/O Test		Display of PIO signal input and output and compulsory output of output signal I/O Test Window
Alarm content detailed display		Alarm List		Alarm detailed display (Display of 8 alarm at once) Alarm List Window Data transfer between memory and controller
Data transfer between memory and controller		Data Backup		Data Backup Window Language setting, touch operation sound setting, brightness changes)
Environment of Language Setting, Touch Sound Setting, etc.		Global		automatic monitor function, window sleeping time ► Global Window
Display of conditions of input and output I/O, velocity,	60			Data display of input and output I/O, velocity, etc. Monitor Window



7.3 Initial Screen

Upon connection to the controller, power is supplied to the touch-panel teaching pendant and processing starts.

When the power is turned on, the IAI logo is displayed for approx. 1 second on the operation display screen (hereinafter referred to as "operation screen") of the touch-panel teaching pendant, after which version information is displayed.



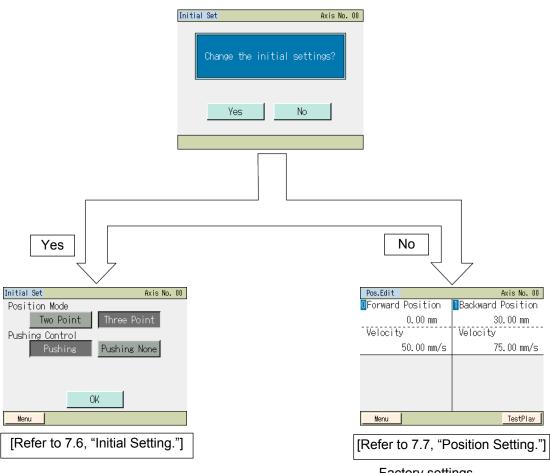


7.4 Initial Setting

When the power is turned on for the first time after the delivery of the controller, the initial setting screen will appear.

- Select [Yes], and the display will change to the initial setting screen where you can set the operation pattern.
- Select [No], and the factory set operation pattern, or specifically the 2-point stopping operation mode, will remain effective.

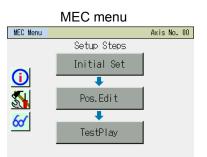
The display will switch to the position setting screen.



- Factory settings
- Operation pattern: Stopping at 2 points



7.5 MEC Menu Selection



The MEC menu has six items. Select and touch one of them. The screen changes to the one corresponding to the menu item you have touched.

Menu list

•

Initial Set Set the operation pattern (stopping at 2 points or 3 points).

[Refer to 7.6, "Initial Setting."]

- Pos. Edit Set the position, push force, push band, etc. The axis can be operated manually. [Refer to 7.7, "Position Setting."]
- TestPlay Conduct axis movement operation tests. [Refer to 7.8, "Trial operation."]
- Information 🧿

Maintenance

The operation pattern, version and other information are displayed. [Refer to 7.9, "Information."]

Touching switches the display to the maintenance menu screen, which is the next selection screen.

Maintenance Menu	Axis No. 00
Parameter	Backup Data
I/O Test	EnvironmentSet
170 Test	Environilentset
Alarm List	

Menu

The maintenance screen shows five buttons, so select and touch a desired button. The display will change to the menu screen corresponding to the button you have touched. Touch [Menu] to return to the previous MEC menu screen.

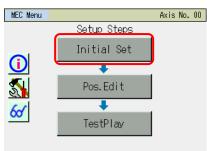
Maintenance menu list

- Parameter Set the default positioning band and other parameters. [Refer to 7.10, "Maintenance Parameters."]
- I/O Test
 Conduct I/O Tests. [Refer to 7.11, "Maintenance I/O Tests."]
- Alarm List Detail internal information of alarms are displayed. [Refer to 7.12, "Maintenance Alarm List."]
- Backup Data Transfer data between the touch-panel teaching pendant and controller. [Refer to 7.13, "Maintenance – Data Backup."]
- EnvironmentSet Set the touch sound and other environment specifications. [Refer to 7.14, "Maintenance-Environment Setting."]
 - Monitor 6 The controller status is displayed. [Refer to 7.15 "Monitor."]

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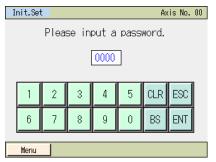
7.6 Initial Setting

Select whether to stop at 2 points or 3 points.



Touch [Initial Set] on the MEC menu screen.

Before the display switches to the initial setting screen, the password entry screen appears if the password is other than "0000."

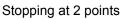


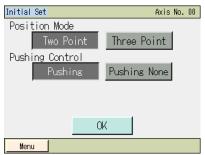
Enter the password using the numeric keypad, and then touch [ENT].

The password is "5119" (factory setting).

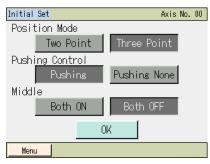
You can set a desired password using the "system password" parameter accessible from the maintenance menu.

If the valid password has been set, the display switches to the initial setting screen.





Stopping at 3 points



Select and touch either [Two Point] or [Three Point]. To perform positioning operation select and touch [Pushing None]. To perform push-motion operation select and touch [Pushing]. To stop at 3 points, select [Both OFF] or [Both ON] as the position specification method.

- (Note) Take note that if push-motion operation is performed and therefore [Pushing None] is selected, the completion signal will not be output.
- * If [Pushing None] is selected, LS0 and LS1 (LS2) will be used as output signals. If [Pushing] is selected, PE0 and PE1 (PE2) will be used as output signals.



Initial Set Axis No. 00
Position Mode
Two Point Three Point
Pushing Control
Pushing Pushing None
ОК
Menu
Soft Reset Axis No. 00
Do you want to restart the controller?
Yes No
Soft Reset Axis No. 00
Restarting the controller. Please wait a minute.

Touch [OK].

Touch [Menu] to return to the MEC menu screen. All initial settings you have made will be discarded.

Touch [Yes]. The controller will restart. After the restart, the controller will operate according to the initial settings you have made. Return to the MEC menu screen.

If you touch [No], the initial settings you have made will not be reflected until the controller is restarted.



Operation Pattern

PMEC and AMEC and ERC3 (MEC mode) controllers offer two operation patterns. The table below gives an overview o the Operation specification of each pattern. [For the setting methods, refer to the sections on initial setting and stop position setting.]

Operation	pattern	Description	Air cylinder circuit (Reference)	How to connect motorized cylinder
Stopping at 2 points (2-point positioning)	Movement by 1 input between 2 points [Single-solenoid mode]	You can move the actuator between 2 points using the same control you would normally use with an air cylinder. You can set the positions of the end point and start point. You can specify the moving speed and acceleration/deceleration. You can also specify push-motion Operation. The actuator moves to the end point when the ST0 turns ON, and returns to the start point when the signal turns OFF.	PLC PLC Detection of start poeiton (LS0) Detection of end poeiton (LS1) Move to end point (ST0) R1 R2 P (Air)	Motorized cylinder
Stopping at 3 points (3-point positioning)	Movement by 2 input between 2 points [Double-solenoid mode]	You can move the actuator between 2 points using the same control you would normally use with an air cylinder. You can set the positions of the end point and start point. You can set the position of an intermediate point and perform positioning to the intermediate point. You can specify the moving speed and acceleration/deceleration. You can also specify push-motion operation. The actuator moves to the end point when the ST1 turns ON, and moves to the start point when the ST0 turns ON. [Intermediate movement mode, both ON] When both the ST0 and ST1 are	PLC Detection of start position (LS0) Detection of end position (LS1) Move to start position (ST0) PLC Detection of end position (ST0) R1 R2 P(Air) Solenoid B Solenoid A B Solenoid B R2 P(Air) Solenoid A R R R R R R R R R R R R R	Motorized cylinder PLC Detection of etarl position (LS0) Move b and point 1 Move b and point 1 Move b and point 2 (ST1) Move b and point 2 (ST0) Move b and point 2 Move b and point 2 (ST0)
(Note) The	Movement by 2 input between 3 points [3-point positioning]	turned ON, the actuator will position to and stop at an intermediate point. When both the ST0 and ST1 are turned OFF, the actuator will stop in the middle of movement. [Intermediate movement mode, both OFF] When both the ST0 and ST1 are turned OFF, the actuator will position to and stop at an intermediate point. When both the ST0 and ST1 are turned ON, the actuator will stop in the middle of movement.	PLC Air cylinder Detection of start position Ucs(1) Detection of retimediate point (LS2) Move signal 1 (ST0) Move signal 2 (ST1) P (Air)	Motorized cylinder PLC Detection of start position (LS1) Detection of intermediate point (LS2) Move signal 1 (ST0) Move signal 2 (ST1)

(Note) The air cylinder circuits are drawn with symbols of signals corresponding to those used by PMEC, AMEC and ERC3 (MEC mode) controllers. For details on signals, refer to the "PMEC, AMEC and ERC3 (MEC mode) operation Manual."



[1] Example of initial setting operation The operation is explained using specific examples.

Example of stopping at 2 points Set as follows.

No.	Operation	Screen	Remarks
1	Touch [Initial Set] on the MEC menu screen.	NEC Meru Axis No. 00 Setup Staps Initial Set Pos.Edit • • • • • • • • •	
2	If the password is not "0000," the password entry screen appears. Enter the password, and then touch [ENT].	Pos.Edit Akis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESS 6 7 8 9 0 BS ENT Neru Heru Ent Ent Ent Ent	The password is "5119" (factory setting). A desired password can be set using the "system password" parameter accessible from the maintenance menu.
3	 Touch and select either [Two Point] or [Three Point] based on the number of positioning points. To perform positioning operation select [Pushing None]. To perform push-motion operation select [Pushing]. In the case of positioning to the intermediate position in the 3-point stop pattern, select [Both OFF] or [Both ON] for the ST0 and ST1 input signals, and then touch [OK]. 	Stopping at 2 points Initial Set Aris No. 00 Position Mode Two Point Three Point Pushing Control Rushing None OK Weru Stopping at 3 points Initial Set Aris No. 00 Position Mode Position Mode Pushing Control Pushing Control Pushing Control Pushing Control Pushing Control Pushing Control CK Meru	Touch [Menu] to return to the first MEC menu screen. (Reference) Factory setting Stop position: [Two Point] Push function: [Pushing None] Intermediate point specification method: [Both ON]
4	Touch [Yes].	Soft Reset Axis No. 00 Do you want to restart the control ler? Yes No	To make the specified items effective, you must restart the controller. The settings you have made will not be reflected until the controller is restarted. Touch [No] to return to the previous screen.
5		Soft Reset Axis No. 00 Restarting the controller. Please wait a minute.	



