ROBO CYLINDER

Touch panel teaching tool
specially for SEP-PT

Instruction Manual Seventh Edition

IAI America Inc.

ROBO CYLINDER

Please Read Before Use

Thank you for purchasing our product.

This Instruction 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/DVD that comes with the product contains instruction manuals for IAI products.
When using the product, refer to the necessary portions of the applicable instruction manual by printing them out or displaying them on a PC.

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

[Important]

- This Instruction Manual is original.
- The product cannot be operated in any way unless expressly specified in this Instruction Manual. IAI shall assume no responsibility for the outcome of any operation not specified herein.
- Information contained in this Instruction 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.
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- The company names, names of products and trademarks of each company shown in the sentences are registered trademarks.

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ROBO CYLINDER

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	Precautions
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 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 with the ambient temperature or relative humidity exceeding the specification range 4) Location where radiant heat is added from direct sunlight or other large heat source 5) Location where condensation occurs due to abrupt temperature changes 6) 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 ● Do not use the product outside the specifications. Failure to do so may considerably shorten its life and cause a product breakdown or facility operation stop.
2	Transportation	● Consider well so that it is not bumped against anything or dropped during the transportation. ● Transport it using an appropriate transportation measure. ● 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 get on the load that is hung on a crane. ● 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.

No.	Operation Description	Precautions
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. ● 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 electric noise is generated 2) 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
		(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 ● Make sure to perform the grounding of type D (Former Type 3) for the controller. 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.

No.	Operation Description	Precautions
4	Installation and Start	(4) Safety Measures ● 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 suddenly and cause an injury or damage to the product. ● Take the safety measure not to 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 is to be performed, give clear warnings such as "Under 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 or fire. ● 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.
5	Teaching	● 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 fence, the movable range should be indicated.

No.	Operation Description	Precautions
6	Trial Operation	● 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	● Before the automatic operation is started up, make sure that there is nobody inside the safety protection fence. ● Before the automatic operation is started up, make sure that all the related peripheral machines are ready for the automatic operation and there is no error indication. ● Make sure to perform the startup operation for the automatic operation, out 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.
8	Maintenance and Inspection	● 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 Instruction 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. * Safety Protection Fence : In the case that there is no safety protection fence, the movable range should be indicated.
9	Modification	● Do not modify, disassemble, assemble or use of maintenance parts not specified based at your own discretion. ● In such case, the warranty is not applied.
10	Disposal	● When the product becomes no longer usable or necessary, dispose of it properly as an industrial waste. ● Do not put the product in a fire when disposing of it. The product may burst or generate toxic gases.

Alert Indication

The safety precautions are divided into “Danger”, “Warning”, “Caution” and “Notice” according to the warning level, as follows, and described in the Instruction 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.	 Danger
Warning	This indicates a potentially hazardous situation which, if the product is not handled correctly, could result in death or serious injury.	 Warning
Caution	This indicates a potentially hazardous situation which, if the product is not handled correctly, may result in minor injury or property damage.	 Caution
Notice	This indicates lower possibility for the injury, but should be kept to use this product properly	 Notice

Precautions for Operation

- Do not give any mechanical impact onto this touch panel teaching unit. Failure to do so may cause a breakdown of the unit.
- Operate the machine securely holding this touch panel teaching unit body so that any unnecessary tensile load is given to the cable.

⚠Caution

- This touch panel teaching unit has been designed specially for our controller ASEP/PSEP/DSEP, PMEC/AMEC or ERC3[*1]. Therefore, do not connect it to any other machine. Failure to do so may cause a breakdown of the unit.

*1 ERC3 is available to be connected only to MEC mode.
It cannot be connected in CON Mode.

Product Check

This product is comprised of the following parts if it is of standard configuration

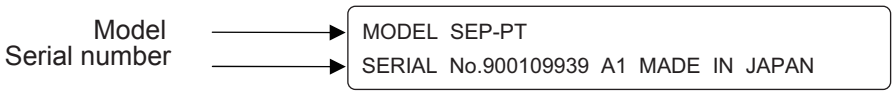
1. Parts (The option is excluded.)

No.	Part Name	Model	Remarks
1	Touch panel teaching tool specially for PSEP/ASEP/DSEP	Refer to “How to read the model plate”, “How to read the model No.”	
Accessories			
2	Touch Pen	Built in the Main Body	
3	First Step Guide		
4	Instruction Manual (CD/DVD)		
5	Safety Guide		

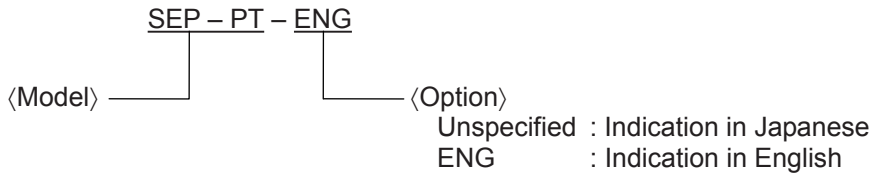
2. Instruction manuals related to this product, which are contained in the CD/DVD.

No.	Name	Manual No.
1	ASEP/PSEP/DSEP Controller Instruction Manual	ME0267
2	PMEC/AMEC Controller Instruction Manual	ME0245
3	Instruction Manual for the actuator with integrated ERC3 controller	ME0297
4	Touch panel teaching tool specially for PSEP/ASEP/DSEP SEP-PT Instruction Manual	ME0217

3. How to read the model plate



4. How to read the Model No.



Support Models

The support models are described in the following table.

Support Model List

Controller Model No.
ASEP
PSEP
DSEP
AMEC
PMEC
ERC3*1

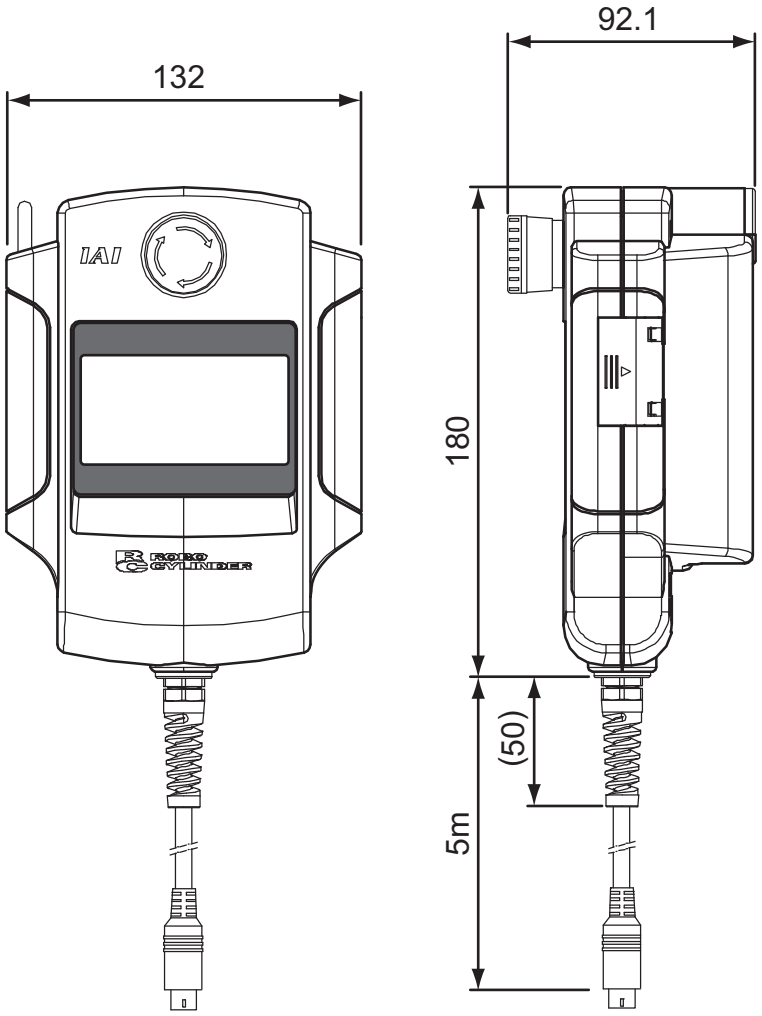
*1 ERC3 is available to be connected only to MEC mode.
It cannot be connected in CON Mode.

1. Basic Specifications

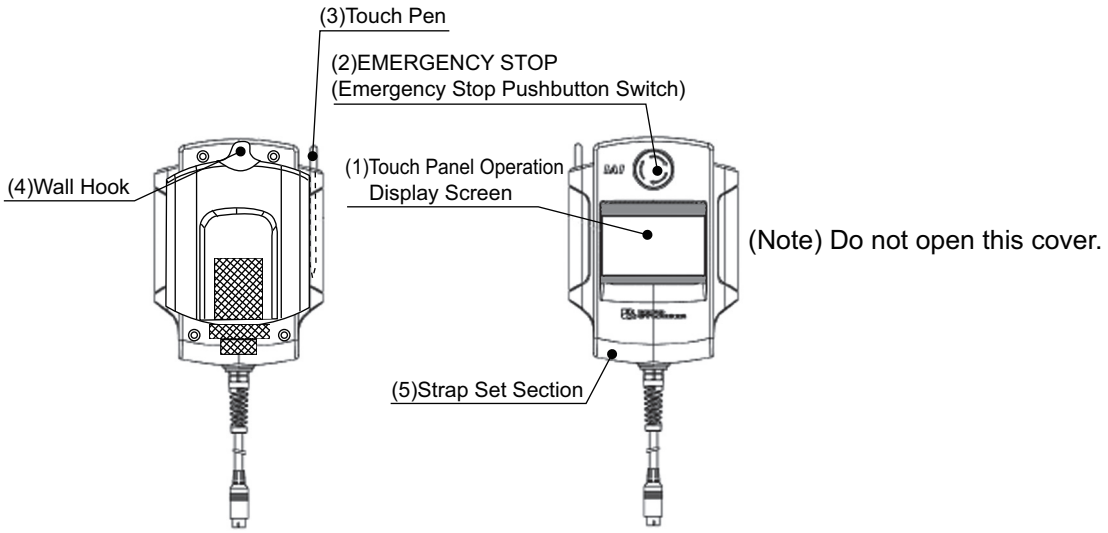
In this touch panel teaching unit, the operations are performed on the display panel. This unit is used for indicating or editing the data (parameter data, position data, etc.) to be saved in the controller by means of the communication with the controller. This unit is used to perform the offline teaching (teaching operation) or alarm confirmation, without host PLC.

Item	Specification
Power Demand	1.1W or less (220mA or less)
Surrounding air temperature, humidity	Temperature 0 to 50°C Humidity 20 to 85% RH (There should be no dew condensation)
Surrounding storage temperature, humidity	Temperature -20 to 60°C Humidity 10 to 85% RH (There should be no dew condensation)
Vibration resistance	(Test Condition) 10 to 55Hz (Frequency 1 minute) Duplex Amplitude 0.75mmX,Y,Z Direction for 10 minutes
Impact Resistance	(Test Condition) 9.8m/s^2 or more X,Y,Z Direction Four Times
Environment Resistance	IP40
Dimensions	180mm(L)×132mm(W)×92.1mm(D)
Mass	Approx. 550g (Including the 5m cable)
Cable length	5m(Standard)
Accessories	Touch Pen

External dimensions



2. Description of Each Section



(1) Touch Panel Operation Display Screen
This section consists of the STN monochrome LCD and touch panel.
Editing of various set values and teaching descriptions are displayed.
The operation is available by means of touching (Note 1) the touch panel using your finger or touch pen.

(Note1) The analog resistance film system is used for the touch panel. Therefore, do not touch two locations or more on the touch panel simultaneously.
In the case that two or more locations are touched simultaneously, the intermediate points of such two or more locations may react and the operations be started.
(Note2) Do not operate the touch panel with a force greater than 0.5N. If the touch panel is operated with the force greater than that, it may be broken.
(Note3) The life of a touch panel may be about 1 million times pressing the same positions (in the use environment at the temperature of 25°C).

(2) EMERGENCY STOP (Emergency Stop Pushbutton Switch)
Using this button, the machine is stopped in an emergency.

(3) Touch Pen
This touch pen is used to touch the touch panel operation display screen.

(4) Wall Hook
This hook is used to hang the unit from the wall.

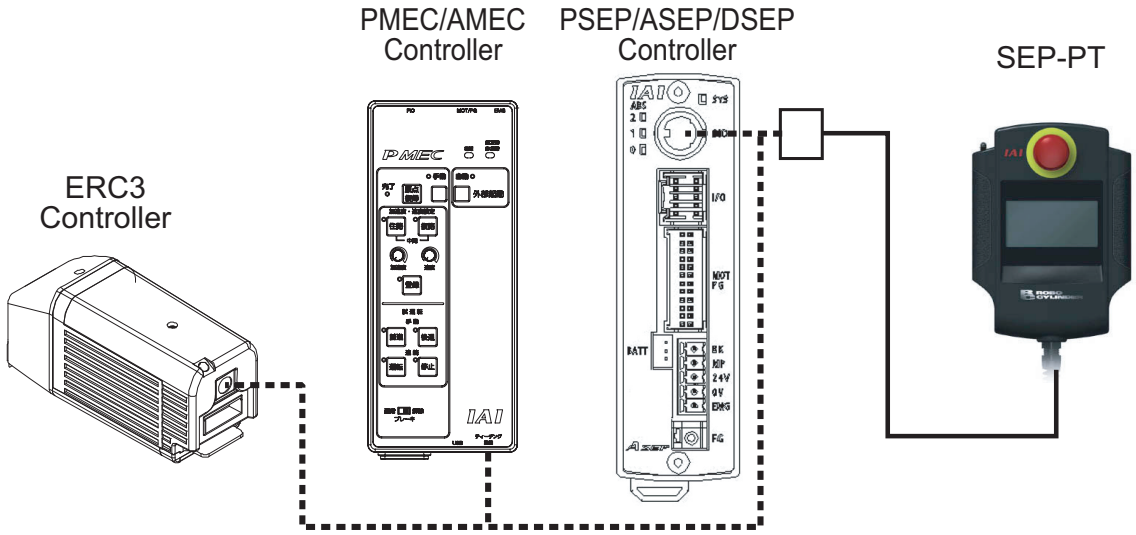
(5) Strap Set Section
The strap (option) is attached to this section.

3. Controller Connection and Disconnection

Make sure to turn off the power to the controller before inserting/removing Touch Panel Teaching SEP-PT.

⚠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.



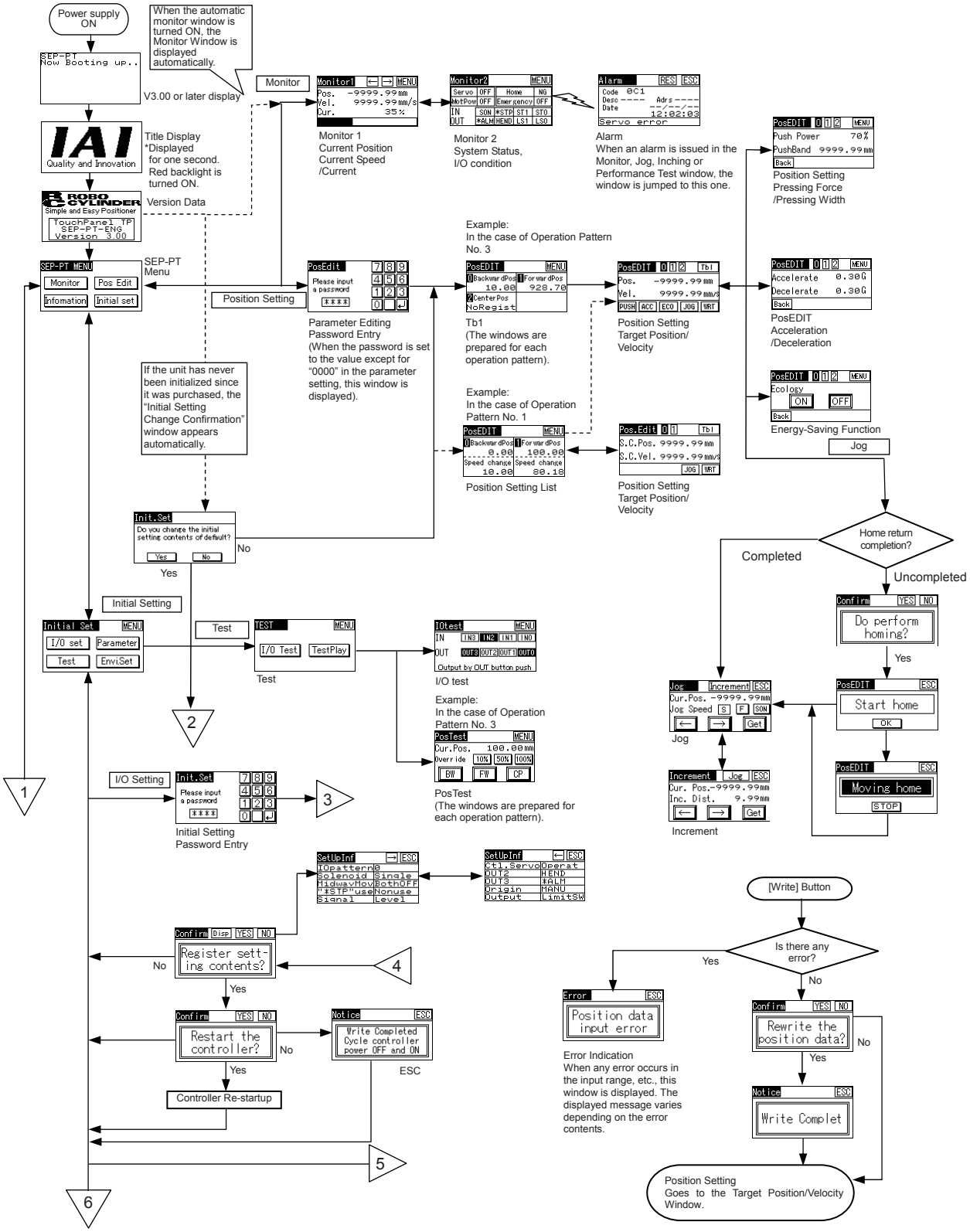
⚠Caution

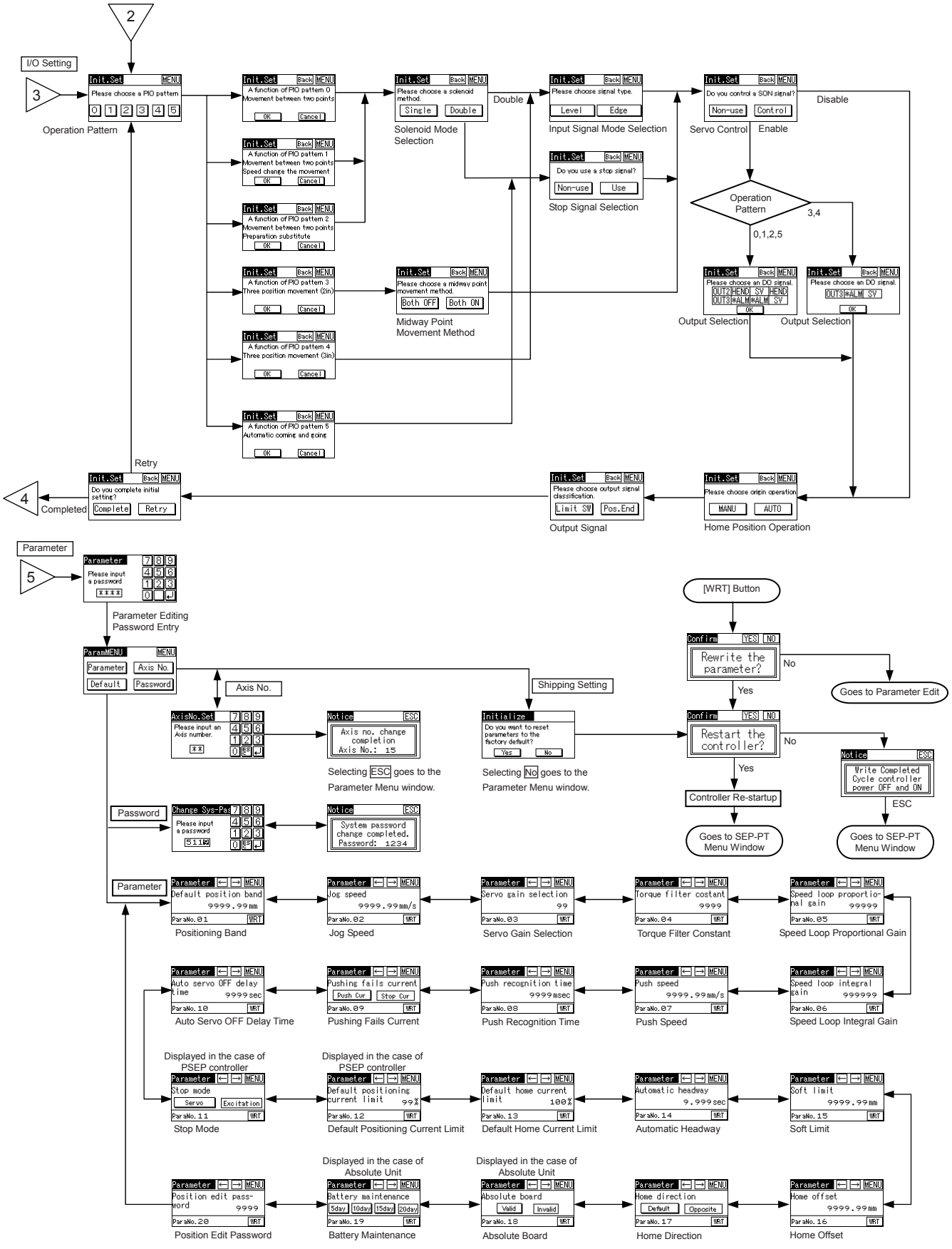
- The PSEP/ASEP/DSEP dedicated touch panel teaching unit SEP-PT can not be connected to the SIO converter (RCB-TU-SIO-A or RCB-TU-SIO-B).
  If connected, it might cause a breakdown of the SIO converter.

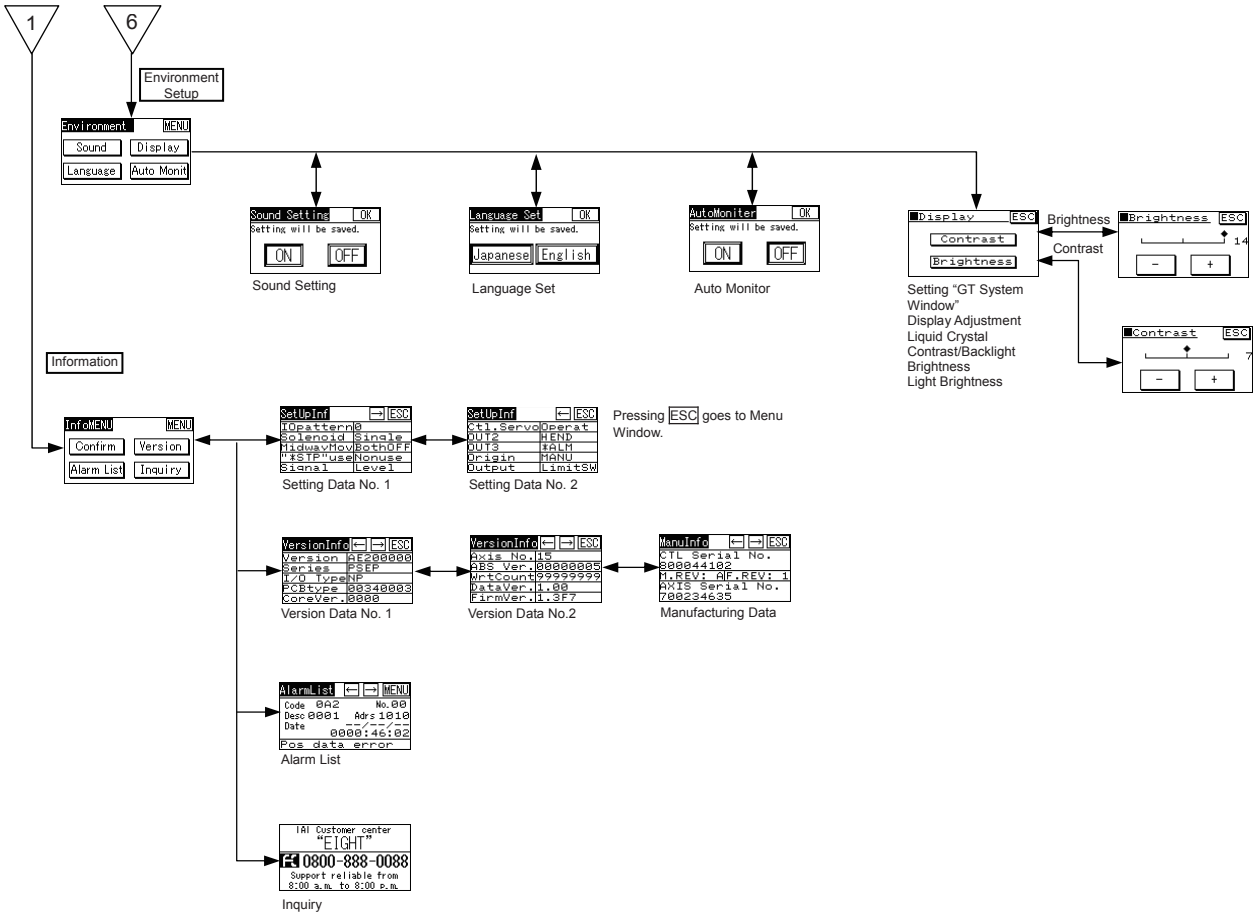
4. Operation of ASEP/PSEP/DSEP Controller

4.1 Operation Status Chart

State Transition of the operation when ASEP/PSEP/DSEP controller is connected is shown below:



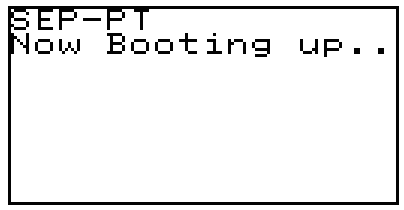

2
I/O Setting
3
Operation Pattern
Solenoid Mode Selection
Double
Input Signal Mode Selection
Servo Control
Disable
Enable
Stop Signal Selection
Operation Pattern
3,4
0,1,2,5
Midway Point Movement Method
Output Selection
Output Selection
Retry
4
Completed
Output Signal
Home Position Operation
Parameter
5
Parameter Editing Password Entry
Axis No.
Shipping Setting
[WRT] Button
No
Yes
Goes to Parameter Edit
Selecting ESC goes to the Parameter Menu window.
Selecting No goes to the Parameter Menu window.
No
Yes
Controller Re-startup
ESC
Goes to SEP-PT Menu Window
Goes to SEP-PT Menu Window
Password
Parameter
Positioning Band
Jog Speed
Servo Gain Selection
Torque Filter Constant
Speed Loop Proportional Gain
Auto Servo OFF Delay Time
Pushing Fails Current
Push Recognition Time
Push Speed
Speed Loop Integral Gain
Displayed in the case of PSEP controller
Displayed in the case of PSEP controller
Stop Mode
Default Positioning Current Limit
Default Home Current Limit
Automatic Headway
Soft Limit
Displayed in the case of Absolute Unit
Displayed in the case of Absolute Unit
Position Edit Password
Battery Maintenance
Absolute Board
Home Direction
Home Offset


1
6
Environment Setup
Environment
MENU
Sound
Display
Language
Auto Monit
Sound Setting
OK
Setting will be saved.
ON
OFF
Sound Setting
Language Set
OK
Setting will be saved.
Japanese
English
Language Set
AutoMoniter
OK
Setting will be saved.
ON
OFF
Auto Monitor
Display
ESC
Contrast
Brightness
Brightness
Contrast
Brightness
ESC
14
Contrast
ESC
7
Setting "GT System Window"
Display Adjustment
Liquid Crystal Contrast/Backlight
Brightness
Light Brightness
Information
InfoMENU
MENU
Confirm
Version
Alarm List
Inquiry
SetUpInf
ESC
IOpattern 0
Solenoid Single
MiduavMov BothOFF
"#STP"use Nonuse
Signal Level
Setting Data No. 1
SetUpInf
ESC
Ctl.Servo Operat
OUT2 #END
OUT3 #ALM
Origin MANU
Output LimitSW
Setting Data No. 2
Pressing ESC goes to Menu Window.
VersionInfo
ESC
Version AE200000
Series PSEP
I/O Type NP
PCBtype 00340003
CoreVer. 0000
Version Data No. 1
VersionInfo
ESC
Axis No. 15
ABS Ver. 00000005
WrtCount 99999999
DataVer. 1.00
FirmVer. 1.3F7
Version Data No.2
ManuInfo
ESC
CTL Serial No.
000044102
M.REV: AE REV: 1
AXIS Serial No.
700234635
Manufacturing Data
AlarmList
MENU
Code 0A2 No.00
Desc 0001 Adrs 1010
Date --/--/--
0000:46:02
Pos data error
Alarm List
IAI Customer center
"EIGHT"
0800-888-0088
Support reliable from 8:00 a.m. to 8:00 p.m.
Inquiry

4.2 Each Operation

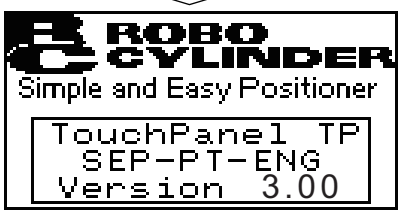
4.2.1 Initial Window

When the controller is connected, the power is supplied to the PSEP/ASEP/DSEP dedicated touch panel teaching unit and the processing is started.
In the operation window in the PSEP/ASEP/DSEP dedicated touch panel teaching unit, “IAI” logo mark is displayed for one second when the power is input. Then, the version data is displayed for three seconds.

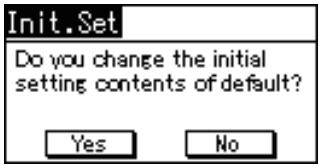


V3.00 or later display

After that, the window to be displayed varies depending on the condition.



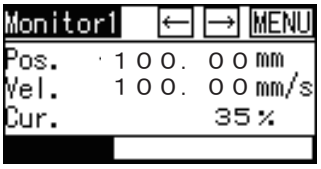
In the case that the controller has never been initialized since it was purchased:
In the case that the initial setting has not been ever performed since the unit was purchased.



[Refer to “4.2.2 Initial Setting”.]

[Refer to “4.2.3 Menu Selection”.]

In the case that the “Automatic Monitor” is set to “ON”: *1



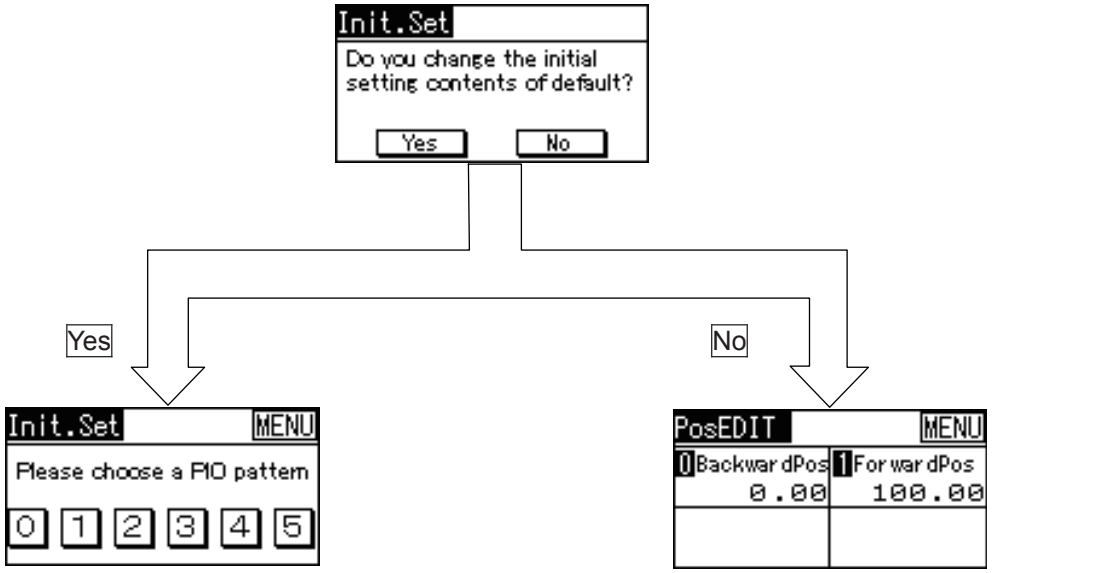
[Refer to “4.2.4 Monitor]

∗ 1 It can be set in the Automatic Monitor Setting Window in the Environment Setup window in the main screen.

4.2.2 Initial Setting

When power is input for the first time after the controller is delivered, the “Initialization” window appears.

- Selecting Yes goes to the I/O setting window in the operation pattern (PIO Pattern) setting. Select the operation pattern and set the operation mode to single solenoid or double solenoid depending on the selected operation pattern.
- Selecting No keeps the double solenoid operation mode with the operation pattern “0” which has been set when the unit is delivered from the factory.
  The window is transferred to the Position Setting window.



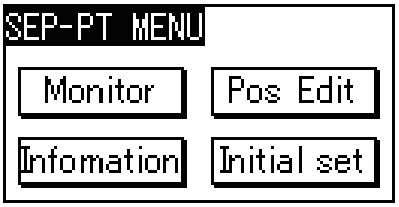
[Refer to “4.2.7 I/O Setting”.]

[Refer to “4.2.5 Position Setting”.]

Setting at the delivery from the factory

- Operation Pattern 0
- Double Solenoid Continuous Operation Type
- Servo-motor Control Disabled
- Home return MANU
- Output System LS

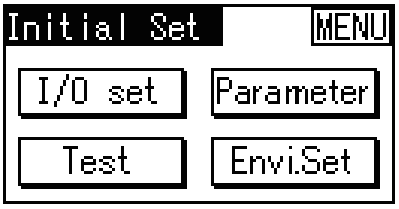
4.2.3 Menu Selection



There are four menu items in the SET-PT MENU window. Select one of them and touch it.
The window is transferred to one for the selected menu.
Menu List

- Monitor — Controller Status Display [Refer to Item 4.2.4]
- Pos Edit — Setting of Position, Pressing Force and Pressing Width, Jog Movement [Refer to Item 4.2.5]
- Information — Data Display for the Operation Pattern or Version [Refer to Item 4.2.6]
- Initial set

Touching Initial set transfers to the Initial Setting Menu window where the next selection is to be performed.



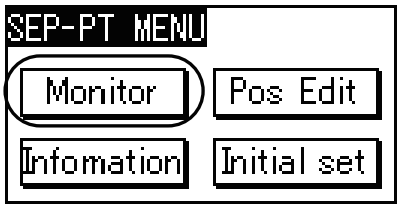
There are four menu items in the Initial Setting Menu window. Touch the menu to select it.
The window will display the selected menu.
When MENU is touched, the previous “SEP-PT Menu” window is returned.

Initial Setting Menu List

- I/O set — Selection of Operation Pattern (PIO Pattern) (0 to 5) and Setting of Operation Mode (Single Solenoid or Double Solenoid) [Refer to Item 4.2.7]
- Parameter — Parameter Setting for Positioning Width Initial Value, etc. [Refer to Item 4.2.8]
- Test — I/O Test and Axis Movement Operation Test [Refer to Item 4.2.9]
- Envi.Set — Environment Setup such as touch sound setting [Refer to Item 4.2.10]

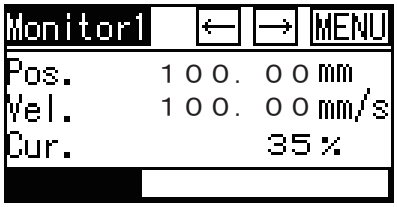
4.2.4 Monitor

The controller's current position, velocity, electric current and system status I/O condition are displayed.

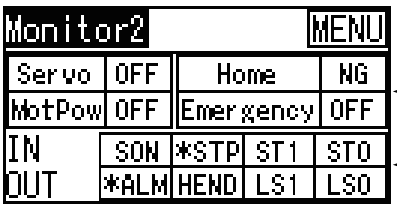


Touch Monitor in the SET-PT MENU window.

The monitor window consists of two display windows.
Touching the MENU returns to the SET-PT MENU window.



The axis position is shown.
The axis velocity is shown.
The axis current value is shown.



The system status (servo-motor, driving source, home return and emergency stop) are shown.

The axis I/O status is shown.
When it is turned OFF, the reversal display is performed.
The indication varies depending on the operation pattern.

