ROBO CYLINDER

Touch Panel Display
RCM-PM-01

Operating Manual Third Edition

ROBO CYLINDER

IAI

IAI America Inc.

ROBO CYLINDER
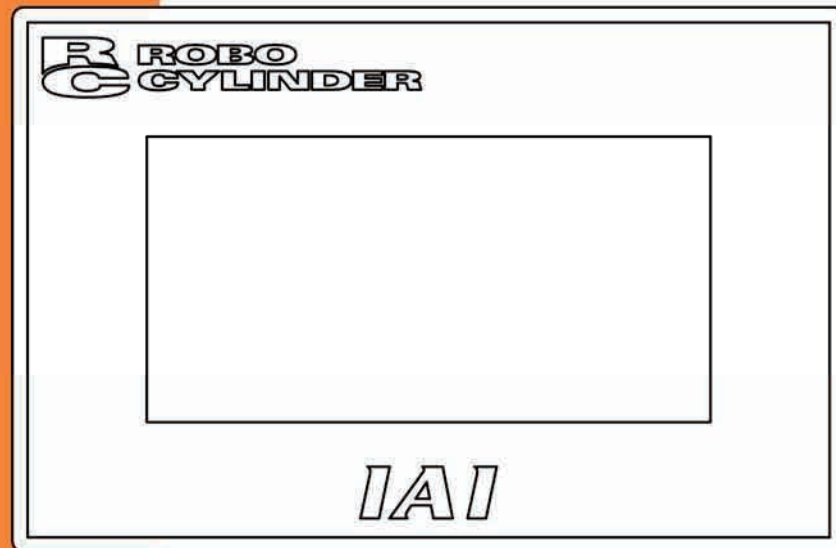
Please Read Before Use

Thank you for purchasing our product.

This Operating Manual describes all necessary information items to operate this product safely such as the operation procedure, structure and maintenance procedure.

Before the operation, read this manual carefully and fully understand it to operate this product safely.
The enclosed CD/DVD in this product package includes the Operating Manual for this product. For the operation of this product, print out the necessary sections in the Operating Manual or display them using the personal computer.

After reading through this manual, keep this Operating Manual at hand so that the operator of this product can read it whenever necessary.

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Safety Guide

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

Safety Precautions for Our Products

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

No.	Operation Description	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.

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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.
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.

No.	Operation Description	Precautions
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.

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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

Caution in Handling

1. Be sure the operation power of the touch 0.5N or less.
   Occasionally damages if operating by the power of 0.5N or more.

2. In the case of pushing the screen of the touch panel at the same time by two points or more, the switch might work when there is a switch in the center of the pushed point.

3. Disconnect the Touch Panel Display from the PCON/ACON/SCON/ERC2 following the below.

* After disconnecting the Touch Panel Display from the PCON/ACON/SCON/ERC2 controller with the AUTO/MANU switch, always turn the AUTO/MANU switch to AUTO.

* For the PCON/ACON/ERC2 controller without the AUTO/MANU switch, always set the TP Operation Mode to "Monitor 2" before disconnecting the Touch Panel Display from the controller. (Refer to "4.6 TP Operation Mode.")
   (Note)   In the case of ERC2 or when controller setting is made by connecting the Touch Panel Display to the gateway unit or SIO converter:
   ● If the Touch Panel Display is disconnected while the setting of "Teach 1" or "Teach 2" remains, I/O will become invalid and control from PLC will become impossible.
   ● If the Touch Panel Display is disconnected while the setting of "Monitor 1" remains, the maximum speed will become the safety speed set for the parameters regardless of a command from PLC.

4. Insertion/Removal of Connector for Connecting Touch Panel Display and Controller
   The Touch Panel Display was developed with the intention of being used while always connected to the controller by integrating the Display into an electromagnetic box or operation box.
   Turn off the power to the controller before inserting or removing the connector for connecting the Touch Panel Display and controller.
   Inserting or removing the connector while the power is turned ON causes a controller failure.