No.	Operation	Screen	Remarks
6		MEC Menu Axis No. 00 Setup Steps Initial Set Pos. Edit Com TestPlay	Once the controller has restarted, the MEC menu screen appears.

ROBO CYLINDER

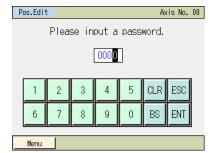
7.7 Position Setting (Position Data Setting and Manual Axis operation (Jogging, Inching))

The position, push force, push band and other position data are set. You can move the actuator by jogging or inching.



Touch [Pos.Edit] on the MEC menu screen.

Before the display switches to the position setting screen, the password entry screen appears if the password is other than "0000."



Enter the password using the numeric keypad, and then touch [ENT].

A desired password can be set in the "position data edit password" field of the parameter edit screen.

If the valid password has been set, the display switches to the position setting list screen. The displayed items vary depending on the operation pattern.

Pos.Edit	Axis No. 00
Forward Position	Backward Position
0.00 mm	30.00 mm
Velocity	Velocity
50.00 mm/s	75.00 mm/s
Menu	TestPlay

Touch the position you want to set. Touch [Menu] to return to the MEC menu screen. The screen shown to the left is an example of stopping at 2 points. The set value of each position is shown.

Number of positions to be set

Operation pattern	Movement	Number of positions to be set			
Stopping at 2 points	Move between 2 points	2			
Stopping at 3 points	Move between 3 points	3			

ROBO CYLINDER

Touch the position you want to set, and the target position/speed setting screen of the touched position will appear.

Set the position, speed, push force, push band, acceleration and deceleration.

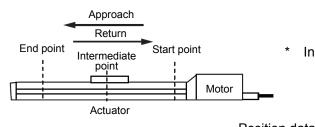
Pos.Edit		Axis No. 00
Fwd	Back	
Position	0.00 mm	
Velocity	50.00 mm/s	
PushPower	0%	Manu Move
PushBand	0.10 mm	manu move
Accelerate	0.30 G	
Decelerate	0.30 G	
Energy-Saving	ON OFF	
Menu		TestPlay

Touch [Menu] to return to the MEC menu screen.

You can select jog operation from this setting screen.

[1] Position data

Set the position data used to operate the actuator.



* In the figure, the home is located on the motor side.

Position data							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Position data	Position	Speed	Acceleration	Deceleration	Push force	Push band	Ecology
	[mm]	[mm/s]	[G]	[G]	[%]	[mm]	Ecology
[1] End point	200.00	50.00	0.1	0.1	70	1.00	Enabled
[0] Start point	0.00	50.00	0.1	0.1	0	0	Enabled
[2] Intermediate point	100.00	50.00	0.1	0.1	0	0	Enabled

1) Position [mm] --- Set the position to move the actuator to.

The positions must satisfy the following relationships: Start point < Intermediate point < End point

Operation pattern	Move	Positions to be set			
Operation pattern	Nove	End point	Start point	Intermediate point	
Stopping at 2 points	Move between 2 points	0	0		
Stopping at 3 points	Move between 3 points	0	0	0	

2) Speed [mm/s] ----3) Acceleration [G] ----

--- Set the speed of the actuator.

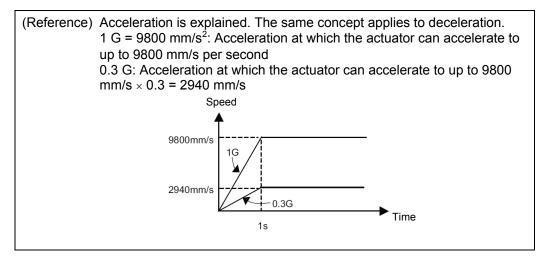
--- Set the acceleration of the actuator.

The input range permits entry of values greater than what is specified in the catalog.

Refer to the catalog or operation manual of your actuator.



4) Deceleration [G] --- Set the deceleration (G) at which the actuator stops.



Caution: Setting the acceleration/deceleration

- (1) Make sure the acceleration/deceleration you set does not exceed the rated acceleration/deceleration stated in the catalog or this operation manual. If the rated acceleration/deceleration is exceeded, the life of the actuator may drop significantly.
- (2) If the actuator or work part receives impact or vibrates, lower the acceleration/deceleration. If the actuator is used continuously in such condition, the life of the actuator will drop significantly.
- (3) If the transferable weight is significantly smaller than the rated payload capacity, accelerations/decelerations greater than the rating may be set. You can shorten the tact time this way, so contact IAI if you are interested. When contacting IAI, let us know the weight, shape and installation method of the work part as well as installation condition of the actuator (horizontal/vertical).
- 5) Push force [%] --- Set the push torque (current-limiting value) to be used in push-motion operation as a percent (%) value.
 - Increasing the current-limiting value increases the push force.
 - If "0" is set, positioning operation is performed.

For the relationship of push force and current-limiting value, refer to the catalog or the operation manual."

6) Push band [mm] --- Set the travel during push-motion operation.

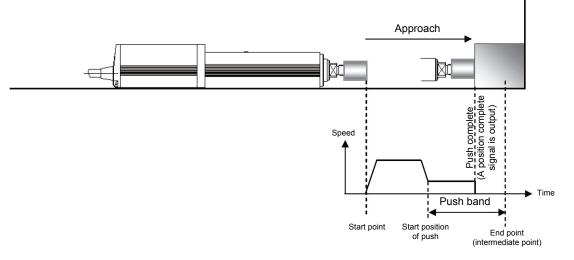
When push-motion operation is performed, the actuator moves at the speed and rated torque set as part of positioning information, just like normal positioning, until the remaining travel enters the range set here. Once the remaining travel enters this range, the actuator moves to the position set in [1] while pushing the load. The speed of push-motion operation is set in parameter No. 7. Do not use any setting that causes this speed to be exceeded.

If the setting in [2] is less than the push speed, the actuator pushes the work part at the set speed.

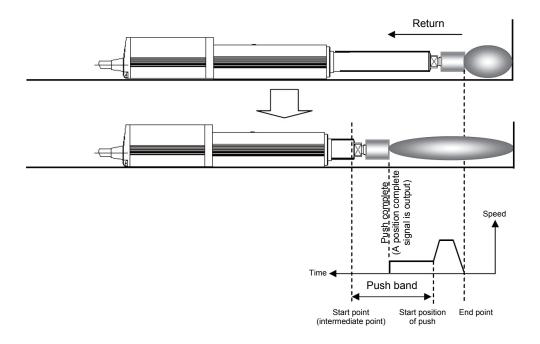
How the actuator operates as it pushes the work part toward the end point, start point and intermediate point is illustrated below.



[Pushing toward the end point or intermediate point]



[Pushing toward the start point or intermediate point = Pulling]



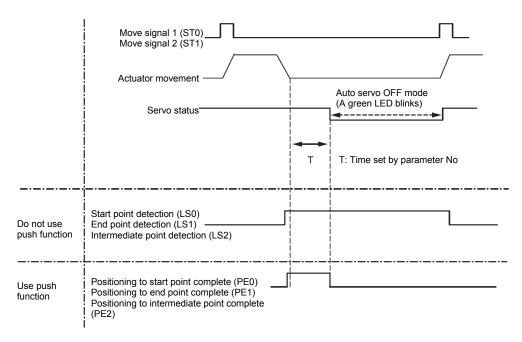
7) Ecology ---- When Ecology is enabled, you can have the motor power (servo) turned off automatically upon elapse of a specified period to save power after completion of positioning. Set the applicable period beforehand using a parameter.

Parameter No.	Parameter name	Initial value	Setting range
10	Auto servo OFF delay time [sec]	1	0 to 9999



[Auto motor power (Auto servo) OFF]

The motor power (servo) will turn off automatically upon elapse of a specified period after completion of positioning. When the next positioning command is issued, the motor power (servo) turns on automatically and positioning is performed. Since no holding current flows while the motor is at standstill, power consumption can be reduced.



[Statuses of position detection output signals when the push function is not used] Even when the motor power (servo) is turned off, as long as the actuator is positioned within the positioning band (parameter No. 1) the start point detection signal (LS0), end point detection signal (LS1) or intermediate point detection signal (LS2) will turn ON according to the applicable position, just like when a sensor is used. Accordingly, the position detection signal that has turned ON will remain ON after completion of positioning unless the actuator moves.

[Status of position complete signals when the push function is used]

In push-motion operation, the motor power (servo) does not turn off automatically while the actuator is pushing the work part.

If the actuator has missed the work part, the motor power (servo) turns off automatically.

Once the motor power (servo) turns off, a position complete status is lost. Accordingly, the push complete signal 0 (PE0), push complete signal 1 (PE1) and push complete signal 2 (PE2) will all turn OFF regardless of the stop position.

Caution: No holding torque is applied in the auto servo OFF mode. Since the actuator will move in this condition if an external force is applied, pay due attention to contact and safety when setting any operation involving auto motor power (servo) OFF.



[2] Basic operation

Pos.Edit		Axis No. 00
Fwd In	lt Back	
Position	0.00 mm	
Velocity	50.00 mm/s	
PushPower	0%	Manu Move
PushBand	0.10 mm	manu move
Accelerate	0.30 G	
Decelerate	0.30 G	
Energy-Saving	ON OFF	
Menu		TestPlay

Touch the value field of each setting item such as position. When the numeric keypad is displayed, enter a desired value and then touch [ENT].

Touch either of Start, End or Int and the screen changes to the corresponding setting window for [Fwd], [Back] or [Int].

(Note) The positions must satisfy the following relationships: Home \leq Start position \leq Midway position \leq End position

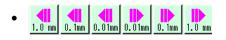
Touching [Jog] switches to jog operation.

[Manual axis operation (jogging/inching)] You can load position data via manual axis operation (jogging/inching).

Set Pos Data		Axis No. 00
Back Int	Fwd	
Current Pos	0.00 mm	Teach
Servo OFF 🚫	Home	
Fast Med Slow	Slow Med	Fast
1.0 mm 0.1mm 0.01mm	0.01mm 0.1mm	1.0 mm
Menu		

Operation on the manual axis operation (jogging/inching) screen





• [Servo ON]

• [HOME]

While any of these buttons is touched, the axis jogs in the direction of the arrow. The axis moves at 1 mm/s in the low-speed mode, 10 mm/s in the medium-speed mode, or 50 mm/s in the high-speed mode. Select one of the speed.

While any of these buttons is touched, the axis inches in the direction of the arrow. Select 0.01 mm, 0.1 mm or 1.0 mm as the inching distance.