Monitor Window I/O Display

PIO Pattern Operation Mode		Display Description			
		IN3(Input) · OUT3(Output)	IN2(Input) · OUT2(Output)	IN1(Input) · OUT1(Output)	IN0(Input) · OUT0(Output)
Standard Point-to-Point Movement:0 Single Solenoid	Input	—/ SON(Servo ON signal)*1	— (RES(Reset signal))	*STP(Pause Signal)	ST0(Movement Signal)
	Output	*ALM (Alarm Output Signal)/ SV (Servo-Motor ON Output Signal) *3	HEND(Homing Completion Signal)/ SV(Servo-Motor ON Output Signal)*3	LS1(Forward Position Detection Signal)/ PE1(Forward Point Positioning Completion Signal)*2	LS0(Backward Position Detection Signal)/ PE0(Backward Point Positioning Completion Signal)*2
Standard Point-to-Point Movement:0 Double Solenoid	Input	—/ SON(Servo ON signal)*1	— (RES(Reset signal))	ST1(Forward Position Movement Signal) (—)	ST0(Backward Position Movement Signal)
	Output	*ALM (Alarm Output Signal)/ SV (Servo-Motor ON Output Signal) *3	HEND(Homing Completion Signal)/ SV(Servo-Motor ON Output Signal)*3	LS1(Forward Position Detection Signal)/ PE1(Forward Point Positioning Completion Signal)*2	LS0(Backward Position Detection Signal)/ PE0(Backward Point Positioning Completion Signal)*2
Movement Speed Setting:1 Single Solenoid	Input	—/ SON(Servo ON signal)*1	SPDC(Movement Speed Change Signal) (RES(Reset signal))	*STP(Pause Signal)	ST0(Backward Position Movement Signal)
	Output	*ALM (Alarm Output Signal)/ SV (Servo-Motor ON Output Signal) *3	HEND(Homing Completion Signal)/ SV(Servo-Motor ON Output Signal)*3	LS1(Forward Position Detection Signal)/ PE1(Forward Point Positioning Completion Signal)*2	LS0(Backward Position Detection Signal)/ PE0(Backward Point Positioning Completion Signal)*2
Movement Speed Setting:1 Double Solenoid	Input	—/ SON(Servo ON signal)*1	SPDC(Movement Speed Change Signal) (RES(Reset signal))	ST1(Forward Position Movement Signal) (—)	ST0(Backward Position Movement Signal)
	Output	*ALM (Alarm Output Signal)/ SV (Servo-Motor ON Output Signal) *3	HEND(Homing Completion Signal)/ SV(Servo-Motor ON Output Signal)*3	LS1(Forward Position Detection Signal)/ PE1(Forward Point Positioning Completion Signal)*2	LS0(Backward Position Detection Signal)/ PE0(Backward Point Positioning Completion Signal)*2
Position Data Change:2 Single Solenoid	Input	—/ SON(Servo ON signal)*1	CN1(Target Position Change Signal) (RES(Reset signal))	*STP(Pause Signal)	ST0(Backward Position Movement Signal)
	Output	*ALM (Alarm Output Signal)/ SV (Servo-Motor ON Output Signal) *3	HEND(Homing Completion Signal)/ SV(Servo-Motor ON Output Signal)*3	LS1(Forward Position Detection Signal)/ PE1(Forward Point Positioning Completion Signal)*2	LS0(Backward Position Detection Signal)/ PE0(Backward Point Positioning Completion Signal)*2
Position Data Change:2 Double Solenoid	Input	—/ SON(Servo ON signal)*1	CN1(Target Position Change Signal) (RES(Reset signal))	ST1(Forward Position Movement Signal) (—)	ST0(Backward Position Movement Signal)
	Output	*ALM (Alarm Output Signal)/ SV (Servo-Motor ON Output Signal) *3	HEND(Homing Completion Signal)/ SV(Servo-Motor ON Output Signal)*3	LS1(Forward Position Detection Signal)/ PE1(Forward Point Positioning Completion Signal)*2	LS0(Backward Position Detection Signal)/ PE0(Backward Point Positioning Completion Signal)*2
2-Input, 3-Point Movement:3	Input	—/ SON(Servo ON signal)*1	— (RES(Reset signal))	ST1(Forward Position Movement Signal)	ST0(Movement Signal 1)
	Output	*ALM (Alarm Output Signal)/ SV (Servo-Motor ON Output Signal) *3	LS2(Intermediate Point Detection Signal)/ PE2(Intermediate Point Positioning Completion Signal)*2	LS1(Forward Position Detection Signal)/ PE1(Forward Point Positioning Completion Signal)*2	LS0(Backward Position Detection Signal)/ PE0(Backward Point Positioning Completion Signal)*2
3-Input, 3-Point Movement:4 Double Solenoid	Input	—/ SON(Servo ON signal)*1	ST2(Position Movement 2) (RES(Reset signal))	ST1(Forward Position Movement Signal) (—)	ST0(Backward Position Movement Signal)
	Output	*ALM (Alarm Output Signal)/ SV (Servo-Motor ON Output Signal) *3	LS2(Intermediate Point Detection Signal)/ PE2(Intermediate Point Positioning Completion Signal)*2	LS1(Forward Position Detection Signal)/ PE1(Forward Point Positioning Completion Signal)*2	LS0(Backward Position Detection Signal)/ PE0(Backward Point Positioning Completion Signal)*2
Continuous Reciprocating Operation:5	Input	—/ SON(Servo ON signal)*1	— (RES(Reset signal))	*STP(Pause Signal)	ASTR(Continuous Reciprocating Operation Signal)
	Output	*ALM (Alarm Output Signal)/ SV (Servo-Motor ON Output Signal) *3	HEND(Homing Completion Signal)/ SV(Servo-Motor ON Output Signal)*3	LS1(Forward Position Detection Signal)/ PE1(Forward Point Positioning Completion Signal)*2	LS0(Backward Position Detection Signal)/ PE0(Backward Point Positioning Completion Signal)*2

The (Signal Name) section shows the signal before the home return operation.

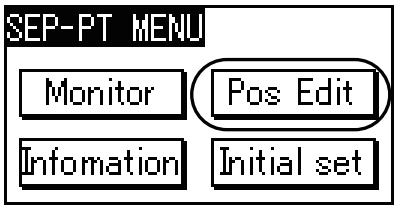
∗1 When the Servo-Motor Control is set to “Enable” in the Initial Setting in the I/O Setting, the “SON” signal is output.

∗2 When the Output Signal Type is set to “Limit Switch” in the Initial Setting in the I/O Setting, the “LS” signal is output. When it is set to “Positioning”, the “PE” signal is output.

∗3 When “SV” is selected in the Output Selection, the “SV” signal is output. Depending on the operation parameters and operation mode, the signal can be set either to OUT2 or OUT3.

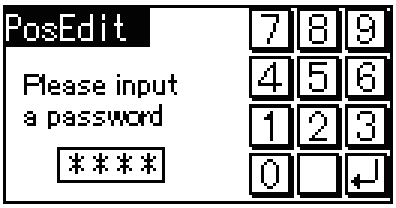
4.2.5 Position Setting (Position Related Data Setting, Jog and Inching Operations)

The data items related to the position such as position, pressing force and pressing width, are set here. With these settings, the jog movement and inching movement operations can be performed.



Touch Pos Edit in the SET-PT MENU window.

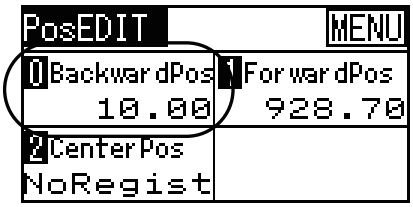
Before the window is transferred to the Position Setting window, in the case that the password is set to the value except for “0000”, the password entry window is displayed.



Enter the value as the password using the ten-key and touch ↵.

> The password can be entered in the “Position Data Edit Password” in the “Parameter Edit” window.

When the correct password is set, the window is transferred to the “List” window in the “Position Setting” window. The display varies depending on the Operation Pattern setting.

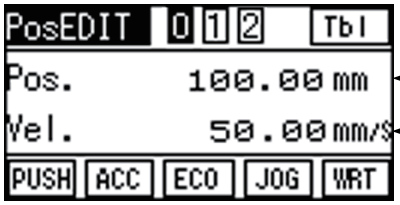


Touch the position to be set.
Touching MENU returns to the SET-PT MENU window.
The left figure shows an example of Operation Pattern No. 3.
The set value for each position, is displayed.

No. of Positions to be set

Operation Pattern	Displacement	No. of Positions to be set
Standard Point-to-Point Movement:0	2-Point Movement	2
Movement Speed Setting:1	2-Point Movement	2
Position Change: 2	2-Point Movement	4
2-Input, 3-Point Movement:3	3-Point Movement	3
3-Input, 3-Point Movement:4	3-Point Movement	3
Continuous Reciprocating Operation:5	2-Point Movement	2

When the section of the position to be set is touched, the target position/velocity setting window for the selected position is displayed.
Set the position and velocity.

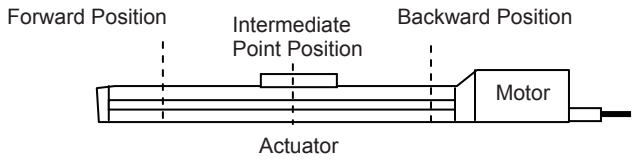


The set position is shown.
The set velocity is shown.
Touching Tb1 returns to the Tb1 window.

In this set window, the other three setting item and job movement can be selected.
[Setting Items]

- PUSH — Pressing Force and Pressing Width Setting
- Acceleration/Deceleration — Acceleration and Deceleration Setting
- ECO — Energy-Saving Function Setting

[1] Position Data
The position data for operating the actuator is set here.



Position Data

Position Setting Window	Position/Velocity		Acceleration/Deceleration		Pressing		Energy-Saving
Position Data	1) Position [mm]	2) Velocity [mm/s]	3) Acceleration [G]	4) Deceleration [G]	5) Pressing Force [%]	6) Pressing Width [mm]	7) Energy-Saving Function
Forward Position	200.00	50.00	0.1	0.1	70	1.00	Effective
Backward Position	0.00	50.00	0.1	0.1	0	0	Effective
Intermediate Point Position	100.00	50.00	0.1	0.1	0	0	Effective

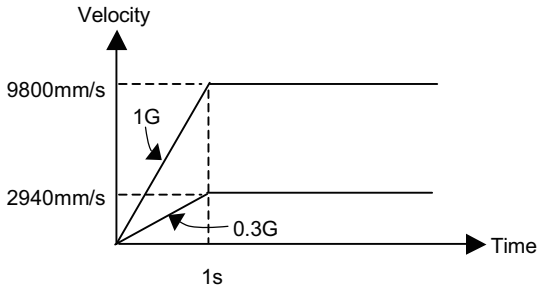
1) Position… Set the position where the actuator is moved.
The correlation of the Positions is as shown below:
Backward Position < Intermediate Point Position < Forward Position

Operation Pattern	Displacement	Set Position		
		Forward Position	Backward Position	Intermediate Point Position
Standard Point-to-Point Movement :0	2-Point Movement	○	○	
Movement Speed Setting :1	2-Point Movement	○	○	
Position Data Change:2	2-Point Movement	○	○	
2-Input, 3-Point Movement :3	3-Point Movement	○	○	○
3-Input, 3-Point Movement :4	3-Point Movement	○	○	○
Continuous Reciprocating Operation :5	2-Point Movement	○	○	

2) Velocity…Set the actuator speed.
3) Acceleration…Set the actuator acceleration.
It is available to input greater number than specified in the Catalog for the range of input.
Refer to the Catalog or the Instruction Manual of the actuator.

4) Deceleration [G]…It is able to set the deceleration speed (G) at the stop.

(Reference) Explained here is about the acceleration speed. The way to think is the same for deceleration.
1G = 9800mm/s^2: Acceleration that enables to accelerate up to 9800mm/s in 1sec.
0.3G: Acceleration that enables to accelerate up to 9800mm/s × 0.3 = 2940mm/s in 1sec.

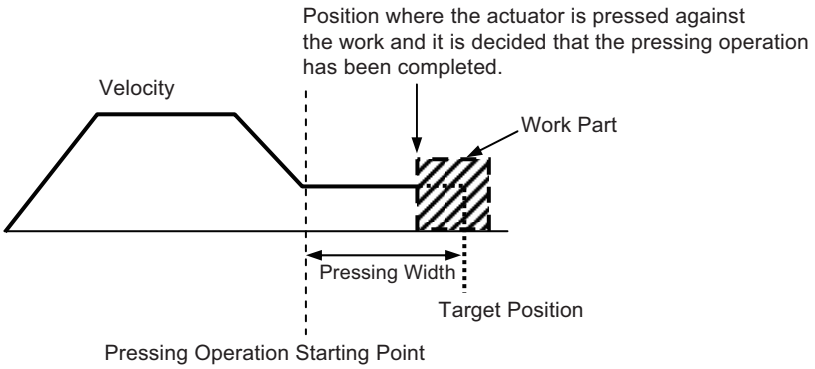


⚠Caution

Settings of Acceleration and Deceleration.
(1) Set the acceleration speed to a value that does not exceed the rated acceleration/deceleration speed specified in the Catalog or this Instruction Manual. Use of the actuator beyond the rated acceleration/deceleration speed may shorten the actuator life remarkably.
(2) Lower the acceleration/deceleration setting in the case there is any impact or vibration occurred on the actuator or the work part. Keeping the usage under such a condition may shorten the actuator life remarkably.
(3) When the transported weight is obviously lighter than the rated transportable weight, the acceleration speed could be set higher than the rated value. The takt time will possibly be shortened by this. Please ask us in such a case. At that time, please inform us of the work part weight, profile, attachment method and the condition of the actuator installation (horizontal/vertical).

5) Pressing Force [%] … It sets the pressing torque.
Increasing the current limitation value (%) increases the pressing force.
When it is set to “0”, the positioning operation is not available.
Refer to the Catalog or the Instruction Manual for the correlation between the pressing force and the current limitation value (%).

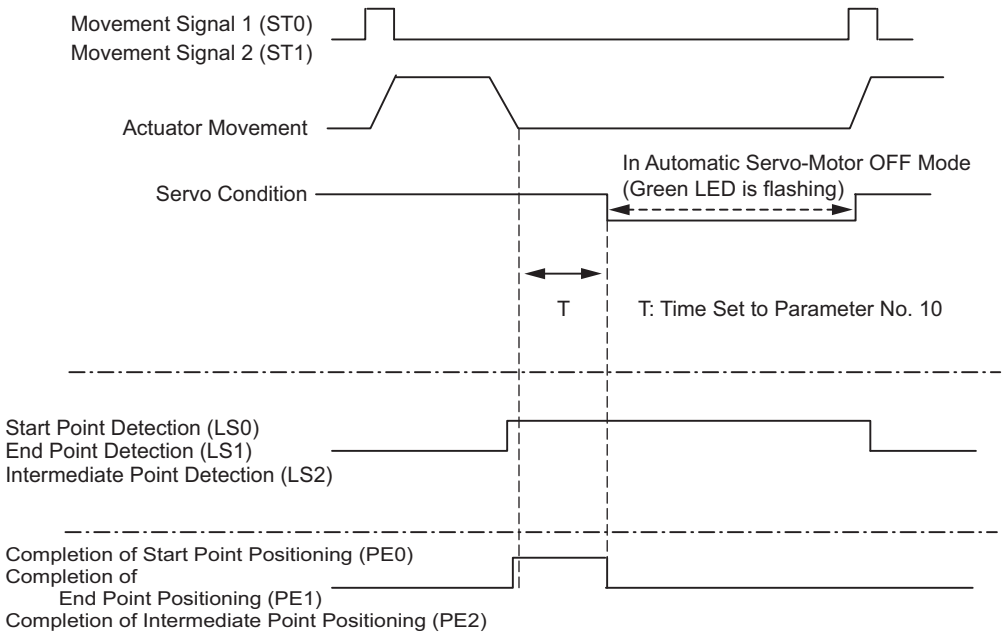
6) Pressing Width [mm]… It sets the distance for the pressing operation.
When a pressing operation is performed, the actuator drives with the speed set in the positioning parameter and the rated torque as it does for the normal positioning operation until the remained movement amount reaches to the range that is set in the pressing width parameter. After the actuator gets in the range, it starts the pressing movement till it reaches to the position set in (1).
The speed during the pressing operation is 20mm/s (if the parameter No.7 is remained the same as it is when delivered). Do not set this value above 20mm/s. If the setting in (2) is lower than the pressing speed, the pressing will be performed with the speed set in (2).



7) Energy-Saving Function…If the energy saving function is turned active, the servo will turn off automatically to save electricity in a certain while after a positioning is complete.
Set the time in the parameter in advance.

Parameter No.	Parameter Name	Initial Value	Setting range
10	Auto Servo OFF Delay Time [sec]	1	0 to 9999

[Automatic Servo off]
The servo automatically turns off after a specified time once the position is complete. When the next position is commanded, the servo will automatically turn on and execute the position. It will save power consumption since the no current is used during servo off.



[Position Detection Output Signal Condition When Pressing Function Not used]
As long as the actuator position is in the range of the positioning width (Parameter No. 1) even if the servo is off, either of the forward position detection signal (LS0), backward position detection signal (LS1) or intermediate detection signal (LS2) turns on in accordance with the current position as the sensor does. Thus, if the actuator does not move after the positioning is complete, the position detection signal is kept on.

[Positioning Complete Signal Condition When Pressing Function is used]
The servo does not turn off automatically while in the pressing condition during the pressing operation.
The servo will automatically turn off if a miss-pressing is occurred.
Turning the servo off makes the positioning not completed. Thus, all of the pressing completion signal 0 (PE0), pressing completion signal 1 (PE1) and pressing completion signal 2 (PE2) turn off no matter where the stopped position is.

⚠Caution

There is no holding torque during the automatic servo off. The actuator could move with an external force. Pay attention to the interference and safety to the surroundings.

The movement speed can be changed for Operation Pattern (PIO Pattern) No. 1. In the position data, the position where the speed is to change and the new velocity can be set.

Position Setting Window	Velocity Change Position	
Position Data	8)	9)
	Changed Position	Changed Speed
Forward Position	60.00	30.00
Backward Position	40.00	30.00

8) Changed Position…The position where the velocity is changed in the course of moving to the forward position or backward end, is set.
9) Changed Speed…The changed speed is set.

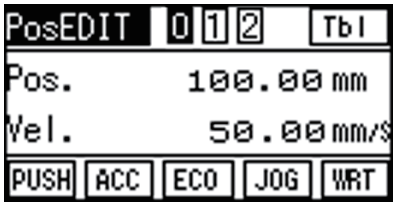
In Operation Pattern (PIO Pattern) No. 2, two sets of forward and backward positions are set.
- In the case that CN1 (Mode Change Signal) is turned OFF, position data for 1 Forward Position will be used.
  In the case that CN1 is ON, the position data for 3 Forward Position will be used.
- In the case that CN1 is turned OFF, the position data for 0 Backward Position will be used.
  In the case that CN1 is ON, the position data for 2 Forward Position will be used.

Position Setting Window	Position/Velocity		Acceleration /Deceleration		Acceleration /Deceleration		Energy-Saving
Position Data	Position	Acceleration	Acceleration	Deceleration	Pressing Force	Pressing Width	Energy-Saving Function
0 Backward Position	0.00	50.00	0.1	0.1	0	0	Effective
1 Forward Position	200.00	50.00	0.1	0.1	70	1.00	Effective
2 Backward Position	10.00	50.00	0.1	0.1	0	0	Effective
3 Forward Position	100.00	50.00	0.1	0.1	60	1.00	Effective

[2] Position Setting Window Types

[Position/Velocity setting]

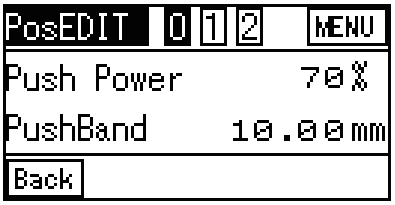
The Position and Velocity are set here.



[Pressing setting]

The Pressing Force and Pressing Width are set here.

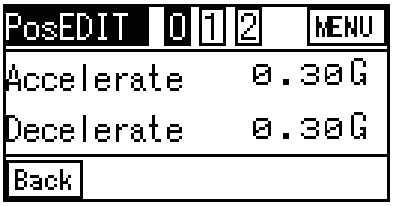
Touching PUSH in the “Positing/Velocity setting” window displays the “Pressing setting” window.



[Acceleration/deceleration setting]

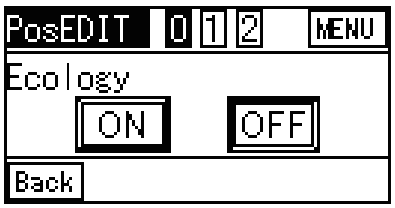
The Acceleration and Deceleration are set here.

Touching ACC in the “Position/Velocity setting” window displays the “Acceleration/deceleration setting” window.



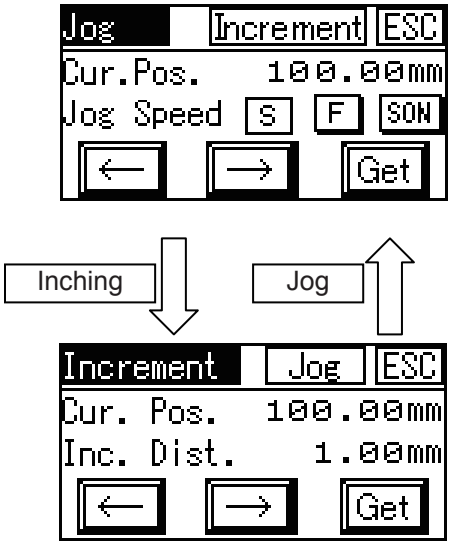
[Energy-Saving setting]

The Energy-Saving “Enable” or “Disable” is set here.
Touching ECO in the “Position/Velocity setting” window displays the “Energy-Saving setting” window.

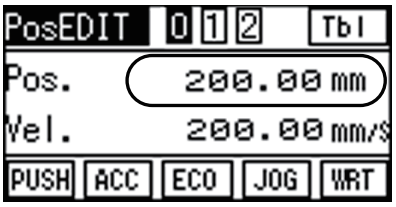


[Jog Operation]

The Jog operation and inching operation are enabled here.
Touching JOG in the “Position/Velocity setting” window displays the “Jog Operation” window.



[3] Basic Operation
[position / velocity]

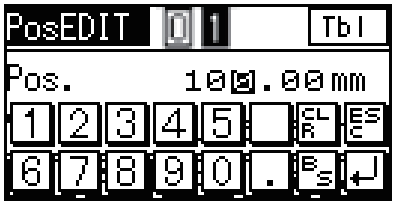


Touch the value for the position(Note 1) or velocity.

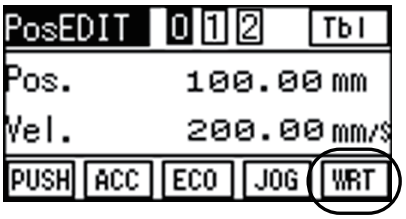
Touching Tb1 returns to the Tb1 window.

In the example of the Operation Pattern No. 3, When any of 0, 1 or 2 is touched in this window, the corresponding setting window for “0” (Backward Position), “1” (Forward Position) and “2” (Intermediate Point Position) are displayed.

(Note 1) For the position, enter the value that satisfies the condition (Home position ≤ Backward Position ≤ Intermediate Point Position ≤ Forward Position).

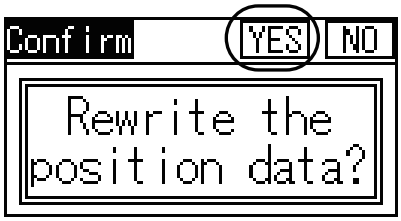


Enter the value as the password using the ten-key and touch ↵.



The set value will be displayed.

Touch the WRT (Note 2) after the other settings such as “Pressing Force”, etc., are completed. When there is no error in the input range, etc., the following window appears.



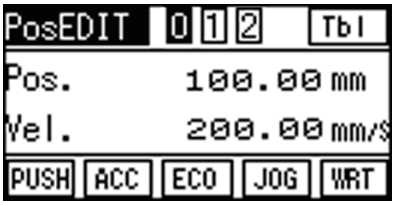
Touch the YES.
The controller data is reloaded.

(Note 2) When 0, 1 or 2 is touched after the position setting and before the value writing for the target position setting in the “Position setting” window, all the changes are deleted. Whenever the position, velocity, pressing force, acceleration/deceleration or Energy-Saving function setting is changed, write the data for each position (Forward Position, Backward Position or Intermediate Point Position).

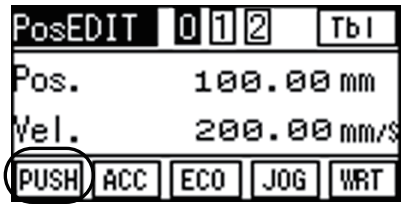
When the writing is completed, the following window appears.

Touch the ESC.

The “Position/Velocity setting” window is returned.

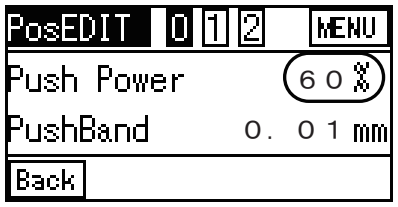


[Pressing Setting, Acceleration/deceleration setting, Energy-Saving Setting]
Taking the “Pressing Operation” as an example, the setting procedure is described.

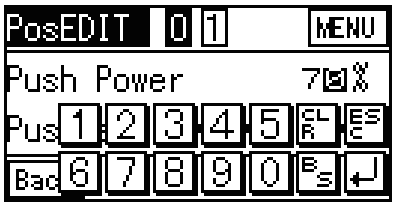


Touch the PUSH (Note 1).

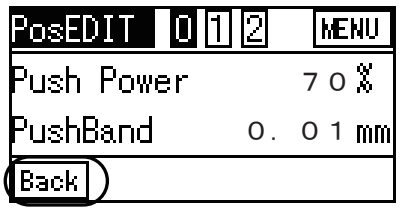
Touching Tb1 returns to the Tb1 window.



Touch the value for the Push Power or PushBand setting item.

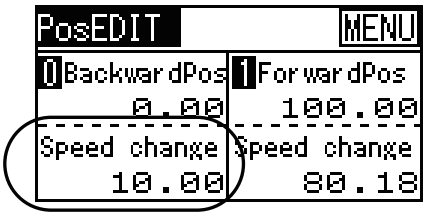


The ten-key will be displayed.
Enter the value and touch ↵.



The set value will be displayed.
Touch the Back.

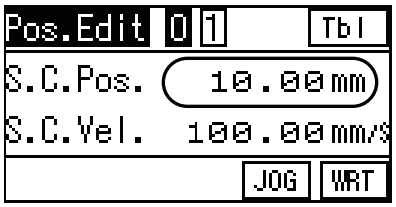
[Velocity Change Position and Change Velocity setting in the Operation Pattern No. 1 (Movement Speed Changeable)]
The procedure is described taking “Change Position” as an example.



Touch the Velocity Change Position.

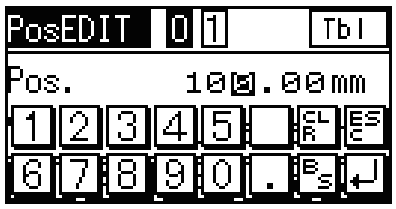
Touching MENU returns to the SEP-PT MENU window.

In the example, the velocity change position setting window for the Backward Position 0, will be displayed.

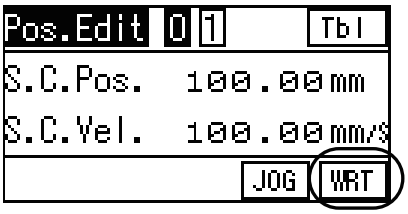


Touch the value for the velocity change position setting item.

Touching Tb1 returns to the Tb1 window.

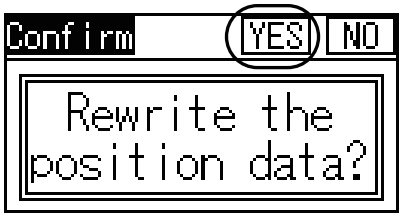


Enter the value and touch ↵.



The set value will be displayed.

Touch the WRT. When there is no error in the input range, etc., the following window appears.

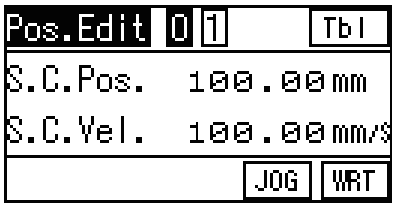


Touch the YES.
The controller data is reloaded.

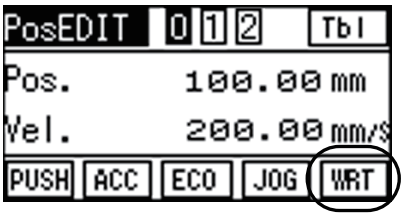
When the writing is completed, the following window appears.

Touch the ESC.

The “Change Position/Change Velocity” setting window will be returned.

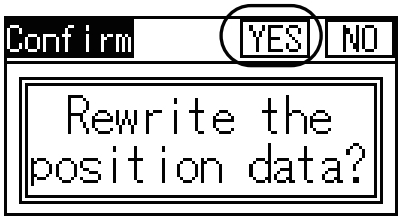


The “Position/Velocity setting” window is returned.



The set value will be displayed.

Touch the WRT after the other settings such as “Push Power”, etc., are completed. When there is no error in the input range, etc., the following window appears.

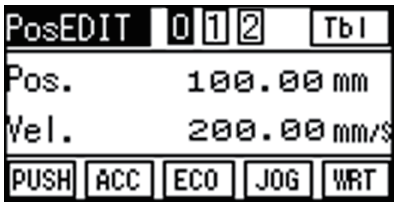


Touch the YES.
The controller data is reloaded.

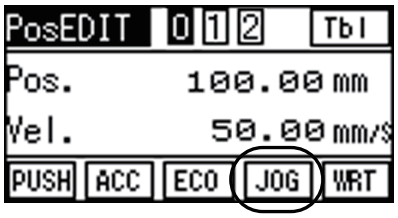
When the writing is completed, the following window appears.

Touch the ESC.

The “Position/Velocity setting” window is returned.



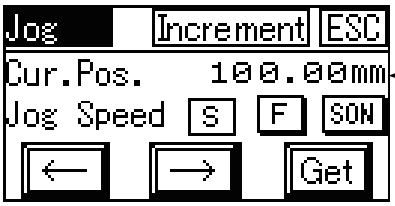
[Jog Operation]
(Jog Operation after the Home Return Operation Completion)



Touch the JOG.

Touching Tb1 returns to the Tb1 window.

The “Jog” operation window will be displayed.



The current position of the axis is shown.

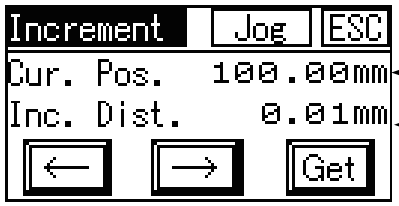
Operations in the “Jog” window

- ← → : While one of these buttons is pressed, the axis is jogged. Jog operation to negative direction ← or positive direction →.
- SON : Touching SON turns ON the servo-motor. When SON is touched, the servo-motor is turned OFF.
- S F : Using these buttons, the jog speed is set. Pressing S slows the jog movement and F quickens the job movement.
  S speed : 10mm/sec
  F speed : Speed set in the Jog Speed in the Parameter setting
- Get : The current position is captured. The position value in the “Position/Velocity setting” window in the Position Setting window is changed to the captured position value. The conditions for capturing the current position are as follows.
  - Home return completion
  - In stop mode
  - Current position value of “0” or more

  When the conditions for capturing are satisfied and Get is touched, the current position value is saved.
- ESC : Pressing this button returns to the “Position/Velocity setting” window in the Position Setting window.

(Inching Operation after the Home Return Completion)

Touching Increment displays the Inching Operation window.



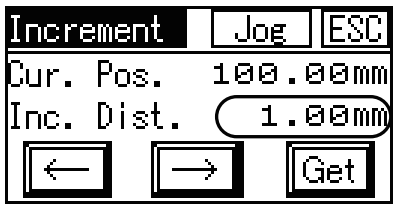
The current position of the axis is shown.

The inching distance is shown.

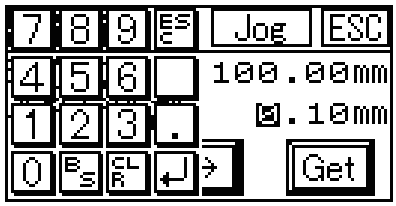
Operations in the “Inching” window

- ← → : With a single touch, the axis is moved as much as the set distance in the “Inching Distance”.
  Inching operation to negative direction ← or positive direction →.
- Get : The current position is captured. The position value in the “Position/Velocity setting” window in the Position Setting window is changed to the captured position value.
  The conditions for capturing the current position are as follows.
  - Home return completion
  - In stop mode
  - Current position value of “0” or more

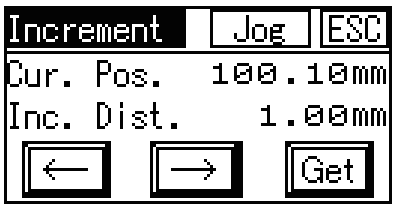
  When the conditions for capturing are satisfied and Get is touched, the current position value is saved.
- ESC : Pressing this button returns to the “Position/Velocity setting” window in the Position Setting window.
- Inching Distance: The inching distance is set here.
  [Inching Distance Change]



Touch the value for the “Inching Distance”.



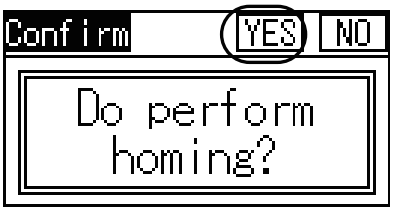
The ten-key will be displayed.
Enter the value and touch ↵.



The set value will be displayed.

(Jog Operation Execution before Home Return Operation)

When the jog operation is to be performed before the home return operation, the window for the home return operation is displayed before the jog operation window.



Touch the YES.

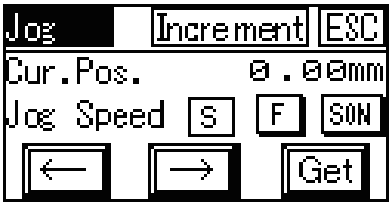
The home return operation is performed.

Touch the OK.

The home return operation is started and the following window appears.

Touching STOP can stop the home return operation.

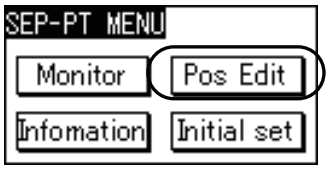
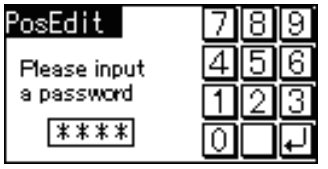
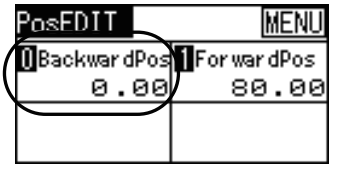
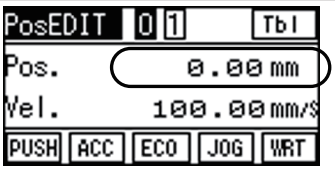
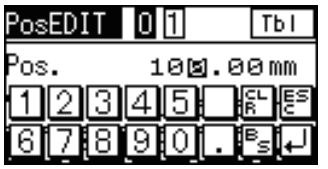
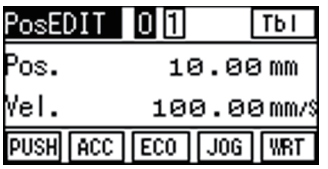
When the home return operation is completed, the jog operation window appears. In this window, the jog operation is enabled.

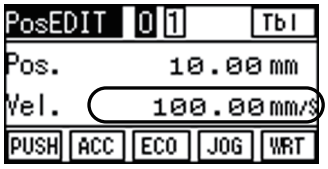
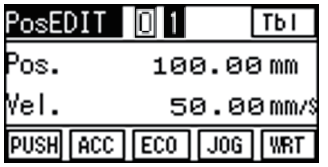
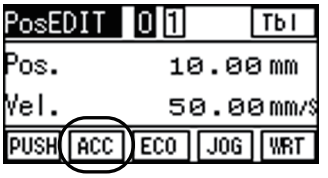
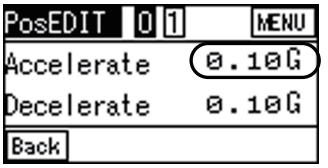
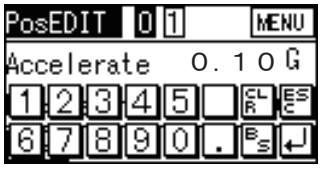
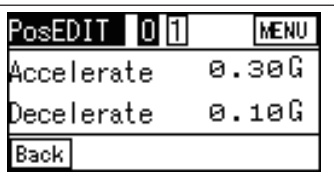


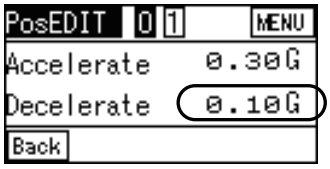
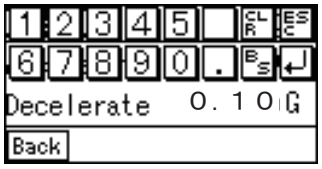
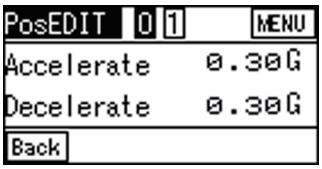
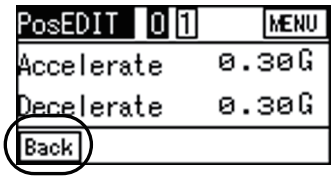
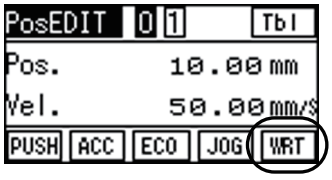
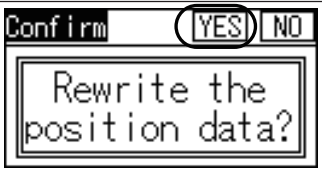
[4] Position Setting Operation Example
The operation procedure is described taking a specific example.

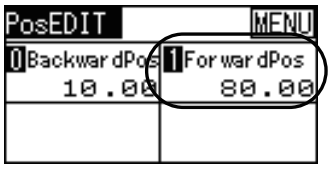
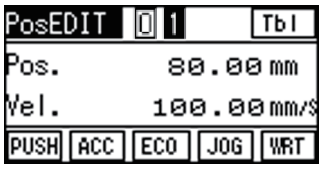
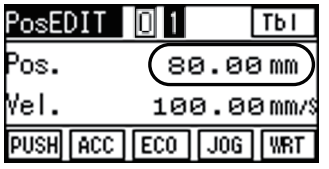
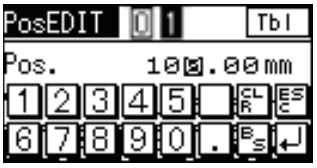
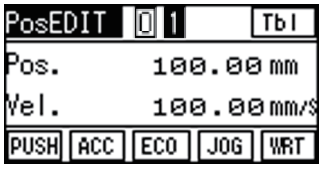
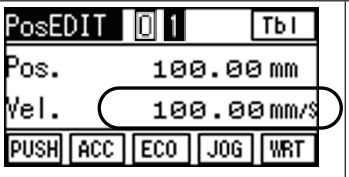
1) Position, Velocity or Acceleration/Deceleration Setting
It is described taking Operation Mode 0 (Standard) as an example.
The position setting is performed for the reciprocating movement between 10.0 mm and 100.0 mm.