Turn off the power to the controller before inserting or removing the connector for connecting.
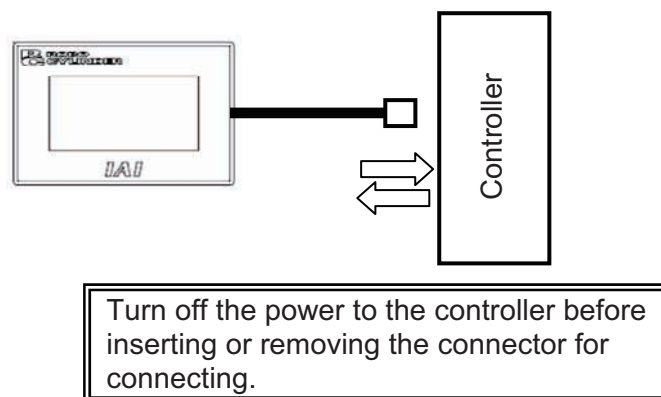
Support Models

The following are the versions to which we have started support:

Table 1 List of Support Models

Model Name	Support Started Version
ERC2	V1.00
ERC3[*1]	V2.00
PCON	V1.00
PCON-CA	V2.00
ACON	V1.00
SCON	V1.00
ROBONET	V1.00

*1 ERC3 is available to be connected only to CON mode. It is not connected to MEC mode.
(Note) Check the model to connect and the version of the Touch Panel Display. If any
  unsupported model is connected, unexpected movement may occur.

Corresponding Versions of Controllers

The following are the corresponding versions of connectable controllers. For any earlier versions, it is required to update them.
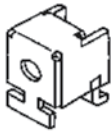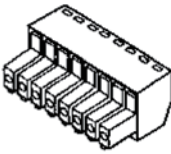
Model Name	Support Started Version
PCON/ERC2	v0008 or later
ACON	v0009 or later
SCON	v0015 or later

1. General Information about Touch Panel Display

1.1 Before Installation

■ Check of Accessories

| Mounting Fixture × 4	Mounting Screw × 4	Connector × 1

■ When installing the Touch Panel Display, observe the following installation conditions and precautions:
  • Install it in a place at an ambient temperature of 0 to 50°C and relative humidity of 20 to 85% where water droplets do not splash on it.
  • When installing it onto a stuffy place such as a control panel, avoid an increase in the temperature of the display body and ensure that an ambient temperature will not exceed 50°C by performing forced cooling.
  • Avoid places which receive direct sunlight and places where condensation is likely to occur.
  • Avoid places where flammable or corrosive gas is generated and places where dust, iron powder or oily smoke is excessive.
  • Avoid places where organic solvent (thinner, benzene, etc.) or strong alkali (ammonia, caustic soda, etc.) may attach to it.
  • Avoid places near high-pressure equipment, power equipment, transmitters such as radio equipment and equipment which generates high switching surge. With regard to high voltage lines, power lines, electric power lines and COM port connection cables, install wiring using separate ducts.
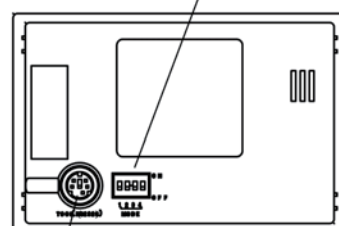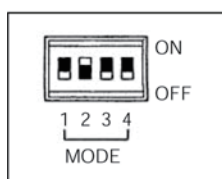
■ Names of Each Part