Touching [Servo ON] when the motor power (servo) is turned off turns on the motor power (servo) and the O lamp will become lit. Touching [Servo OFF] when the motor power (servo) is turned on turns off the motor power (servo) and the O lamp will become unlit.

Touching [HOME] before the home return is completed causes the axis to return home and the $\rm O$ lamp will become lit.



Position loading operation Touch [Teach]. The confirmation screen appears. You can change the position number by touching $[\uparrow]/[\downarrow]$. Touching [Yes] loads the current position.

Confir	m				Axis	No.	00
Posit	ion No.	000			1	1	
Targe	t Pos	100.	00 mm		↓	1	
Currer	nt Pos	100.	00 mm				
	Do you want to teach current position?						
	Yes		Ν	10			



[3] Example of position setting operation

The operation is explained using specific examples.

 Setting the position, speed, acceleration and deceleration An example of stopping at 2 points is explained.
 Positions are set to operate the actuator back and forth between 10.0 mm and 100.0 mm.
 End position: 100.0 mm, Start position: 10.0 mm

No.	Operation	Screen	Remarks
1	Touch [Pos.Edit] on the MEC menu screen.	MEC Menu Axis No. 00 Setup Steps Initial Set Pos.Edit TestPlay	
2	If the password is not "0000," the password entry screen appears. Enter the password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	A desired position setting password can be set in the "position data edit" field of the parameter edit screen.
3	Set the position relating to the start point, acceleration, and deceleration. Touch [Forward Position].	Box Edit Axis No. 00 IForward Position IBackward Position 0.00 mm 50.00 mm Velocity 20.00 mm/s 100.00 mm/s 100.00 mm/s Wence TestPlay	Touch [Menu] to return to the MEC menu screen.
4	Touch the value field of position. When the numeric keypad is displayed, touch [1], [0], and then [ENT].	Pos.Edit Axis No. 00 Position 10.00 mm Velocity 20.00 mm/s PustPower 0 % PustPand + mm Accelerate 0.10 G Decelerate 0.10 G Energy-Savina DF Menu TestPlay	Touch [Menu] to return to the position setting screen.
5	"10.00" appears next to "Position."	Pos.Edit Axis No. 00 Fwd Back Position 10.00 mm Velocity 20.000 mm/s PustPower 0 % PustPand * mm Accelerate 0.10 G Decelerate 0.10 G Energy-Saving 0 ff Menu TestPlay	Touch [Menu] to return to the position setting screen.



No.	Operation	Screen	Remarks
6	Touch the value field of position. When the numeric keypad is displayed, touch [5], [0], and then [ENT].	Pos.Edit Axis No. 00 Fwd Back Position 10.00 mm/s Velocity 20.00 mm/s PushBand * mm Accelerate 0.10 G Decelerate 0.10 G Energy-Saving 0% Menu TestPlay	Touch [Menu] to return to the position setting screen.
7	"50.00" is shown in the speed field.	Pos.Edit Axis No. 00 Fwd Back Position 10.00 mm Velocity 50.00 mm/s PushBand * mm Accelerate 0.10 G Decelerate 0.10 G Energy-Saving DN Menu TestPlay	Touch [Menu] to return to the position setting screen.
8	Touch the value field of acceleration. When the numeric keypad is displayed, touch [0], [.], [3], and then [ENT].	Pos.Edit Axis No. 00 Fwd Back Position 10,00 mm Velocity 50,00 mm/s PushBand • mm Accelerate 0,10 G Decelerate 0,10 G Decelerate 0,10 G Decelerate 0,10 G Decelerate 0,10 G Energy-Saving 0N Menu TestPlay	Touch [Menu] to return to the position setting screen.
9	"0.30" is shown in the acceleration field.	Pos.Edit Axis No. 00 Fwd Back Position 10.00 mm Velocity 50.00 mm/s PushPower 0 % PushPomer 0 % Accelerate 0.30 G Decelerate 0.10 G Energy-Saving DN Menu TestPlay	Touch [Menu] to return to the position setting screen.
10	Touch the value field of deceleration. When the numeric keypad is displayed, touch [0], [.], [3], and then [ENT].	Pos.Edit Axis No. 00 Fwd Back Position 10,00 mm Velocity 50,00 mm/s PushBand mm Accelerate 0,30 G Decelerate 0,10 G Energy-Saving 01 GF Menu TestPlay	Touch [Menu] to return to the position setting screen.
11	"0.30" is shown in the deceleration field.	Pos.Edit Axis No. 00 Fwd Back Position 10.00 mm Velocity 50.00 mm/s PushPower 0 % PushBand • mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving 0% Menu TestPlay	Touch [Menu] to return to the position setting screen.



No.	Operation	Screen	Remarks
12	Touch [Menu].	Pos.Edit Avis No. 00 Fwd Back Position 10.00 mm Velocity 50.00 mm/s PusPrower 0 % PusPand mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving ON Menu TestPlay	
13	Set the position relating to the end point, acceleration, and deceleration. Touch [Backward Position].	Pos.Edit Axis No. 00 IForward Position IBackward Position 0.00 mm 50.00 mm Velocity 100.00 mm/s 100.00 mm/s 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.
14	The display switches to the end point screen. Set the position relating to the end point, acceleration, and deceleration.	Pos.Edit Axis No. 00 Fwd Back Position 50.00 mm Velocity 100.00 mm/s PustPower 0.% PustPand * mm Accelerate 0.10 G Decelerate 0.10 G Energy-Saving 0% Menu TestPlay	Touch [Menu] to return to the position setting screen.
15	Touch the value field of position. When the numeric keypad is displayed, touch [1], [0], [0], and then [ENT].	Post-Edit Axis No. 00 Fwd Back Position 50,00 mm Velocity 106.06 mm/s PushPower 0 % PushBand * mm Accelerate 0,10 G Decelerate 0,10 G Energy-Saving 0N Manu TestPlay	Touch [Menu] to return to the position setting screen.
16	"100.00" is shown in the position field.	PostEdit Axis No. 00 Fwd Back Position 100.00 mm Velocity 100.00 mm/s PushPower 0% PushPand *mm Accelerate 0.10 G Decelerate 0.10 G Energy-Saving 0% Menu TestPlay	Touch [Menu] to return to the position setting screen.
17	Touch the value field of position. When the numeric keypad is displayed, touch [5], [0], and then [ENT].	Pes.Edit Axis No. 00 Fwd Back Position 100.00 mm/s Velocity 100.00 mm/s PushBand mm Accelerate 0.10 G Decelerate 0.10 G Energy-Saving 0N Meru TestPlay	Touch [Menu] to return to the position setting screen.
18	"50.00" is shown in the speed field.	Pos.Edit Avis No. 00 Fwd Back Position 100.00 mm Velocity 50.00 mm/s PushPower 0 % PushPower 0 % Accelerate 0.10 G Decelerate 0.10 G Energy-Saving 0 % Meru TestPlay	Touch [Menu] to return to the position setting screen.



No.	Operation	Screen	Remarks
19	Touch the value field of acceleration. When the numeric keypad is displayed, touch [0], [.], [3], and then [ENT].	Pos.Edit Axis No. 00 Fwd Back Position 100.00 mm Velocity 50.00 mm/s PushBand nm Accelerate 0.10 G Decelerate 0.10 G Eneray-Saving 0N Menu TestPlay	Touch [Menu] to return to the position setting screen.
20	"0.30" is shown in the acceleration field.	Pos.Edit Axis No. 00 Fwd Back Position 100.00 mm/s Velocity 50.00 mm/s PushBand mm Accelerate 0.30 G Decelerate 0.10 G Energy-Saving DN Iteru TestPlay	Touch [Menu] to return to the position setting screen.
21	Touch the value field of deceleration. When the numeric keypad is displayed, touch [0], [.], [3], and then [ENT].	Pos.Edit Axis No. 00 Fwd Back Position 100.00 mm Velocity 50.00 mm/s PushBand • mm Accelerate 0.30 G Decelerate 0.10 G Energy-Saving 0N Menu TestPlay	Touch [Menu] to return to the position setting screen.
22	"0.30" is shown in the deceleration field.	Pos.Edit Axis No. 00 Find Back Position 100.00 mm Velocity 50.00 mm/s PushPower 0 % PushPand mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving DN Menu TestPlay	Touch [Menu] to return to the position setting screen.
23	Touch [Menu].	Pos.Edit Axis No. 00 Fwd Back Position 100.00 mm/s Velocity 50.00 mm/s PushPower 0 % PushBad mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving DN Menu TestPlay	Touch [Menu] to return to the position setting screen.
24		Pos.Edit Axis No. 00 Proward Position Backward Position 10.00 mm 100.00 mm Velocity 50.00 mm/s 50.00 mm/s 50.00 mm/s	Touch [Menu] to return to the MEC menu screen.



2) Manual axis operation (jogging/inching) (Using jog/inch the actuator to the target position, and then loading the achieved position (current position) as the end point or start point) An example of stopping at 2 points is explained.

How to load the current position of 80.0 m as the start point is explained.

No.	Operation	Screen	Remarks
1	Touch [Pos.Edit] on the MEC menu screen.	MEC Herru Axis No. 00 Setup Steps Initial Set Initial Set Pos.Edit Image: Setup Steps Initial Set	
2	If the password is not "0000," the password entry screen appears. Enter the password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	A desired position setting passw ord can be set in the "position data edit password" field of the parameter edit screen.
3	Set the position relating to the start point, acceleration, and deceleration. Touch [Forward Position].	Pos.Edit Axis No. 00 DEcreward Position TBackward Position 10.00 mm 100.00 mm Velocity 90.00 mm/s 100.00 mm/s 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.
4	Touch [Manu Move].	Pos.Edit Axis No. 00 Fwd Back Position 100.00 mm/s Velocity 50.00 mm/s PushPower 0 % PushPand mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving ON Menu TestPlay	 Touch [Menu] to return to the position setting screen. * If home return is not yet complete, perform home return first.
5	If the motor power (servo) is currently OFF, touch [Servo ON] to turn ON the motor power (servo).	Set Pos Data Axis No. 00 Fwd Back Current Pos 0, 10 mm Servo OFF Home Fast Med Slow Slow No. 1.0 mm	
6	Use Fast Med Slow Slow Med Fast to move the slider or rod to the target position of 80.0 mm.	Set Pos Data Axis No. 00 Fwd Back Current Pos 0.10 mm Servo 0FF Home Fast Med Fist Med J.0 mm 0.10 mm Fast Med J.0 mm 0.10 mm Menu Menu	 Jogging Touch any of <i>for the set</i>, and the axis will move and continue moving. Inching Touch any of, <i>for the set</i>, <i>for t</i>



No.	Operation	Screen	Remarks
7	Touch [Teach].	Set Pos Data Axis No. 00 Fwd Current Pos Servo OFF Sorvo OFF Fast Fast 1.0 mm C.mm 0.0 mm 0.0	
8	Touch [Yes].	Confirm Axis No. 00 Position No. 000 Target Pos 0.00 mm Current Pos 80.00 mm Do you want to teach current position? Yes No	
9	Touch [Menu].	Set Pos Data Axis No. 00 Find Back Current Pos 0.10 mm Servo 0FF Home Fast Med Slow Med J.0 mm 0.10 mm Low 0.01mm J.0 mm 0.01mm Med 0.01mm J.0 mm 0.01mm Meru 0.01mm	
10	"80.00" is shown in the position field. This confirms that the position data has been loaded.	Pos.Edit Axis No. 00 Fwd Back Position 80.00 mm Velocity 50.00 mm/s PushBand mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving IM Menu TestPlay	Touch [Menu] to return to the position setting screen.
11	Touch [Menu].	Pos.Edit Axis No. 00 Fwd Back Position 80.00 mm/s Velocity 50.00 mm/s PushBad mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving DN Menu TestPlay	Touch [Menu] to return to the position setting screen.
12		Pos.Edit Axis No. 00 Forward Position Backward Position 80.00 mm 100.00 mm Velocity 50.00 mm/s 100.00 mm/s 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.