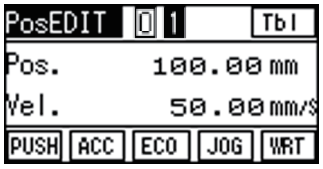
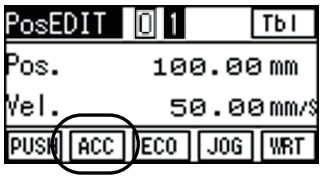
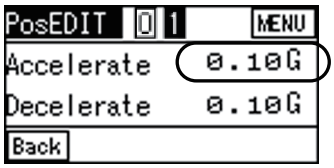
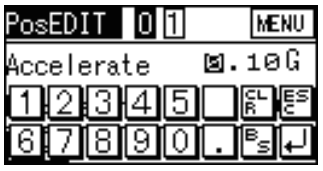
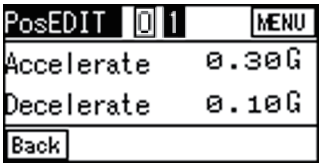
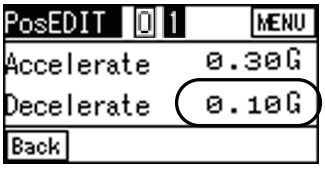
Forward Position:100.0mm, Backward Position:10.0mm, Reciprocating Movement Speed: 50mm/sec, Reciprocating Movement Acceleration: 0.3G, Reciprocating Movement Deceleration: 0.3G

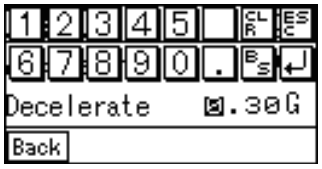
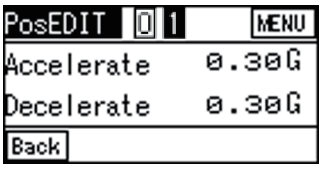
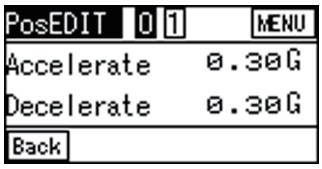
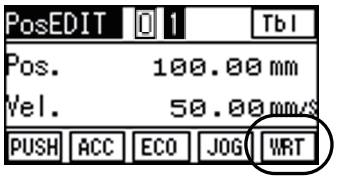
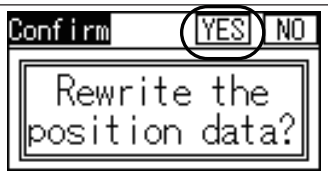
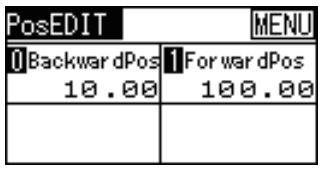
No.	Operation	Window	Remarks
1	Touch Pos Edit in the SEP-PT MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the Backward Position related position, acceleration and deceleration. Touch the BackwardPos.		When MENU is touched, the SEP-PT MENU window is returned.
4	Touch the value for the position.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	Touch 1 and 0 and then ↵ .		When the value input is stopped, touch ESC. The value will not be set and the previous position setting window will be returned.
6	“10.00” is displayed in the position data section.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.

No.	Operation	Window	Remarks
7	Touch the velocity value.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
8	Touch 5 and 0 and then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.
9	"50.00" is displayed in the velocity data section.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
10	Touch the ACC.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
11	Touch the acceleration value.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
12	Touch 0, . and 3 and then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.
13	"0.30" is displayed in the acceleration data section.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.

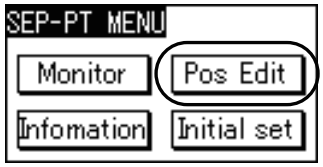
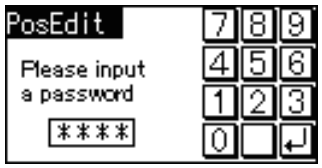
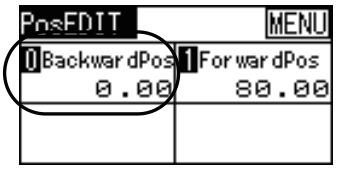
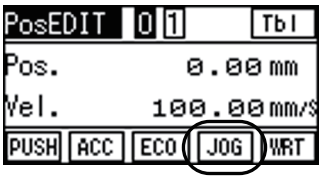
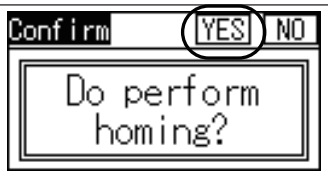
No.	Operation	Window	Remarks
14	Touch the deceleration value.		Touching Back returns to the previous “Position/Velocity setting window” in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
15	Touch 0, . and 3 and then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous “Position/Velocity setting window” in the Position Setting window will be returned.
16	“0.30” is displayed in the deceleration data section.		Touching Back returns to the previous “Position/Velocity setting window” in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
17	Touch the Back.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
18	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the “Forward Position/Backward Position” selecting window in the Position Setting window is returned, the setting is not performed.
19	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.

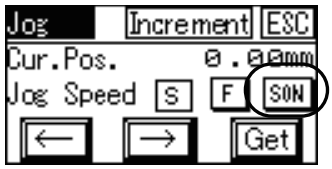
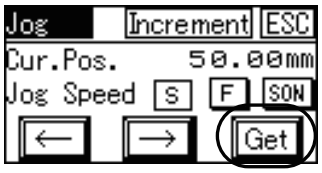
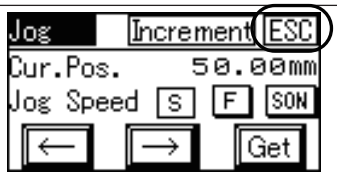
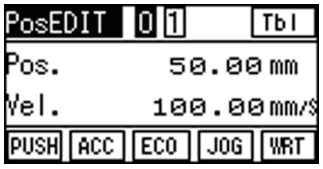
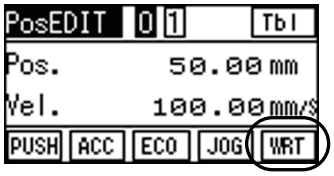
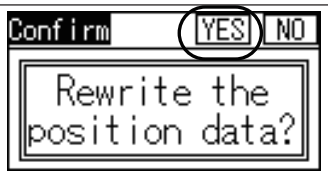
No.	Operation	Window	Remarks
20	The controller's position data is reloaded. Touch the ESC.		
21	Set the Forward Position related Position, Acceleration and Deceleration. Touch the ForwardPos.		When MENU is touched, the MENU window is returned.
22	The window is change to the Forward Position window. Set the Forward Position related Position, Acceleration and Deceleration.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
23	Touch the position value.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
24	Touch 1, 0 and 0 and then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous position setting window will be returned.
25	"100.00" is displayed in the position data section.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
26	Touch the velocity value.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
27	Touch 5 and 0 and then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.

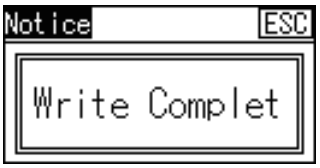
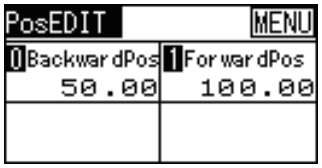
No.	Operation	Window	Remarks
28	"50.00" is displayed in the velocity data section.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
29	Touch the ACC.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
30	Touch the acceleration value.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
31	Touch 0, . and 3 and then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.
32	"0.30" is displayed in the acceleration data section.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
33	Touch the decelerate value.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.

No.	Operation	Window	Remarks
34	Touch 0, . and 3 and then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.
35	"0.30" is displayed in the Decelerate data section.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
36	Touch the Back.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
37	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the "Forward Position/Backward Position" selecting window in the Position Setting window is returned, the setting is not performed.
38	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.
39	The controller's position data is reloaded. Touch the ESC.		
40			When MENU is touched, the SEP-PT MENU window is returned.

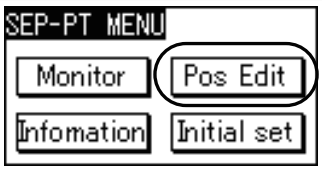
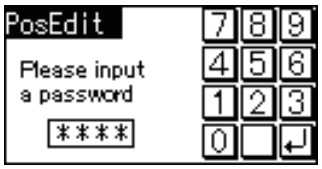
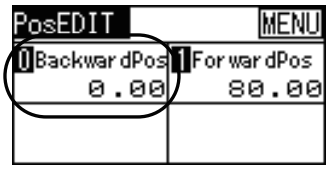
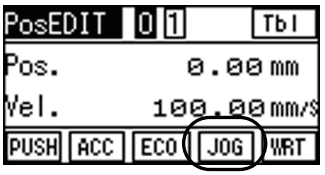
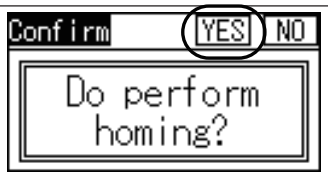
2) Direct Teaching (Method where the slider is moved manually to the target position and the position (current position) is captured as the Forward Position or Backward Position)
It is described taking Operation Mode “0” (Standard Point-to-Point Movement) as an example.
The procedure for capturing the current position of “50.0mm” in the Backward Position).

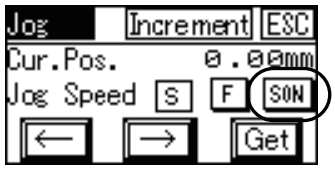
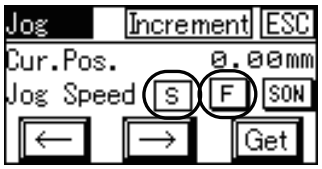
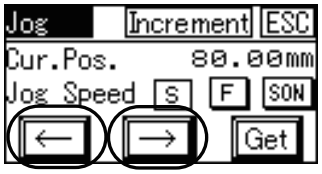
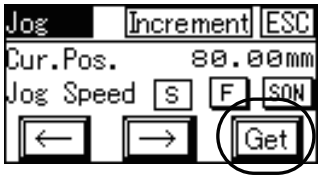
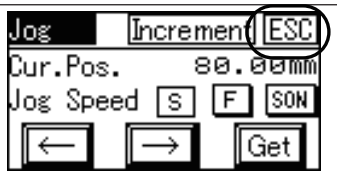
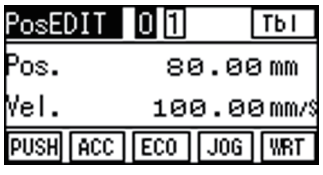
No.	Operation	Window	Remarks
1	Touch Pos Edit in the SEP-PT MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the Backward Position related position, acceleration and deceleration. Touch the BackwardPos.		When MENU is touched, the SEP-PT MENU window is returned.
4	Touch the JOG.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	When the home return operation has not been completed, the window for performing the home return operation is displayed. When the home return operation has been completed, go to operation step No. 8. Touch YES to perform the home return operation.		
6	Touch the OK.		

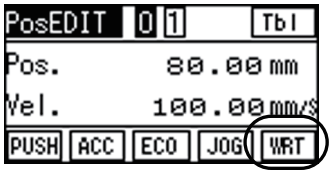
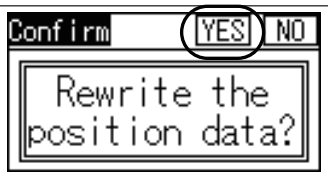
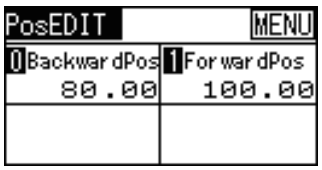
No.	Operation	Window	Remarks
7	Perform the home return operation.		Touching STOP stops the home return operation.
8	When the servo-motor is turned ON, touch SON to turned OFF the servo-motor.		
9	Move the slider and rod manually and align the actuator with the target position of 50.0mm. Touch the Get.		
10	Touch the ESC.		
11	“50.00” is displayed in the position data section. It is confirmed that the position data has been captured.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
12	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the “Forward Position/Backward Position” selecting window in the Position Setting window is returned, the setting is not performed.
13	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.

No.	Operation	Window	Remarks
14	The controller's position data is reloaded. Touch the ESC.		
15			When MENU is touched, the SEP-PT MENU window is returned.

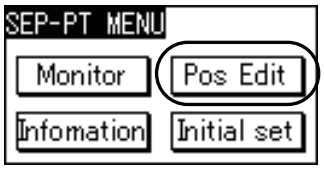
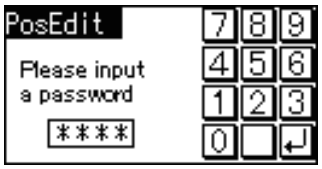
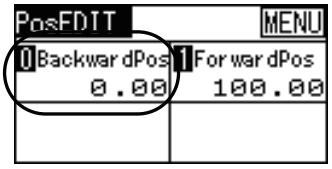
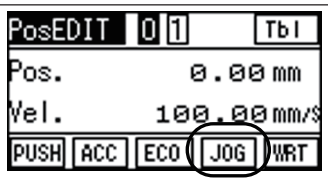
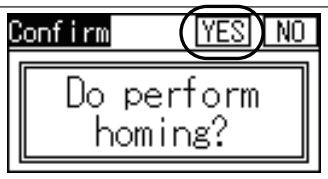
3) Jog Operation (The actuator is moved (inching movement) using the direction arrow button ← or → to align with the target position and the position (current position) is captured as forward position or backward position).
It is described taking Operation Mode “0” (Standard Point-to-Point Movement) as an example.
The procedure for capturing the current position of “80.0mm” in the Backward Position).

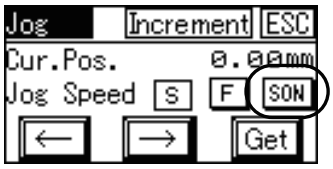
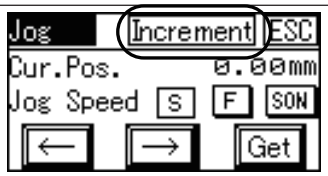
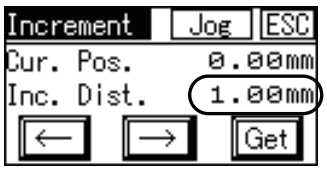
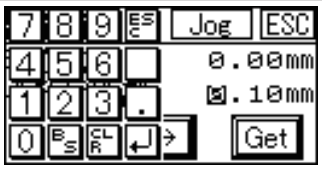
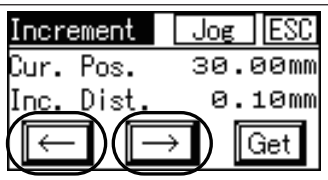
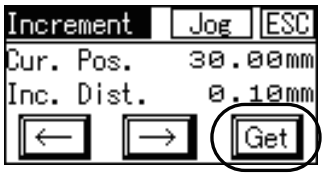
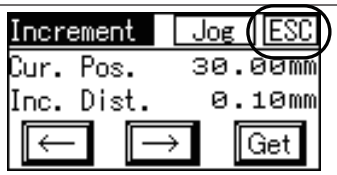
No.	Operation	Window	Remarks
1	Touch Pos Edit in the SEP-PT MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the Backward Position related position, acceleration and deceleration. Touch the BackwardPos.		When MENU is touched, the SEP-PT MENU window is returned.
4	Touch the JOG.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	When the home return operation has not been completed, the window for performing the home return operation is displayed. When the home return operation has been completed, go to operation step No. 8. Touch YES to perform the home return operation.		
6	Touch the OK.		

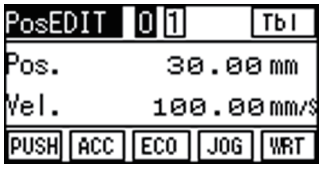
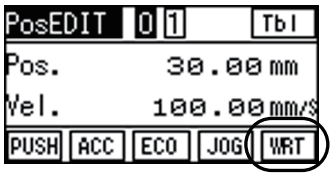
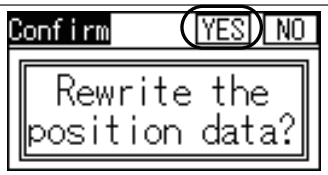
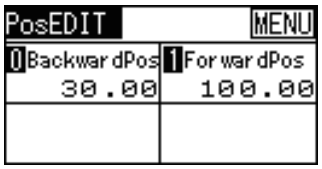
No.	Operation	Window	Remarks
7	Perform the home return operation.		Touching STOP stops the home return operation.
8	When the servo-motor is turned OFF, touch SON to turn ON the servo-motor.		
9	Touch Slow S or Fast F to set the jog speed		
10	Move the slider or rod using the arrow button ← or → to align the actuator with the target position "80.0mm".		
11	Touch the Get.		
12	Touch the ESC.		
13	“80.00” is displayed in the position data section. It is confirmed that the position data has been captured.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.

No.	Operation	Window	Remarks
14	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the "Forward Position/Backward Position" selecting window in the Position Setting window is returned, the setting is not performed.
15	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.
16	The controller's position data is reloaded. Touch the ESC.		
17			When MENU is touched, the SEP-PT MENU window is returned.

4) Inching Movement Operation (The actuator is moved (inching movement) using the direction arrow button ← or → to align with the target position and the position (current position) is captured as forward position or backward position)
It is described taking Operation Mode “0” (Standard Point-to-Point Movement) as an example.
The procedure for capturing the current position of “30.0mm” in the Backward Position).

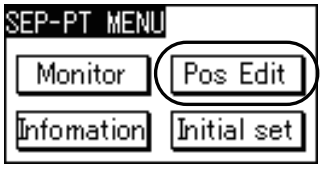
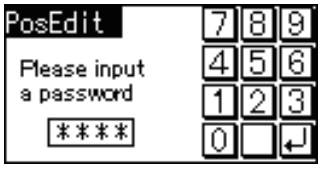
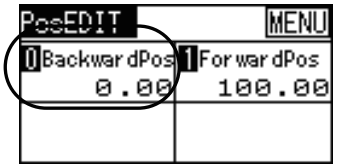
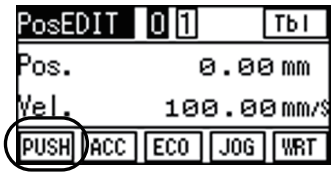
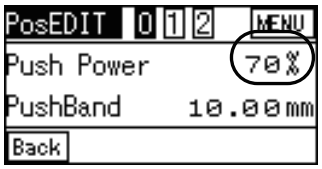
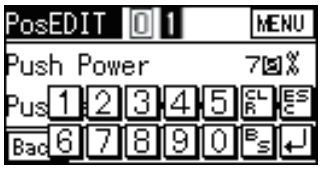
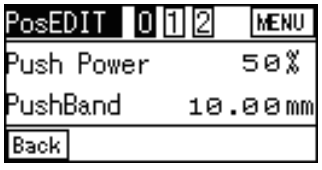
No.	Operation	Window	Remarks
1	Touch Pos Edit in the SEP-PT MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the Backward Position related position, acceleration and deceleration. Touch the BackwardPos.		When MENU is touched, the SEP-PT MENU window is returned.
4	Touch the JOG.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	When the home return operation has not been completed, the window for performing the home return operation is displayed. When the home return operation has been completed, go to operation step No. 8. Touch YES to perform the home return operation.		
6	Touch the OK.		

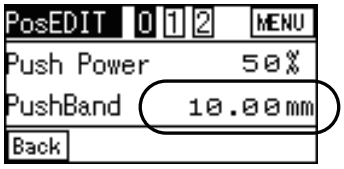
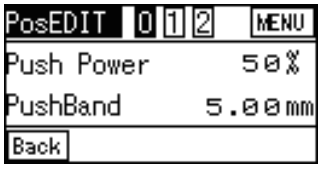
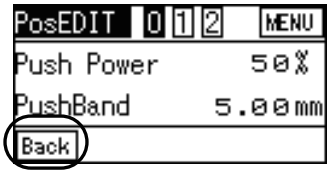
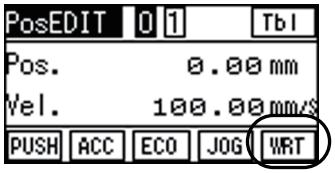
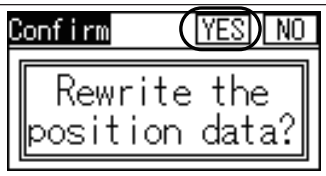
No.	Operation	Window	Remarks
7	Perform the home return operation.		Touching STOP stops the home return operation.
8	When the servo-motor is turned OFF, touch SON to turn ON the servo-motor.		
9	Touch the Increment. The window is transferred to the “Increment” window.		Touching ESC returns to the “Target Position/Velocity” window in the “Initial Setting” window.
10	Touch the Increment Distance value.		
11	Set the Increment distance.		In this example, “0.1mm” is set.
12	Move the slider or rod using the arrow button ← or → to align the actuator with the target position "30.0mm".		
13	Touch the Get.		
14	Touch the ESC.		

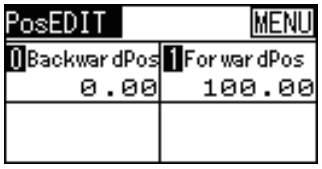
No.	Operation	Window	Remarks
15	"30.00" is displayed in the position data section. It is confirmed that the position data has been captured.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
16	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the "Forward Position/Backward Position" selecting window in the Position Setting window is returned, the setting is not performed.
17	Touch the YES.		Touching No returns to the Position Setting window without performing the setting.
18	The controller's position data is reloaded. Touch the ESC.		
19			When MENU is touched, the SEP-PT MENU window is returned.

5) Pressing Operation (Pressing Force and Pressing Width) Setting
It is described taking Operation Mode “0” (Standard Point-to-Point Movement) as an example.
The procedure is described taking the pressing operation performed at the backward position as an example.

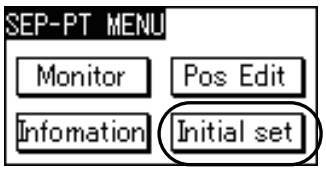
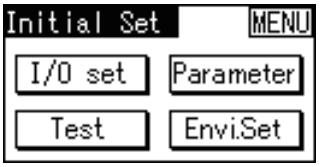
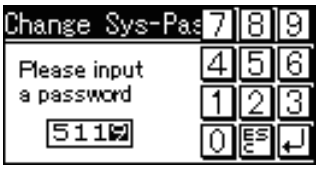
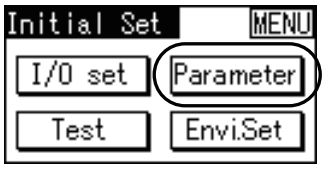
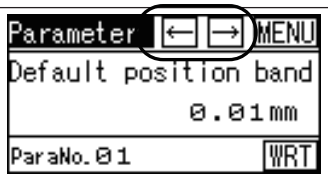
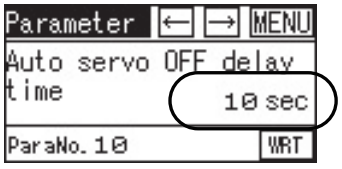
Pressing Force:50%, Pressing Width:5.0mm

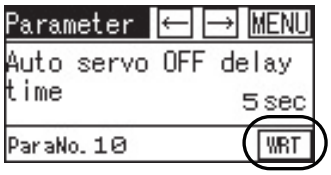
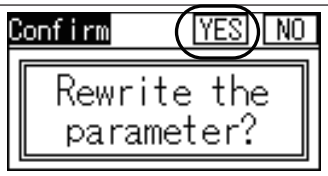
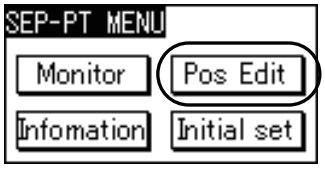
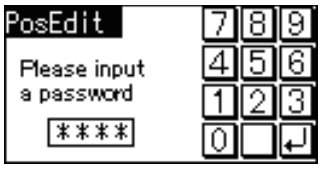
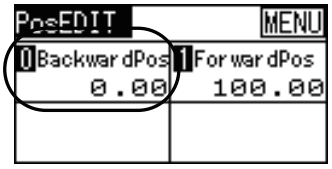
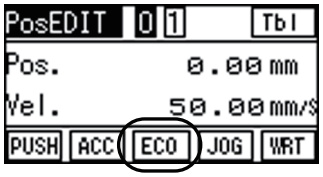
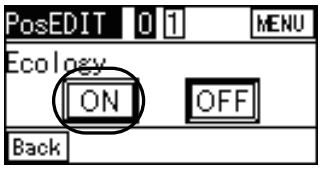
No.	Operation	Window	Remarks
1	Touch Pos Edit in the SEP-PT MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the Backward Position related position, acceleration and deceleration. Touch the BackwardPos.		When MENU is touched, the SEP-PT MENU window is returned.
4	Touch the PUSH.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	Touch the Push Power value.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
6	Touch 5 and 0 and then ↵ .		When the value input is stopped, touch ESC. The value will not be set and the previous “Position/Velocity setting window” in the Position Setting window will be returned.
7	“50” is displayed in the Push Power data section.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.

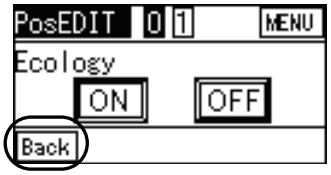
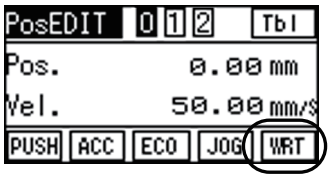
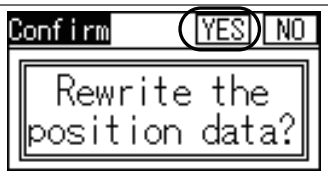
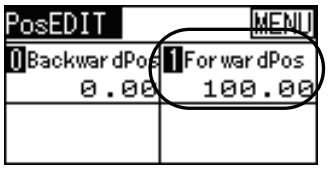
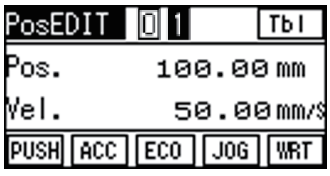
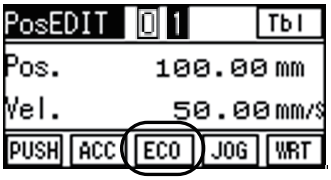
No.	Operation	Window	Remarks
8	Touch the PushBand value.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
9	Touch 5 and ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.
10	"5.00" is displayed in the PushBand data section.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
11	Touch the Back		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
12	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the "Forward Position/Backward Position" selecting window in the Position Setting window is returned, the setting is not performed.
13	Touch the YES.		Touching No returns to the Position Setting window without performing the setting.
14	The controller's position data is reloaded. Touch the ESC.		

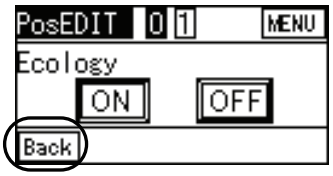
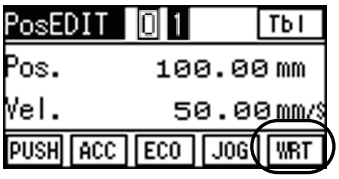
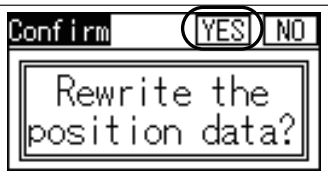
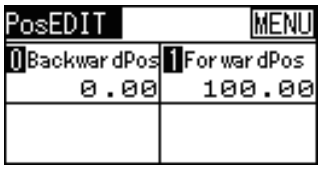
No.	Operation	Window	Remarks
15			When MENU is touched, the SEP-PT MENU window is returned.

6) Energy-Saving Function (Automatic Servo-Motor Turning OFF) Setting
The procedure is described taking Operation Mode set to “0” (Standard) as an example.
The procedure to turn off the servo-motor automatically 5.0 seconds after the machine stop, is described.

No.	Operation	Window	Remarks
1	Touch Initial set in the SEP-PT MENU window.		
2	Set the automatic servo-motor OFF delay time. Touch the Parameter.		
3	Input a password.		The password has been set to “5119” when the unit was shipped from the factory. The password can be set in ‘Password’ in Parameter Menu.
4	Touch the Parameter.		
5	Touch direction arrow button ← or → to change the window continuously and display the automatic servo-motor turning OFF delay time setting window.		
6	Touch the value.		
7	Touch 5 and ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous position setting window will be returned.

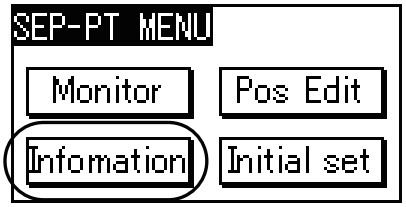
No.	Operation	Window	Remarks
8	5 will be displayed. Touch the WRT.		
9	Touch the YES.		Touching NO returns to the previous automatic servo-motor turning OFF delay time setting window. The parameters are not reloaded.
10	Touch the YES.		Touching NO displays the message window showing “Re-input the power”. Until the power is re-input, the set value is not reflected on the controller.
11	When the controller is re-started, the window is transferred to the SEP-PT MENU window. Touch the Pos Edit.		
12	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for the position setting can be entered in the “Position Data Edit Password” window in the “Parameter Edit” window.
13	Set the Energy-Saving function for the backward position. Touch the BackwardPos.		When MENU is touched, the SEP-PT MENU window is returned.
14	Touch the ECO.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
15	Touch the ON.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.

No.	Operation	Window	Remarks
16	Touch the Back.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
17	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the “Forward Position/Backward Position” selecting window in the Position Setting window is returned, the setting is not performed.
18	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.
19	The controller’s position data is reloaded. Touch the ESC.		
20	Set the Energy-Saving function for the forward position related items. Touch the ForwardPos.		When MENU is touched, the SEP-PT MENU window is returned.
21	The window is change to the Forward Position window. Set the Energy-Saving function for the forward position.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
22	Touch the ECO.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.

No.	Operation	Window	Remarks
23	Touch the ON.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
24	Touch the Back.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
25	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the “Forward Position/Backward Position” selecting window in the Position Setting window is returned, the setting is not performed.
26	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.
27	The controller’s position data is reloaded. Touch the ESC.		
28			When MENU is touched, the SEP-PT MENU window is returned.

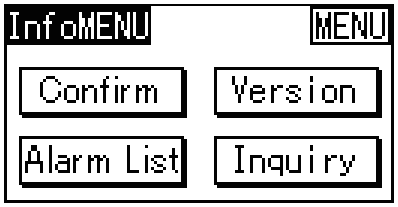
4.2.6 Information

Using this function, the data items such as operation pattern and version, are displayed.



Touch Infomation in the SEP-PT MENU window.

The data selection window is displayed.

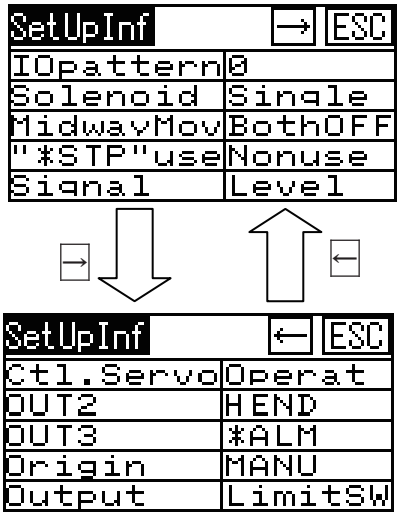


Touch the window to be displayed.

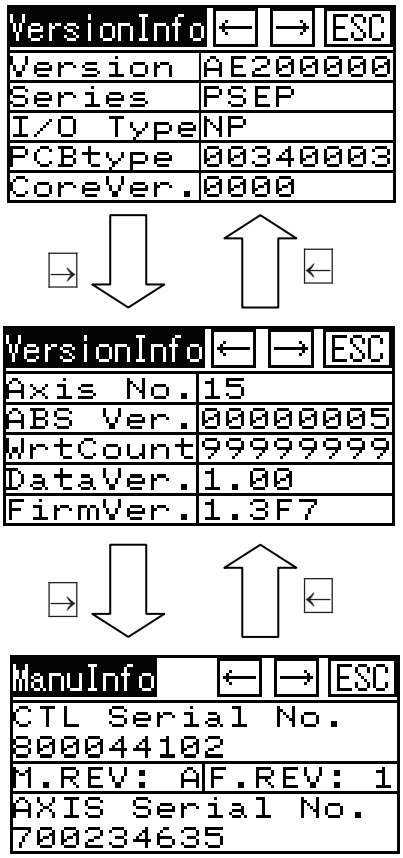
When MENU is touched, the SEP-PT MENU window is returned.

[Setting Check]

The set data such as operation pattern or operation mode can be confirmed.
There are two windows.



[Version Manufacturing Data]

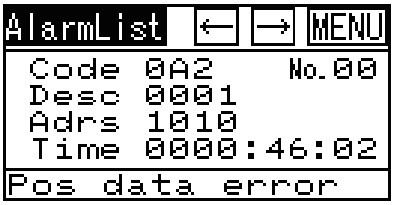


The version data, etc., can be confirmed.
There are two windows.

The manufacturing data items including serial No., can be confirmed.

[Alarm History]

The alarm history can be confirmed.

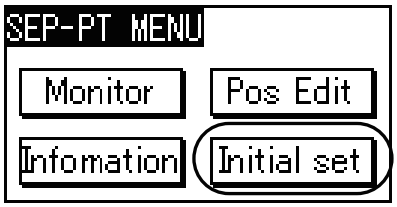


[Inquiry]

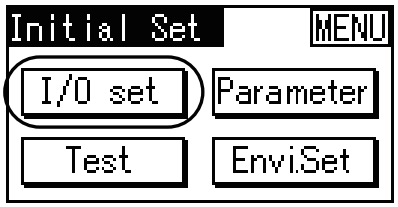
The contacts in our company can be confirmed.

4.2.7 I/O Setup (Settings of Operation Parameters, etc.)

In this operation, the Operation Pattern (PIO Pattern) (0 to 5) is selected and Operation Mode (Single Solenoid or Double Solenoid) is set.



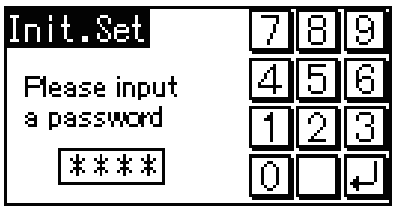
Touch Initial set in the SEP-PT MENU window.



Touch the I/O set.

When MENU is touched, the SEP-PT MENU window is returned.

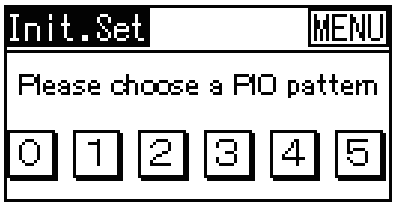
Before the window is transferred to the “Initialization” window, the password entry window appears.



Enter the value as the password using the ten-key and touch ↵.

The password has been set to “5119” when the unit was shipped from the factory.

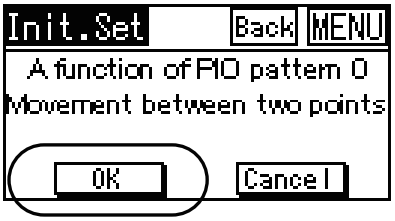
When the correct password is set, the Operation Pattern setting window is displayed.



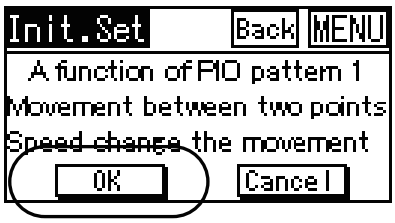
Select one of Operation Patterns 0 through 5 and touch it.

The window corresponding to the selected Operation Pattern will be displayed.

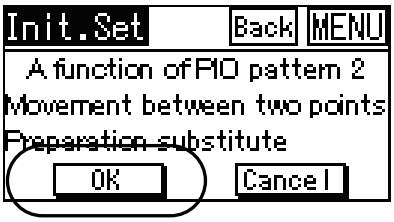
Operation Pattern 0
(Standard Point-to-Point Movement)



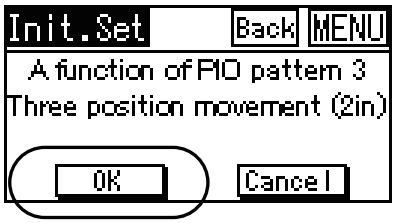
Operation Pattern 1
(Movement Speed Setting)



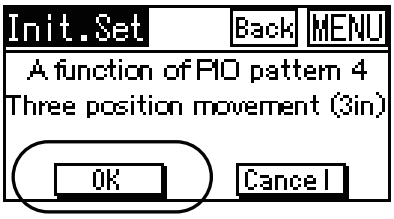
Operation Pattern 2 (Position Data Change)



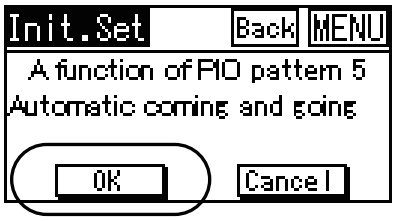
Operation Pattern 3 (2-Input, 3-Point Movement)



Operation Pattern 4
(3-Input, 3-Point Movement)



Operation Pattern 5
(Continuous Reciprocating Operation)



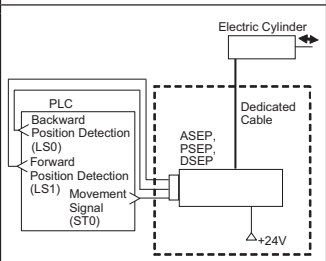
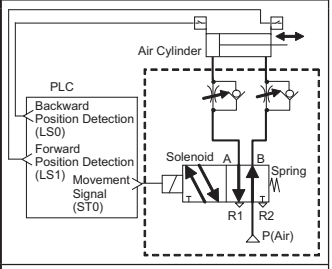
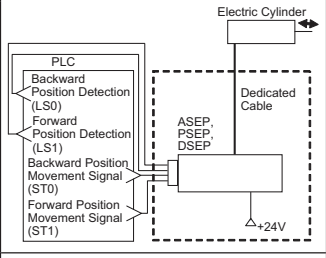
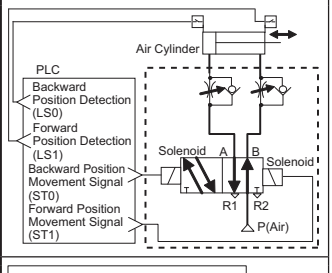
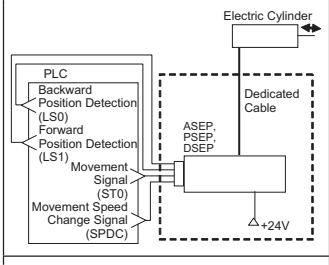
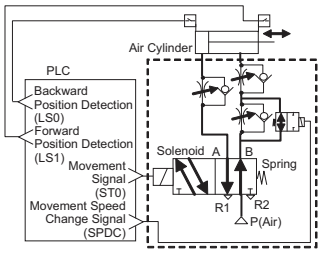
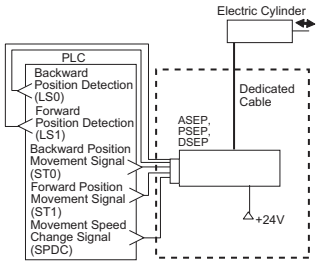
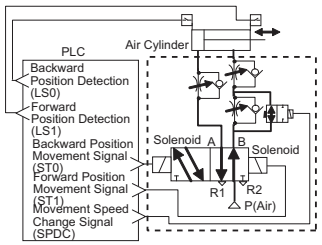
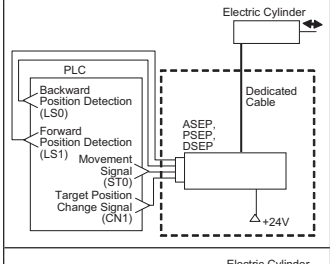
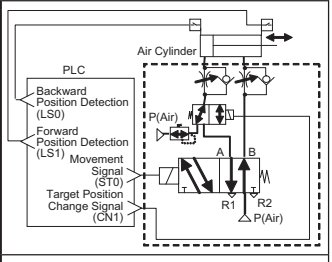
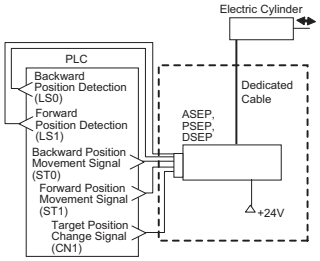
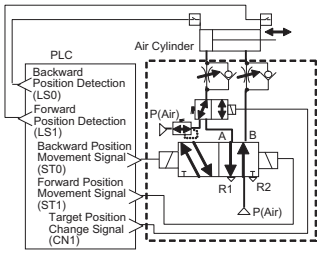
When OK is touched, the setting window for the Operation Mode, etc., is displayed. The settable items vary depending on the operation mode.