Front View
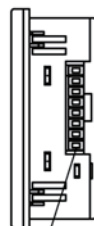
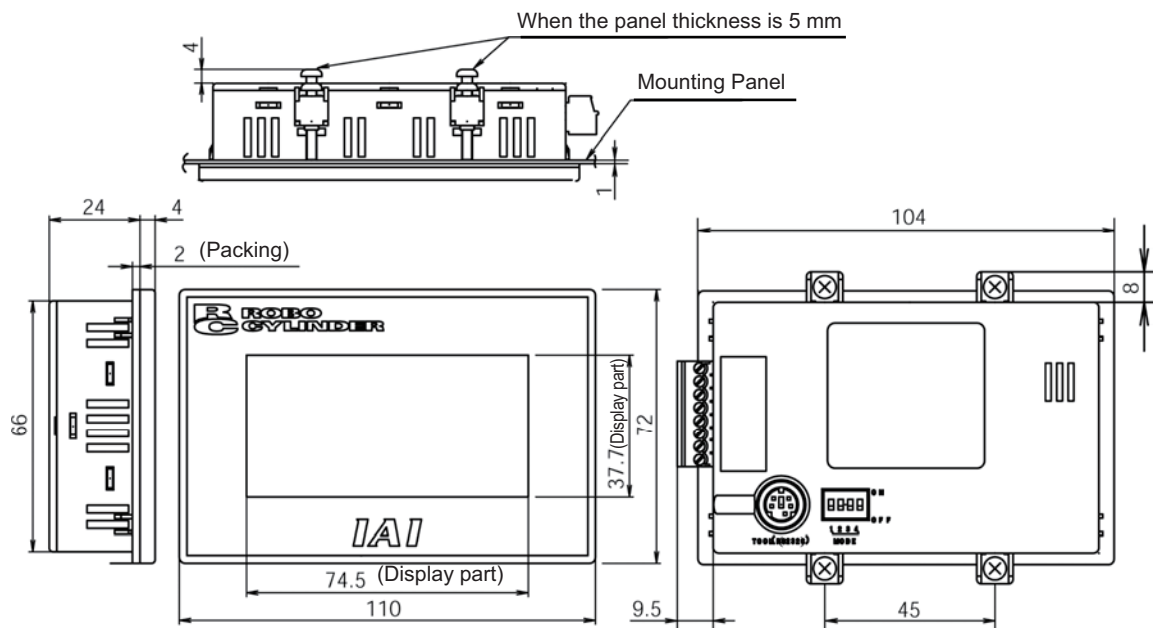**Side View**　**Back View**　Operation Mode Setting Switches

COM Port / TOOL Port

• Operation Mode Setting Switches

SW No.	OFF	ON
1	Always set it to OFF before use.	
2	Always set it to ON before use.	
3	Always set it to OFF before use.	
4		

![ROBO CYLINDER logo]

1.2　Dimensional Drawing

When the panel thickness is 5 mm

Mounting Panel

24　4

2 (Packing)

66

37.7(Display part)

72

74.5 (Display part)