3) Direct teaching (Moving the slider by hand to the target position, and then loading the achieved position (current position) as the end point or start point) An example of stopping at 2 points is explained. Н

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No.	Operation	Screen	Remarks
1	Touch [Pos.Edit] on the MEC menu screen.	HEC Meru Axis No. 00 Setup Steps Initial Set Pos.Edit TestPlay	
2	If the password is not "0000," the password entry screen appears. Enter the password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 ES ENT Menu	A desired position setting password can be set in the "position data edit" field of the parameter edit screen.
3	Set the position relating to the start point, acceleration, and deceleration. Touch [Forward Position].	Pos.Edit Axis No. 00 Porward Position 0.00 mm Velocity 50.00 mm/s 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.
		Menu TestPlay	
4	Touch [Manu Move].	Pos.Edit Axis No. 00 Fwd Back Position 0.00 mm/s Valocity 50.00 mm/s PushPower 0 % PushBand * mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving ON Meru TestPlay	Touch [Menu] to return to the position setting screen. * If home return is not yet complete, perform home return first.
5	If the motor power (servo) is currently ON, touch [Servo ON] to turn OFF the motor power (servo).	Set Pos Data Axis No. 00 Fwd Back Current Pos 0.10 mm Servo 0FF Home Fast Med Slow Slow Med Slow J.0 mm 0.01mm Menu 0.01mm	
6	Move the slider or rod by hand to the target position of 50.00 mm. Touch [Teach].	Set Pos Data Axis No. 00 Fwd Back Current Pos 0.10 mm Servo OFF Home Fast Mod Job m 0.01mm 0.01mm 0.01mm Fast Mod 1.0 mm 0.01mm Menu 0.01mm	



No.	Operation	Screen	Remarks
7	Touch [Yes].	Confirm Axis No. 00 Position No. 000 Target Pos 0.00 mm Current Pos 80.00 mm Do you want to teach current position? Yes No	
8	Touch [Menu].	Set Pos Data Axis No. 00 Fred Back Current Pos 0.10 mm Servo 0FF Home Fast Med Slow Med J.0 mm 0.10 mm Low 0.01 mm Fast Med J.0 mm 0.10 mm Med Slow Med Slow Med J.0 mm Menu 0.01 mm	
9	"50.00" is shown in the position field. This confirms that the position data has been loaded.	Pos.Edit Axis No. 00 Fwd Back Position 50.00 mm Velocity 50.00 mm/s PushPower 0 % PushBand mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving DN Menu TestPlay	Touch [Menu] to return to the position setting screen.
10	Touch [Menu].	Pos.Edit Axis No. 00 Fwd Back Position 50,00 mm/s PushPower 0 % PushBand mm Accelerate 0,30 G Decelerate 0,30 G Decelerate 0,30 G Energy-Saving 0N Menu TestPlay	Touch [Menu] to return to the position setting screen.
11		Pos.Edit Axis No. 00 IForward Position IBackward Position 50.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.



 Setting for push-motion operation (push force, push band) An example of stopping at 2 points is explained. In this example, push-motion operation is performed at the start point. Push force: 50%, Push band: 5.0 mm

No.	Operation	Screen	Remarks
1	Touch [Pos.Edit] on the MEC menu screen.	HEC Menu Axis No. 00 Setup Steps Initial Set Pos.Edit TestPlay	
2	If the password is not "0000," the password entry screen appears. Enter the password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 OLR ESC 6 7 8 9 0 BS ENT Menu	A desired position setting password can be set in the "position data edit password" field of the parameter edit screen.
3	Set the position relating to the start point, acceleration, and deceleration. Touch [Forward Position].	Pos.Edit Axis No. 00 IForward Position IBackward Position 0.00 mm 100.00 mm Velocity 50.00 mm/s 100.00 mm/s 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.
4	Touch the value field of [PushPower]. When the numeric keypad is displayed, touch [5], [0], and then [ENT].	Pos.Edit Axis No. 00 Fwd Back Position 0.00 mm/s Velocity 50.00 mm/s PushPower 0% PushPand * mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving 0N Menu TestPlay	Touch [Menu] to return to the position setting screen.
5	"50.00" is shown in the push power field.	Pos.Edit Axis No. 00 Fwd Back Position 0.00 mm/s Velocity 50.00 mm/s PushPower 50.00 % PushPad Manu Move PushPad 0.30 G Decelerate 0.30 G Energy-Saving 0N Menu TestPlay	Touch [Menu] to return to the position setting screen.
6	Touch the value field of [PushBand]. When the numeric keypad is displayed, touch [5] and then [ENT].	Pos.Edit Axis No. 00 Fwd Back Position 0.00 mm Velocity 50.00 % PushPower 50.00 % PushPower 50.00 % PushPand * mm Accelerate 0.30 % Decelerate 0.30 % Energy-Saving 0N Menu TestPlay	Touch [Menu] to return to the position setting screen.



No.	Operation	Screen	Remarks
7	"5.00" is shown in the push band field.	Pos.Edit Axis No. 00 Fwd Back Position 0.00 mm/s PushPower 50.00 mm/s PushPower 50.00 mm/s PushPower 50.00 mm/s Decelerate 0.30 G Energy-Saving DN Menu TestPlay	Touch [Menu] to return to the position setting screen.
8	Touch [Menu].	Pos.Edit Axis No. 00 Fwd Back Position 0.00 mm/s PushPower 50.00 mm/s PushPower 50.00 mm/s PushPower 0.30 G Decelerate 0.30 G Decelerate 0.30 G Energy-Saving 0W Menu TestPlay	Touch [Menu] to return to the position setting screen.
9		Pos.Edit Axis No. 00 0 Forward Position 1 Backward Position 0.00 mm 100.00 mm Velocity Velocity 50.00 mm/s 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.



5) Setting the energy-saving function (auto motor power (auto servo) OFF function) An example of stopping at 2 points is explained. How to automatically turn off the servo in 5.0 seconds after stopping is explained.

No.	Operation	Screen	Remarks
1	Touch 🚮 on the MEC menu screen.	HEC Menu Axis No. 00 Setup Steps Initial Set Initial Set Initial Set Fos. Edit Initial Set TestPlay Initial Set	
2	Set the auto motor power (auto servo) OFF delay time. Touch [Parameter].	Maintenance Menu Axis No. 00 Parameter Backup Data I/O Test EnvironmentSet Alarm List Menu	
3	Enter the password.	Parameter Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT Menu	The password is "5119" (factory setting). A desired password can be set using the "system password" parameter accessible from the maintenance menu.
4	Touch [Edit Parameter].	Parameter Menu Axis No. 00 Edit Parameter Axis No. Set Init Parameter System Password Menu	
5	Touch [↑]/[↓] to navigate through the screens until the auto servo OFF delay time setting screen appears.	Edit Parameter Axis No. 00 1. Position band 0. 10mm 2. Jog seed 100.00mm/sec 3. Servo sain selection 6 4. Torue filter constant 0 5. Seed loop rocertional gain 545 6. Sneed loop integral gain 5455 7. Push seed 20.00 mm/sec 8. Push reconition time 255 msec 1 Spec ify No Menu 400	
6	Touch the value field of auto servo OFF delay time. When the numeric keypad is displayed, touch [5] and then [ENT].	Edit Parameter Axis No. 00 9. Rushing fails current Push Cur 10. Auto servo OFF delay time 1 sec 11. Stoe mode 1 sec 12. Default home current limit 1 40% 13. Default home current limit 0 010 sec 15. Soft limit 30.00 16. Home offset 1.20 17. Specify No J	



No.	Operation	Screen	Remarks
7	"5" is shown.	Edit Parameter Axis No. 00 3. Pushins fails current Push Cur Stop Cur 10. Auto servo CFF delay time 5 sec 11. Stop mode 12. Default hosit conrine cur limit 12. Default hosit conrent limit 140 gr 14. Pos. Execution - Vait 0.010 sec 15. Soft limit 30.00 16. Home offset 1.20 17 Specify No Menu	
8	Touch [Menu].	Edit Parameter Avis No. 00 9. Pushins fails current Push Cur Stop Cur 10. Auto servo OFF delay time 5 sec 11. Stop mode 11. Stop mode 12. Default hose current limit 140 X 14. Pos. Execution - Wait 0.00 sec 15. Soft limit 30.00 16. Home offset 1.20 1 Specify No	
9	Touch [Yes].	Soft Reset Axis No. 00 Do you want to restart the controller? Yes No	If you touch [No], the settings you have made will not be reflected until the controller is restarted.
10		Soft Reset Axis No. 00 Restarting the controller. Please wait a minute.	
11	The controller is restarted and the MEC menu screen appears. Touch [Pos.Edit].	MEC Menu Axis No. 00 Setup Steps Initial Set Pos.Edit God TestPlay	
12	If the password is not "0000," the password entry screen appears. Enter the password.	Pos.Edit Axis No. 00 Please input a password. 0000 1 2 3 4 5 CLR ESC 6 7 8 9 0 BS ENT	A desired position setting password can be set in the "position data edit password" field of the parameter edit screen.
13	Set the energy-saving function at the start point. Touch [Forward Position].	Pos.Edit Axis No. 00 IForward Position IBackward Position 0.00 mm 100.00 mm Velocity 50.00 mm/s 100.00 mm/s 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.