Setting Items

Operation Pattern	Operation Mode	Intermediate Position Movement System	Double Solenoid Type	Pause Signal *STP	Servo Control SON	OUT2, OUT3	OUT3	Home return	Output Signal
	Single Solenoid/ Double Solenoid	Both Signals OFF/ Both Signals ON	Continuous Operation Type/ Momentary Operation Type	Disable/ Enable	Disable/ Enable	HEND, *ALM/ SV, *ALM/ HEND, SV	*ALM/ SV	MANU/ AUTO	Limit Switch LS/ Positioning PE
PIO Pattern 0 Standard Point-to-Point Movement	○		Double Solenoid Selected ○	Single Solenoid Selected ○	○	○		○	○
PIO Pattern 1 Movement Speed Setting	○		Double Solenoid Selected ○	Single Solenoid Selected ○	○	○		○	○
PIO Pattern 2 Position Data Change	○		Double Solenoid Selected ○	Single Solenoid Selected ○	○	○		○	○
PIO Pattern 3 2-Input, 3-Point Movement		○			○		○	○	○
PIO Pattern 4 3-Input, 3-Point Movement			○		○		○	○	○
PIO Pattern 5 Continuous Reciprocating Operation				○	○	○		○	○

Refer to the Instruction Manual for the ASEP/PSEP/DSEP Controller for the details of each item to be set.

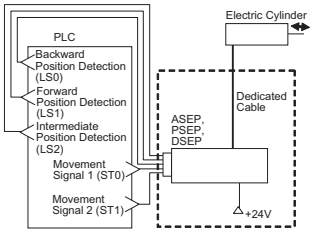
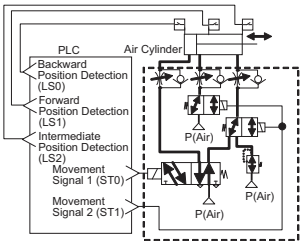
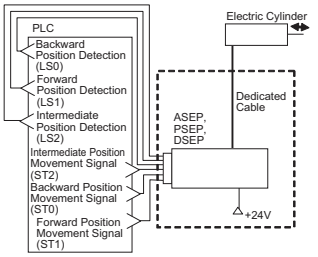
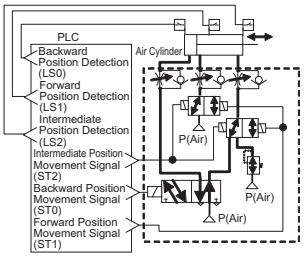
Operation Pattern
Shown below is a circuit diagram for a corresponding air cylinder for reference.

Operation Pattern	Contents	Electric Cylinder Connection Procedure	Air Cylinder Circuit (Reference)
PIO Pattern 0 Single Solenoid Type (Standard Point-to-Point Movement)	The actuator point-to-point movement is available using the same control function as for the air cylinder. The target position setting (forward position and backward position) is available. Speed and acceleration settings in the actuator movement are available. The pressing operation is available.		
PIO Pattern 0 Double Solenoid Type (Standard Point-to-Point Movement)			
PIO Pattern 1 Single Solenoid Type (Point-to-Point Movement) (Movement Speed Setting)	The actuator point-to-point movement is available using the same control function as for the air cylinder. The speed change in the movement operation is available. The target position setting (forward position and backward position) is available. Speed and acceleration settings in the actuator movement are available. The pressing operation is available.		
PIO Pattern 1 Double Solenoid Type (Point-to-Point Movement) (Movement Speed Setting)			
PIO Pattern 2 Single Solenoid Type (Point-to-Point Movement) (Position Data Change)	The actuator point-to-point movement is available using the same control function as for the air cylinder. The change-over between the positioning and pressing operations during the operation is available. The target position setting (forward position and backward position) is available. Speed and acceleration settings in the actuator movement are available. The pressing operation is available.		
PIO Pattern 2 Double Solenoid Type (Point-to-Point Movement) (Position Data Change)			

(Note): The symbols in the air cylinder circuit diagram above are those applied for ASEP/PSEP/DSEP.
Refer to “ASEP/PSEP/DSEP Instruction Manual” for the details of the signal symbols.

Operation Pattern

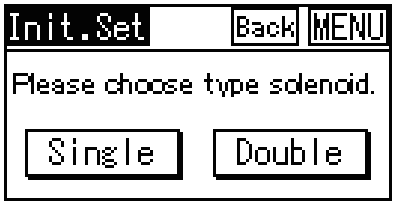
Shown below is a circuit diagram for a corresponding air cylinder for reference.

Operation Pattern	Contents	Electric Cylinder Connection Procedure	Air Cylinder Circuit (Reference)
PIO Pattern 3 Single Solenoid Type (2-Input, 3-Point Movement)	The actuator 3-Point movement is available using the same control function as for the air cylinder. The target position setting (forward position and backward position) is available. Speed and acceleration settings in the actuator movement are available. The pressing operation is available.		
PIO Pattern 4 Double Solenoid Type (3-Input, 3-Point Movement)	The actuator 3-Point movement is available using the same control function as for the air cylinder. The target position setting (forward position and backward position) is available. Speed and acceleration settings in the actuator movement are available. The pressing operation is available.		
PIO Pattern 5 (Continuous Reciprocating Operation)	The actuator's point-to-point reciprocating operation is performed between the forward position and backward position. The target position setting (forward position and backward position) is available. Speed and acceleration settings in the actuator movement are available. The pressing operation is available.		

(Note): The symbols in the air cylinder circuit diagram above are those applied for ASEP/PSEP/DSEP.
Refer to "ASEP/PSEP/DSEP Instruction Manual" for the details of the signal symbols.

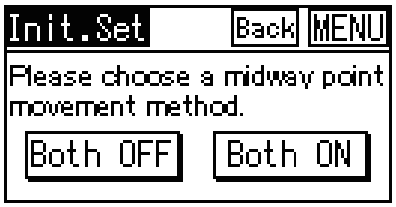
[1] Types of I/O Setup (Setting of the Operation Parameters, etc.) Window
The windows are displayed one by one for the items to be set with a circle in the “Setting Items” table (on page 61), in order from the one on the left side.

[Operation Mode]
Select either of the Single Solenoid Operation Mode or Double Solenoid Operation Mode.



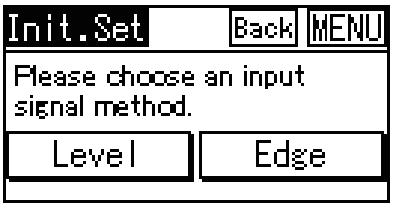
Selecting Back returns to the preceding window.

[Intermediate Position Movement System]
When the Operation Pattern 3 is set, select whether if the intermediate position is moved with both of ST0 and ST1 signals turned OFF or ON.



Selecting Back returns to the preceding window.

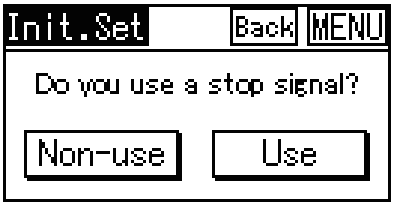
[Double Solenoid Type]
When the Double Solenoid Type is set for the Operation Mode and the Operation Pattern 4 is set, select the input signal type for tuning ON the double solenoid, from Continuous Operation Type (Level) or Momentary Operation Type (Edge).



Selecting Back returns to the preceding window.

[Pause Signal *STP]

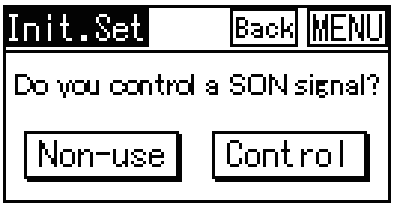
When the Single Solenoid Type is set for the Operation Mode and the Operation Pattern 4 is set, select whether or not the STOP signal STP (Input in IN2) is used.



Selecting Back returns to the preceding window.

[Servo Control SON]

Select whether or not the servo-motor control signal (Input signal SON (Servo-Motor ON/OFF Control) to IN3) is used.



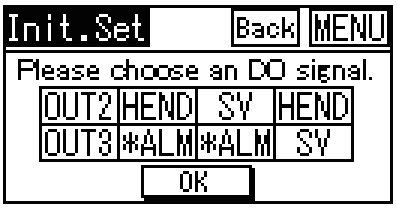
Selecting Back returns to the preceding window.

[Output Signal Selection Operation Pattern 0, 1, 2, 5]

When the Operation Pattern is set to “0”, “1”, “2” or “5”, set the OUT2 and OUT3 output signals after the Control is selected.

Select one of the three patterns in the table.

	Selection No. 1	Selection No. 2	Selection No. 3
OUT2	HEND (Homing Completion Signal)	SV (Servo ON output signal)	HEND (Homing Completion Signal)
OUT3	*ALM (Alarm output Signal)	*ALM (Alarm output Signal)	SV (Servo ON output signal)

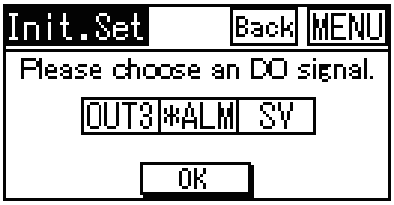


Selecting Back returns to the preceding window.

[Output Signal Selection Operation Pattern 3, 4]

When the Operation Pattern is set to “3” or “4”, set the OUT3 output signal after the Control is selected.

Select either of ∗ALM (Alarm Status Signal) or SV (Servo-Motor ON Status Signal).



Selecting Back returns to the preceding window.

[Home Return Operation]

Select the home return operation system.

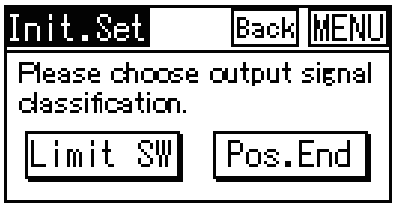
- AUTO : The home return operation is started when the power is input.
- MANU : The home return operation is started when the first STO signal is input after the power is input.

Selecting Back returns to the preceding window.

[Output Signal]

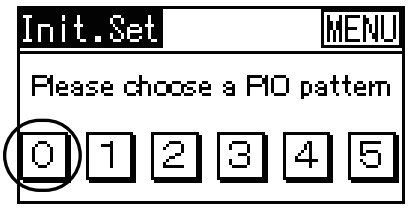
The actuator is moved and the output signal to be issued after the positioning is completed, is selected.

Select Limit Switch (LS) or Positioning (PE).



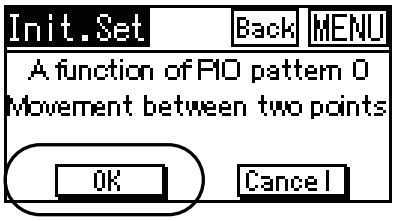
Selecting Back returns to the preceding window.

[2] Basic Operation
The setting procedure is described taking Operation Pattern 0 as an example.



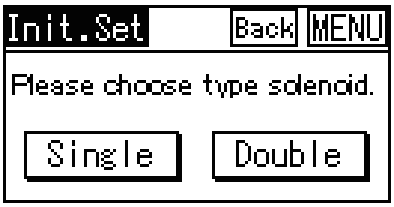
Touch the 0.

When MENU is touched, the SEP-PT MENU window is returned.



Touch the OK.

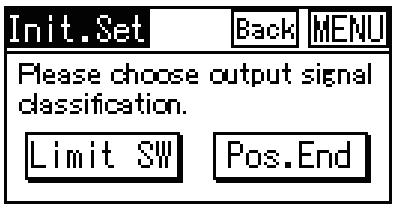
Touching Cancel and Back return to the preceding Operation Pattern selection window.
When MENU is touched, the SEP-PT MENU window is returned.



Select either Single or Double and touch it.

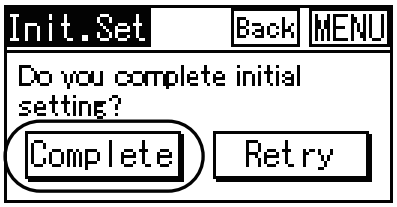
Selecting Back returns to the preceding window.

After that, the setting windows related to the Operation Pattern are displayed one by one for the items to be set with a circle in the “Setting Items” table (on page 61), in order from the one on the left side.



Select either Limit SW or Pos.End and touch it.

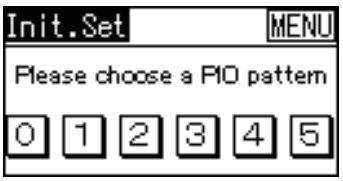
Selecting Back returns to the preceding window.



Touch the Complete.

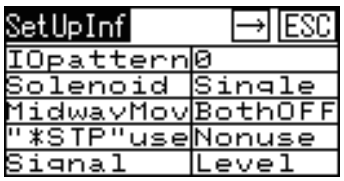
Selecting Back returns to the preceding window.

Touching Retry returns to the Operation Pattern Selection window. Then, the previous set Operation Pattern is deleted.



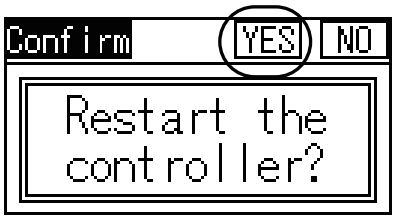
Touch the YES.

Touching Disp displays the Set Data window. The set data items can be confirmed.



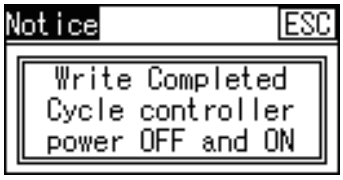
Touching ESC returns to the previous window.

Touching NO returns to the Initialization window. Then, the previous set Operation Pattern is deleted.



Touch the YES.
The controller will be restarted.
The controller is operated based on the set Operation Pattern.
The SEP-PT MENU window is returned.

Touching NO displays the following window. The controller is not operated according to the set Operation Pattern until the controller is re-started up.

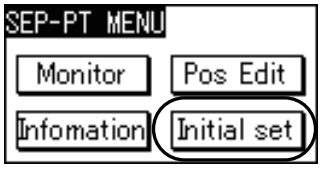
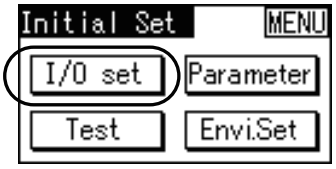
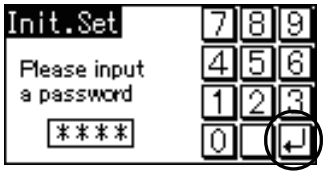
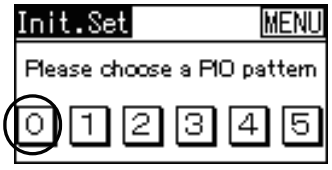
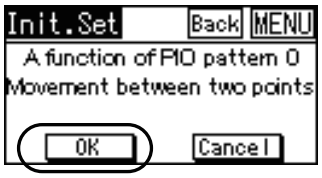


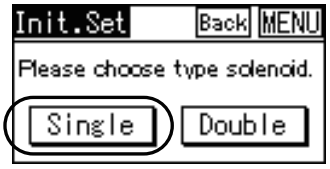
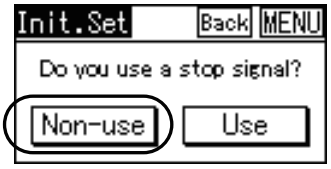
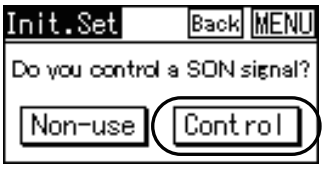
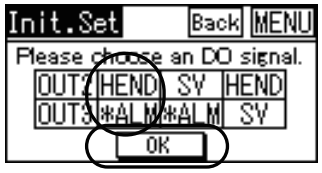
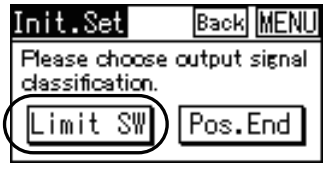
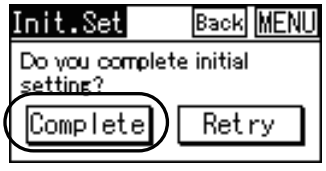
Touching ESC returns to the previous Parameter Setting window.

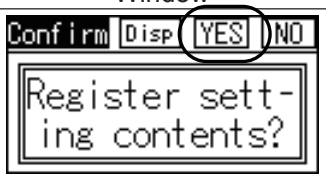
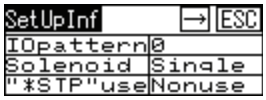
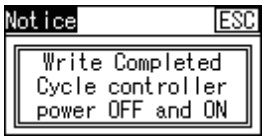
[3] I/O Setup Operation Example
The operation procedure is described taking a specific example.

Example of Operation Mode (PIO Pattern) “0” (Standard Point-to-Point Movement): Perform the following setting.

Operation Mode	Single Solenoid
Use of STOP Command (*STP)	Disable
Servo Control	Enable
Output Signals OUT2 and OUT3	OUT2 HEND, OUT3 ＊ALM
Home return	AUTO(Home return operation started with the power input)
Output Signal	LS0(Backward Position Detection), LS1(Forward Position Detection)

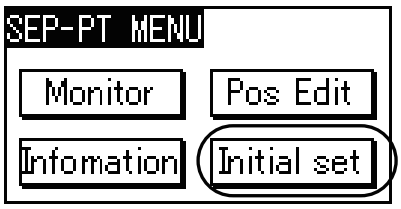
No.	Operation	Window	Remarks
1	Touch Initial set in the SEP-PT MENU window.		
2	Set the Automatic Servo-Motor OFF Delay Time. Touch the I/O set.		When MENU is touched, the SEP-PT MENU window is returned. The password can be set in ‘Password’ in Parameter Menu.
3	Input the password. Touch the ↵.		The password has been set to “5119” when the unit was shipped from the factory.
4	Touch the 0. “Operation Pattern 0” will be selected.		When MENU is touched, the SEP-PT MENU window is returned.
5	Touch the OK.		Touching Back or Cancel returns to the preceding window. When MENU is touched, the SEP-PT MENU window is returned.

No.	Operation	Window	Remarks
6	Touch the Single. The Single Solenoid Operation Mode will be selected.		Selecting Back returns to the preceding window. When MENU is touched, the SEP-PT MENU window is returned.
7	Touch the Non-use. "Non-use" for the STOP Command (*STP) will be selected.		Selecting Back returns to the preceding window. When MENU is touched, the SEP-PT MENU window is returned.
8	Touch the Control. "Control" for the Servo-Motor Control will be selected.		Selecting Back returns to the preceding window. When MENU is touched, the SEP-PT MENU window is returned.
9	Touch the HEND / *ALM. Touch the OK. "HEND" and "*ALM" will be selected as outputs respectively for OUT2 and OUT3.		Selecting Back returns to the preceding window. When MENU is touched, the SEP-PT MENU window is returned.
10	Touch the AUTO. "AUTO" will be selected for the Home Return.		Selecting Back returns to the preceding window. When MENU is touched, the SEP-PT MENU window is returned.
11	Touch the Limit SW. "LS0" (Backward Position Detection) and "LS1" (Forward Position Detection) are selected for output signals.		Selecting Back returns to the preceding window. When MENU is touched, the SEP-PT MENU window is returned.
12	Touch the Complete.		When Retry is touched, the Operation Pattern window is returned. Selecting Back returns to the preceding window. When MENU is touched, the SEP-PT MENU window is returned.

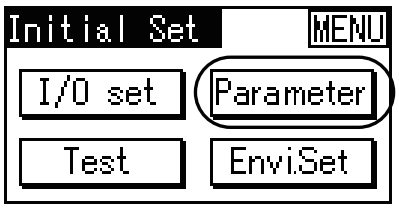
No.	Operation	Window	Remarks
13	Touch the YES.		Touching Disp confirms the set data.  Touching ESC in the set data window, returns to the previous confirmation window.
14	Touch the YES.		Touching NO displays the following window. The controller is not operated according to the set Operation Pattern until the controller is re-started up. 
15			When the controller is re-started up, the SET-PT MENU window appears.

4.2.8 Parameters (Parameter Editing, Axis No. Setting, Parameter Initialization at the Shipping from the Factory and System Password)

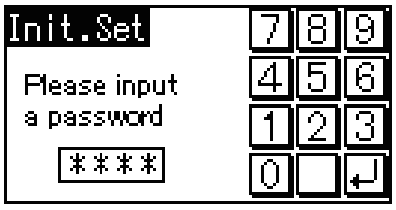
Set the parameters and axis No. The operation for changing the system password and returning to the default parameters set at the shipping from the factory, are available.



Touch Initial set in the SEP-PT MENU window.



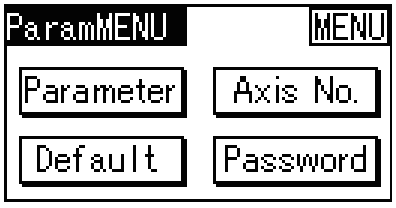
Touch the Parameter.



Enter the value as the password using the ten-key and touch ↵.

The password has been set to “5119” when the unit was shipped from the factory.

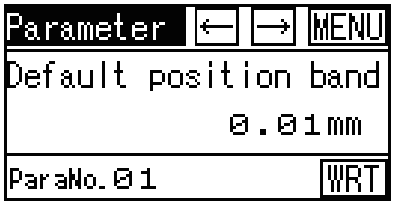
The password can be set in ‘Password’ in Parameter Menu.



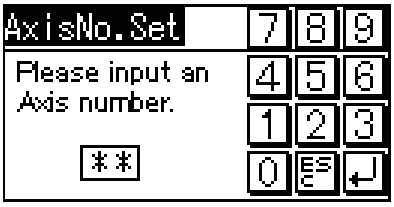
Select one of Parameter, Axis No., Default, or Password and touch it.

The window corresponding to the set menu item is displayed.

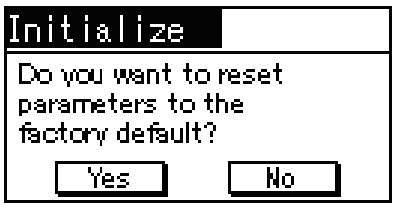
- Parameter : Twenty types of parameter are set.
  At first, the following window is displayed and then, 19 windows are displayed one by one in turn.



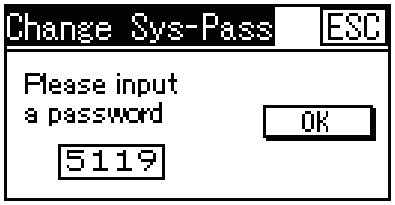
- Axis No. Set : Set the Axis No.



- Factory Default : The default parameters set at the factory at the shipping can be recovered.

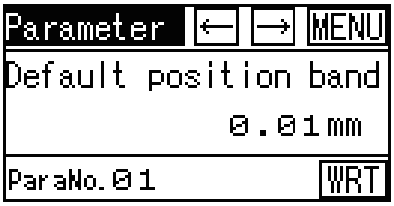


- Change Sys-Pass : The password for the parameter editing can be changed.

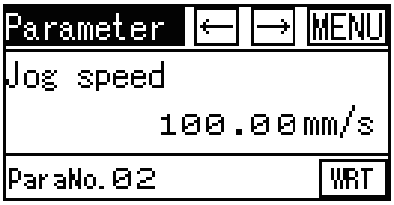


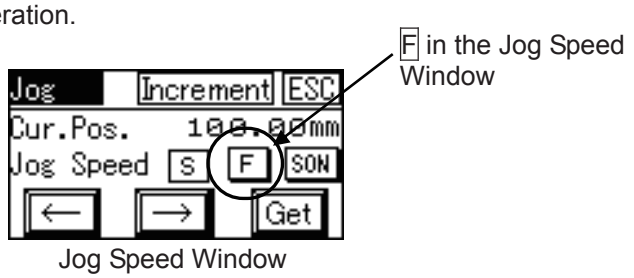
[1] Types of Parameter Editing Window
The windows are displayed in the following order. Refer to the ASEP/PSEP/DSEP Controller Instruction Manual for the details of each parameter.

(Positioning Width)
Set the positioning width.



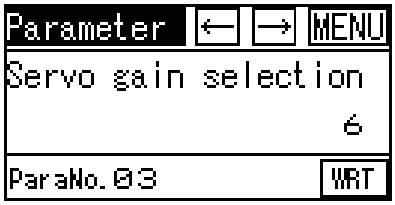
(Jog Speed)
Set the speed for “Fast” for the Jog Operation.



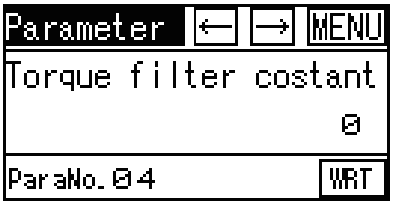


Jog Speed Window

(Servo Gain Selection)
Set the Servo Gain No. that determines the Responsibility of the Position Control Loop in the Servo-Motor Control.

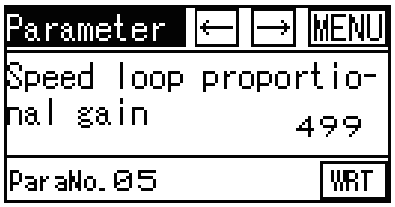


(Torque Filter Constant)
Set the Torque Filter Constant that determines the Filter Constant for the Torque Command in the Servo-Motor Control.



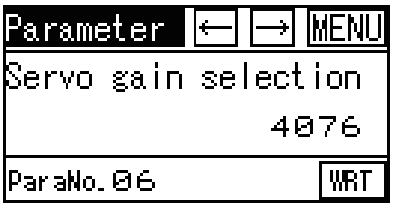
(Speed Loop Proportional Gain)

Set the Speed Loop Proportional Gain that determines the Responsibility of the Velocity Control Loop in the Servo-Motor Control.



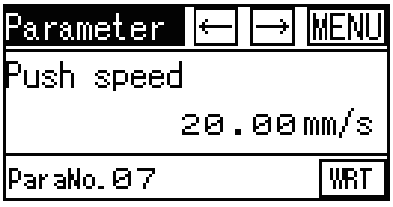
(Servo Gain Selection)

Set the Servo Gain Selection that determines the Responsibility of the Velocity Control Loop in the Servo-Motor Control.



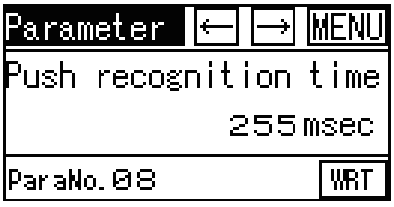
(Push Speed)

Set the velocity in the pressing operation.



(Push Recognition Time)

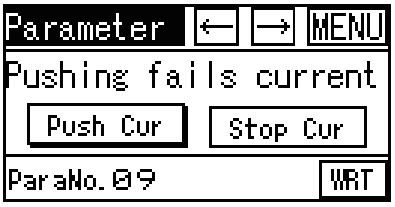
Set the Push Recognition Time to determine the operation completion at the time when the actuator is pressed against the work in the pressing operation.



(Pushing fails Current)

Set whether if the current limitation value at the time when the pressing operation is performed, but there is no work to be pressed, is regarded as the current in pressing operation or the current in the stop operation.

When selecting the current in stop operation for ASEP/DSEP, and the pressing operation is performed, but there is no work to be pressed, the setting will be the torque limitation of the current limitation value in moving operation.

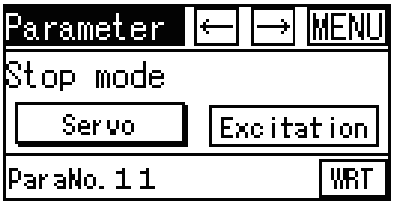


(Auto Servo OFF Delay Time)

Set the time period until the servo-motor is turned OFF automatically when the Energy-Saving function is enabled.

(Stop Mode) Displayed in the case of using PSEP Controller

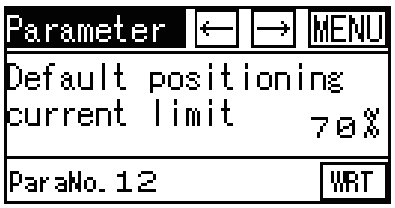
Set whether if the servo-motor is stopped with the full servo-motor control system or complete stop operation without using the full servo-motor control system, when the actuator is stopped.



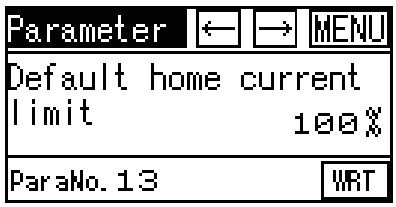
(Note)
In the case that the position data is not reloaded after this parameter is changed, the change is not reflected.

(Default Positioning Current Limit) Displayed in the case of using PSEP Controller

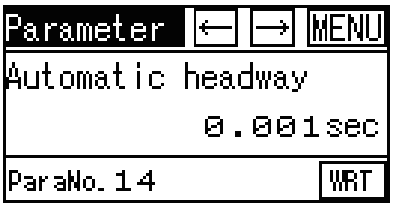
Set the Current Limit Value when the positioning operation is stopped.



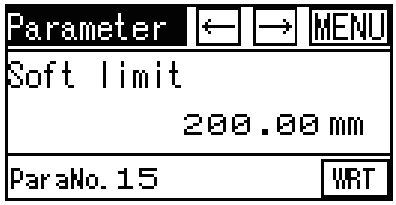
(Default Home Current Limit)
Set the Current Limit Value in the home return operation.



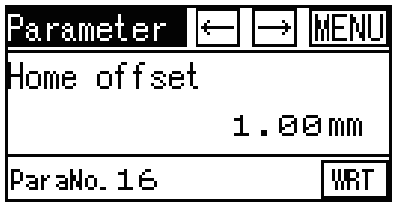
(Automatic Headway)
Set the stop time period from the actuator movement completion to the next movement when the Operation Pattern 5 (Continuous Operation) is set.



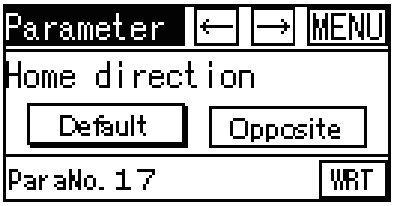
(Soft Limit)
Set the soft limit on the positive (+) side.



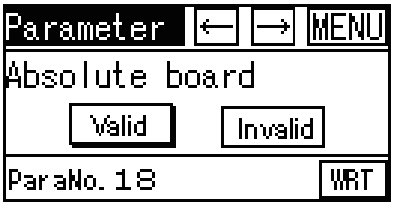
(Home Offset)
Set the offset level for the home return operation.



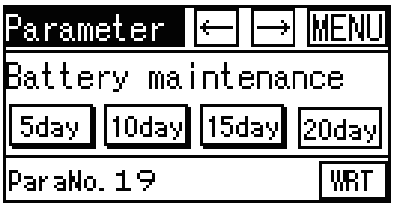
(Home Direction)
Set the home direction either of the motor side or opposite side of the motor.
For some actuators including rod type, the change of the home return direction is unavailable.



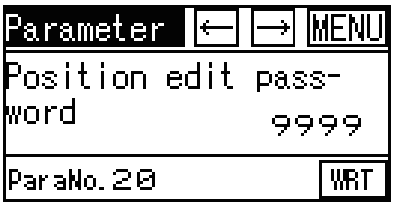
(Absolute Board) In the case of the Absolute Unit, it is displayed.
Set whether if the absolute board is enabled or disabled.



(Battery Maintenance) In the case of the Absolute Unit, it is displayed.
Set the battery maintenance.

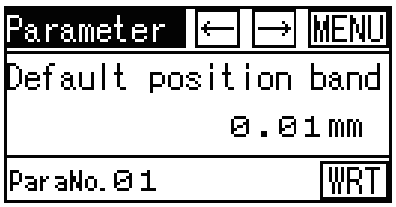


(Position Edit Password)
Set the password when the position data is edited.



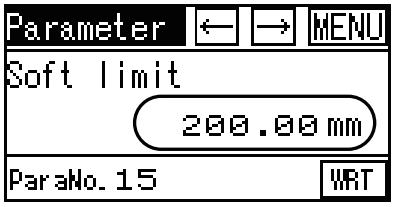
[2] Basic Operation
Set the parameter.

[Parameters]

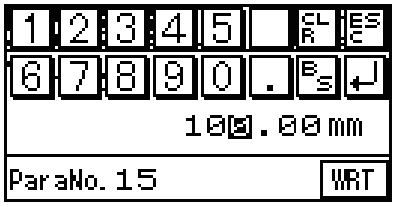


Touching ← returns to the preceding window.
Touching → returns to the next window.
There are 20 windows to be displayed one by one in order from the positioning width initial value to the position data edit password edit window.

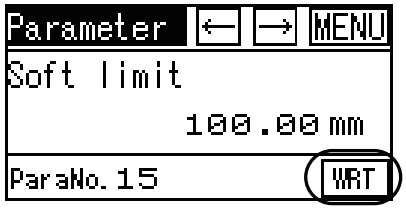
The soft limit is set as an example.
The window where the soft limit is set, is displayed using the ← or → in the displayed window.



Touch the value.



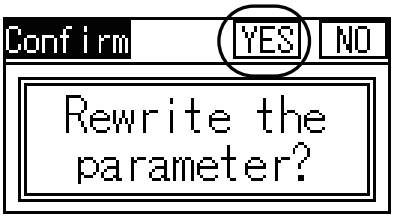
Enter the value and touch ↵ .



Touch the WRT.

When MENU(Note 1) is touched, the SEP-PT MENU window is returned.

(Note 1) Even in the case that the MENU is touched without writing after various parameters are changed in the parameter edit window, and the window is transferred to the other one from the parameter edit window, the changed parameters are kept.
When the parameter edit window is displayed again, the changed parameters are displayed. Pay attention.

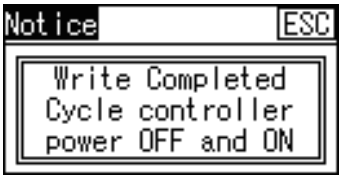


Touch the YES.

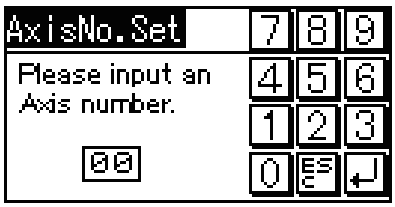
Touching NO returns to the window where the setting was performed. In this example, the soft limit window is returned.

Touch the YES.
The controller will be re-started up.
The controller is operated according to the set Operation Pattern.
The Initialization window is returned.

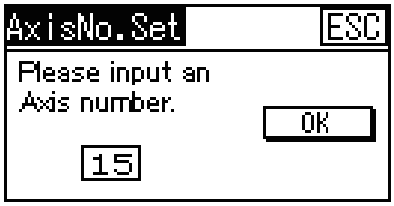
Touching NO displays the following window. The controller is not operated according to the set Operation Pattern until the controller is re-started up.



[Axis No. Setting] Set the Axis No.

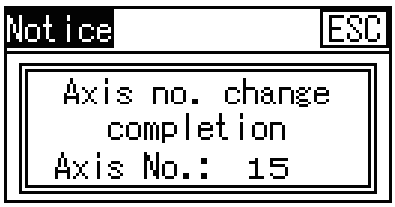


Enter the value and touch ↵.

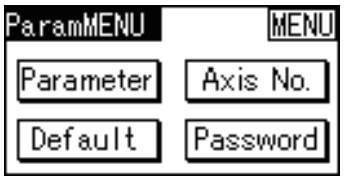


Touch the OK.
The window shows the example where “15” has been entered.

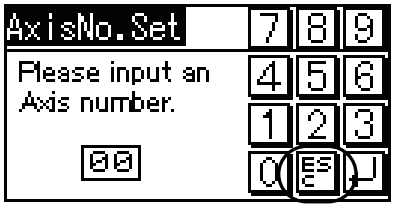
The Axis No. Change Completion window will be displayed.