110

104

8

9.5

45

1.3　Wiring

1.3.1　COM Port (Power: RS422/RS485)

+
—
⏚
+SD
-SD
+RD
-RD
E

24V ⎓

COM. (RS422)
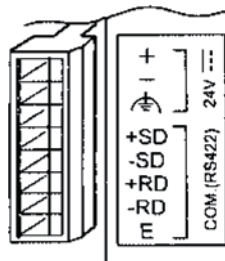
Caution: Be careful about wiring and routing to avoid exogenous noise from being applied or introduced to wiring cables. It is recommended to use shielded lines as wiring cables.
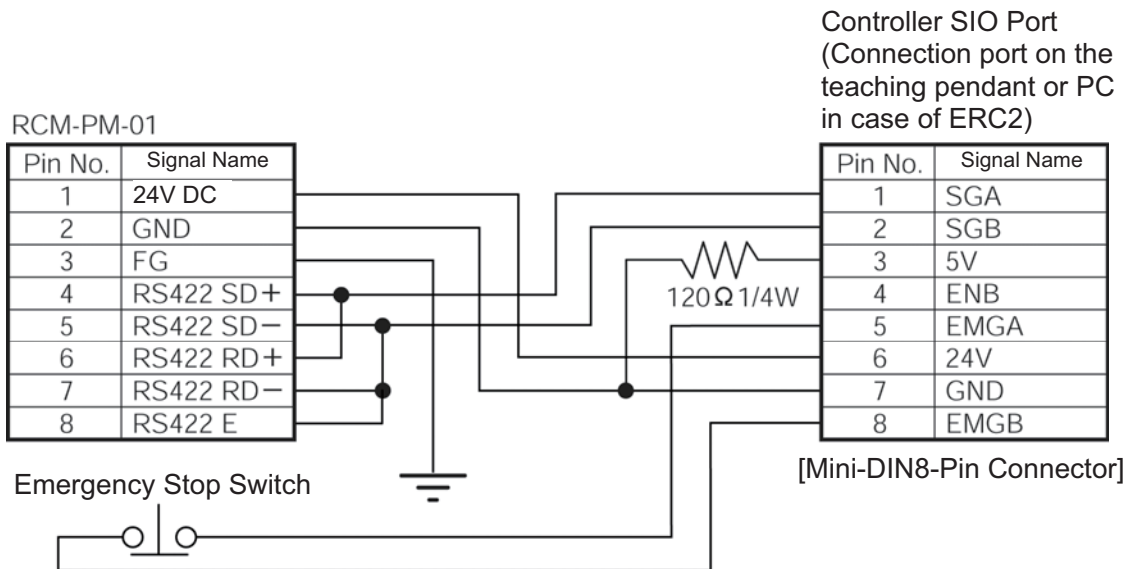
E is used to set the end station.
For the detailed wire connection by connected equipment, refer to "1.3.2 Connection".

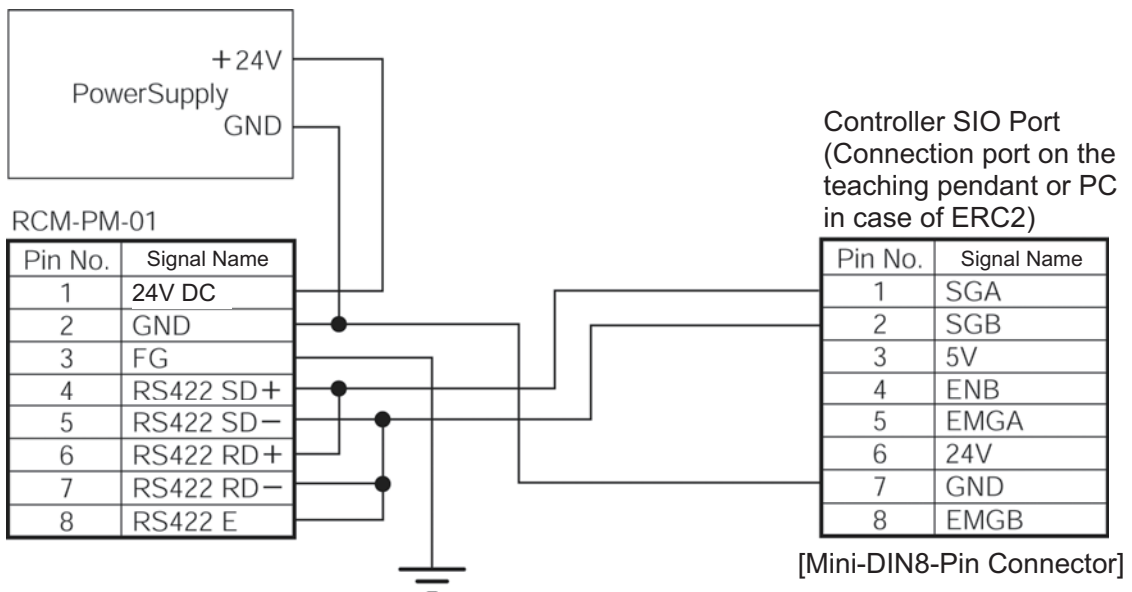Always use the insulated DC power supply as the power source.
For the detailed wiring, refer to "1.3.2 Connection".