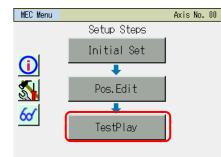


No.	Operation	Screen	Remarks
14	Touch [ON].	Pos.Edit Axis No. 00 Fwd Back Position 0.00 mm Velocity 50.00 mm/s PushPand 0.% PushPand 0.10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving ON Menu TestPlay	Touch [Menu] to return to the position setting screen.
15	Touch [Menu].	Pos.Edit Axis No. 00 ØForward Position 1Backward Position 0.00 mm 100.00 mm Velocity 50.00 mm/s 100.00 mm 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.
16	Set the energy-saving function at the end point. Touch [Backward Position].	Pos.Edit Avis No. 00 IForward Position IBackward Position 0.00 mm 100.00 mm Velocity 50.00 mm/s 100.00 mm/s 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.
17	The display switches to the end point screen. Set the energy-saving function relating to the end point.	Pos.Edit Axis No. 00 Fwd Back Position 100.00 mm Velocity 100.00 mm/s PushPower 0 % PushBand 0.10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving 0N Menu TestPlay	Touch [Menu] to return to the position setting screen.
18	Touch [ON].	Pos.Edit Axis No. 00 Fwd Back Position 100.00 mm/s Velocity 100.00 mm/s PushPower 0 % PushBad 0.10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving IN Menu TestPlay	Touch [Menu] to return to the position setting screen.
19	Touch [Menu].	Pos.Edit Axis No. 00 Fwd Back Position 100.00 mm Velocity 100.00 mm/s PushPower 0 % PushPand 0.10 mm Accelerate 0.30 G Decelerate 0.30 G Energy-Saving 0N Menu TestPlay	Touch [Menu] to return to the position setting screen.
20		Pos.Edit Axis No. 00 0Forward Position 1Backward Position 0.00 mm 100.00 mm Velocity 50.00 mm/s 100.00 mm 100.00 mm/s	Touch [Menu] to return to the MEC menu screen.



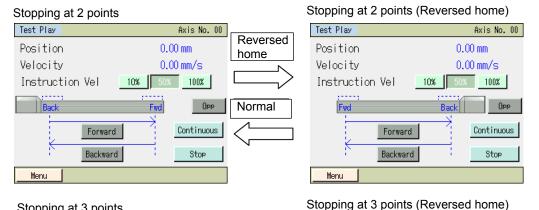
7.8 Trial operation

You can perform I/O tests and axis movement operation tests.

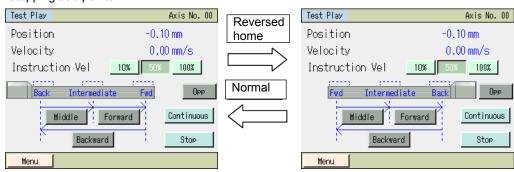


Touch [TestPlay] on the MEC menu screen.

Operation test: You can perform operation tests of axis movement. • A screen corresponding to the operation pattern you have selected appears. The display can be switched between the normal mode and reversed-home mode. If your actuator is of the reversed-home specification, you can switch to the reversed-home mode to align the display with the actual actuator.

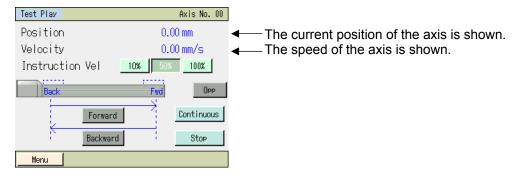


Stopping at 3 points





The operating direction is shown by using an example of stopping at 2 points.

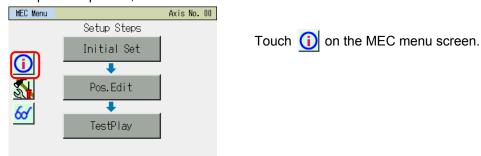


• Instruction Vel: Select [10%], [50%] or [100%] as the speed for trial operation. If the speed set on the position setting screen is 600 mm/s, for example, the trial Operation peed will become 600 mm/s if [100%] is selected, 300 mm/s if [50%] is selected, or 60 mm/s if [10%] is selected. Touching [Forward] causes the actuator to move toward the end point. Forward: • Backward: Touching [Backward] causes the actuator to move toward the start point. Continuous: Touching [Continuous] causes the actuator to move continuously until [Stop] is touched. If the actuator is set to stop at 2 points, it will move between the start point and end point repeatedly. If the actuator is set to stop at 3 points, it will move in the sequence of intermediate point \rightarrow end point \rightarrow start point repeatedly. Touching [Stop] causes the actuator to stop. Stop: • Opp, Normal: Touching [Opp] or [Normal] toggles the display mode between normal and reversedhome.



7.9 Information

The operation pattern, version and other information are shown.



The information selection screen appears.

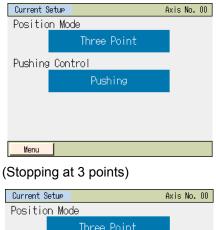
Info Menu		Axis No. O	0
	Current Setup		
	Version		
	Product		
	Inquiry		
Menu			

Touch the screen you want to display. Touch [Menu] to return to the MEC menu screen.

[Setting check]

You can check the operation pattern, operation mode and other information currently set.

(Stopping at 2 points)







[Version/manufacturing information] You can check the version information, etc.

VersionInfo	Axis No. 00
Series/Type	415345502D4E5020
Controller Version	0000000
Core Version	AC840000
TP Version	Ver. 9.96
TP Core Version	Ver.0.01
ABS Board Version	00000005
Pnl Board Version	
Pnl Board Core Ver	
	· · · · · · · · · · · · · · · · · · ·
Menu	

[Manufacturing information]

You can check the serial numbers and other manufacturing information.

Product	Axis	No.	00
Controller Serial No. 1234-5678-90AB-C			
Controller PCB Revision M.REV: F.REV:			-
Axis Serial No. FEDC-BA09-8765-4			
Menu			

[Contact]

You can check the contact information of IAI.



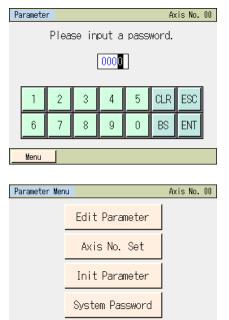


7.10 Maintenance - Parameters

Set the parameters and axis number. You can change the system password and reset all parameters to their factory defaults.

MEC Menu	Setup Steps	Axis No. 00	Touch 🚮	on the MEC menu screen.
	Initial Set			
	₽os.Edit			
<u> </u>	÷	1		
	TestPlay			
Maintenance Menu		Axis No. 00	Touch [Para Touch [Men	meter]. u] to return to the MEC menu screen.
Parameter	- Backu	ip Data		
I/O Test	Enviro	nmentSet		
Alarm Lis	t			

Before the display switches to the initial setting screen, the password entry screen appears if the password is other than "0000."



Menu

Enter the password using the numeric keypad, and then touch [ENT].

The password is "5119" (factory setting).

A desired password can be set using the "system password" parameter accessible from the maintenance menu.

Select and touch [Edit Parameter], [Init Parameter] or [System Password].

Menu



A screen corresponding to the menu you have selected appears.

• Parameter edit : You can set 18 parameters.

Edit Parameter	Axis No. 00
1. Position band	0.10 _{mm}
2. Jog speed	100.00mm/sec
3. Servo gain selection	6
4. Torque filter constant	0
5. Speed loop proportional gain	546
6. Speed loop integral gain	4453
7. Push speed	20.00mm/sec
8. Push recognition time	255 _{MSec}
↑ Specify No	\downarrow
Menu	

• Parameter initialization

Init Parameter	Axis No. 00
Initialize to shipment parameter?	
Password : ****	
Yes No	
Menu	

: You can reset all parameters to their factory defaults (initialize the parameters).

• System password change : You can change the parameter edit password, etc.

Cha	Change System Password							
		Nou	Daco	word	: 511	0		
		TNEW	газэ	woru	• 511	3		
	1	2	3	4	5	CLR	ESC	
	6 7 8 9 0 BS ENT							
Menu								



[1] Types of parameter editing

For details on each parameter, refer to the operation manual for your PMEC/AMEC controller and ERC3 (MEC mode).

- (Positioning band) Set the positioning band.
- (Jog speed) Set the speed of jog operation.
- (Servo gain number)

Set the servo gain number that determines the response of position control loops in servo control.

(Torque filter constant)

Set the torque filter time constant that determines the filter time constant for torque commands in servo control.

(Speed loop proportional gain)

Set the speed loop proportional gain that determines the response of speed control loops in servo control.

(Speed loop integral gain)

Set the speed loop integral gain that determines the response of speed control loops in servo control.

(Push speed)

Set the speed of push-motion operation.

(Push recognition time)

Set the push recognition time to recognize completion of operation after the work part was contacted in push-motion operation.

(Pushing fails current)

Set whether to use the push current or stop current as the current limiting value when the work part was missed in push-motion operation.

For AMEC, if the stop current is selected when the work part was missed in push-motion operation, the torque limit at the travel current limiting value is set.

(Auto servo OFF delay time)

Set the time until the auto motor power (auto servo) turns off automatically when the ecology function is enabled.

(Stop mode) Displayed for PMEC, ERC3 (MEC mode) controllers

Set whether to implement servo stop based on the full servo control method or complete stop without servo control when the actuator stops.

(Note) When this parameter is changed, the new setting will not be reflected until the position data is written to the controller again.

(Current limiting value while stopped after positioning) <u>Displayed for PMEC, ERC3 (MEC mode) controller</u> Set the current limiting value to be applied while the actuator is stopped after positioning.

- (Current limiting value during home return) Set the current limiting value to be applied during home return operation.
- (Position execution wait time during continuous operation)
 - This parameter is not used with PMEC, AMEC and ERC3 (MEC mode) controllers.



(Soft limit) Set the positive soft limit.

(Home return offset) Set the offset for home return.

(Home return direction)

Set whether to perform home return in the motor direction or front side direction. The home return direction cannot be changed for some actuators, such as rod-type actuators.

(Position edit password) Set the password for editing position data.

(PIO Inching distance) <u>Displayed for ERC3</u> Set the inching distance for when conducting the inching operation in Quick Teach.

(Threshold for total number of movements) <u>Displayed for ERC3</u> Set the threshold for total number of movements. The total number of the actuator operation is counted in the maintenance function of ERC3. An alarm is generated when the total operation distance exceeds the value set to threshold for total number of movements.