Touching ESC returns to the Parameter Menu window.

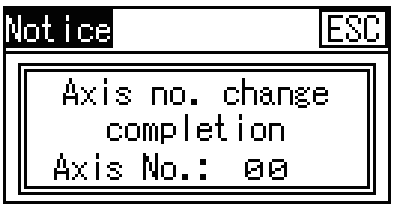


In the case that the ESC is touched without entering any value.



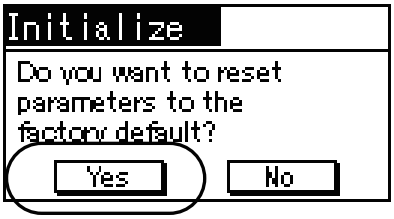
Touch the ESC.

The Axis No. Change Completion window will be displayed. The current Axis No. is displayed in the Axis No. section.



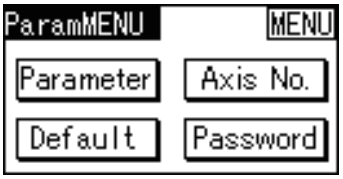
[Factory Parameter Initialization]

Using this function, the operation is performed to return the parameters to default ones set in the factory before the shipping.



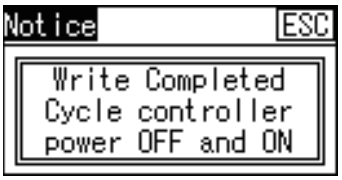
Touch the YES.

Touching No returns to the Parameter Menu window without returning the parameters to default ones set in the factory before the shipping.



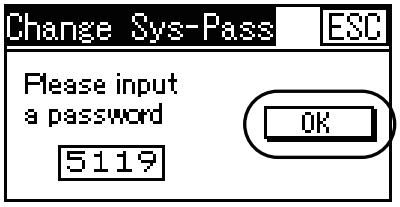
Touch the YES.
The controller will be re-started up.
The controller is operated according to the default parameters set in the factory before the shipping.
The Initialization window is returned.

Touching NO displays the following window. The controller is not operated according to the default parameters set in the factory before the shipping until it is re-started up.



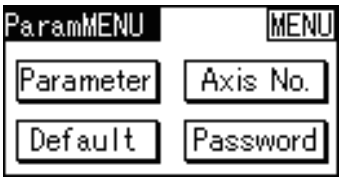
[Change Sys-Pass]

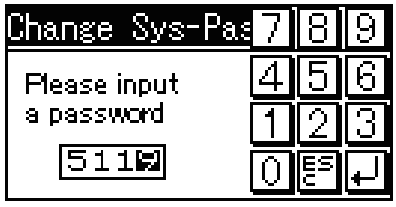
Using this function, the operation is performed to change the password for the parameter editing.



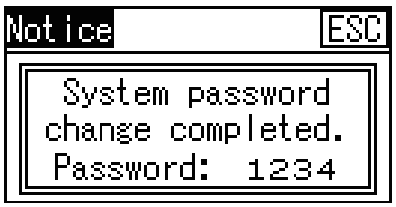
Touch the OK.

Touching ESC returns to the Parameter Menu window.



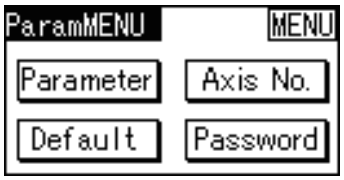


Enter the value and touch ↵.



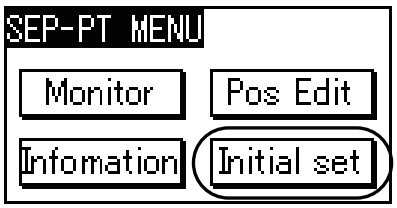
The system password will be changed.

Touching ESC returns to the Parameter Menu window.

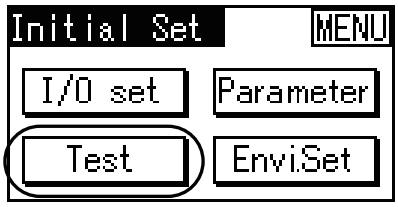


4.2.9 Test (I/O Test and Axis Movement Operation Test)

Using this function, the I/O test and axis movement operation test are available.

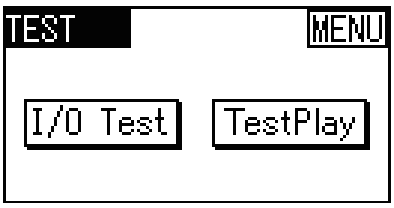


Touch Initial set in the SEP-PT MENU window.



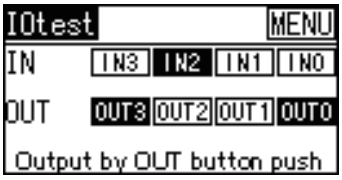
Touch the Test.

When MENU is touched, the SEP-PT MENU window is returned.



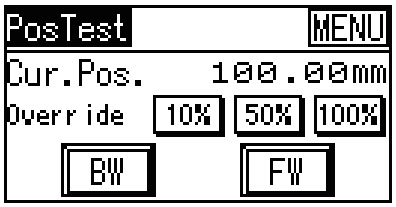
Select one of I/O Test, or TestPlay and touch it.

- I/O Test : The PIO input signals can be monitored.
  Also, for the output signals, touching OUT0, OUT1, OUT2 or OUT3 turns ON and OFF the corresponding signal forcibly.

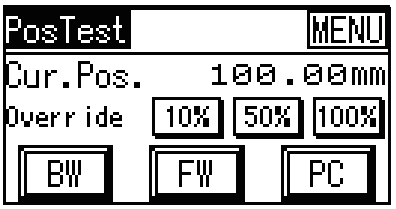


• Operation Test : Using this function, the axis movement operation test can be performed.
The window corresponding to the Operation Mode is displayed.
The window corresponding to the selected Operation Pattern is displayed.

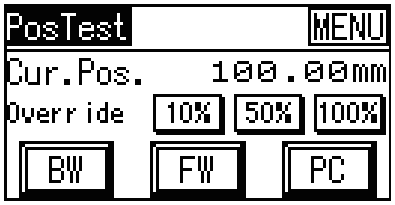
Operation Pattern 0
(Standard 2-Point Movement)



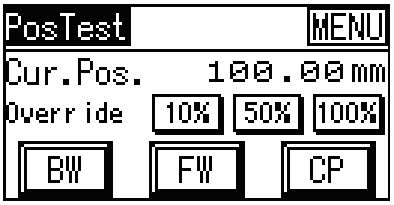
Operation Pattern 1
(Movement Speed Setting)



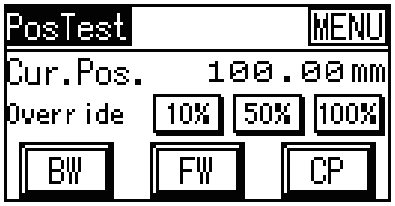
Operation Pattern 2 (Position Data Change)



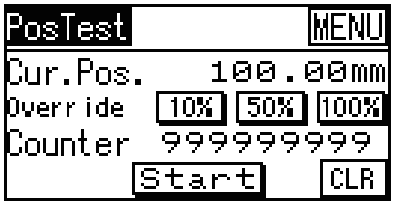
Operation Pattern 3 (2-Input, 3-Point Movement)



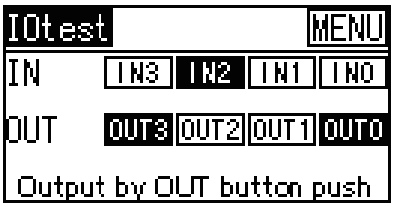
Operation Pattern 4
(3-Input, 3-Point Movement)



Operation Pattern 5
(Continuous Reciprocating Operation)



[1] Basic Operation
[IO Test]



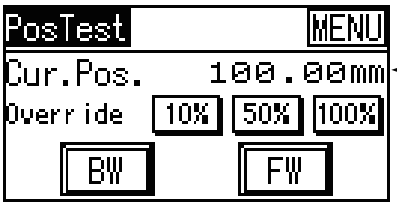
The ON and OFF of the input signals can be monitored.

For the output signals OUT0 to OUT3, touching the button outputs the corresponding signal forcibly.

When MENU is touched, the SEP-PT MENU window is returned.

[Pos Test]

The operation procedure is described taking Operation Pattern as an example.

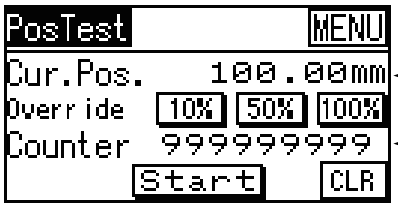


The current position of the axis is shown.

When MENU is touched, the SEP-PT MENU window is returned.

- Backward : When BW is pressed, the actuator is moved backward.
- Forward : When FW is pressed, the actuator is moved forward.
- Override 10% : When 10% is touched, the actuator is moved at 10% of the speed set in the “Target Position/Velocity” window in the “Position Setting” window. In the first displayed window, the “10%” has been set.
- Override 50% : When 50% is touched, the actuator is moved at 50% of the speed set in the “Target Position/Velocity” window in the “Position Setting” window.
- Override 100% : When 100% is touched, the actuator is moved at 100% of the speed set in the “Target Position/Velocity” window in the “Position Setting” window.

Operation Pattern 5 (Continuous Reciprocating Operation) is partly different from the other Operation Patterns.



The current position of the axis is shown.

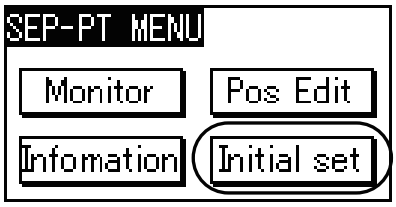
The Axis's reciprocating operation times are shown.

- Start, Stop : When the Operation Test window is displayed, the Continuous Operation is stopped.
  Touching Start performs the continuous reciprocating operation at the speed set in the Override window.
  The switch indication is changed to STOP.
  Touching STOP stops the actuator operation.
- Reset : Touching CLR resets the reciprocating operation counter to "0".

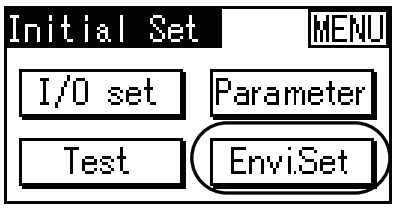
When the Operation Test window is escaped, the Continuous Operation is re-started up.

4.2.10 Environment Setup (Touch Sound Setting, Language Setting, Automatic Monitoring Setting, Display Setting (Display Adjustment))

Using this function, the touch sound setting, language setting, automatic monitoring setting or display adjustment is performed.

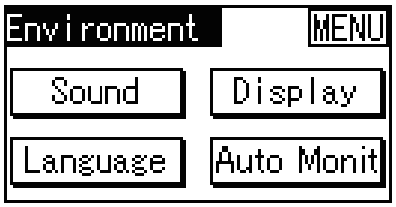


Touch Initial set in the SEP-PT MENU window.



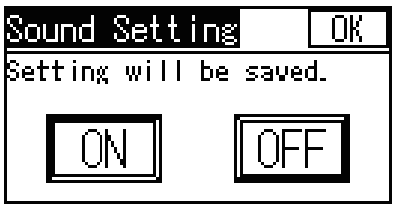
Touch the Envi.Set.

When MENU is touched, the SEP-PT MENU window is returned.

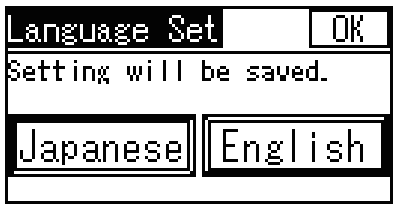


Select one of Sound, Display, Language, or Auto Monit and touch it.

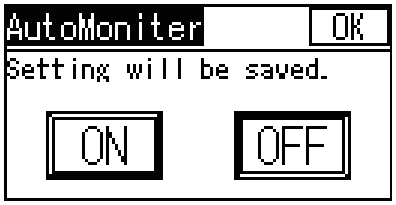
- Sound Setting : Set whether or not the touch sound is output or not.



- Language Set : Select either Japanese or English for the display language.



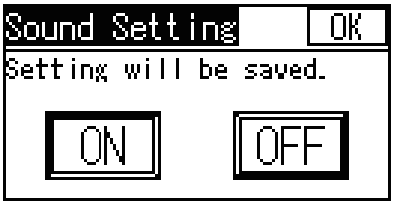
- AutoMoniter : In this window, it can be set so that the monitor window is displayed first after the PSEP/ASEP dedicated touch panel teaching unit is connected.



- Display Setting : In this window, the contrast or brightness is adjusted.

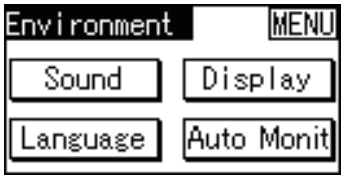
[1] Basic Operation

[Sound Setting]

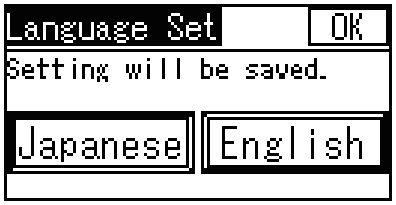


Touching ON outputs the touch sound.
Touching OFF turns OFF the touch sound.

Touching OK, the setting is stored and the Environment Setup window for the main machine is returned.

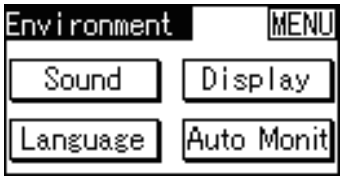


[Language Set]

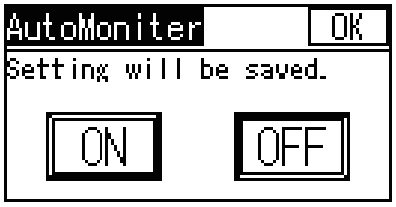


Touching Japanese sets the language to Japanese.
Touching English sets the language to English.

Touching OK, the setting is stored and the Environment Setup window for the main machine is returned.

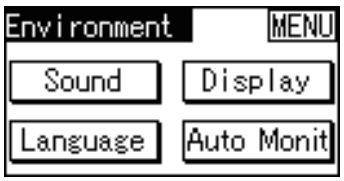


[AutoMoniter]



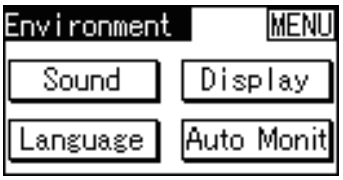
Touching ON can set so that the monitor window is displayed first after the PSEP/ASEP/DSEP or PMEC/AMEC dedicated touch panel teaching unit is connected.
Touching OFF displays the SEP-PT MENU window first.

Touching OK, the setting is stored and the Environment Setup window for the main machine is returned.

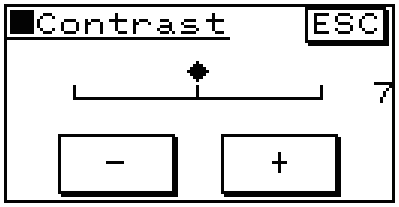


[Display Setting]

When the contrast in the window is to be adjusted, touch Contrast.
When the brightness in the window is to be adjusted, touch Brightness.
The adjustment window corresponding to the touched button item is displayed.
Touching ESC returns to the Machine Setup window for the main machine is returned.

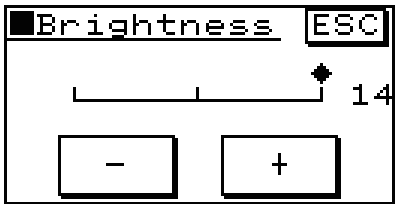


- Contrast Adjustment



Adjust the contrast in the window by means of touching − or +.

- Brightness Adjustment



Adjust the contrast in the window by means of touching − or +.

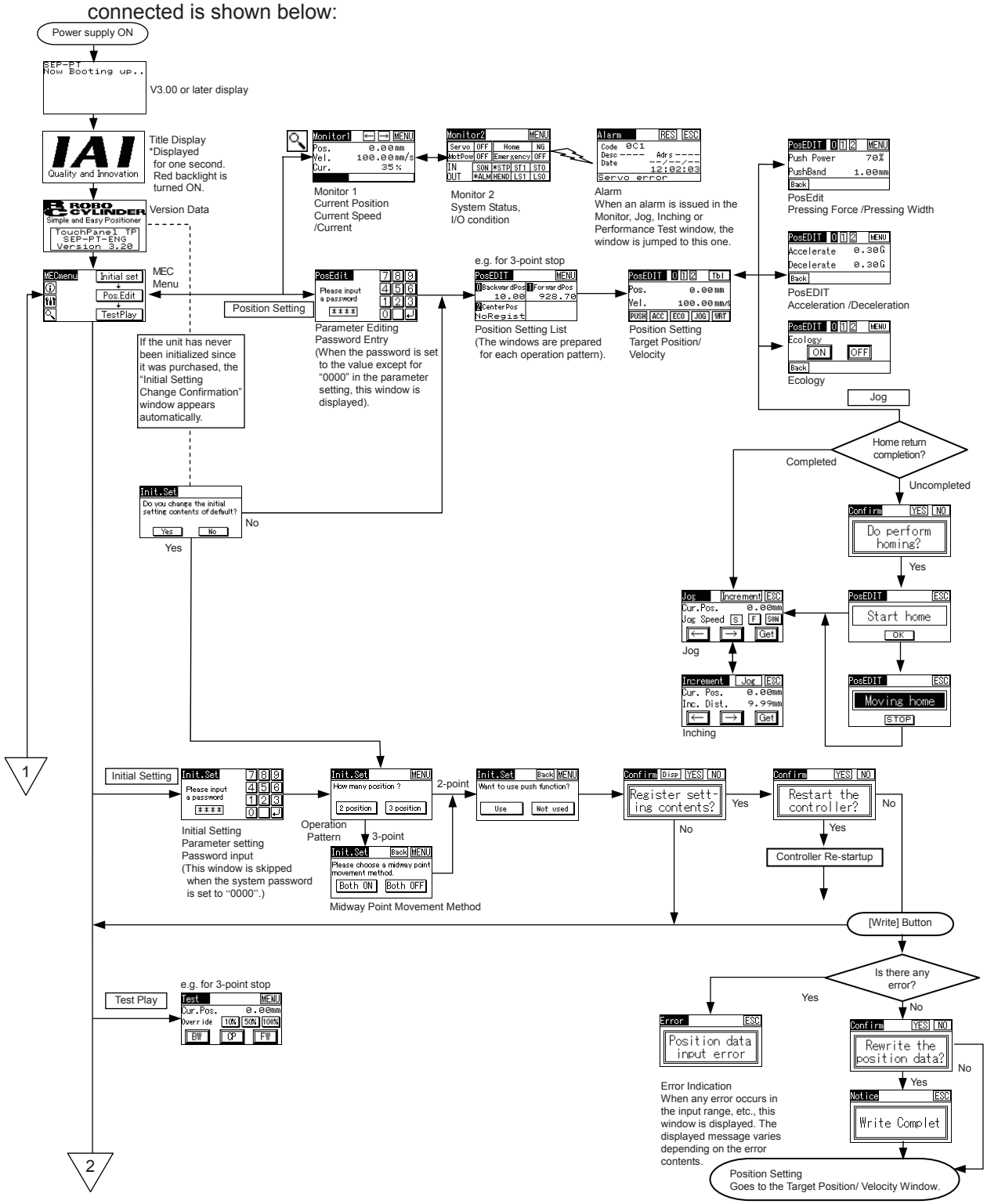
Touching ESC returns to the Display Setting window.

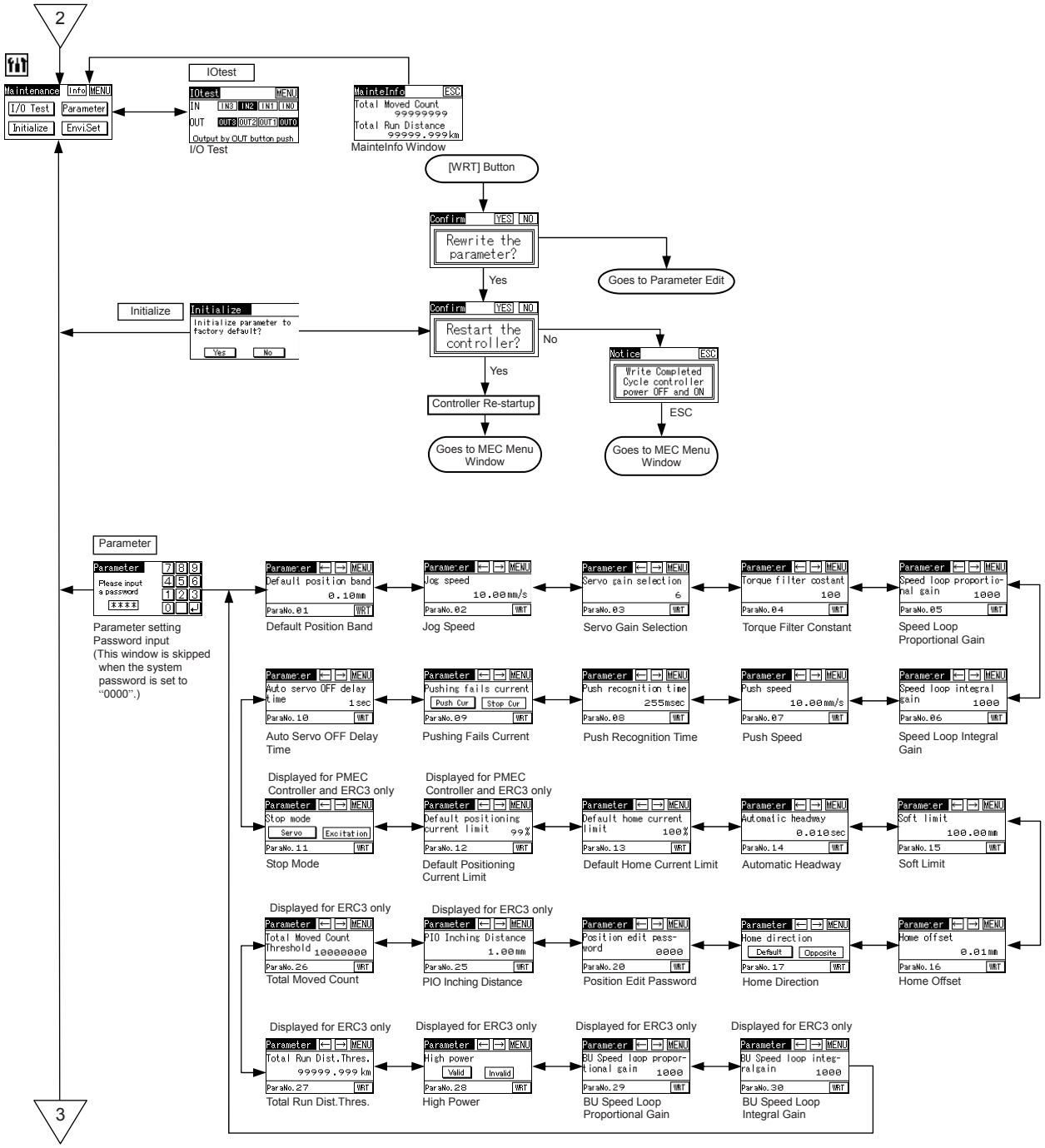
5. Operation of PMEC/AMEC Controller and ERC3

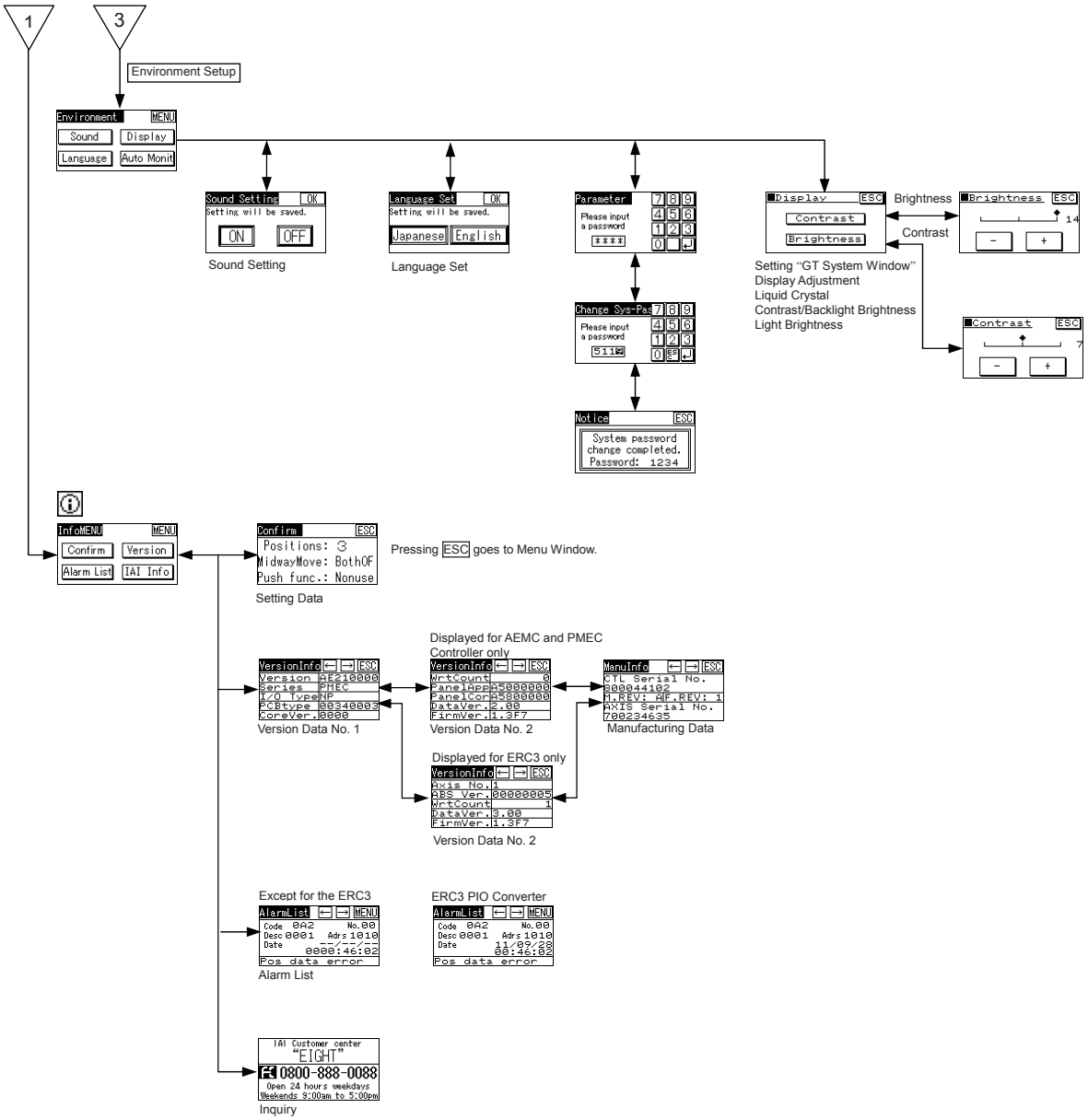
PMEC/AMEC controller and ERC3 is set to the full stroke movement as the position data when it is delivered.
If a movement position change is required, connect SEP-PT Touch Panel Teaching to change the setting.

5.1 Operation Status Chart

State Transition of the operation when PMEC/AMEC controller and ERC3 (MEC mode) is connected is shown below:



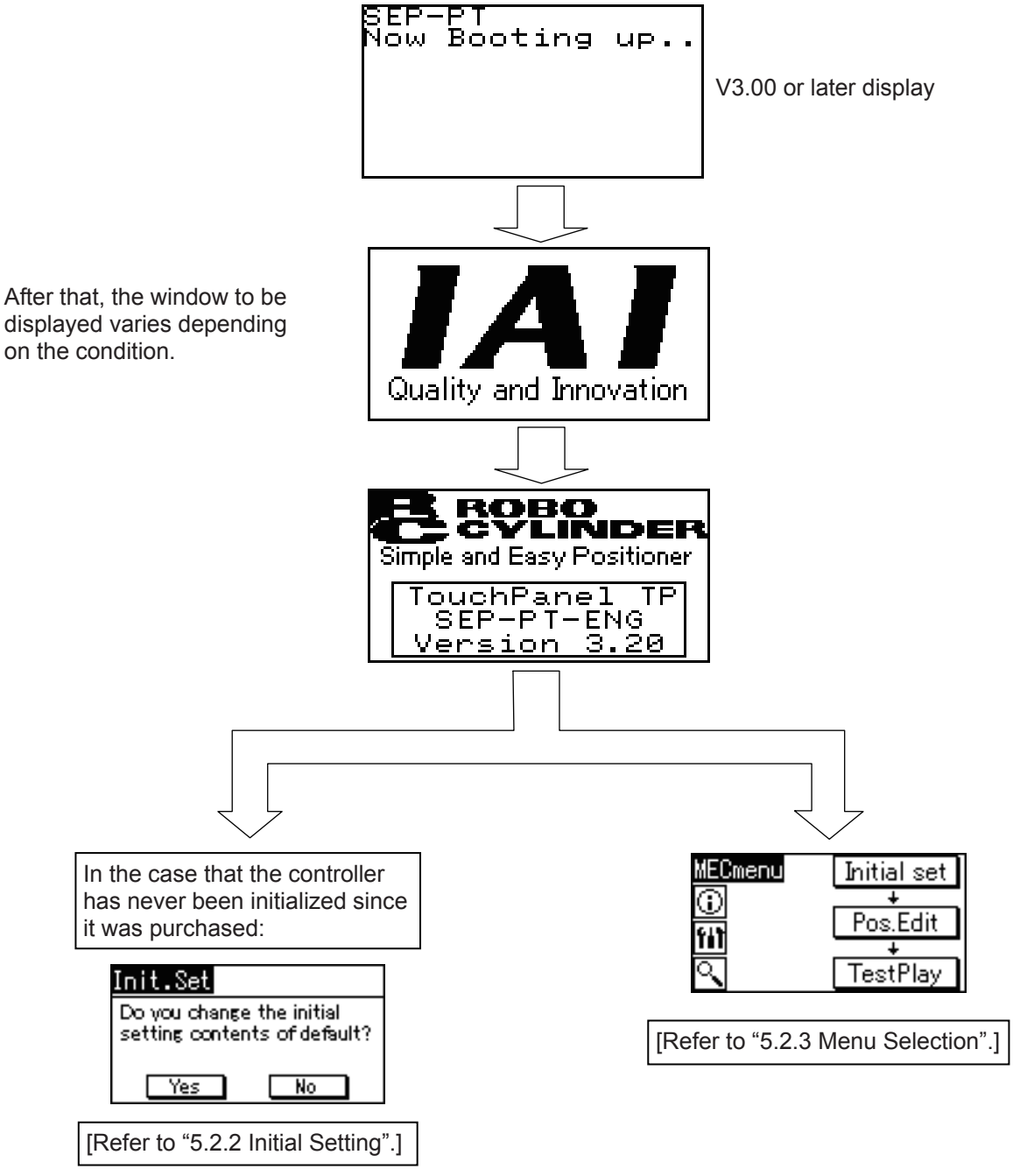

2
Maintenance
Info
MENU
I/O Test
Parameter
Initialize
Envi.Set
IOtest
I/O Test
MainteInfo
ESC
Total Moved Count
99999999
Total Run Distance
99999.999km
MainteInfo Window
[WRT] Button
Confirm
YES
NO
Rewrite the parameter?
Yes
Goes to Parameter Edit
Initialize
Initialize parameter to factory default?
Yes
No
Restart the controller?
No
Notice
Write Completed Cycle controller power OFF and ON
ESC
Controller Re-startup
Goes to MEC Menu Window
Goes to MEC Menu Window
Parameter
Please input a password
Parameter setting
Password input
(This window is skipped when the system password is set to "0000".)
Default position band
0.10mm
ParaNo.01
Default Position Band
Jog speed
10.00mm/s
ParaNo.02
Jog Speed
Servo gain selection
6
ParaNo.03
Servo Gain Selection
Torque filter constant
100
ParaNo.04
Torque Filter Constant
Speed loop proportional gain
1000
ParaNo.05
Speed Loop Proportional Gain
Auto servo OFF delay time
1sec
ParaNo.10
Auto Servo OFF Delay Time
Pushing fails current
Push Cur
Stop Cur
ParaNo.09
Pushing Fails Current
Push recognition time
255msec
ParaNo.08
Push Recognition Time
Push speed
10.00mm/s
ParaNo.07
Push Speed
Speed loop integral gain
1000
ParaNo.06
Speed Loop Integral Gain
Displayed for PMEC Controller and ERC3 only
Stop mode
Servo
Excitation
ParaNo.11
Stop Mode
Displayed for PMEC Controller and ERC3 only
Default positioning current limit
99%
ParaNo.12
Default Positioning Current Limit
Default home current limit
100%
ParaNo.13
Default Home Current Limit
Automatic headway
0.010sec
ParaNo.14
Automatic Headway
Soft limit
100.00mm
ParaNo.15
Soft Limit
Displayed for ERC3 only
Total Moved Count Threshold
10000000
ParaNo.26
Total Moved Count
Displayed for ERC3 only
PIO Inching Distance
1.00mm
ParaNo.25
PIO Inching Distance
Position edit password
0000
ParaNo.20
Position Edit Password
Home direction
Default
Opposite
ParaNo.17
Home Direction
Home offset
0.01mm
ParaNo.16
Home Offset
Displayed for ERC3 only
Total Run Dist.Thres.
99999.999km
ParaNo.27
Total Run Dist.Thres.
Displayed for ERC3 only
High power
Valid
Invalid
ParaNo.28
High Power
Displayed for ERC3 only
BU Speed loop proportional gain
1000
ParaNo.29
BU Speed Loop Proportional Gain
Displayed for ERC3 only
BU Speed loop integralgain
1000
ParaNo.30
BU Speed Loop Integral Gain
3


1
3
Environment Setup
Environment
MENU
Sound
Display
Language
Auto Monit
Sound Setting
OK
Setting will be saved.
ON
OFF
Sound Setting
Language Set
OK
Setting will be saved.
Japanese
English
Language Set
Parameter
Please input a password
****
Change Sys-Pas
Please input a password
511
Notice
ESC
System password change completed.
Password: 1234
Display
ESC
Contrast
Brightness
Brightness
Contrast
Setting "GT System Window"
Display Adjustment
Liquid Crystal
Contrast/Backlight Brightness
Light Brightness
InfoMENU
MENU
Confirm
Version
Alarm List
IAI Info
Confirm
ESC
Positions: 3
MidwayMove: BothOF
Push func.: Nonuse
Setting Data
Pressing ESC goes to Menu Window.
Displayed for AEMC and PMEC Controller only
VersionInfo
Version AE210000
Series PMEC
I/O TypeNP
PCBtype 00340003
CoreVer.0000
Version Data No. 1
VersionInfo
WrtCount 0
PanelAPP A5000000
PanelCor A5000000
DataVer.2.00
FirmVer.1.3F7
Version Data No. 2
ManuInfo
CTL Serial No.
000044102
M.REV: MP.REV: 1
AXIS Serial No.
700234635
Manufacturing Data
Displayed for ERC3 only
VersionInfo
Axis No.1
ABS Ver.00000005
WrtCount 1
DataVer.3.00
FirmVer.1.3F7
Version Data No. 2
Except for the ERC3
AlarmList
Code 0A2 No.00
Desc 0001 Adrs 1010
Date --/-- 0000:46:02
Pos data error
Alarm List
ERC3 PIO Converter
AlarmList
Code 0A2 No.00
Desc 0001 Adrs 1010
Date 11/09/28 00:46:02
Pos data error
IAI Customer center
"EIGHT"
0800-888-0088
Open 24 hours weekdays
Weekends 9:00am to 5:00pm
Inquiry

5.2 Each Operation

5.2.1 Initial Window

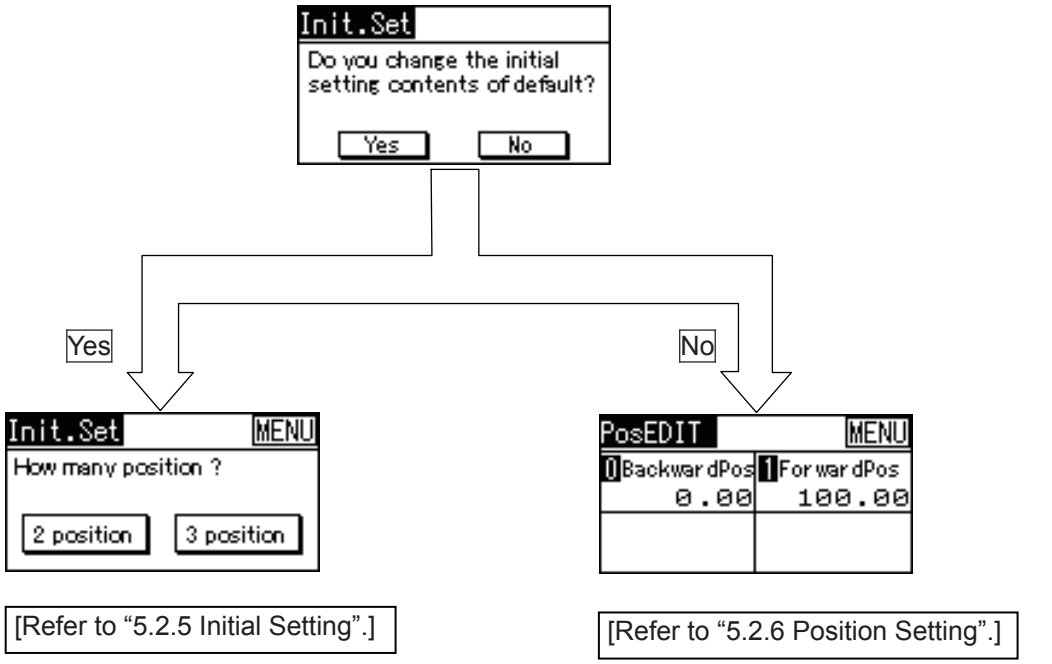
When the controller is connected, the power is supplied to the touch panel teaching unit and the processing is started.
In the operation window in the touch panel teaching unit, “IAI” logo mark is displayed for one second when the power is input. Then, the version data is displayed for three seconds.