1.3.2 Connection

(1) Connection with Controller or ROBONET Gateway R Unit: Bus-Powered Connection
It is recommended to use the "controller connection cable with the emergency stop box (CB-RCM-PM-SIO030-EB)" (option) as a connection cable.
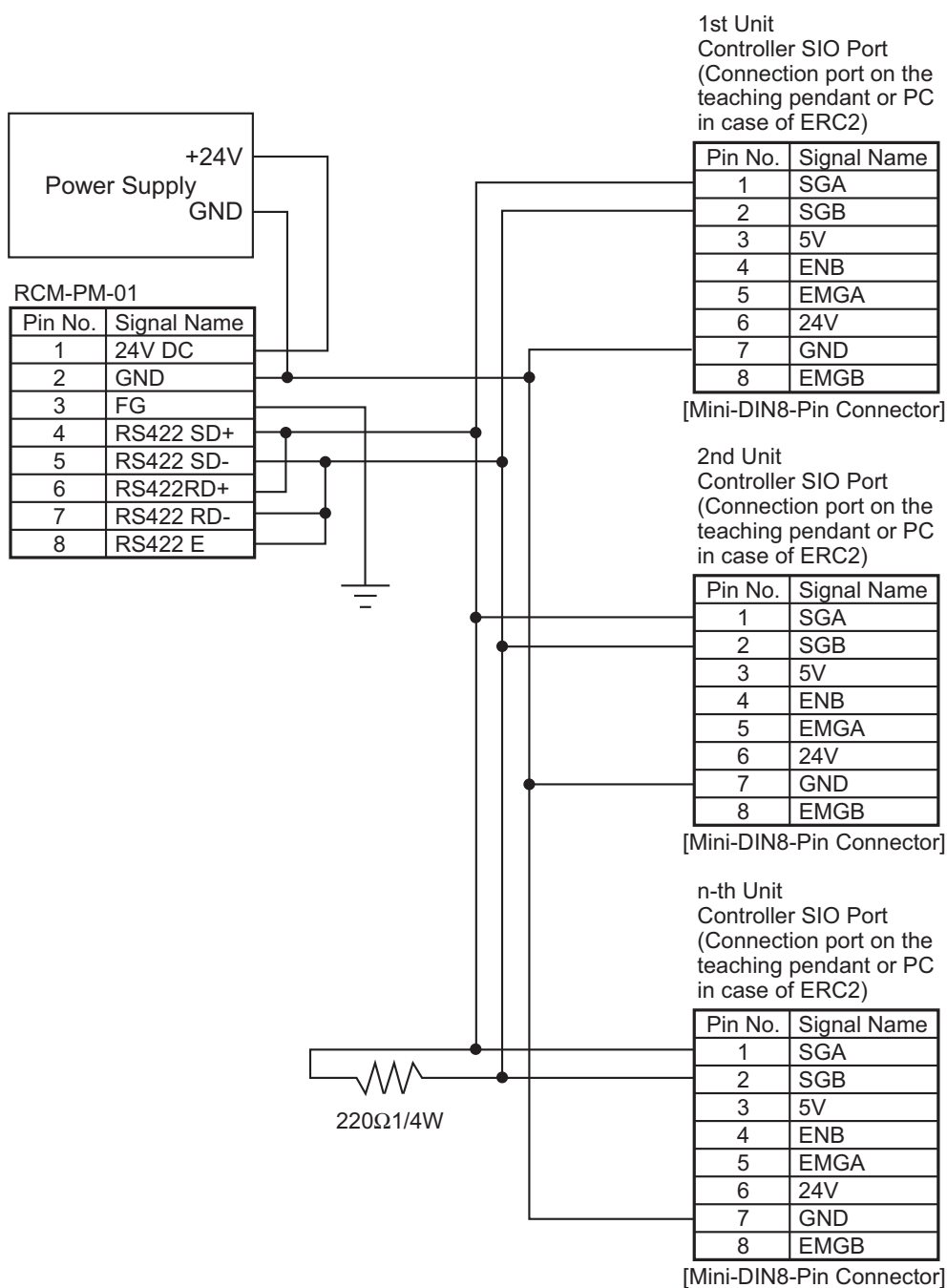
Controller SIO Port
(Connection port on the teaching pendant or PC in case of ERC2)