(Threshold for total travelled distance) <u>Displayed for ERC3</u> Set the threshold for total travelled distance. The total travelled distance of the actuator operation is counted in the maintenance function of ERC3. An alarm is generated when the total operation distance exceeds the value set to threshold for total travelled distance.

(High Output Setting) <u>Displayed for ERC3</u> Set whether use the high output function. Enabling : Set to use the high output function.

(BU Speed Loop Proportional Gain) <u>Displayed for ERC3</u> When the high output setting is activated, this parameter setting becomes effective for the speed loop proportional gain.

(BU Speed Loop Integral Gain) <u>Displayed for ERC3</u> When the high output setting is activated, this parameter setting becomes effective for the speed loop integral gain.



[2] Basic operation Set parameters.

-

[Parameter]

Edit Parameter	Axis No. 00
1. Position band	0.10 _{MM}
2. Jog speed	100.00mm/sec
3. Servo gain selection	6
4. Torque filter constant	0
5. Speed loop proportional gain	546
6. Speed loop integral gain	4453
7. Push speed	20.00mm/sec
8. Push recognition time	255 _{MSec}
↑ Specify No	\downarrow
Menu	

Touch $[\uparrow]$ to return to the previous screen.

Touch $[\downarrow]$ to move to the next screen.

Three screens are available, including one showing the default positioning band and others used to edit position data and password.

Touch [Menu] to return to the parameter menu screen.

An example of setting a soft limit is explained.

Touch [\uparrow] and [\downarrow] on the displayed screen until the soft limit setting screen appears.

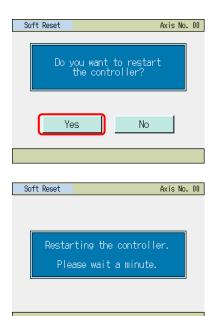
Edit Parameter	Axis No. 00
9. Pushing fails current Push	Cur Stop Cur
10. Auto servo OFF delay time	1 sec
11. Stop mode	
12. Default positioning cur limit	
13.Default home current limit	140%
14.Pos. Execution - Wait	0.010sec
15.Soft limit	30.00
16. Home offset	1.20
↑ Specify No	\downarrow
Menu	

Touch the current value. When the numeric keypad appears, enter a desired value and then touch [ENT].

Edit Parameter	Axis No. 00
9. Pushing fails currentPush	Cur Stop Cur
10. Auto servo OFF delay time	1 sec
11.Stop mode	
12. Default positioning cur limit	
13. Default home current limit	140%
14.Pos. Execution - Wait	0.010 _{Sec}
15.Soft limit	30.00
16. Home offset	1.20
↑ Specify No	\downarrow
Menu	

Change parameters and touch [Menu] to return to the controller restart screen.





Touch [Yes]. The controller is restarted. The controller operates according to the operation pattern settings you have made. The display returns to the initial setting screen.

Touch [No], and the controller will not operate according to the operation pattern parameters you have set until restarted.



[Init Parameter]

The parameters are reset to their factory default settings.

Init Parameter Axis No. 00 Touch [Yes]. Initialize to shipment parameter? Touch [No] to return to the parameter menu screen without resetting the parameters to their factory default settings. Password : *** Yes No Menu Axis No. 00 Soft Reset Touch [Yes]. The controller is restarted. Do you want to restart the controller? The controller operate according to the factory-set parameters. The display returns to the initial setting screen. Yes No Touch [No], and the controller will not operate according to the factoryset parameters until restarted. Soft Reset Axis No. 00 Restarting the controller.

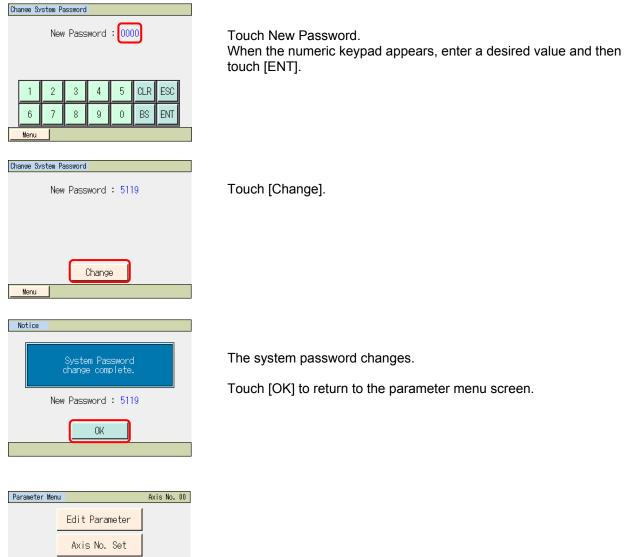


[Change System Password] Change the password for paramet

Init Parameter System Password

Menu

Change the password for parameter editing.





7.11 Maintenance - I/O Tests

You can monitor PIO input signals. Output signals can be forcibly turned ON or OFF.

MEC Menu Axis No. 00 Setup Steps Initial Set Pos.Edit TestPlay	Touch
Maintenance Menu Axis No. 00 Parameter Backup Data I/0 Test EnvironmentSet Alarm List Menu	Touch [I/O Test]. Touch [Menu] to return to the MEC menu screen.
I/OTest Axis No. 00	You can monitor the ON/OFF statuses of input signals.
Input IN3 IN2 IN1 IN0 Output OUT3 OUT2 OUT1 OUT0	Output signals OUT0 to OUT3 can be forcibly output by touching each signal button.
<pre>%Turn on Output by pushing OUT button. IN* OUT* : OFF IN* OUT* : ON Menu</pre>	Touch [Menu] to return to the maintenance menu screen.



7.12 Maintenance – Alarm List

A list of alarms that have generated after the controller power was turned on is displayed. [Refer to 8, "Error Display" for the details of alarms.]

initia Pos.	Axis No. 00 Steps al Set Edit Play	Touch 🔬 on the MEC menu screen.
Maintenance Menu	Axis No. 00	Touch [Alarm List].
Parameter	Backup Data	Touch [Menu] to return to the MEC menu screen.
I/O Test	EnvironmentSet	
Alarm List		
Menu		

The alarm list of the controller is displayed. The error list consists of errors 0 to 15.

Con	troll	er Alarm List			Axis No. 00
No	Code	Message	Adrs	Detail	Time
00	FFF	PowerUP No Error	****	****	0:00:00
01	0A2	Pos Data Error	1214	0021	0:04:38
02	FFF	PowerUP No Error	****	****	0:00:00
03	000		****	****	0:00:00
04	000		****	****	0:00:00
05	000		****	****	0:00:00
06	000		****	****	0:00:00
07	000		****	****	0:00:00
		\downarrow			Clear
	Menu				

Touch $[\downarrow]$ to display the next errors of the list.



Con	troll	er Alarm List			Axis No. 00
No	Code	Message	Adrs	Detail	Time
08	000		****	****	0:00:00
09	000		****	****	0:00:00
10	000		****	****	0:00:00
11	000		****	****	0:00:00
12	000		****	****	0:00:00
13	000		****	****	0:00:00
14	000		****	****	0:00:00
15	000		****	****	0:00:00
		\uparrow			Clear
	Menu				

Touch $[\uparrow]$ to display the previous list screen.

Touch [Clear], and the details of all alarms will be cleared.

(Note) PowerUP No Error indicates that the controller power was turned on.
 It does not indicate an error.
 The time of occurrence of each alarm is indicated by an elapsed time from this PowerUP No Error.

ROBO CYLINDER

7.13 Data Backup

Data is transferred between the Secure Digital memory card in the touch panel teaching pendant and the controller.

(Note) Type of Stored Data

This includes the position data, parameters and alarm list.

It is not applicable to the backup data storable in the MEC PC software.

Please note that MEC PC Software cannot deal with individual position data and parameters.

(Note) Extensions of the Stored Data

• The file extensions for AMEC Controllers to be stored in the Secure Digital card are ptam for the position data and pram for the parameters. The position data for PMEC controllers is ptpm and parameters are prpm.

• The alarm list can only have the backup. It cannot be restored. Data is in a CSV file.

(Note) Directories of the Stored Data

The folders to store the backup data of the controller and the folder to read the data from when restoring the data to the controller are as listed below. The directories to store the files cannot be changed. The files existing in other directories other than the specified folders cannot be listed up in the file name list in the file select at the initial setting or restore.

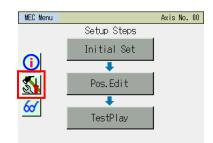
If the folder does not exist, it is automatically created.

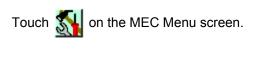
- Position Data : \CONPTA\Position\File Name
- Parameter : \CONPTA\Parameter\File Name
- Alarm List : \CONPTA\Alarmlist\File Name



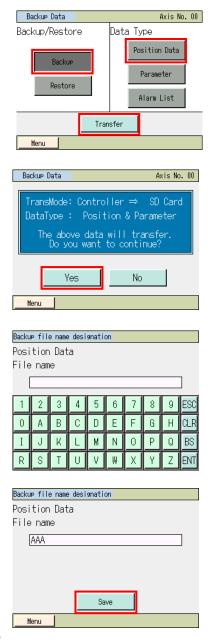
7.13.1 Data Backup of the Controller

The data in the controller is transferred to the Secure Digital memory card for backup.





A screen for data transfer appears.



Touch [Backup].

Select the data type for the backup such as [Position Data] and touch it.

Touch [Transfer].

Touch [Yes].

If [No] is touched, the screen goes back to the data backup screen.

Numeric keys show up. Input a file name. The file name is to be typed with 32 characters at maximum in letters and numbers.

Touch [Save].



File name confirmation
File name
AAA.ptpc
The above file is saved. Are you sure to continue?
Yes No
Menu
File name confirmation
File name
AAA.ptpc
A file of the same name already exists. Do you want to replace it?
Yes No
Menu
Backup Data Axis No. 00
Backup Data Axis No. 00 Transferring Data. Please wait a minute.
Transferring Data.
Transferring Data.
Transferring Data. Please wait a minute.
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter Message Axis No. 00
Transferring Data. Please wait a minute. 100% TransMode: Controller ⇒ SD Card DataType : Position & Parameter Message Axis No. 00 Message No. 184

The screen below appears if the same name is not found.

Touch [Yes].

If [No] is touched, the screen goes back to the previous one to indicate the backup file name in which the numeric keys were shown.

The screen below appears if the same name is not found.

Touch [Yes].

If [No] is touched, the screen goes back to the previous one to indicate the backup file name in which the numeric keys were shown.