5.2.2 Initial Setting

When power is input for the first time after the controller is delivered, the “Initialization” window appears.

- Selecting Yes goes to the setting window in the operation pattern setting.
  Select either “2-point Stop” or “3-point Stop”.
- If selecting No, the operation pattern will remain to “2-point Stop” that is initially set before delivery.
  The window is transferred to the Position Setting window.



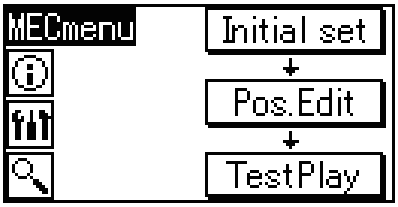
[Refer to “5.2.5 Initial Setting”.]

[Refer to “5.2.6 Position Setting”.]

Setting at the delivery from the factory

- 2-point Stop

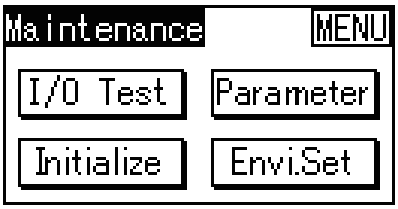
5.2.3 Menu Selection



There are 6 types of menus in the MEC Menu window. Select one of them and touch it.
The window is transferred to one for the selected menu.
Menu List

- Monitor — Controller Status Display [Refer to Item 5.2.4]
- Initial set — 2-point Stop, 3-point Stop [Refer to Item 5.2.5]
- Pos. Edit — Setting of Position, Pressing Force and Pressing Width, Jog Movement [Refer to Item 5.2.6]
- Test Play — Trial run for axis movement check [Refer to Item 5.2.7]
- Maintenance

  Touch Maintenance to move to the maintenance menu window, which is the next select menu window.



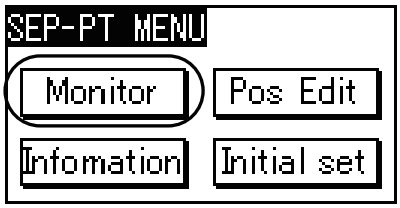
There are 4 types of menus in the maintenance menu window. Touch one of them. It moves to the selected menu.
When MENU is touched, the previous “MEC menu” window is returned.

Maintenance Menu List

- I/O Test — I/O Test [Refer to Item 5.2.8]
- Initialize — Parameter Initializing [Refer to Item 5.2.9]
- Parameter — Parameter Setting for Positioning Width Initial Value, etc. [Refer to Item 5.2.10]
- Envi.Set — Environment Setup such as touch sound setting [Refer to Item 5.2.11]
- Information — Shows information of operation pattern, version, etc. [Refer to Item 5.2.12]

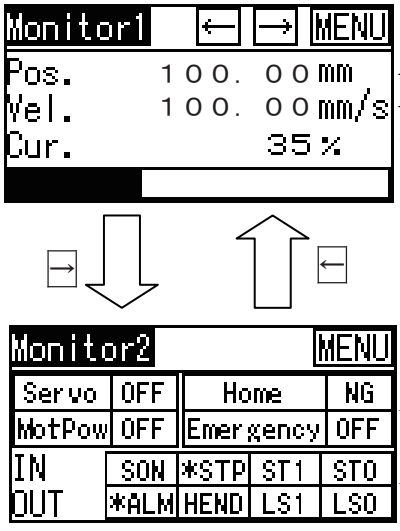
5.2.4 Monitor

The controller's current position, velocity, electric current and system status I/O condition are displayed.



Touch Monitor in the SET-PT MENU window.

The monitor window consists of two display windows.
Touching the MENU returns to the SET-PT MENU window.



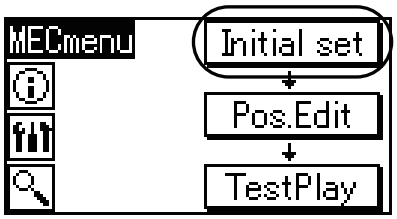
The axis position is shown.
The axis velocity is shown.
The axis current value is shown.

The system status (servo-motor, driving source, home return and emergency stop) are shown.

The axis I/O status is shown.
When it is turned OFF, the reversal display is performed.
The indication varies depending on the operation pattern.

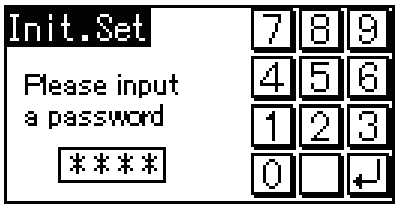
5.2.5 Initial Set

Select either 2-point or 3-point stop.



Touch Initial set in the MEC MENU window.

Unless the password is set to “0000”, the password input window opens before moving to Operation Pattern Setting window.



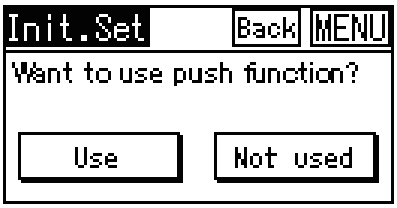
Enter the password number with the numeric keys then touch ↵.

The password is set to ‘5119’ (at delivery).
The password can be changed in ‘System Password Change’ under Environment Setting.

The menu will move to the 2-point/3-point Stop Setting window at the beginning when a correct password setting is confirmed.

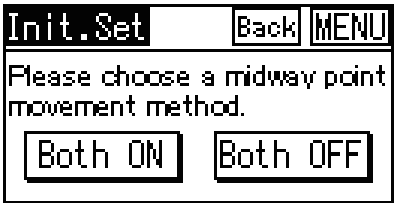
Choose and touch either 2 position or 3 position.

Pressing Select window opens.



Touch Not used when the positioning operation is required.
Choose and touch Use when the pressing operation is required.
(Note) Be careful since the completion signal would not rise if Not used is selected in this window.
* The output signal will be LS0, LS1 and (LS2) if Not used is selected. It will be PE0, PE1 and (PE2) when Use is selected.

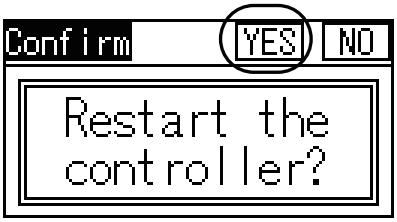
For 3-point stop, The menu moves to the select menu of the command method for intermediate point.



Select either Both OFF or Both ON for the input signal to ST0 and ST1 for the positioning at the intermediate point for 3-point stop.

Touch YES.

Touch NO to return to MEC MENU window. All the settings so far for the initial settings will be cancelled.



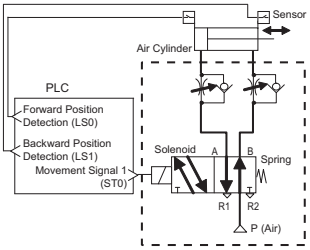
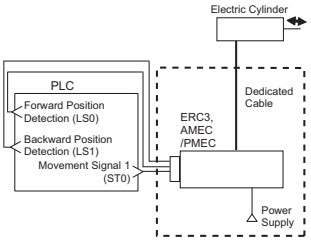
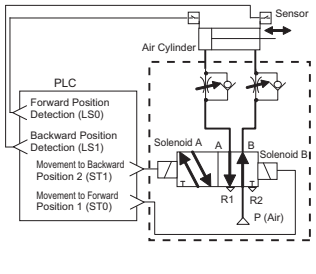
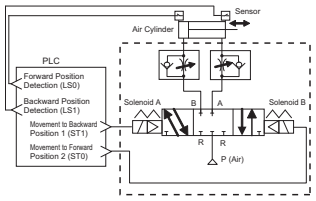
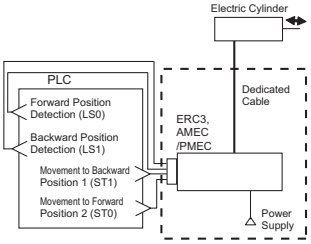
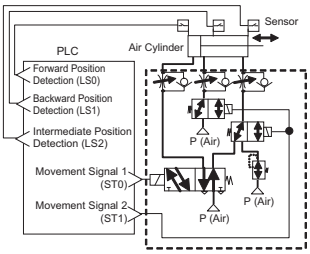
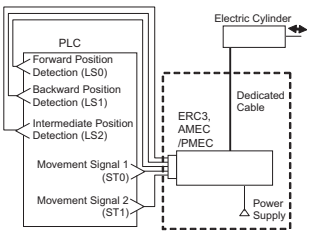
Touch YES.
The controller will reboot.
The controller will operate following the operation patterns based on the settings.
The window returns to MEC MENU window.

If NO is touched, the window as shown is displayed. The setting of operation patterns would not become active until the controller is rebooted.

Touch ESC, and the menu returns to the previous parameter setting window.

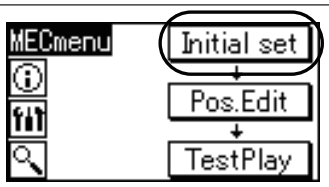
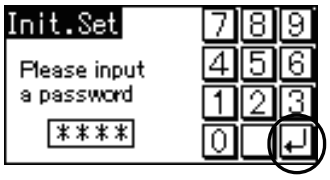
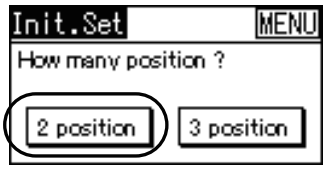
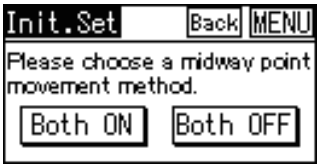
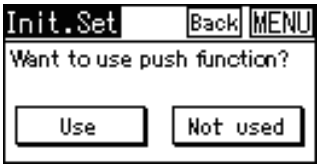
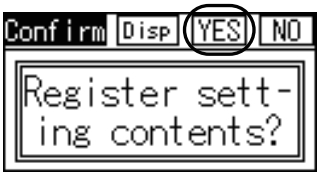
Operation Pattern

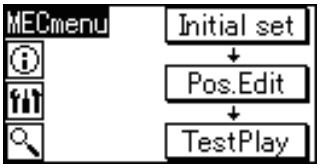
The PMEC, AMEC or ERC3 (MEC mode) controller has the 2 operation patterns.
Each of these 6 patterns is described as in the table. Also, the corresponding air cylinder circuit is described for reference. [Refer to Initial Setting and Stop Position Setting for the setting.]

Operation Pattern		Contents	Air Cylinder Circuit (Reference)	Electric Cylinder Connection Procedure
2-Point Stop (2-Point Positioning)	[Single Solenoid Type] 1-Input, 2-Point Movement	The actuator 2-Point movement is available using the same control function as for the air cylinder. Backward and forward points can be determined. Speed and acceleration settings in the actuator movement are available. The pressing operation is available. Set ST0 ON to move to the backward point and OFF to return to the forward point.		
3-Point Stop (3-Point Positioning)	[Double Solenoid Type] 2-Input, 2-Point Movement	The actuator 2-Point movement is available using the same control function as for the air cylinder. Backward and forward points can be determined. Setting of intermediate point is available, and positioning to the intermediate point is also available. Speed and acceleration settings in the actuator movement are available. The pressing operation is available. Set ST1 ON to move to the backward point and ST0 ON to forward point. [Both switches ON to move to intermediate point] Set both ST0 and ST1 ON to stop at intermediate point for positioning. Set both ST0 and ST1 OFF and it stops on the way. [Both switches OFF to move to intermediate point] Set both ST0 and ST1 OFF to stop at intermediate point for positioning. Set both ST0 and ST1 ON and it stops on the way.	 	
	[3-Point Positioning] 2-Input, 3-Point			

(Note): The symbols in the air cylinder circuit diagram above are those applied for PMEC, AMEC or ERC3 (MEC mode).
Refer to “PMEC/AMEC Instruction Manual” and “ERC3 Instruction Manual” for the details of the signal symbols.

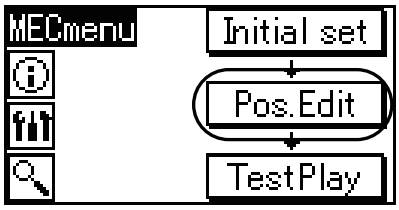
[1] Setting of Initial Settings (2-point/3-point Settings)
Follow the instruction below for the initial settings:

No.	Operation	Window	Remarks
1	Touch Initial set in the MEC MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password. Touch ↵ .		The password has been set to “5119” when the unit was shipped from the factory. The password can be set in ‘Password’ under Environment Setting.
3	Touch the 2 position or 3 position .		Touch Menu to return to MEC MENU window at the beginning. (Reference) Setting before shipment Stop position: 2 position
4	Select either Both OFF or Both ON for the input signal to ST0 and ST1 for the positioning at the intermediate point for 3-point stop.		Touch Menu to return to MEC MENU window at the beginning. (Reference) Setting before shipment Method to select intermediate point: Both ON
5	Touch Not used when the positioning operation is required, and touch Use when the pressing operation is required.		Touch Menu to return to MEC MENU window at the beginning. (Reference) Setting before shipment Pressing function: Not used
6	Touch YES.		Touch NO to return to the previous window.
7	Touch YES.		Reboot the controller to activate the settings. Settings will not change until a reboot is performed. Touch NO to return to the previous window.

No.	Operation	Window	Remarks
8			The menu returns to MEC MENU window at the beginning after the controller is rebooted.

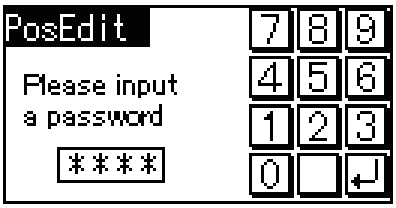
5.2.6 Position Setting (Position Related Data Setting, Jog and Inching Operations)

The data items related to the position such as position, pressing force and pressing width, are set here. With these settings, the jog movement and inching movement operations can be performed.



Touch Pos. Edit in the MEC MENU window.

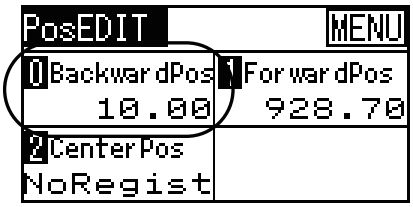
Before the window is transferred to the Position Setting window, in the case that the password is set to the value except for “0000”, the password entry window is displayed.



Enter the value as the password using the ten-key and touch ↵.

The password can be set in ‘No. 20 Password for Position Data Edit’ under Parameter Edit.

When the correct password is set, the window is transferred to the “List” window in the “Position Setting” window. The display varies depending on the Operation Pattern setting.

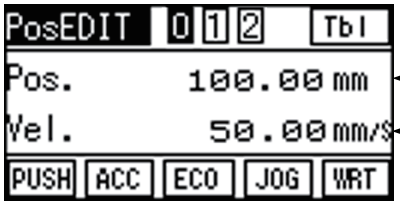


Touch the position to be set.
Touching MENU returns to the MEC MENU window.
The left figure shows an example of 3-point Stop.
The set value for each position, is displayed.

No. of Positions to be set

Operation Pattern	Displacement	No. of Positions to be set
2-point Stop	Point-to-Point Movement	2
3-point Stop	3-Point Movement	3

When the section of the position to be set is touched, the target position/velocity setting window for the selected position is displayed.
Set the position and velocity.

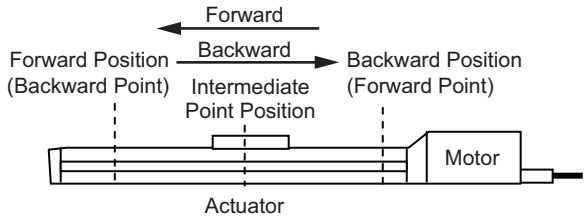


The set position is shown.
The set velocity is shown.
Touching Tb1 returns to the Tb1 window.

In this set window, the other three setting item and job movement can be selected.
[Setting Items]

- PUSH — Pressing Force and Pressing Width Setting
- Acceleration/Deceleration — Acceleration and Deceleration Setting
- ECO — Energy-Saving Function Setting

[1] Position Data
The position data for operating the actuator is set here.



Position Data

Position Setting Window	Position/Velocity		Acceleration/Deceleration		Pressing		Energy-Saving
Position Data	1)	2)	3)	4)	5)	6)	7)
	Position [mm]	Velocity [mm/s]	Acceleration [G]	Deceleration [G]	Pressing Force [%]	Pressing Width [mm]	Energy-Saving Function
Forward Position (Backward Point)	200.00	50.00	0.1	0.1	70	1.00	Effective
Backward Position (Forward Point)	0.00	50.00	0.1	0.1	0	0	Effective
Intermediate Point Position (Intermediate Point)	100.00	50.00	0.1	0.1	0	0	Effective

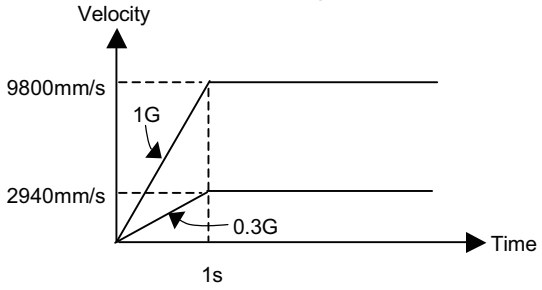
1) Position… Set the position where the actuator is moved.
The correlation of the Positions is as shown below:
Backward Position (Forward Point) < Intermediate Point Position (Intermediate Point) < Forward Position (Backward Point)

Operation Pattern	Displacement	Set Position		
		Forward Position (Backward Point)	Backward Position (Forward Point)	Intermediate Point Position (Intermediate Point)
2-point Stop (2-Point Positioning)	Point-to-Point Movement	○	○	
3-point Stop (3-Point Positioning)	3-Point Movement	○	○	○

2) Velocity…Set the actuator speed.
3) Acceleration…Set the actuator acceleration.
It is available to input greater number than specified in the Catalog for the range of input.
Refer to the Catalog or the Instruction Manual of the actuator.

4) Deceleration [G]…It is able to set the deceleration speed (G) at the stop.

(Reference) Explained here is about the acceleration speed. The way to think is the same for deceleration.
1G = 9800mm/s^2: Acceleration that enables to accelerate up to 9800mm/s in 1sec.
0.3G: Acceleration that enables to accelerate up to 9800mm/s × 0.3 = 2940mm/s in 1sec.



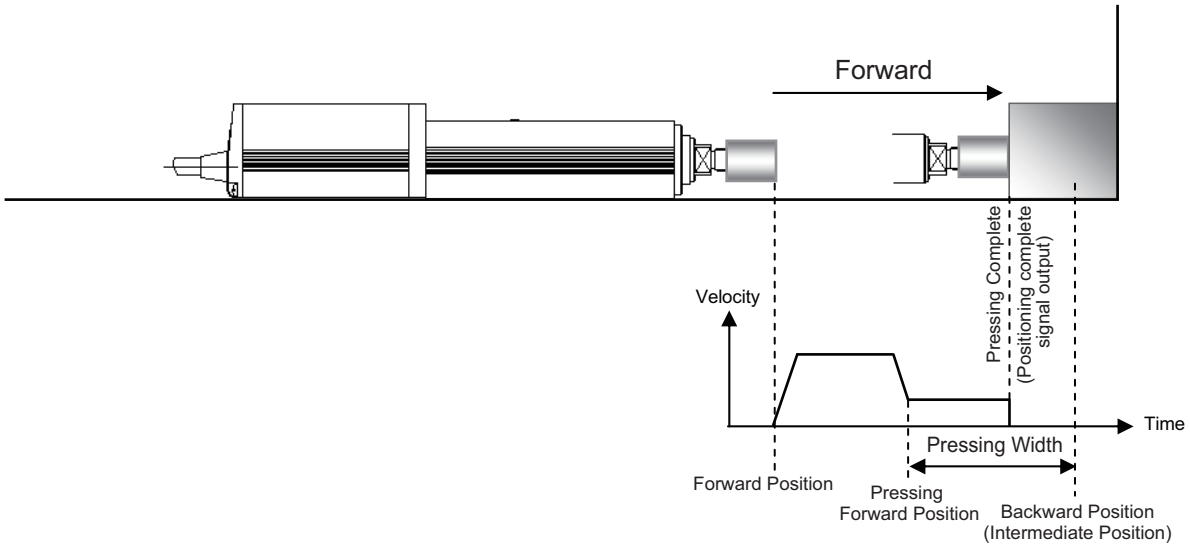
⚠Caution

Settings of Acceleration and Deceleration.
(1) Set the acceleration speed to a value that does not exceed the rated acceleration/deceleration speed specified in the Catalog or this Instruction Manual. Use of the actuator beyond the rated acceleration/deceleration speed may shorten the actuator life remarkably.
(2) Lower the acceleration/deceleration setting in the case there is any impact or vibration occurred on the actuator or the work part. Keeping the usage under such a condition may shorten the actuator life remarkably.
(3) When the transported weight is obviously lighter than the rated transportable weight, the acceleration speed could be set higher than the rated value. The takt time is possibly be shortened by this. Please ask us in such a case. At that time, please inform us of the work part weight, profile, attachment method and the condition of the actuator installation (horizontal/vertical).

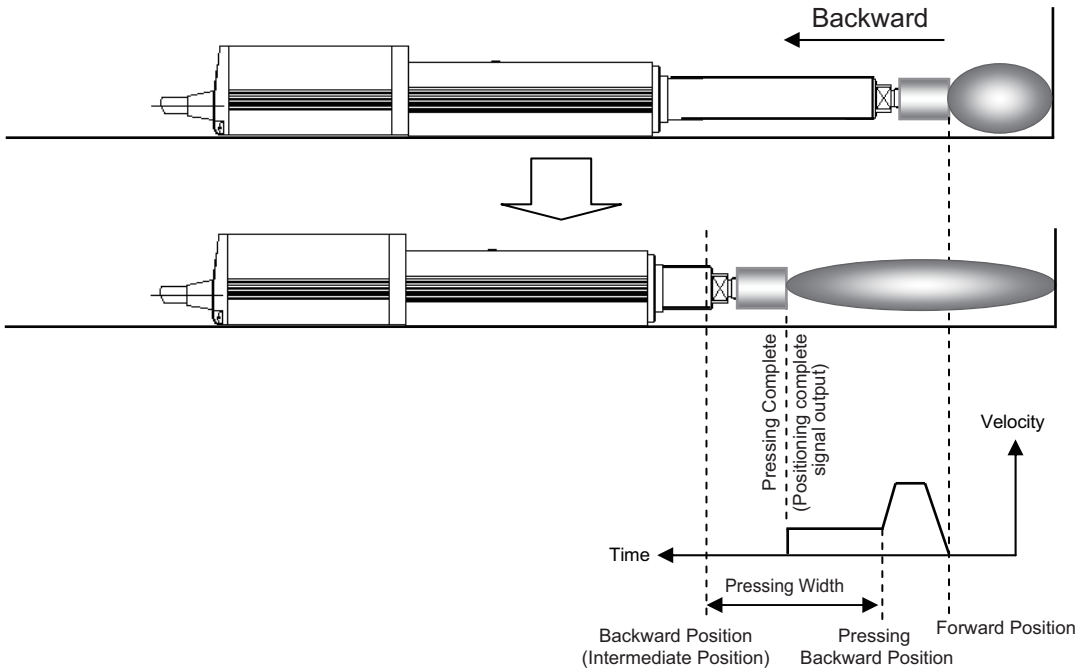
5) Pressing Force [%] … It sets the pressing torque.
Increasing the current limitation value (%) increases the pressing force.
When it is set to “0”, the positioning operation is not available.
Refer to the Catalog or the Instruction Manual for the correlation between the pressing force and the current limitation value (%).

6) Pressing Width [mm]… It sets the distance for the pressing operation.
When a pressing operation is performed, the actuator drives with the speed set in the positioning parameter and the rated torque as it does for the normal positioning operation until the remained movement amount reaches to the range that is set in the pressing width parameter. After the actuator gets in the range, it starts the pressing movement till it reaches to the position set in (1).
The speed during the pressing operation is set in Parameter No.7. Do not set the value above this setting. If the setting in (2) is lower than the pressing speed, the pressing will be performed with the speed set in (2).
Shown in the following pictures is how the actuator operates when performing the pressing operation towards the backward point (forward position), forward point (backward position) and intermediate point (intermediate position).

[Pressing to Forward Position or Intermediate Point]



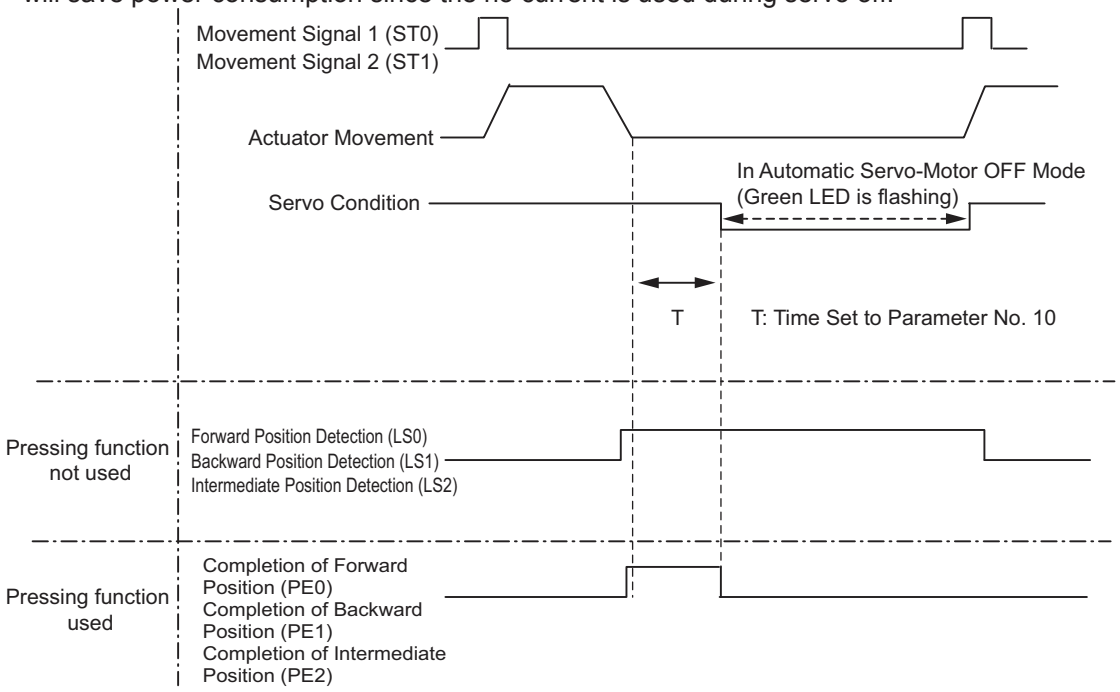
[Pressing to Backward Position or Intermediate Point = Pulling]



7) Energy-Saving Function…If the energy saving function is turned active, the motor power supply (servo) will turn off automatically to save electricity in a certain while after a positioning is complete.
Set the time in the parameter in advance.

Parameter No.	Parameter Name	Initial Value	Setting range
10	Auto Servo OFF Delay Time [sec]	1	0 to 9999

[Automatic Servo off]
The servo automatically turns off after a specified time once the position is complete. When the next position is commanded, the servo will automatically turn on and execute the position. It will save power consumption since the no current is used during servo off.



[Position Detection Output Signal Condition When Pressing Function Not used]
As long as the actuator position is in the range of the positioning width (Parameter No. 1) even if the motor power supply (servo) is off, either of the forward position detection signal (LS0), backward position detection signal (LS1) or intermediate detection signal (LS2) turns on in accordance with the current position as the sensor does. Thus, if the actuator does not move after the positioning is complete, the position detection signal is kept on.

[Positioning Complete Signal Condition When Pressing Function is used]
The motor power supply (servo) does not turn off automatically while in the pressing condition during the pressing operation.
The servo will automatically turn off if a miss-pressing is occurred.
Turning the motor power supply (servo) off makes the positioning not completed. Thus, all of the pressing completion signal 0 (PE0), pressing completion signal 1 (PE1) and pressing completion signal 2 (PE2) turn off no matter where the stopped position is.

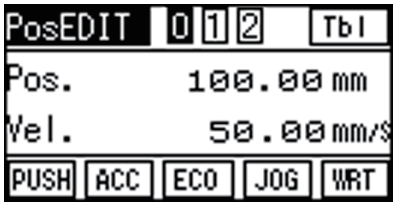
⚠Caution

There is no holding torque during the automatic servo off. The actuator could move with an external force. Pay attention to the interference and safety to the surroundings.

[2] Position Setting Window Types

[Position/Velocity setting]

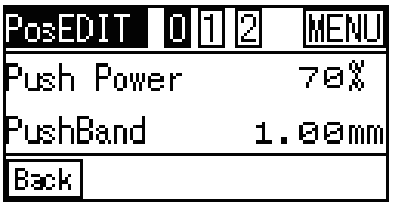
The Position and Velocity are set here.



[Pressing setting]

The Push Power and PushBand are set here.

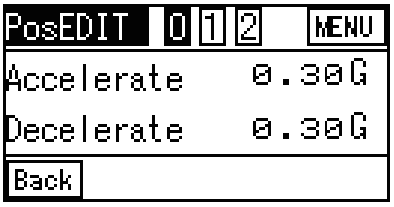
Touching PUSH in the “Positing/Velocity setting” window displays the “Pressing setting” window.



[Acceleration/deceleration setting]

The Acceleration and Deceleration are set here.

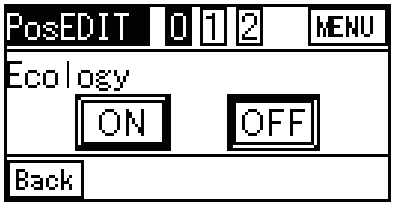
Touching ACC in the “Position/Velocity setting” window displays the “Acceleration/deceleration setting” window.



[Energy-Saving setting]

The Energy-Saving “Enable” or “Disable” is set here.

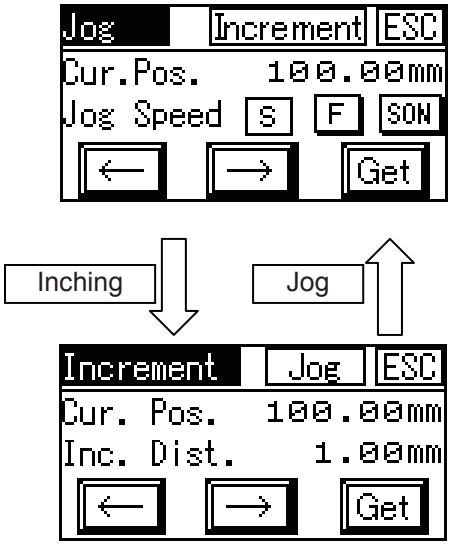
Touching ECO in the “Position/Velocity setting” window displays the “Energy-Saving setting” window.



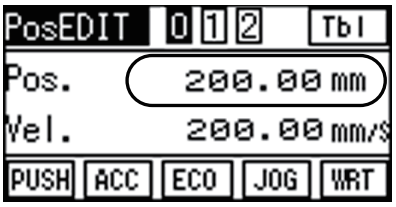
[Jog Operation]

The Jog operation and inching operation are enabled here.

Touching JOG in the “Position/Velocity setting” window displays the “Jog Operation” window.



[3] Basic Operation
[Position / Velocity]

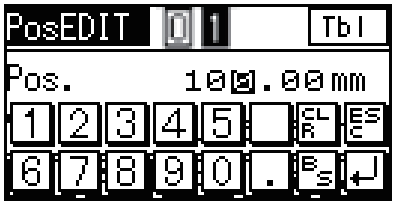


Touch the value for the position(Note 1) or velocity.

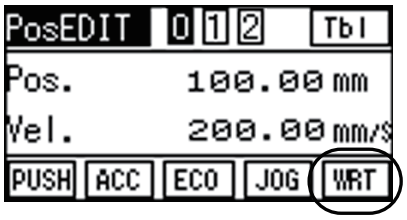
Touching Tb1 returns to the Tb1 window.

In the example of the Operation Pattern No. 3, When any of 0, 1 or 2 is touched in this window, the corresponding setting window for “0” (Backward Position), “1” (Forward Position) and “2” (Intermediate Position) are displayed.

(Note 1) For the position, enter the value that satisfies the condition (Home position ≤ Backward Position (Forward Point) ≤ Intermediate Position (Intermediate Point) ≤ Forward Position (Backward Point)).

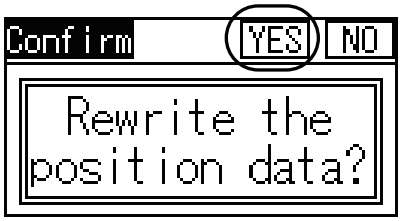


Enter the value as the password using the ten-key and touch ↵.



The set value will be displayed.

Touch the WRT (Note 2) after the other settings such as “Pressing Force”, etc., are completed. When there is no error in the input range, etc., the following window appears.



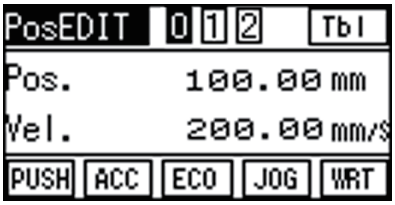
Touch the YES.
The controller data is reloaded.

(Note 2) When 0, 1 or 2 is touched after the position setting and before the value writing for the target position setting in the “Position setting” window, all the changes are deleted. Whenever the position, velocity, pressing force, acceleration/deceleration or Energy-Saving function setting is changed, write the data for each position (Forward Position (Forward Point), Backward Position (Backward Point) or Intermediate Point Position (Intermediate Point)).

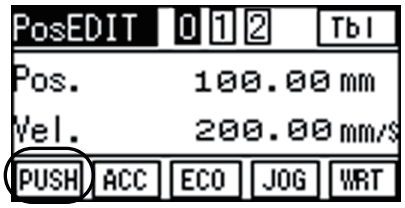
When the writing is completed, the following window appears.

Touch the ESC.

The “Position/Velocity setting” window is returned.

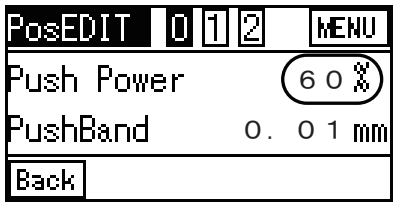


[Pressing Setting, Acceleration/deceleration setting, Energy-Saving Setting]
Taking the “Pressing Operation” as an example, the setting procedure is described.

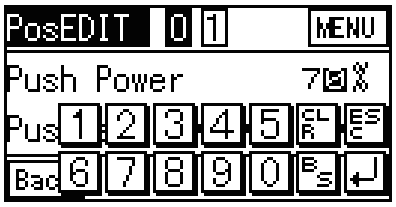


Touch the PUSH (Note 1).

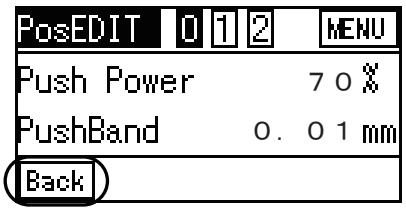
Touching Tb1 returns to the Tb1 window.



Touch the value for the Push Power or PushBand setting item.

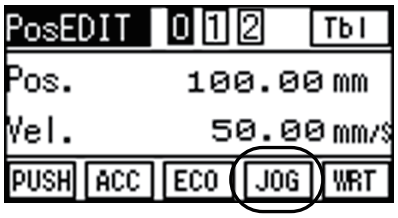


The ten-key will be displayed.
Enter the value and touch ↵.



The set value will be displayed.
Touch the Back.

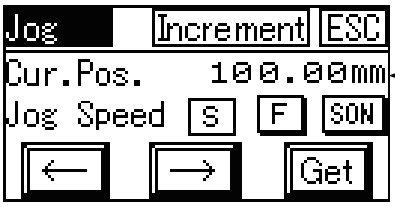
[Jog Operation]
(Jog Operation after the Home Return Operation Completion)



Touch the JOG.

Touching Tb1 returns to the Tb1 window.

The “Jog” operation window will be displayed.



The current position of the axis is shown.

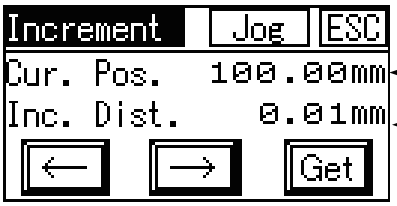
Operations in the “Jog” window

- ← → : While one of these buttons is pressed, the axis is jogged. Jog operation to negative direction ← or positive direction →.
- SON : Touch SON to turn the motor power supply (servo) on. Touch SON (display) to turn the motor power supply (servo) off.
- S F : Using these buttons, the jog speed is set. Pressing S slows the jog movement and F quickens the jog movement.
  - S speed : 10mm/sec
  - F speed : Speed set in the Jog Speed in the Parameter setting
- Get : The current position is captured. The position value in the “Position/Velocity setting” window in the Position Setting window is changed to the captured position value. The conditions for capturing the current position are as follows.
  - Home return completion
  - In stop mode
  - Current position value of “0” or more

  When the conditions for capturing are satisfied and Get is touched, the current position value is saved.
- ESC : Pressing this button returns to the “Position/Velocity setting” window in the Position Setting window.

(Inching Operation after the Home Return Completion)

Touching Increment displays the Inching Operation window.



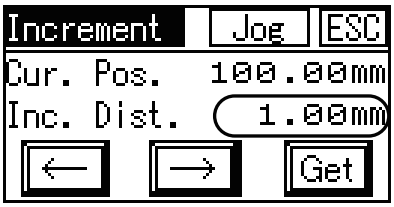
The current position of the axis is shown.

The inching distance is shown.