RCM-PM-01

Pin No.	Signal Name
1	24V DC
2	GND
3	FG
4	RS422 SD+
5	RS422 SD−
6	RS422 RD+
7	RS422 RD−
8	RS422 E

120Ω1/4W

Pin No.	Signal Name
1	SGA
2	SGB
3	5V
4	ENB
5	EMGA
6	24V
7	GND
8	EMGB

[Mini-DIN8-Pin Connector]

Emergency Stop Switch

(2) Connection with Controller or ROBONET Gateway R Unit: Self-Powered Connection

+24V
PowerSupply
GND

Controller SIO Port
(Connection port on the teaching pendant or PC in case of ERC2)

RCM-PM-01

Pin No.	Signal Name
1	24V DC
2	GND
3	FG
4	RS422 SD+
5	RS422 SD−
6	RS422 RD+
7	RS422 RD−
8	RS422 E

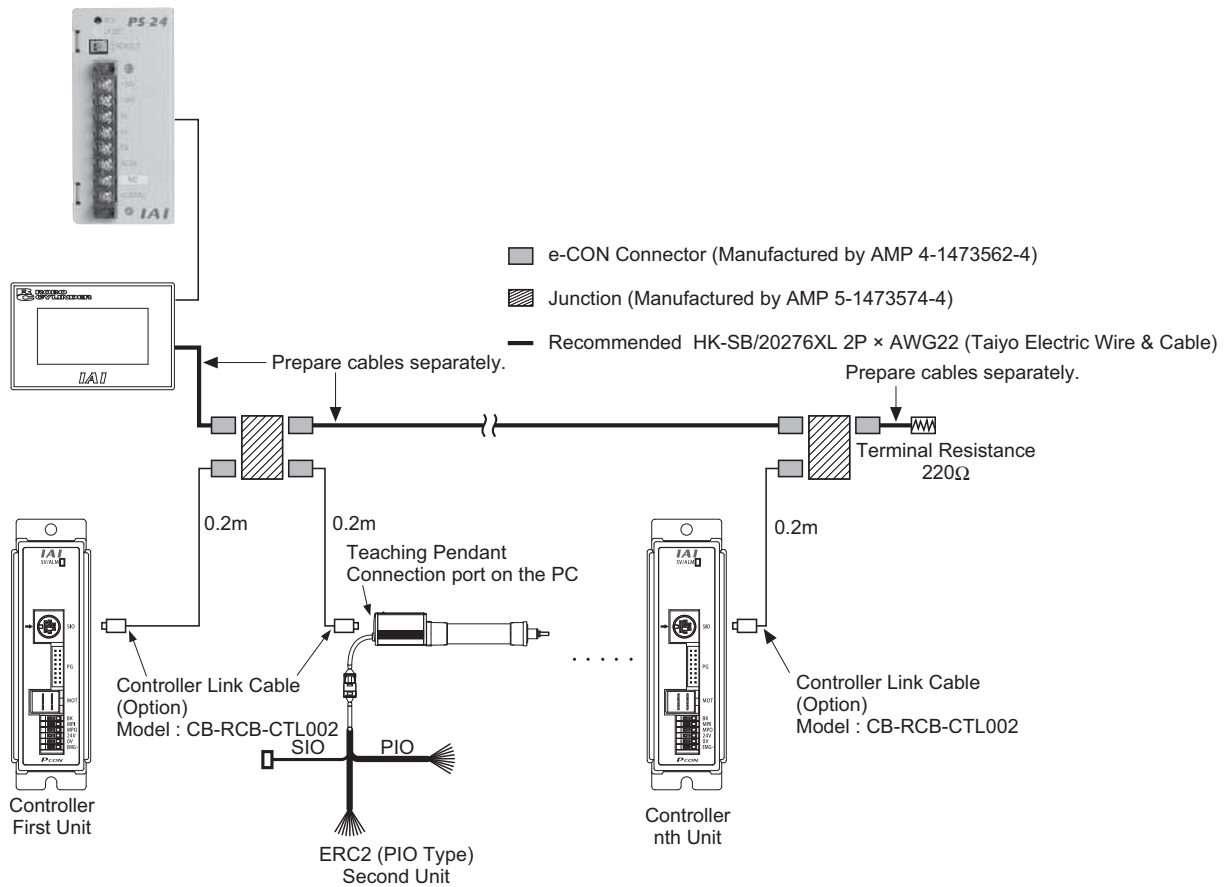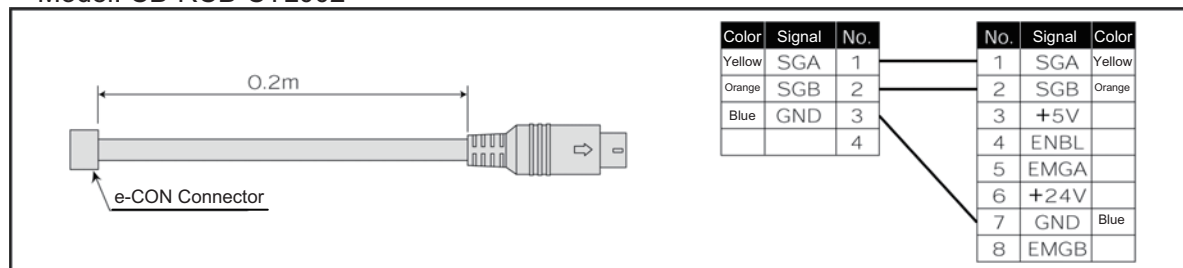| Pin No.	Signal Name
1	SGA
2	SGB
3	5V
4	ENB
5	EMGA
6	24V
7	GND
8	EMGB