Data transfer screen will be shown.

A message to tell the data transfer is complete pops up and the backup process is finished.

Touching [Back] can go back to the Backup Data screen.



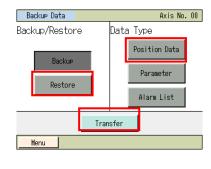
7.13.2 Restore to Controller

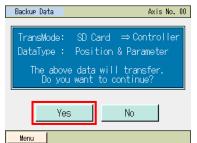
Data in the Secure Digital card is transferred to the controller.

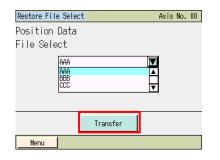
Menu 1	Axis No. 00
Monitor	Trial Operation
Edit Position	Alarm List
Edit Parameter	Information
Backup Data	Menu2

Touch [Backup Data] on the Menu 1 screen.

A screen for data transfer appears.







Touch [Restore].

Select the data type to transfer to the controller, such as [Position Data], and touch it.

Touch [Transfer].

Touch [Yes].

If [No] is touched, the screen goes back to the data backup screen.

Touch \blacktriangle and \blacktriangledown to select a file to transfer to the controller from the list of the backed up file names.

Touch [Transfer].



File name confirmation
File name
AAA.ptpc
The file's data transfer to controller. Are you sure to continue?
Yes No
Menu
Backup Data Axis No. 00
Transferring Data. Please wait a minute.
100%
100% TransMode: SD Card ⇒ Controller DataTvpe: Position Data
TransMode: SD Card \Rightarrow Controller
TransMode: SD Card ⇒ Controller DataType: Position Data
TransMode: SD Card ⇒ Controller DataType : Position Data Message Axis No. 00

Touch [Yes].

If [No] is touched, the screen goes back to the previous one for the restore file select.

Data transfer screen will be shown.

A message to tell the data transfer is complete pops up and the data transfer process to the controller is finished.

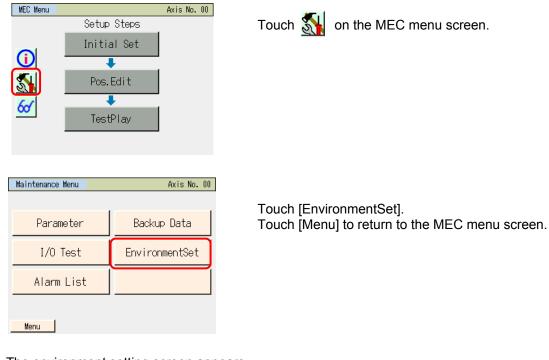
Touching [Back] can go back to the Backup Data screen.

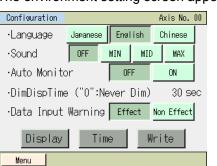


7.14 Maintenance - Environment Setting

(Touch sound Setting, Display Language Setting, Auto Monitor Setting, Display Setting (Screen Adjustment))

You can set the touch sound, display language and auto monitor, and also adjust the screen.

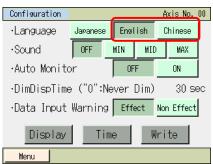




The environment setting screen appears.

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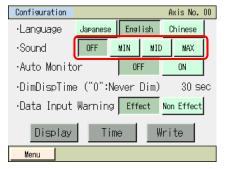
- [1] Basic operation
 - Language: Select Japanese or English as the display language. Display for Japanese/English/Chinese languages setting change (Option model code: ENG)



Select and touch [Japanese], etc.

Touch [Write].

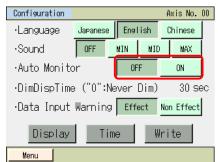
- (Note) If writing is not conducted, the values will go back to those before making a change when moving to another window.
- Sound: Set whether to output or not output a touch tone.



Touch [OFF]. A touch tone is not output. Touch either of [MAX], [MID] or [MIN]. A touch tone is output.

Touch [Write].

- (Note) If writing is not conducted, the values will go back to those before making a change when moving to another window.
- Auto Monitor: You can have the monitor screen appear first after the touch-panel teaching pendant is connected.



Touch [ON] to enable the auto monitor setting.

• Dim Display Time: You can set a desired time after which the display of the touch-panel teaching pendant will turn off. If "0 sec" is set, the display will remain lit at all times.

Configuration				Â	xis No.	00
·Language	Japanese	Engl	ish	С	hinese	
•Sound	OFF	MIN	MIC		MAX	
•Auto Monito	br	OF	F		ON	
•DimDispTime	ə ("O"∶N∈	ever	Dim)		30 se	ec
•Data Input	Warning	Effe	ect	Nor	n Effect	Γ
Display	Tim	е	W	lri	te	
Menu						

Touch •DimDispTime ("0":Never Dim) 30 sec.

When the numeric keypad is displayed, use the keypad to enter the light off time.

A desired value between 1 and 255 sec can be set.



• Data Input Warning: An alarm can be generated if a value below the minimum velocity or above the rated acceleration/deceleration is input in the position data. Even though, it is possible to input a value below the minimum velocity or above the rated acceleration /deceleration.

Configuration				Ĥ	ixis No.	00
 Language 	Japanese	Engl	lish	0	hinese	
•Sound	OFF	MIN	MIC		MAX	
•Auto Monito)r	OF	F		ON	
•DimDispTime	e ("0"∶Ne	ever	Dim)		30 se	ЭС
•Data Input	Warning	Eff	ect	Noi	n Effect	
Display	Tim	ne	W	ri	te	
Menu						

[Display]

Display Setting

Adjustment of contrast and brightness of the screen, position tuning for touch panel and LCD screen check can be performed.

Configuration				Â	cis No.	00
•Language	Japanese	Engl	lish	C	hinese	
•Sound	OFF	MIN	MID		MAX	
•Auto Monito	br	OF	F		ON	
•DimDispTime	ne ("O":Never Dim) 30 sec					
•Data Input	Warning	Eff	ect	Non	Effect	
Display	Ti	ne	W	ri	te	
Menu						

Touch [Display].

Display menu Window is displayed.

	Contrast/Brightness
	Touch calibration
	LCD check
Menu	1

Select Display Setting menu.

Touch [Menu] and the display returns to EnvironmetSet screen.



•Change the Contrast/Brightness

Display Setting	Touch [Contrast/Brightness].
Contrast/Brightness	
Touch calibration	
LCD check	
Menu	
Display Setting	Contrast adjustment Touch [–] and [+] under Contrast to adjust the contrast of the screen.
·Contrast	Brightness adjustment Touch [–] and [+] under Brightness to adjust the brightness of the screen.
-	Touch [Menu] and the display returns to Display menu screen.
Menu	

Touch calibration

2

3

A calibration for the position detection of the touch panel is performed.

1

4

Display Set	ting	
	Contrast/Brightness	
	Touch calibration	
	LCD check	
Menu		

Touch the target sequentially. (from 1 to 4) Touch [Touch Calibration].

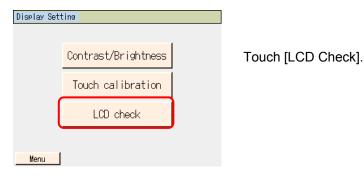
Touch [•] in the order of 1, 2, 3 and 4.

Touch [Menu] and the display returns to Display menu screen.

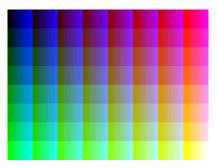


•LCD check

LCD display can be checked in the order of Color Pattern, White Only and Black Only.

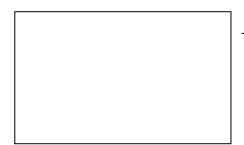


Color Pattern is displayed.



Touch any point on the screen.

White Only is displayed.



Touch any point on the screen.

Black Only is displayed.

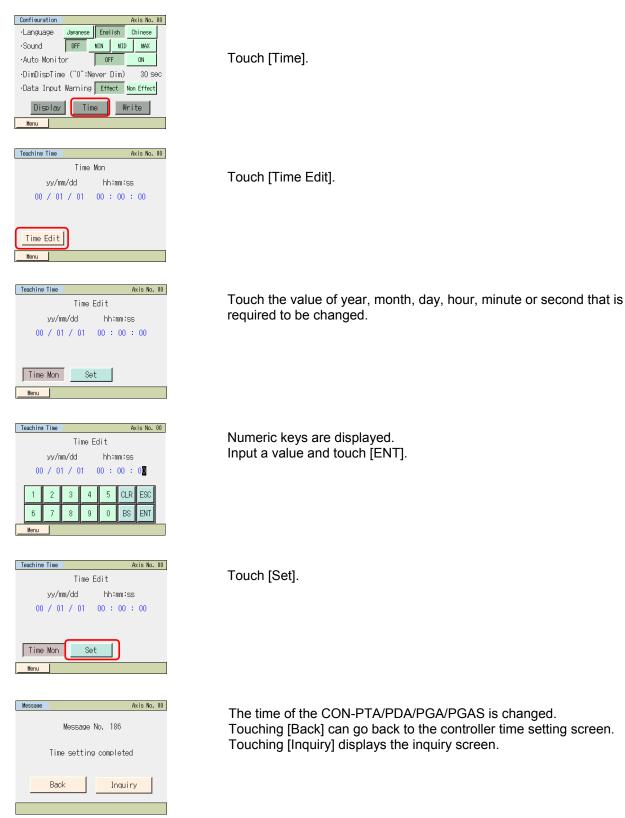


Touch any point on the screen. The display returns to Display menu screen.



[Time Setting]

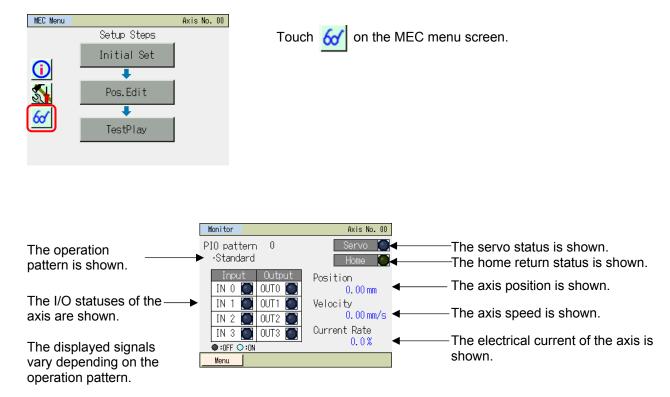
Time setting can be performed for CON-PTA/PDA/PGA/PGAS.



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7.15 Monitor

The current position, speed, electrical current, system status and I/O statuses of the controller are displayed.