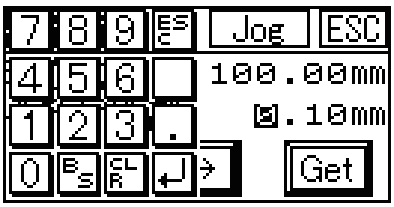
Operations in the “Increment” window

- ← → : With a single touch, the axis is moved as much as the set distance in the “Increment Distance”.
  Increment operation to negative direction ← or positive direction →.
- Get : The current position is captured. The position value in the “Position/Velocity setting” window in the Position Setting window is changed to the captured position value.
  The conditions for capturing the current position are as follows.
  - Home return completion
  - In stop mode
  - Current position value of “0” or more

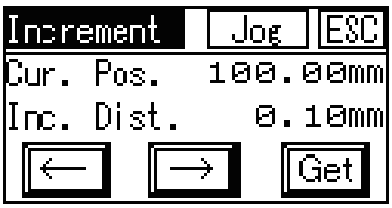
  When the conditions for capturing are satisfied and Get is touched, the current position value is reversed while it is being touched.
- ESC : Pressing this button returns to the “Position/Velocity setting” window in the Position Setting window.
- Inching Distance: The inching distance is set here.
  [Inching Distance Change]



Touch the value for the “Inching Distance”.



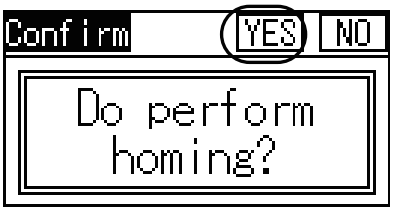
The ten-key will be displayed.
Enter the value and touch ↵.



The set value will be displayed.

(Jog Operation Execution before Home Return Operation)

When the jog operation is to be performed before the home return operation, the window for the home return operation is displayed before the jog operation window.



Touch the YES.

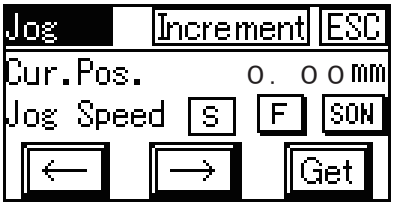
The home return operation is performed.

Touch the OK.

The home return operation is started and the following window appears.

Touching STOP can stop the home return operation.

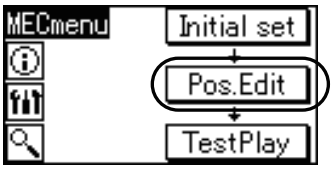
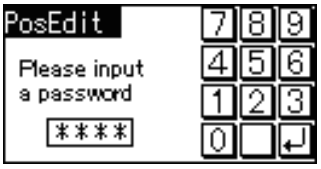
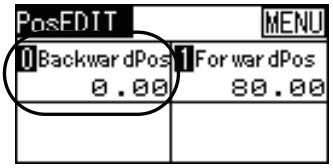
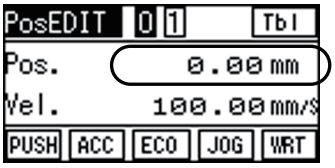
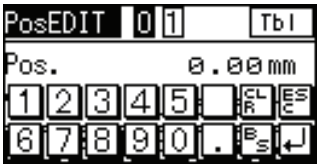
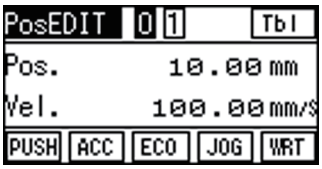
When the home return operation is completed, the jog operation window appears.
In this window, the jog operation is enabled.

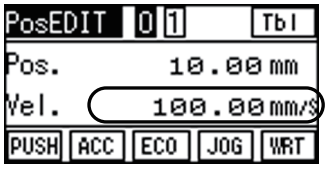
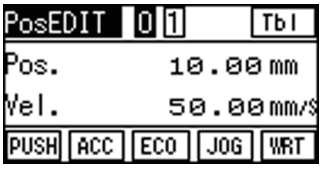
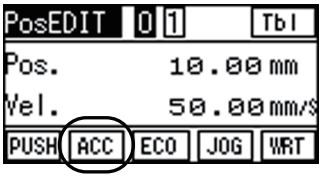
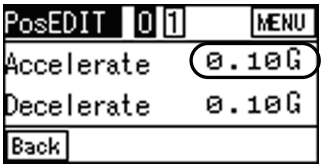
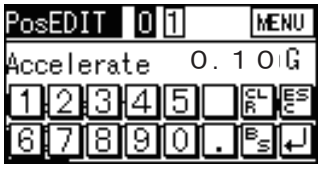
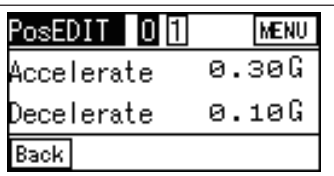


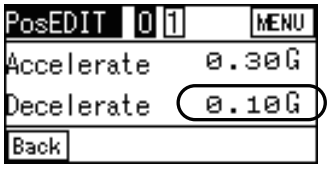
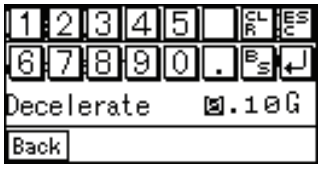
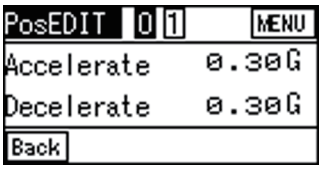
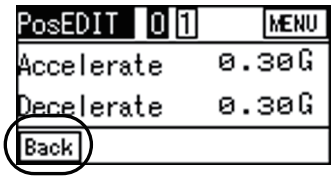
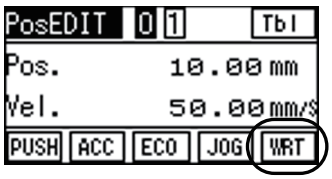
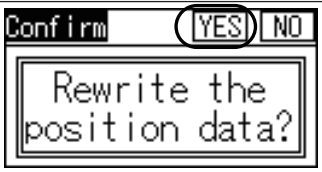
[4] Position Setting Operation Example
The operation procedure is described taking a specific example.

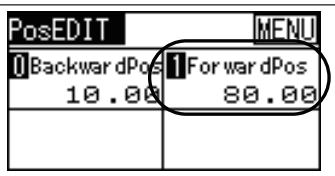
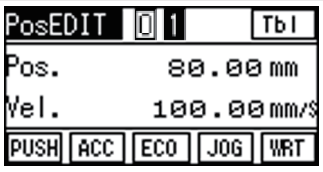
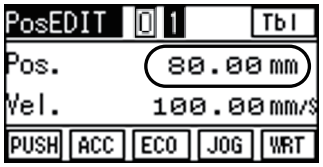
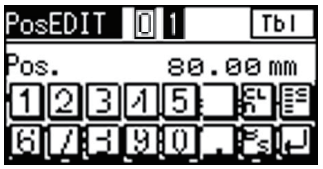
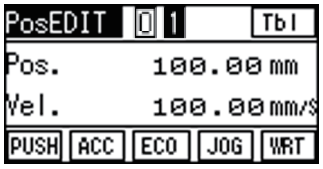
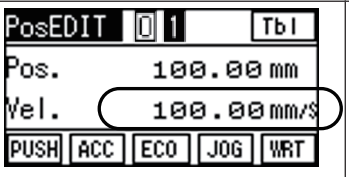
1) Position, Velocity or Acceleration/Deceleration Setting
Explained below is the case for 2-point stop as an example.
The position setting is performed for the reciprocating movement between 10.0 mm and 100.0 mm.

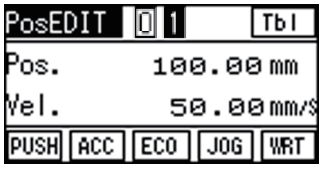
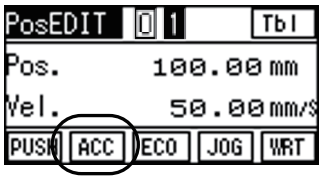
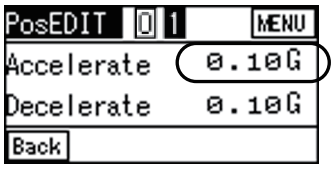
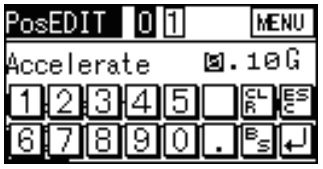
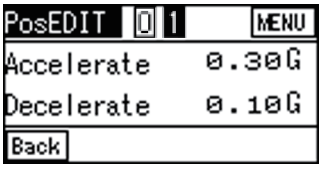
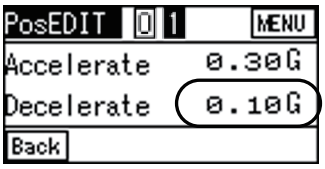
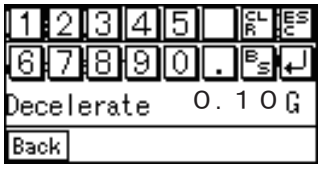
Forward Position (Backward Point) :100.0mm, Backward Position (Forward Point) :10.0mm, Reciprocating Movement Speed: 50mm/sec, Reciprocating Movement Acceleration: 0.3G, Reciprocating Movement Deceleration: 0.3G

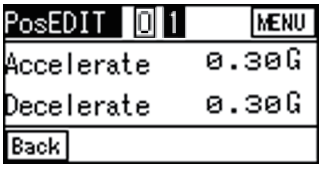
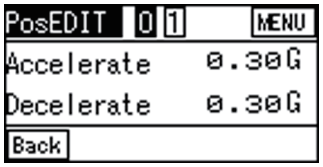
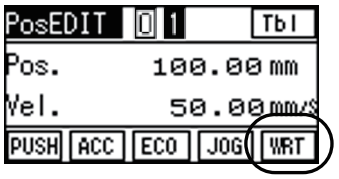
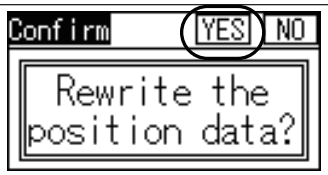
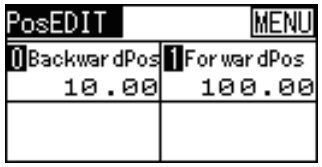
No.	Operation	Window	Remarks
1	Touch Pos. Edit in the MEC MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the backward position (stop position on the forward point), the positions related to it and acceleration/ deceleration speed. Touch the BackwardPos.		When MENU is touched, the MEC MENU window is returned.
4	Touch the value for the position.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	Touch 1, 0, then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous position setting window will be returned.
6	“10.00” is displayed in the position data section.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.

No.	Operation	Window	Remarks
7	Touch the velocity value.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
8	Touch 5, 0, then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.
9	"50.00" is displayed in the velocity data section.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
10	Touch the ACC.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
11	Touch the acceleration value.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
12	Touch 0, . and 3 in order, then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.
13	"0.30" is displayed in the acceleration data section.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.

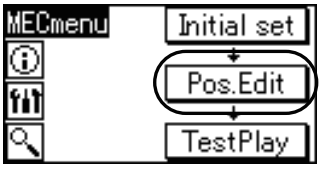
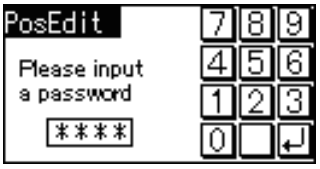
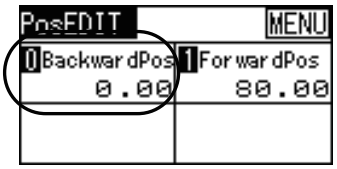
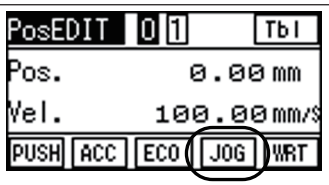
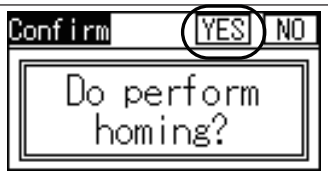
No.	Operation	Window	Remarks
14	Touch the deceleration value.		Touching Back returns to the previous “Position/Velocity setting window” in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
15	Touch 0, . and 3 in order, then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous “Position/Velocity setting window” in the Position Setting window will be returned.
16	“0.30” is displayed in the deceleration data section.		Touching Back returns to the previous “Position/Velocity setting window” in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
17	Touch the Back.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
18	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the “Forward Position/Backward Position” selecting window in the Position Setting window is returned, the setting is not performed.
19	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.

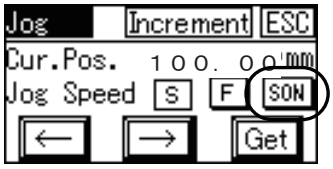
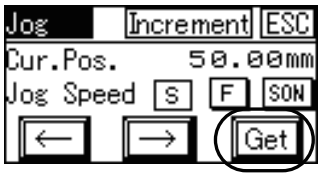
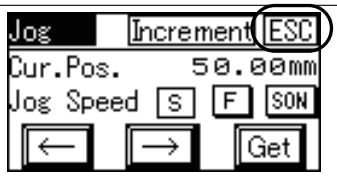
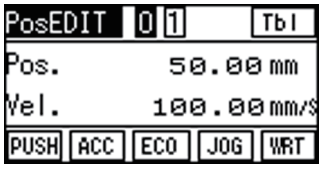
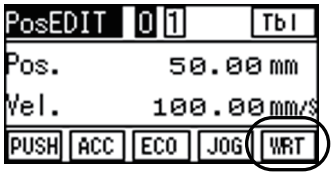
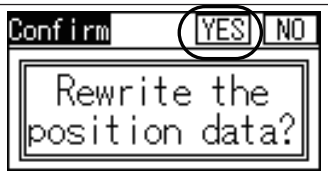
No.	Operation	Window	Remarks
20	The controller's position data is reloaded. Touch the ESC.		
21	Set the forward position (stop position on the backward point), the positions related to it and acceleration/ deceleration speed. Touch the ForwardPos.		When MENU is touched, the MEC MENU window is returned.
22	The window is change to the Forward Position window. Set the Forward Position related Position, Acceleration and Deceleration.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
23	Touch the position value.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
24	Touch 1, 0 and 0 in order, then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous position setting window will be returned.
25	"100.00" is displayed in the position data section.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
26	Touch the velocity value.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
27	Touch 5, 0, then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.

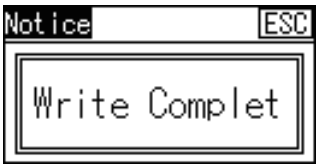
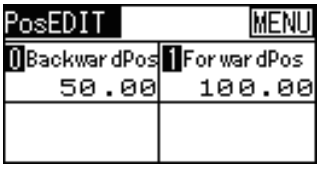
No.	Operation	Window	Remarks
28	"50.00" is displayed in the velocity data section.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
29	Touch the ACC.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
30	Touch the acceleration value.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
31	Touch 0, . and 3 in order, then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.
32	"0.30" is displayed in the acceleration data section.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
33	Touch the decelerate value.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
34	Touch 0, . and 3 in order, then ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position /Velocity setting window" in the Position Setting window will be returned.

No.	Operation	Window	Remarks
35	"0.30" is displayed in the Decelerate data section.		Touching Back returns to the previous "Position/Velocity setting window" in the Position Setting window. Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
36	Touch the Back.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
37	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the "Forward Position/Backward Position" selecting window in the Position Setting window is returned, the setting is not performed.
38	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.
39	The controller's position data is reloaded. Touch the ESC.		
40			When MENU is touched, the MEC MENU window is returned.

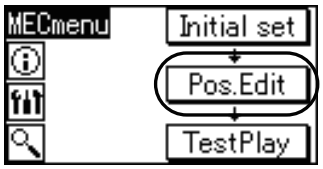
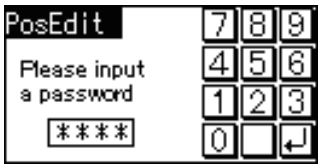
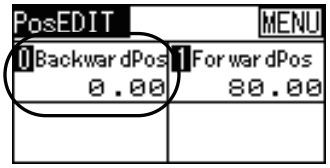
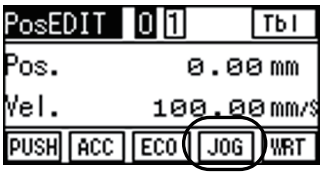
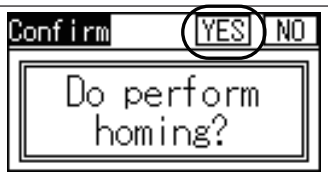
2) Direct Teaching (Method where the slider is moved manually to the target position and the position (current position) is captured as the Forward Position or Backward Position)
Explained below is the case for 2-point stop as an example.
The procedure for capturing the current position of “50.0mm” in the Backward Position (Forward Point)).

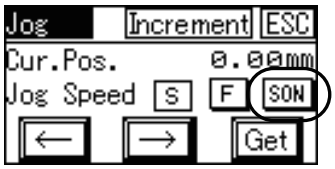
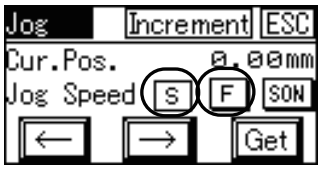
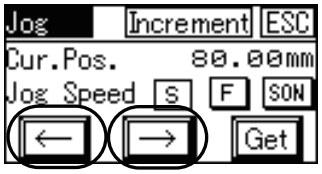
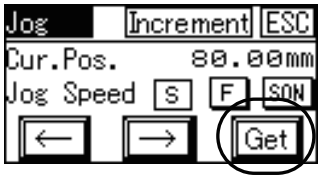
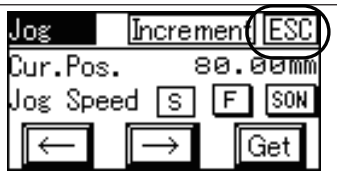
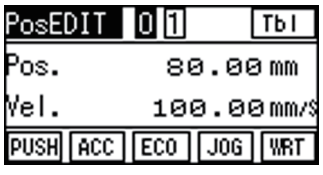
No.	Operation	Window	Remarks
1	Touch Pos. Edit in the MEC MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the backward position (stop position on the forward point), the positions related to it and acceleration/ deceleration speed. Touch the BackwardPos.		When MENU is touched, the MEC MENU window is returned.
4	Touch the JOG.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	When the home return operation has not been completed, the window for performing the home return operation is displayed. When the home return operation has been completed, go to operation step No. 8. Touch YES to perform the home return operation.		
6	Touch the OK.		

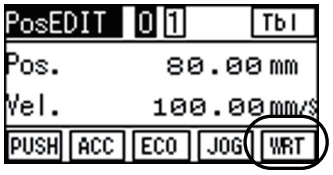
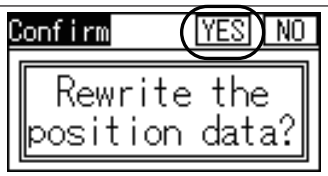
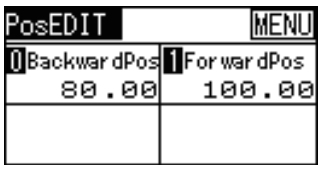
No.	Operation	Window	Remarks
7	Perform the home return operation.		Touching STOP stops the home return operation.
8	If the motor power supply (servo) is on, touch SON to turn the motor power supply (servo) off.		
9	Move the slider and rod manually and align the actuator with the target position of 50.0mm. Touch the Get.		
10	Touch the ESC.		
11	“50.00” is displayed in the position data section. It is confirmed that the position data has been captured.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
12	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the “Forward Position/Backward Position” selecting window in the Position Setting window is returned, the setting is not performed.
13	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.

No.	Operation	Window	Remarks
14	The controller's position data is reloaded. Touch the ESC.		
15			When MENU is touched, the MEC MENU window is returned.

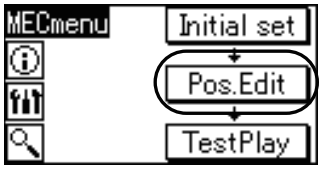
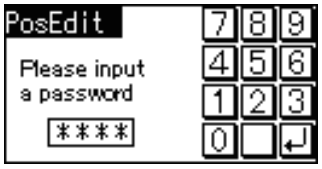
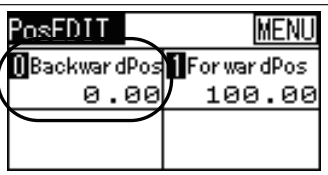
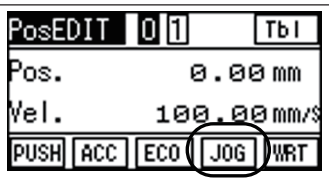
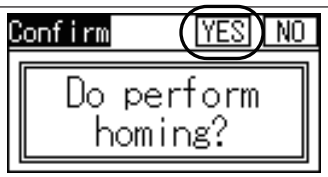
3) Jog Operation (The actuator is moved (inching movement) using the direction arrow button ← or → to align with the target position and the position (current position) is captured as forward position or backward position).
Explained below is the case for 2-point stop as an example.
The procedure for capturing the current position of “80.0mm” in the Backward Position (Forward Point)).

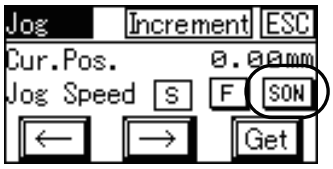
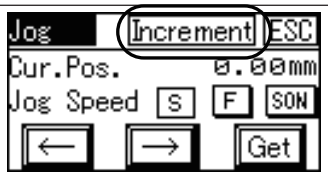
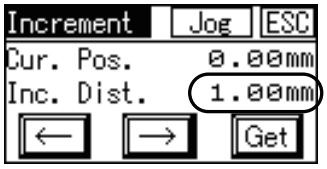
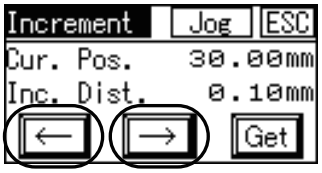
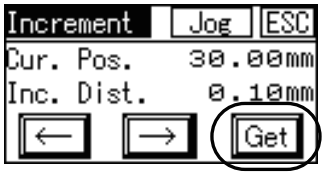
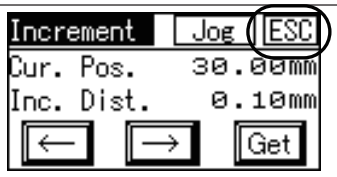
No.	Operation	Window	Remarks
1	Touch Pos. Edit in the MEC MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the backward position (stop position on the forward point), the positions related to it and acceleration/ deceleration speed. Touch the BackwardPos.		When MENU is touched, the MEC MENU window is returned.
4	Touch the JOG.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	When the home return operation has not been completed, the window for performing the home return operation is displayed. When the home return operation has been completed, go to operation step No. 8. Touch YES to perform the home return operation.		
6	Touch the OK.		

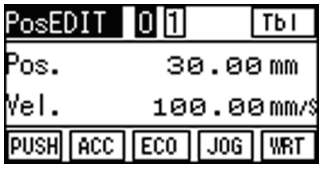
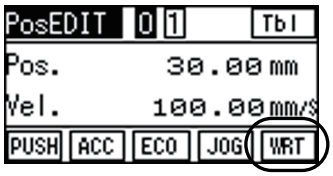
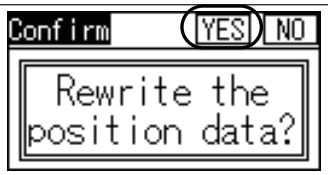
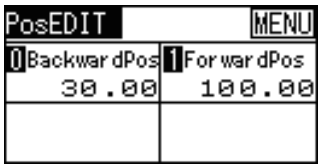
No.	Operation	Window	Remarks
7	Perform the home return operation.		Touching STOP stops the home return operation.
8	If the motor power supply (servo) is off, touch SON to turn ON the motor power supply (servo) on.		
9	Touch Slow S or Fast F to set the jog speed		
10	Move the slider or rod using the arrow button ← or → to align the actuator with the target position "80.0mm".		
11	Touch the Get.		
12	Touch the ESC.		
13	“80.00” is displayed in the position data section. It is confirmed that the position data has been captured.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.

No.	Operation	Window	Remarks
14	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the "Forward Position/Backward Position" selecting window in the Position Setting window is returned, the setting is not performed.
15	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.
16	The controller's position data is reloaded. Touch the ESC.		
17			When MENU is touched, the MEC MENU window is returned.

4) Inching Movement Operation (The actuator is moved (inching movement) using the direction arrow button ← or → to align with the target position and the position (current position) is captured as forward position or backward position)
Explained below is the case for 2-point stop as an example.
The procedure for capturing the current position of “30.0mm” in the Backward Position (Forward Point)).

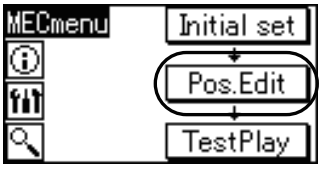
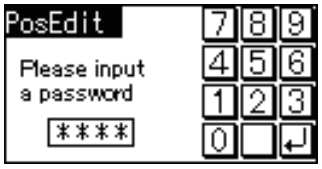
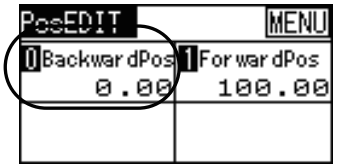
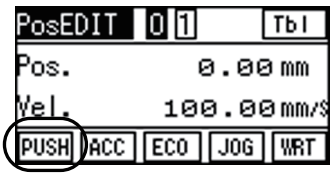
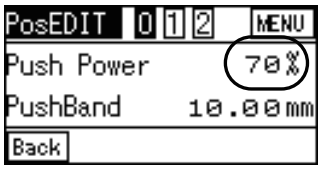
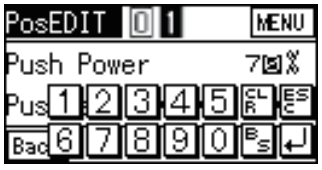
No.	Operation	Window	Remarks
1	Touch Pos. Edit in the MEC MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the backward position (stop position on the forward point), the positions related to it and acceleration/ deceleration speed. Touch the BackwardPos.		When MENU is touched, the MEC MENU window is returned.
4	Touch the JOG.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	When the home return operation has not been completed, the window for performing the home return operation is displayed. When the home return operation has been completed, go to operation step No. 8. Touch YES to perform the home return operation.		
6	Touch the OK.		

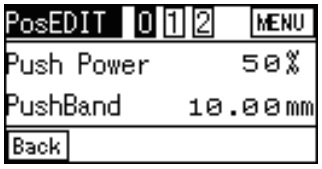
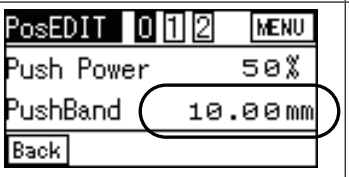
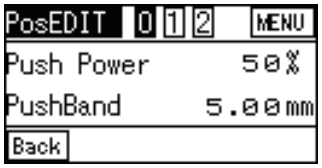
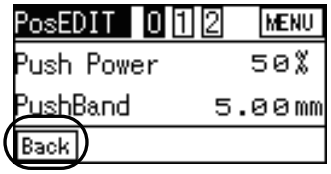
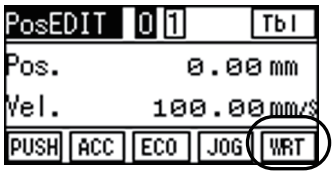
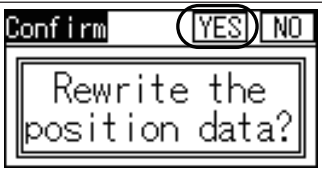
No.	Operation	Window	Remarks
7	Perform the home return operation.		Touching STOP stops the home return operation.
8	If the motor power supply (servo) is off, touch SON to turn the motor power supply (servo) on.		
9	Touch the Increment. The window is transferred to the “Increment” window.		Touching ESC returns to the “Target Position/Velocity” window in the “Initial Setting” window.
10	Touch the Increment Distance value.		
11	Set the Increment distance.		In this example, “0.1mm” is set.
12	Move the slider or rod using the arrow button ← or → to align the actuator with the target position "30.0mm".		
13	Touch the Get.		
14	Touch the ESC.		

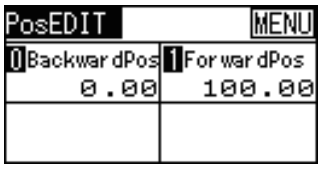
No.	Operation	Window	Remarks
15	"30.00" is displayed in the position data section. It is confirmed that the position data has been captured.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
16	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the "Forward Position/Backward Position" selecting window in the Position Setting window is returned, the setting is not performed.
17	Touch the YES.		Touching No returns to the Position Setting window without performing the setting.
18	The controller's position data is reloaded. Touch the ESC.		
19			When MENU is touched, the MEC MENU window is returned.

5) Pressing Operation (Pressing Force and Pressing Width) Setting
I Explained below is the case for 2-point stop as an example.
The procedure is described taking the pressing operation performed at the backward position (Forward Point) as an example.

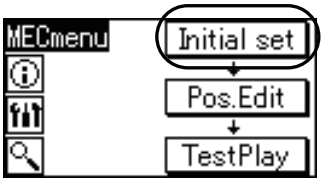
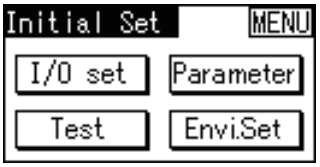
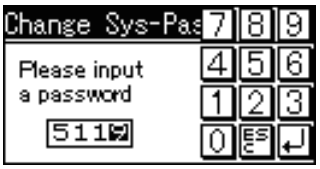
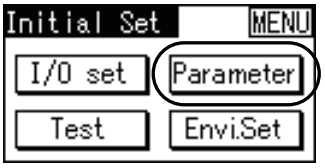
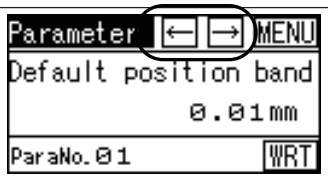
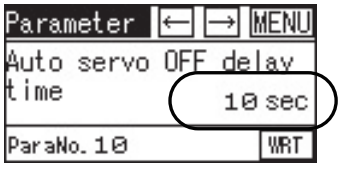
Pressing Force:50%, Pressing Width:5.0mm

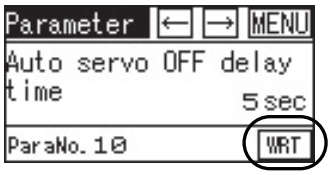
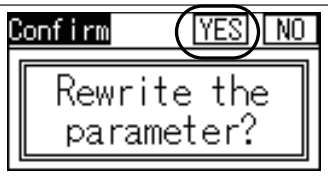
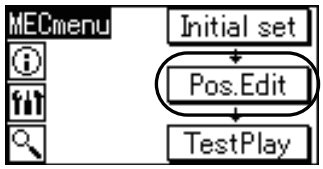
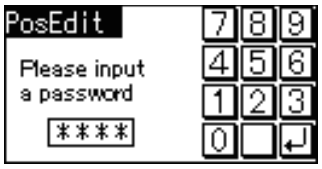
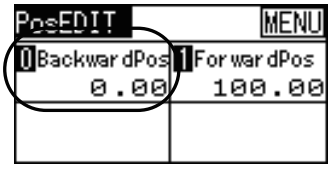
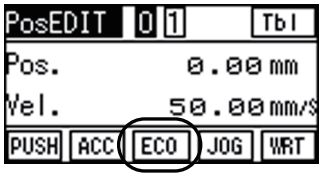
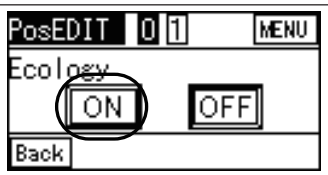
No.	Operation	Window	Remarks
1	Touch Pos. Edit in the MEC MENU window.		
2	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for positioning command can be set in ‘parameter No. 20 Password for Position Data Edit’ under Parameter Edit.
3	Set the backward position (stop position on the forward point), the positions related to it and acceleration/ deceleration speed. Touch the BackwardPos.		When MENU is touched, the MEC MENU window is returned.
4	Touch the PUSH.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
5	Touch the Push Power value.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
6	Touch 5 and 0 and then ↵ .		When the value input is stopped, touch ESC. The value will not be set and the previous “Position/Velocity setting window” in the Position Setting window will be returned.

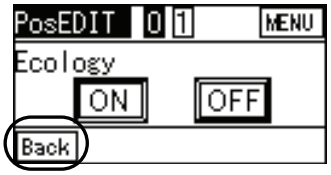
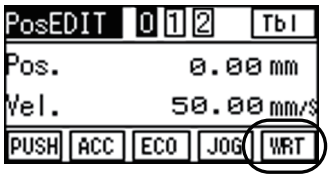
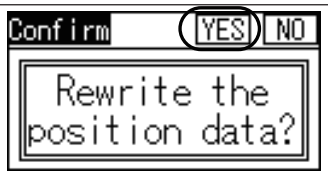
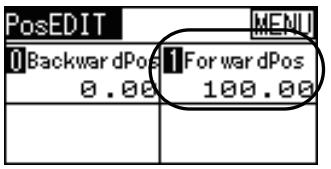
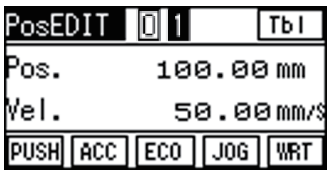
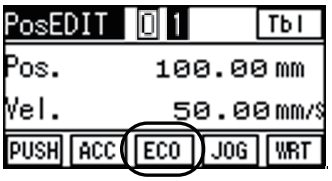
No.	Operation	Window	Remarks
7	"50" is displayed in the Push Power data section.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
8	Touch the PushBand value.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
9	Touch 5 and ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous "Position/Velocity setting window" in the Position Setting window will be returned.
10	"5.00" is displayed in the PushBand data section.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
11	Touch the Back		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
12	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the "Forward Position/Backward Position" selecting window in the Position Setting window is returned, the setting is not performed.
13	Touch the YES.		Touching No returns to the Position Setting window without performing the setting.

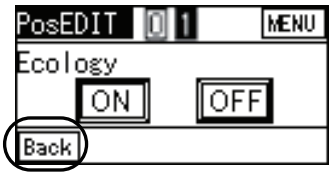
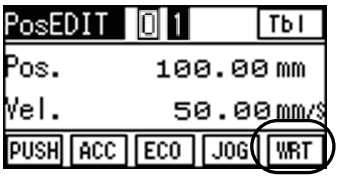
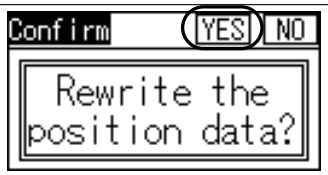
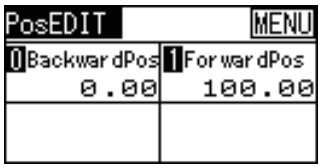
No.	Operation	Window	Remarks
14	The controller's position data is reloaded. Touch the ESC.		
15			When MENU is touched, the MEC MENU window is returned.

6) Energy-Saving Function (Automatic Servo-Motor Turning OFF) Setting
Explained below is the case for 2-point stop as an example.
The procedure to turn off the motor power supply automatically (servo-motor automatically) 5.0 seconds after the machine stop, is described.

No.	Operation	Window	Remarks
1	Touch Initial set in the MEC MENU window.		
2	Set the automatic servo-motor OFF delay time. Touch the Parameter.		
3	Input a password.		The password is set to '5119' (at delivery). The password can be changed in 'Password' under Environment Setting.
4	Touch the Parameter.		
5	Touch direction arrow button ← or → to change the window continuously and display the automatic servo-motor turning OFF delay time setting window.		
6	Touch the value.		
7	Touch 5 and ↵.		When the value input is stopped, touch ESC. The value will not be set and the previous position setting window will be returned.

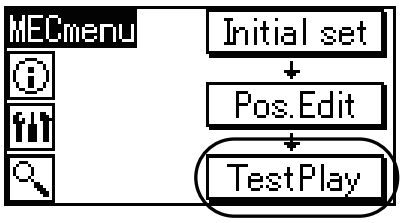
No.	Operation	Window	Remarks
8	5 will be displayed. Touch the WRT.		
9	Touch the YES.		Touching NO returns to the previous automatic servo-motor turning OFF delay time setting window. The parameters are not reloaded.
10	Touch the YES.		Touching NO displays the message window showing “Re-input the power”. Until the power is re-input, the set value is not reflected on the controller.
11	When the controller is re-started, the window is transferred to the MEC MENU window. Touch the Pos. Edit.		
12	In the case of the password value except for “0000”, the password input window is displayed. Input the password.		The password for the position setting can be entered in the “Position Data Edit Password” window in the “Parameter Edit” window.
13	Set the Energy-Saving function for the backward position. Touch the BackwardPos.		When MENU is touched, the MEC MENU window is returned.
14	Touch the ECO.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
15	Touch the ON.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.

No.	Operation	Window	Remarks
16	Touch the Back.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
17	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the “Forward Position/Backward Position” selecting window in the Position Setting window is returned, the setting is not performed.
18	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.
19	The controller’s position data is reloaded. Touch the ESC.		
20	Set the Energy-Saving function for the forward position related items. Touch the ForwardPos.		When MENU is touched, the MEC MENU window is returned.
21	The window is change to the Forward Position window. Set the Energy-Saving function for the forward position.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.
22	Touch the ECO.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window.

No.	Operation	Window	Remarks
23	Touch the ON.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
24	Touch the Back.		Touching MENU return to the Forward Position /Backward Position setting window in the Position Setting window.
25	Touch the WRT.		Touching Tb1 return to the Forward Position/Backward Position setting window in the Position Setting window. When the writing is not performed and the “Forward Position/Backward Position” selecting window in the Position Setting window is returned, the setting is not performed.
26	Touch the YES.		Touching NO returns to the Position Setting window without performing the setting.
27	The controller’s position data is reloaded. Touch the ESC.		
28			When MENU is touched, the MEC MENU window is returned.

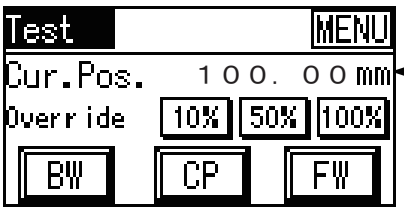
5.2.7 Test Play

Operation check for the axis movement can be performed.



Touch Test Play in MEC MENU window.

Operation check for the axis movement can be performed.
Shown below is how to operate 3-point stop as an example.



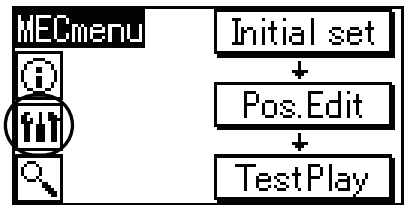
The current position of the axis is shown.