[Mini-DIN8-Pin Connector]

* The above is the connection diagram on the serial communication lines only. For the connection of the power supply and emergency stop line, refer to the operating manual of each controller.

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(3) Connection with Multiple Controllers

Power Supply

+24V
GND

RCM-PM-01

Pin No.	Signal Name
1	24V DC
2	GND
3	FG
4	RS422 SD+
5	RS422 SD-
6	RS422RD+
7	RS422 RD-
8	RS422 E

220Ω1/4W

1st Unit
Controller SIO Port
(Connection port on the
teaching pendant or PC
in case of ERC2)

Pin No.	Signal Name
1	SGA
2	SGB
3	5V
4	ENB
5	EMGA
6	24V
7	GND
8	EMGB

[Mini-DIN8-Pin Connector]

2nd Unit
Controller SIO Port
(Connection port on the
teaching pendant or PC
in case of ERC2)

Pin No.	Signal Name
1	SGA
2	SGB
3	5V
4	ENB
5	EMGA
6	24V
7	GND
8	EMGB

[Mini-DIN8-Pin Connector]

n-th Unit
Controller SIO Port
(Connection port on the
teaching pendant or PC
in case of ERC2)

Pin No.	Signal Name
1	SGA
2	SGB
3	5V
4	ENB
5	EMGA
6	24V
7	GND
8	EMGB

[Mini-DIN8-Pin Connector]

* The above is the connection diagram on the serial communication lines only. For the connection
of the power supply and emergency stop line, refer to the operating manual of each controller.

* One controller can be connected to another with the controller link cable (option) and junction box shown below.