Touch [Menu] to return to the MEC menu screen.

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8. Error Display

8.1 Occurrence of Alarm

If an error occurs, the alarm screen appears.

Model other than SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON

Alarm		Axis No. 00
Alarm	: A,B disc	onnect
Alarm Code	: 0E8	
Detail	: жжжж	
Address	: ****	
Time	: 0:03:27	
Back	Reset Alm	Inquiry

8.1.1 Alarms Detected by Controller

Alarms of codes 040 to 0FF are those detected by the controller. These alarms include major alarms relating to the servo control system, power system, etc. For details on these alarms, refer to the operation manual for your controller.

Remove the cause of each alarm and then perform the operation specified below.

- To reset operation -cancellation level alarms, touch [Reset Alm] on the alarm screen.
- To reset cold-start level errors, reconnect the control power.

8.1.2 Alarms Detected by Touch-panel Teaching Pendant

Alarms detected by the touch-panel teaching pendant and remedial actions are explained.

Code	Error description	Cause and action
308	Response timeout error No response is returned from the controller.	 The controller connection cable is open. Check the connection cable for wrong wiring or wire breakage. This is a temporary abnormality caused by noise, etc. Reconnect the controller power.
30D	Exceptional response receive error An abnormal response is returned from the controller.	This is a temporary abnormality caused by noise, etc. If the condition occurs frequently, check the cables, noise elimination measures taken on the power supply, etc.

[1] An alarm is displayed on the alarm screen.

SCON-CA, SCON-CAL/CGAL, PCON-CA, ACON-CA, DCON-CA, ERC3 PIO Converter and MSCON

Alarm		Axis No. 00
Alarm	: A,B disc	onnect
Alarm Code	0E8	
Detail	: ****	
Address	: ****	
Time(yy/mm/dd): 11/08/03 17:21:22		
Back	Reset Alm	Inquiry



8.2 Error Messages on Touch Panel

An error message is displayed on the touch panel display if, for example, an attempt is made to write to the controller an excessive value entered for the target position.

Check the entry to confirm that the value is correct, etc., and then try setting the value again.

Error message	
Input data error	
The entered value is too small	
The entered value is too large	
Password error	

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- 9. Appendix
- 9.1 Regarding RTC (Real Time Clock) Backup Voltage Drop
- 9.1.1 Action to Take after RTC (Real Time Clock) Backup Voltage Drop

A display of "No. 187 RTC Backup Voltage Drop" error indicates the battery has become depleted.

(Reference)

Battery Life

The nominal life time the supplier has announced is approximately 5 years (at ambient temperature 25 °C).

If the battery gets depleted, you will lose the following data:

- Time data (Note 1),
- TP parameters (Note 2) such for language setting and model specification setting,
- · Calibration values of touch panel, and
- Values of LCD contrast and brightness (Note 3)
- (Note 1) Set the current time every time turning the power on. The current time data is maintained until the power is turned off. The date when storing a file to an SD card is also based on the current time. If the current time setting is not conducted, the current time will show the time passed since 00/01/01 00:00:00 when the power is turned on. The date of file storage to an SD card will show the time passed since the power is turned on.
 - CON related controllers [Refer to 5.17 Environment Setting]
 - SEP controller [Refer to 6.14 Environment Setting]
 - MEC controller [Refer to 7.14 Maintenance Environment Setting]
- (Note 2) For CON-PDA/PGA/PGAS, if the TP parameters are initialized, the model turns to CON-PTA, thus the setting is turned to that not to use the enable switch. When connected to a controller with the enable effective and turn the power on, you will be asked if you may invalid the setting. Select "No". The dead man's switch can be used.

If "Yes" is touched accidently, the setting becomes invalid, thus the dead man's switch becomes no longer available. In this case, make the setting in Parameter No. 42 Enable Function of CON related controller to 0 = Effective.

[Refer to 5.8 Parameter Editing]

- (Note 3) Readjust the contrast and brightness of the screen if an adjustment has already been made to those settings.
 - CON related controllers [Refer to 5.17 Environment Settings]
 - SEP controller [Refer to 6.14 Environment Settings]
 - MEC controller [Refer to 7.14 Maintenance Environment Setting]

9.1.2 Battery Replacement

The battery cannot be replaced with the user's responsibility. Please contact us if a replacement work is needed.

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10. Warranty

10.1 Warranty Period

One of the following periods, whichever is shorter:

- 18 months after shipment from our company
- 12 months after delivery to the specified location

10.2 Scope of Warranty

Our products are covered by warranty when all of the following conditions are met. Faulty products covered by warranty will be replaced or repaired free of charge:

- (1) The breakdown or problem in question pertains to our product as delivered by us or our authorized dealer.
- (2) The breakdown or problem in question occurred during the warranty period.
- (3) The breakdown or problem in question occurred while the product was in use for an appropriate purpose under the conditions and environment of use specified in the Operation Manual and catalog.
- (4) The breakdown or problem in question was caused by a specification defect or problem, or by a quality issue with our product.

Note that breakdowns due to any of the following reasons are excluded from the scope of warranty:

- [1] Anything other than our product
- [2] Modification or repair performed by a party other than us (unless we have approved such modification or repair)
- [3] Anything that could not be easily predicted with the level of science and technology available at the time of shipment from our company
- [4] A natural disaster, man-made disaster, incident or accident for which we are not liable
- [5] Natural fading of paint or other symptoms of aging
- [6] Wear, depletion or other expected result of use
- [7] operation noise, vibration or other subjective sensation not affecting function or maintenance

Note that the warranty only covers our product as delivered and that any secondary loss arising from a breakdown of our product is excluded from the scope of warranty.

10.3 Honoring the Warranty

As a rule, the product must be brought to us for repair under warranty.

10.4 Limited Liability

- (1) We shall assume no liability for any special damage, consequential loss or passive loss such as a loss of expected profit arising from or in connection with our product.
- (2) We shall not be liable for any program or control method created by the customer to operate our product or for the result of such program or control method.

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10.5 Conditions of Conformance with Applicable Standards/Regulations, Etc., and Applications

- (1) If our product is combined with another product or any system, device, etc., used by the customer, the customer must first check the applicable standards, regulations and/or rules. The customer is also responsible for confirming that such combination with our product conforms to the applicable standards, etc. In such a case we will not be liable for the conformance of our product with the applicable standards, etc.
- (2) Our product is for general industrial use. It is not intended or designed for the applications specified below, which require a high level of safety. Accordingly, as a rule our product cannot be used in these applications. Contact us if you must use our product for any of these applications:
 - [1] Medical equipment pertaining to maintenance or management of human life or health
 - [2] A mechanism or mechanical equipment intended to move or transport people (such as a vehicle, railway facility or aviation facility)
 - [3] Important safety parts of mechanical equipment (such as safety devices)
 - [4] Equipment used to handle cultural assets, art or other irreplaceable items
- (3) Contact us at the earliest opportunity if our product is to be used in any condition or environment that differs from what is specified in the catalog or Operation Manual.

10.6 Other Items Excluded from Warranty

The price of the product delivered to you does not include expenses associated with programming, the dispatch of engineers, etc. Accordingly, a separate fee will be charged in the following cases even during the warranty period:

- [1] Guidance for installation/adjustment and witnessing of test operation
- [2] Maintenance and inspection
- [3] Technical guidance and education on operating/wiring methods, etc.
- [4] Technical guidance and education on programming and other items related to programs



11. Change History

Revision Date	Description of Revision
August 2011	First Edition
September 2011	Second Edition Pg. 8, 21 to 26, 28, 30 to 32, 71 to 72, 74, 85 and 216 The contents of ERC3 are added.
October 2011	Third Edition Pg. 200 ERC3 MEC Mode parameters added
October 2011	Fourth Edition DSEP added
November 2011	Fifth Edition Contents changed in Safety Guide Caution notes added for when working with two or more persons Pg. 7, 8, 21 to 24, 26 to 28, 30, 32 to 35, 73, 74, 76, 87, 88, 218 The contents of SCON-CA is added.
January 2012	Sixth Edition Statements added to show how to operate for data backup for position data and parameters in Pg. 91 to 95, 170 to 174, 221 to 225. MSEP added
May 2012	Seventh Edition Pg.1 to 7 Contents changed and added in Safety Guide Pg. 8, 41 Note added to explain that table may show '0' if touching [↑] key or [↓] key too fast to switch the windows in the table for position data.
August 2012	Eighth Edition MSCON added
August 2013	Ninth Edition CON-PGAS added
November 2013	Tenth Edition The contents of ACON-CA and DCON-CA are added.
February 2014	Eleventh Edition Pg.81 Load cell calibration operation added to 5. 13 User Adjustment
March 2014	Twelfth Edition Pg.15 Change made to note to state to turn power OFF before inserting/removing touch panel teaching



Revision Date	Description of Revision
May 2014	Thirteenth Edition Pg. 33 to 35 Correction made to contents of maintenance information
August 2014	Fourteenth Edition SCON-CAL/CGAL added
August 2014 July 2016	Fourteenth Edition SCON-CAL/CGAL added 14C Edition Pg. 10 Supported models added Pg. 11 The power supply voltage range to the basic specification added.



IAI Corporation

Head Office: 577-1 Obane Shimizu-KU Shizuoka City Shizuoka 424-0103, Japan TEL +81-54-364-5105 FAX +81-54-364-2589 website: www.iai-robot.co.jp/

Technical Support available in USA, Europe and China

IAI America, Inc.

Head Office: 2690 W. 237th Street, Torrance, CA 90505 TEL (310) 891-6015 FAX (310) 891-0815 Chicago Office: 110 East State Parkway, Schaumburg, IL 60173 TEL (847) 908-1400 FAX (847) 908-1399 Atlanta Office: 1220 Kennestone Circle, Suite 108, Marietta, GA 30066 TEL (678) 354-9470 FAX (678) 354-9471 website: www.intelligentactuator.com

IAI Industrieroboter GmbH

Ober der Röth 4, D-65824 Schwalbach am Taunus, Germany TEL 06196-88950 FAX 06196-889524

IAI (Shanghai) Co., Ltd.

SHANGHAI JIAHUA BUSINESS CENTER A8-303, 808, Hongqiao Rd. Shanghai 200030, China TEL 021-6448-4753 FAX 021-6448-3992 website: www.iai-robot.com

IAI Robot (Thailand) Co., Ltd.

825 PhairojKijja Tower 12th Floor, Bangna-Trad RD., Bangna, Bangna, Bangkok 10260, Thailand TEL +66-2-361-4458 FAX +66-2-361-4456

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