When MENU is touched, the MEC MENU window is returned.

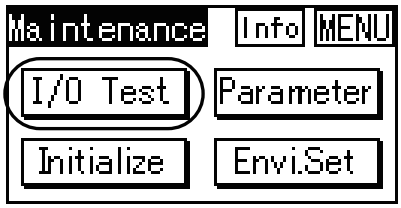
- Backward : When BW is pressed, the actuator is moved backward.
- Intermediate : Touch CP to move to the intermediate point.
- Forward : When FW is pressed, the actuator is moved forward.
- Override 10% : When 10% is touched, the actuator is moved at 10% of the speed set in the “Target Position/Velocity” window in the “Position Setting” window. In the first displayed window, the “10%” has been set.
- Override 50% : When 50% is touched, the actuator is moved at 50% of the speed set in the “Target Position/Velocity” window in the “Position Setting” window.
- Override 100% : When 100% is touched, the actuator is moved at 100% of the speed set in the “Target Position/Velocity” window in the “Position Setting” window.

5.2.8 Maintenance, I/O Test

I/O Test can be performed.



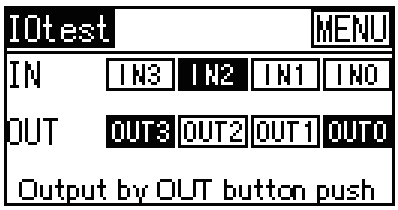
Touch Maintenance in MEC MENU window.



Touch the I/O Test.

When MENU is touched, the MEC MENU window is returned.

- I/O Test : The PIO input signals can be monitored.
  Also, for the output signals, touching OUT0, OUT1, OUT2 or OUT3 turns ON and OFF the corresponding signal forcibly.



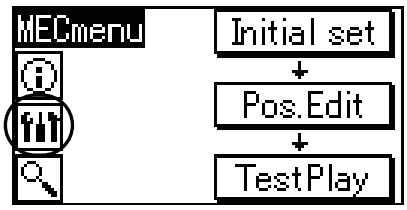
The ON and OFF of the input signals can be monitored.

For the output signals OUT0 to OUT3, touching the button outputs the corresponding signal forcibly.

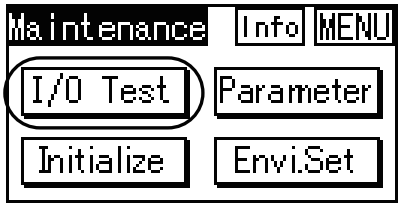
When MENU is touched, the MEC MENU window is returned.

5.2.9 Maintenance, Initializing

Parameters can be set back to those at the delivery.

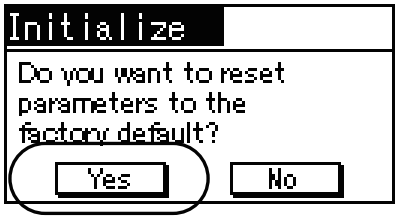


Touch Maintenance in MEC MENU window.



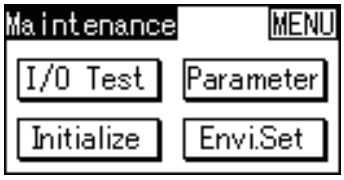
Touch the Initialize.

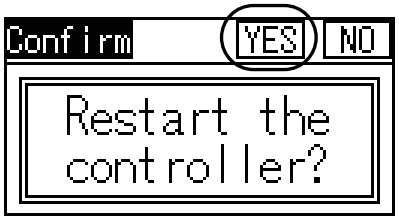
When MENU is touched, the MEC MENU window is returned.



Touch the Yes.

Touch No to go back to Maintenance Menu window without setting the parameter back to those at the delivery.

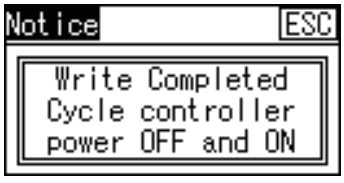




Touch the Yes.

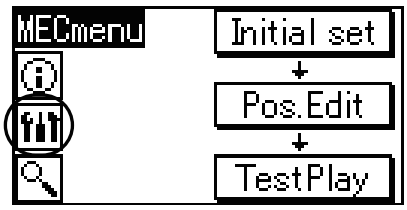
Controller reboots.
Controller operation starts with the parameters at the delivery.
The display goes back to MEC MENU window.

If NO is touched, the following window opens. Operation with the parameters at the delivery cannot be performed until a reboot is conducted.

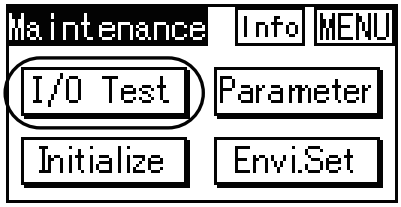


5.2.10 Maintenance, Parameter

Parameter settings can be performed.



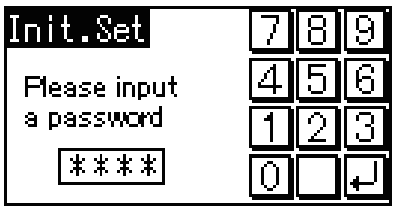
Touch Maintenance in MEC MENU window.



Touch the Parameter.

When MENU is touched, the MEC MENU window is returned.

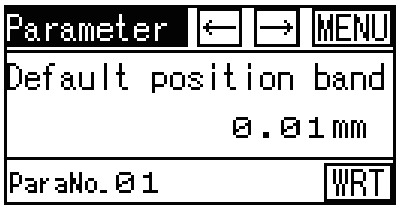
Unless the password is set to “0000”, the password input window opens before moving to Maintenance Setting window.



Enter the value as the password using the ten-key and touch .

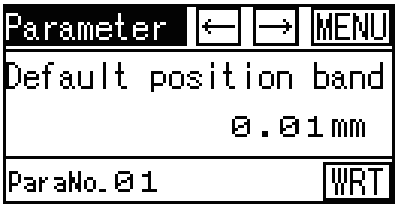
The password has been set to “5119” when the unit was shipped from the factory.
The password can be changed in ‘System Password Change’ under Environment Setting.

The menu will move to Parameter Edit window when a correct password setting is confirmed.

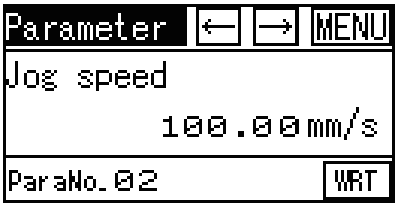


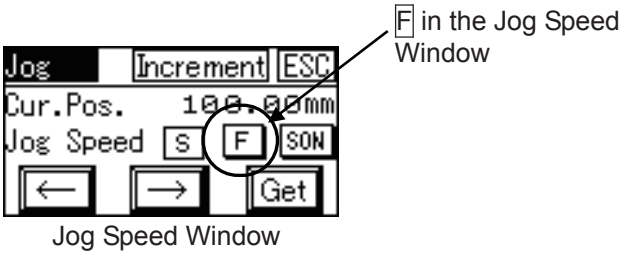
[1] Types of Parameter Editing Window
The windows are displayed in the following order. Refer to the AMEC/PMEC Controller Instruction Manual and ERC3 Instruction Manual for the details of each parameter.

(Default Position Band)
Set the positioning width.



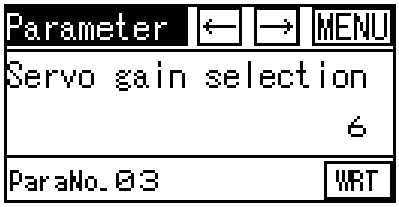
(Jog Speed)
Set the speed for “Fast” for the Jog Operation.



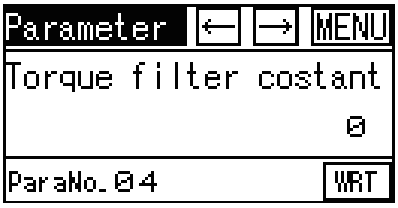


Jog Speed Window

(Servo Gain Selection)
Set the Servo Gain No. that determines the Responsibility of the Position Control Loop in the Servo-Motor Control.

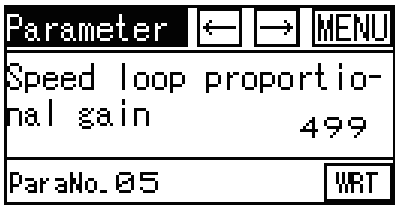


(Torque Filter Constant)
Set the Torque Filter Constant that determines the Filter Constant for the Torque Command in the Servo-Motor Control.



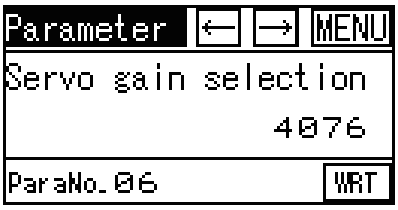
(Speed Loop Proportional Gain)

Set the Speed Loop Proportional Gain that determines the Responsibility of the Speed Control Loop in the Servo-Motor Control.



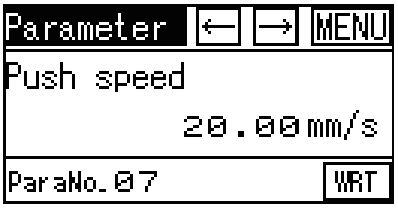
(Servo Gain Selection)

Set the Servo Gain Selection that determines the Responsibility of the Velocity Control Loop in the Servo-Motor Control.



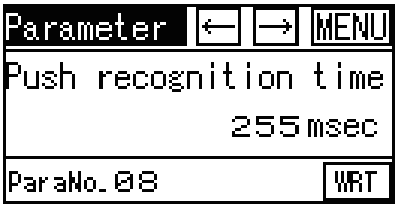
(Push Speed)

Set the velocity in the pushing operation.



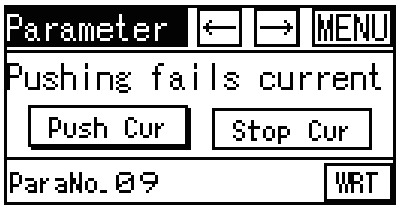
(Push Recognition Time)

Set the Push Recognition Time to determine the operation completion at the time when the actuator is pressed against the work in the pressing operation.



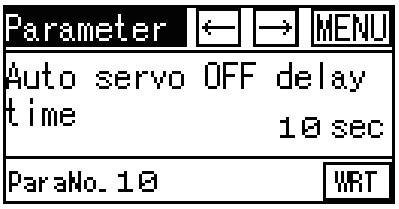
(Pushing Fails Current)

Set whether if the current limitation value at the time when the pressing operation is performed, but there is no work to be pressed, is regarded as the current in pressing operation or the current in the stop operation.



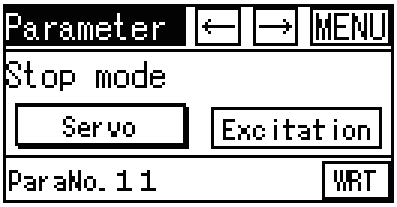
(Auto Servo OFF Delay Time)

Set the time duration before the automatic motor power supply (automatic servo) off when the energy saving function is turned active.



(Stop Mode) Displayed in the case of using PMEC Controller and ERC3

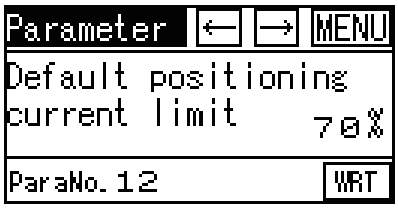
Set whether if the servo-motor is stopped with the full servo-motor control system or complete stop operation without using the full servo-motor control system, when the actuator is stopped.



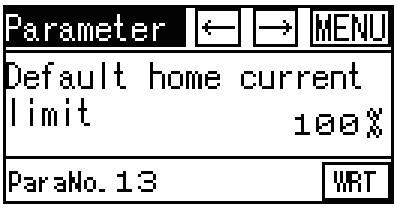
(Note)
In the case that the position data is not reloaded after this parameter is changed, the change is not reflected.

(Default Positioning Current Limit) Displayed in the case of using PMEC Controller and ERC3

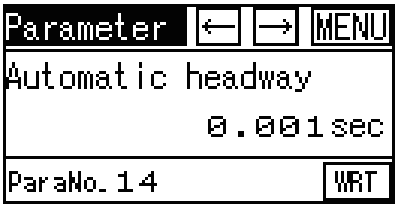
Set the Default Positioning when the positioning operation is stopped.



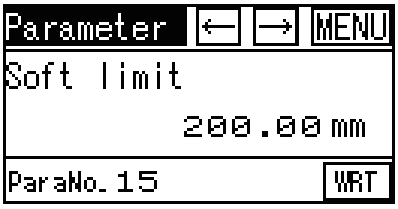
(Default Home Current Limit)
Set the Default Home in the home return operation.



(Automatic Headway)
Set the stop time period from the actuator movement completion to the next movement when the Operation Pattern 5 (Continuous Operation) is set.

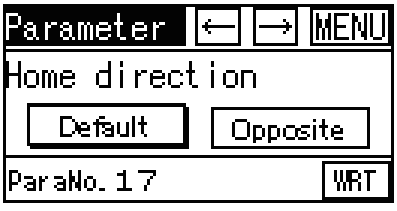


(Soft Limit)
Set the soft limit on the positive (+) side.

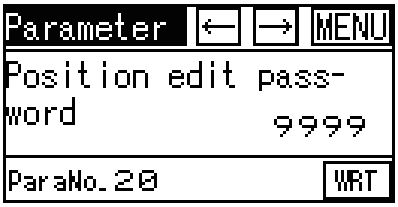


(Home Offset)
Set the offset level for the home return operation.

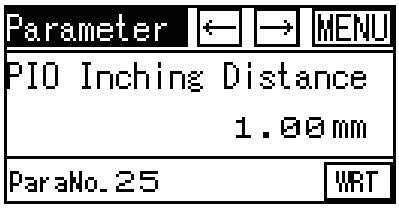
(Home Direction)
Set the home direction either of the motor side or opposite side of the motor.
For some actuators including rod type, the change of the home direction is unavailable.



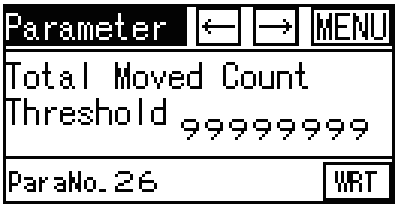
(Position Edit Password)
Set the password when the position is edited.



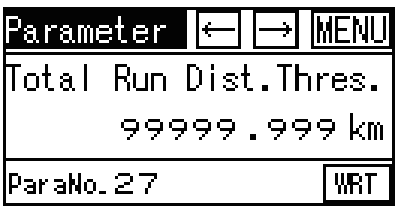
(PIO Inching Distance) Displayed for ERC3 only
Set the inching distance for when conducting the inching distance in Quick Search.



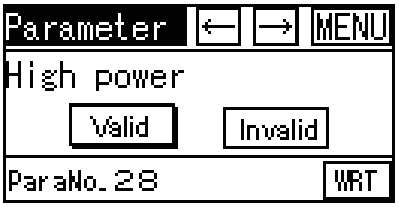
(Total Moved Count Threshold) Displayed for ERC3 only
Set the Total Moved Count Threshold.
The total moved count of the actuator operation is counted in the maintenance function of ERC3.
An alarm is generated when the total moved count exceeds the total moved count threshold.



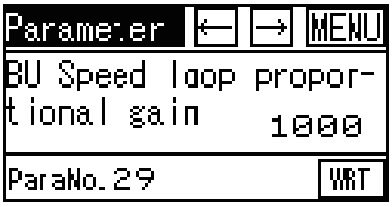
(Total Run Dist. Thres.) Displayed for ERC3 only
Set the Total Run Distance Threshold.
The total run distance of the actuator operation is counted in the maintenance function of ERC3.
An alarm is generated when the total run distance exceeds the total run distance threshold.



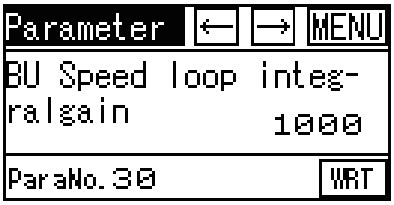
(High Power) Displayed for ERC3 only
Set whether use the high output function. Set to valid to use the high output function.



(BU Speed Loop Proportional Gain) Displayed for ERC3 only
When the high output setting is activated, this parameter setting becomes effective for the speed loop proportional gain.

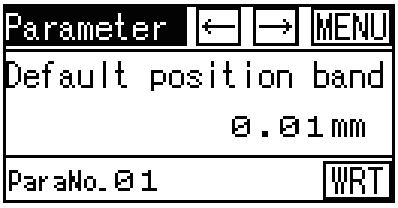


(BU Speed Loop Integral Gain) Displayed for ERC3 only
When the high output setting is activated, this parameter setting becomes effective for the speed loop integral gain.



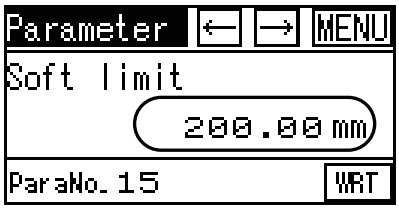
[2] Basic Operation
Set the parameter.

[Parameters]

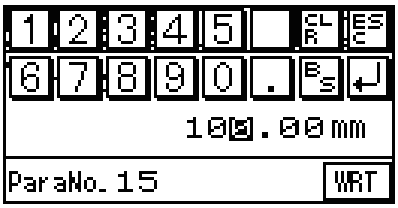


Touching ← returns to the preceding window.
Touching → returns to the next window.
There are 20 windows to be displayed one by one in order from the positioning width initial value to the position data edit password edit window.

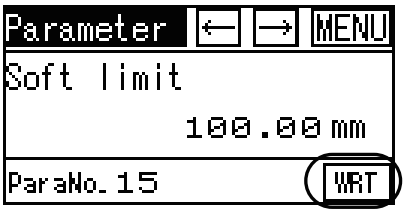
The soft limit is set as an example.
The window where the soft limit is set, is displayed using the ← or → in the displayed window.



Touch the value.



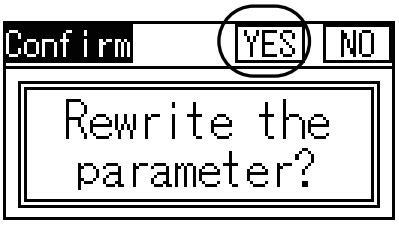
Enter the value and touch ↵ .



Touch the WRT.

When MENU(Note 1) is touched, the MEC MENU window is returned.

(Note 1) Even in the case that the MENU is touched without writing after various parameters are changed in the parameter edit window, and the window is transferred to the other one from the parameter edit window, the changed parameters are kept.
When the parameter edit window is displayed again, the changed parameters are displayed. Pay attention.

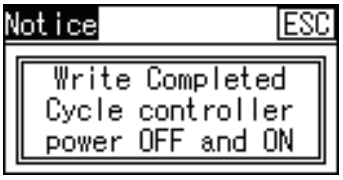


Touch the YES.

Touching NO returns to the window where the setting was performed. In this example, the soft limit window is returned.

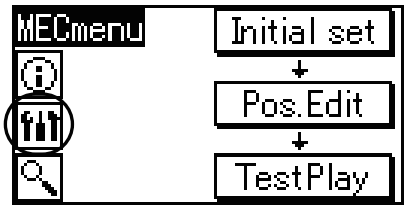
Touch the YES.
The controller will be re-started up.
The controller is operated according to the set Operation Pattern.
The Initialization window is returned.

Touching NO displays the following window. The controller is not operated according to the set Operation Pattern until the controller is re-started up.

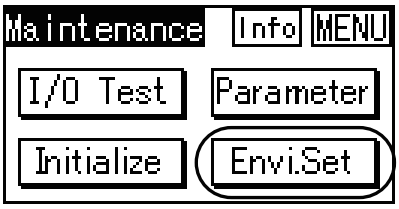


5.2.11 Maintenance, Environment Setup (Touch Sound Setting, Language Setting, System Password Change, Display Setting (Display Adjustment))

Using this function, the touch sound setting, language setting, system password change or display adjustment is performed.

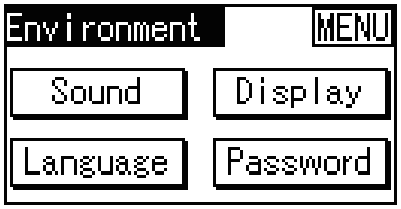


Touch Maintenance in MEC MENU window.



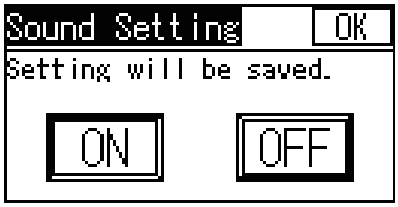
Touch the Envi.Set.

When MENU is touched, the MEC MENU window is returned.

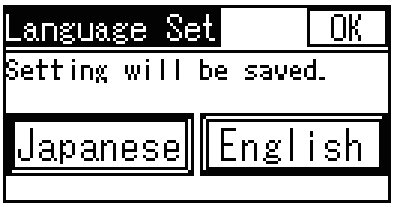


Select one of Sound, Display, Language, or Password and touch it.

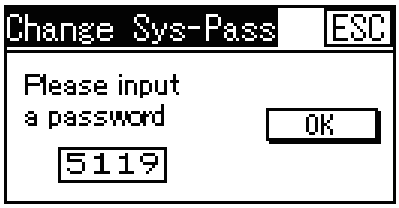
- Sound Setting : Set whether or not the touch sound is output or not.



- Language Set : Select either Japanese or English for the display language.

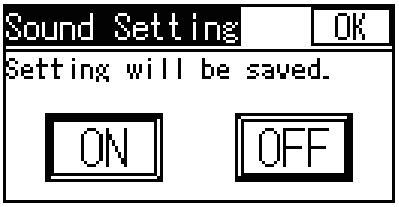


- Change Sys-Pass : The password for the initial setting parameter edit can be changed.



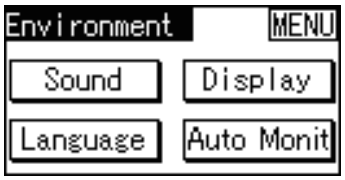
[1] Basic Operation

[Sound Setting]

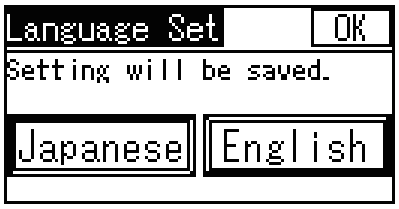


Touching ON outputs the touch sound.
Touching OFF turns OFF the touch sound.

Touching OK, the setting is stored and the Environment Setup window for the main machine is returned.

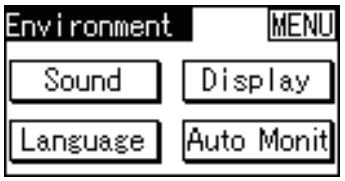


[Language Set]



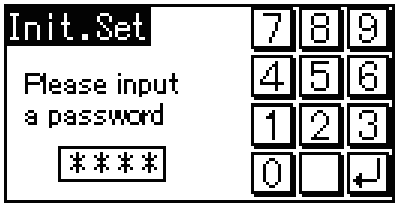
Touching Japanese sets the language to Japanese.
Touching English sets the language to English.

Touching OK, the setting is stored and the Environment Setup window for the main machine is returned.



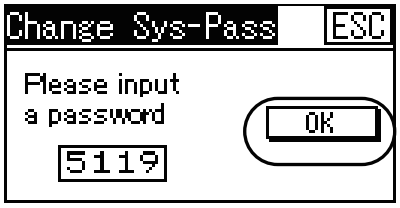
[Change Sys-Pass]

Perform an operation to change the password for the parameter edit.
The password entry window appears.



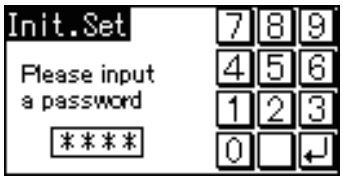
Enter the password number with the numeric keys then touch [↵].

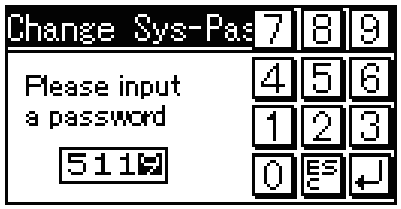
The password is set to '5119' (at delivery).
The password can be changed in 'System Password Change' under Environment Setting.



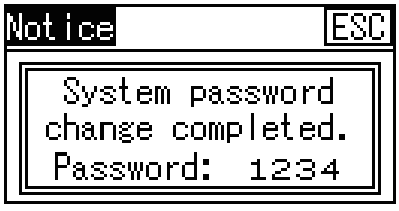
Touch [OK].

Touch [ESC] to go back to the password input window.



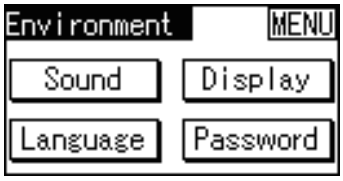


Enter the value and touch [↵].

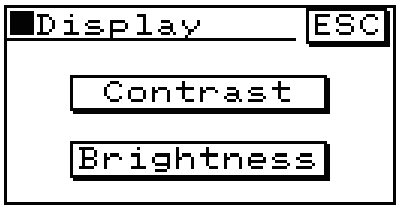


The system password will be changed.

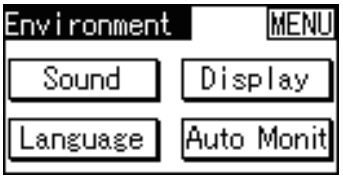
Touch [ESC] to go back to the environment setting window.



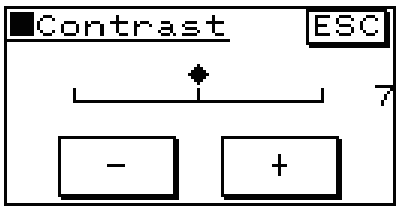
[Display Setting]



When the contrast in the window is to be adjusted, touch Contrast.
When the brightness in the window is to be adjusted, touch Brightness.
The adjustment window corresponding to the touched button item is displayed.
Touching ESC returns to the Machine Setup window for the main machine is returned.

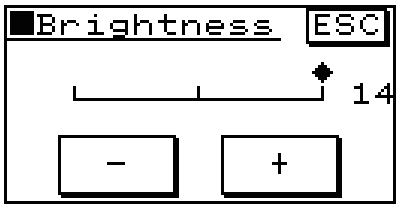


- Contrast Adjustment



Adjust the contrast in the window by means of touching − or +.

- Brightness Adjustment



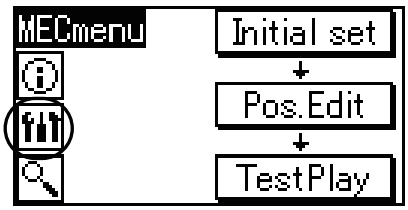
Adjust the contrast in the window by means of touching − or +.

Touching ESC returns to the Display Setting window.

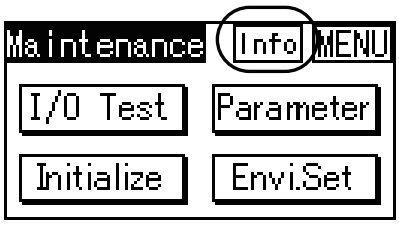
5.2.12 Maintenance information display

(Note) Only ERC3 can display this information.
This mode displays the total number of actuator movement and distance.

- Total Movement Count : Shows the cumulative total of Movement Count of actuator operation
- Total Run Distance : Shows the cumulative total of Run Distance of actuator operation

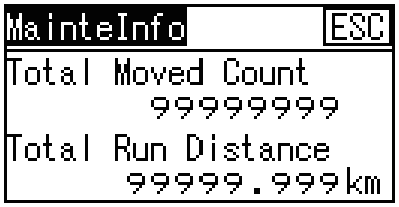


Touch Maintenance in MEC MENU window.



Touch the Info.

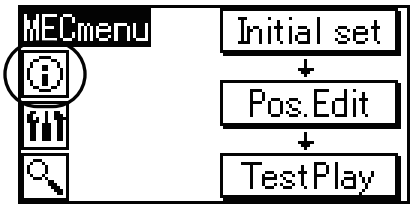
The maintenance information is displayed.



Touching ESC returns to the Display Setting window.

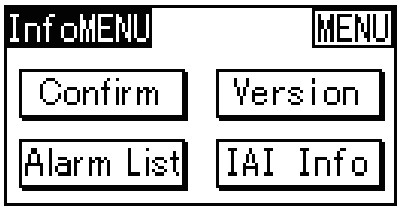
5.2.13 Information

Using this function, the data items such as operation pattern and version, are displayed.



Touch Maintenance ⓘ in MEC MENU window.

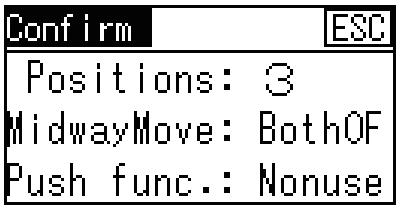
The data selection window is displayed.



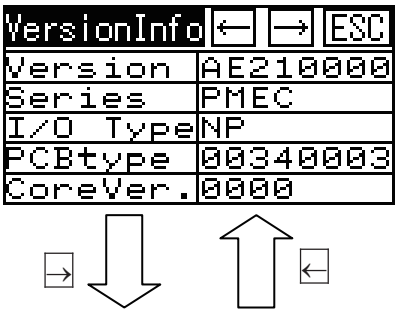
Touch the window to be displayed.

When MENU is touched, the MEC MENU window is returned.

[Setting Check]
Operation mode, 2-point or 3-point stop, currently set can be confirmed.

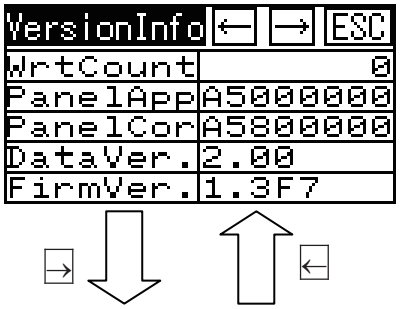


[Version Manufacturing Data]

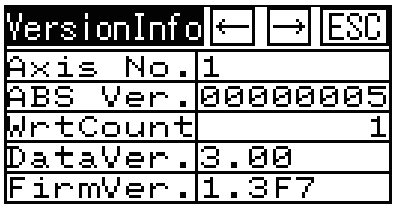


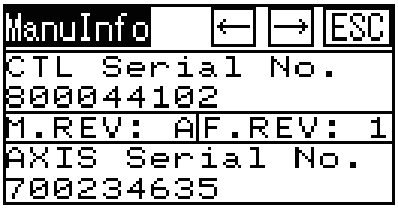
The version data, etc., can be confirmed.
There are two windows.

In the case of AEMC and PMEC Controller



In the case of ERC3

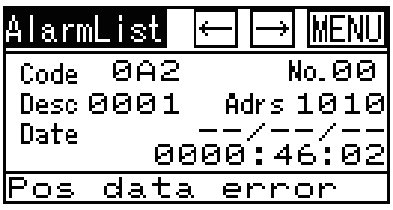




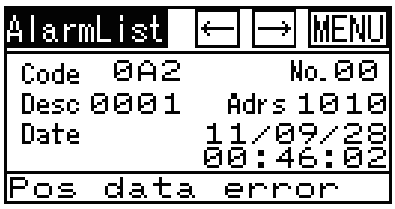
The manufacturing data items including serial No. can be confirmed.

[Alarm List]
The alarm history can be confirmed.

Except for the ERC3



ERC3 PIO Converter



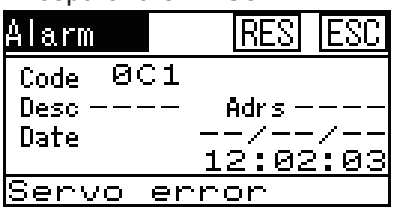
[Inquiry]
The contacts in our company can be confirmed.

6. Error Indication

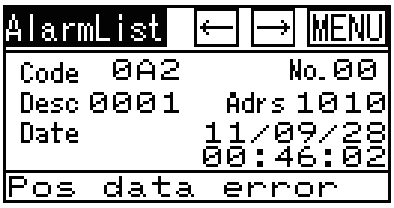
6.1 Alarm

When an error occurs, the alarm window is displayed.

Except for the ERC3



ERC3 PIO Converter



6.1.1 Alarm detected using the Controller

The alarm with codes 080 to 0FC are alarm detected using the controller.
Serious alarm in the servo-motor control system or electric system are included in such errors.
Refer to ASEP/PSEP/DSEP Controller Instruction Manual or PMEC/AMEC Controller Instruction Manual and ERC3 Instruction Manual.

After removing the cause, perform the following operation.

- In the case of the alarm at the operation cancel level, touch RES in the Alarm window.
- In the case of the alarm at the cold start level, re-input the power to the controller.

6.1.2 Errors detected using the Touch Panel Teaching Unit

The Errors detected using the touch panel teaching unit and treatments are described as follows.

Code	Error Description	Cause and Treatment
ER02	Incorrect Data Address	The controller version might be too old. Check the firmware version.
ER03	Incorrect Data	The controller version might be too old. Check the firmware version.
ERFE	Response Error An abnormal response is returned from the controller.	It is temporary error due to noise. If it is caused frequently, check the noise protection measure, etc., in the power unit.
ERFF	Time-up Error No response is returned from the controller.	(1)A wire breakage is caused in the controller connection cable. Check the wiring for or wire breakage in the connection cable. (2)It is temporary error due to noise. Re-input the power to the controller.

∗The error code is displayed in the upper right in the window.

6.2 Error Message on the Touch Panel

When an excessively large value is input for the target position and it is written in the controller, an error message is displayed in the touch panel indicator.
Check that the input value is correct and perform the setting again.

Error Message

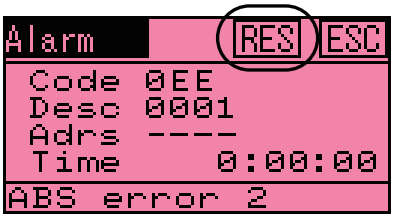
Target Position Input Error
Velocity Value Input Excessive
Acceleration Input Excessive
Deceleration Input Excessive
Pressing Current Input Excessive

7. Absolute Reset Procedure for the Absolute Battery Unit (Option)

The absolute reset is available for the absolute battery unit using SEP-PT.

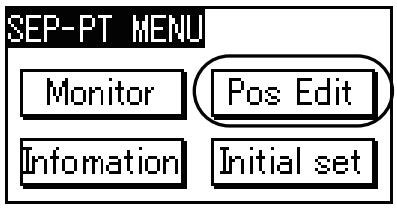
(1) Connect SEP-PT to the controller and supply main power (24V DC).

(2) "ABS Error 2" is displayed when the window is transferred to "Monitor", "Jog", "Inching" or "Operation Test" window immediately after SEP-PT is started up.
Touch RES to reset the alarm.



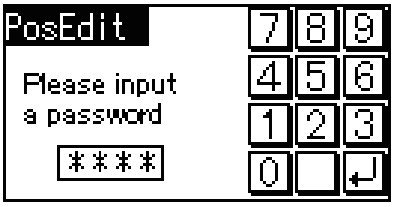
(3) Performing the home return operation completes the absolute reset.

(Example) Home Return Operation Procedure using the "Jog" window.



Touch Pos Edit in the SEP-PT MENU window.

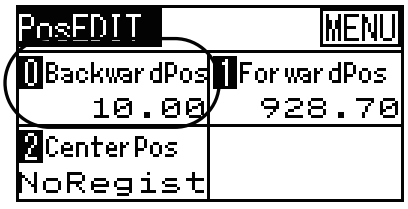
In the case that the password is set to the value except for "0000" before the window is transferred to the Position Setting window, the Password Entry window appears.



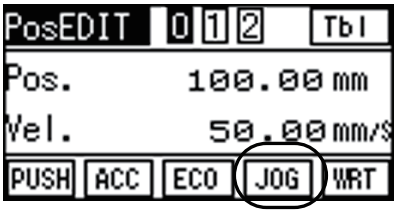
Enter the value as the password using the ten-key and touch ↵.

The password can be entered in the "Position Data Edit Password" in the "Parameter Edit" mode.

When the correct password is entered, the window is transferred to the "List" window in the Position Setting window.



Touch the position to be set.
When MENU is touched, the SEP-PT MENU window is returned.
The left window shows the example of the Operation Pattern 3.
The set values for each position are displayed.



Touch the JOG.

Touching Tb1 returns to the Tb1 window.

When the jog operation is to be performed before the home return operation, the window where the home return operation is performed, is displayed before the Jog Operation window.

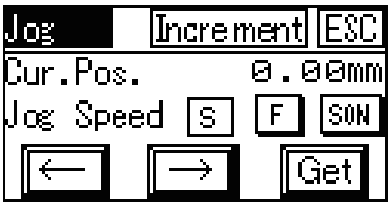
Touch the YES.
The home return operation is to be performed.

Touch the OK.

The home return operation will be started and the following window will be displayed.

Touching STOP can stop the home return operation.

When the home return operation is completed, the Jog Operation window appears.
The Jog Operation is enabled.



The Absolute Reset is completed.

8. Warranty

8.1 Warranty Period

One of the following periods, whichever is shorter:

- 18 months after shipment from our factory.
- 12 months after delivery to a specified location.

8.2 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 the poor quality of 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.

8.3 Honoring Warranty

As a rule, the product must be brought to us for repair under warranty.

8.4 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.

8.5 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.

8.6 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

9. Change History

Revision Date	Revision Description
2009.5	First Edition
2010.10	Second Edition Operation of 5. PMEC/AMEC Controller added
2011.9	Third Edition Pg. 8, 95, 96, 97, 148, 159, 161 and 162 The contents of ERC3 are added.
2011.10	Fourth Edition Pg. 96 and 151 ERC3 MEC Mode parameters added Pg. 166 and 167 Contents changed in Warranty
2011.10	Fifth Edition DSEP added
2014.03	Sixth Edition Change made to note to state to turn power off before inserting/removing touch panel teaching
2014.05	Seventh Edition Pg. 150 and 159 Correction made to contents of maintenance information

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