▨ e-CON Connector (Manufactured by AMP 4-1473562-4)

▨ Junction (Manufactured by AMP 5-1473574-4)

— Recommended HK-SB/20276XL 2P × AWG22 (Taiyo Electric Wire & Cable)

Prepare cables separately.

Prepare cables separately.

Terminal Resistance 220Ω

0.2m   0.2m   0.2m

Teaching Pendant Connection port on the PC

Controller Link Cable (Option) Model : CB-RCB-CTL002

Controller Link Cable (Option) Model : CB-RCB-CTL002

SIO   PIO

Controller First Unit

ERC2 (PIO Type) Second Unit

Controller nth Unit

Wiring between the Touch Panel and junction must be installed by the customer.

▪ Controller link cable (Each one unit of the e-CON connector, junction and terminal resistor are supplied)
Model: CB-RCB-CTL002

0.2m

e-CON Connector

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

1.4　Body Installation Example

■ Panel Cutout/Drilling Method

Appropriate Panel Thickness: 1.0 to 5.0 mm

67^{+1}_{0}

105^{+1}_{0}
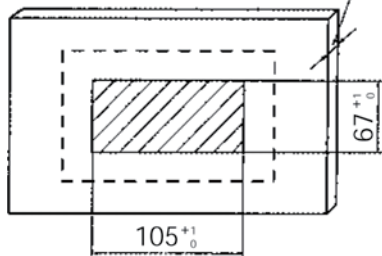
* When mounting other parts or laying out cables for the Panel during installation, it is recommend to leave a clearance of approx. 30 to 50 mm around RCM-PM-01 in consideration of cable damage prevention and workability during installation.

Caution: Never block the body slit.

■ Installation (Including mounting fixtures used: 4 locations)

(1)　Insert the RCM-PM-01 body into the mounting plate.
(2)　Fit the mounting fixtures into the grooves of the RCM-PM-01 body, tighten screws and fix the RCM-PM-01 body onto the mounting plate.

Note 1)　Screw torque: 0.1 to 0.25 Nm
Note 2)　If you tighten screws excessively, the touch switches may not operate normally due to front side deformation. Tighten them to an appropriate torque.

Enlarged View

Insert it as far as it will go.
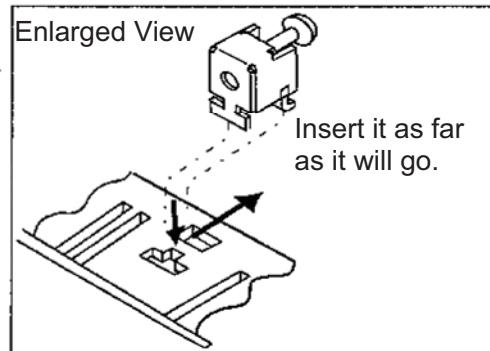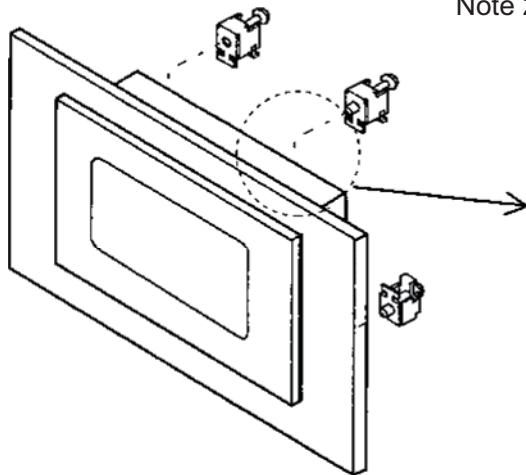
1.5　Check before Trial Run

■ Make sure that the power supply voltage and each connection are correct before turning on the power.

1.6　Option/Repair Part

■ Controller connection cable with the emergency stop box (CB-PM-SIO030-EB)

Touch Panel Display Side

254506-8 (Japan AMP)

Signal	Color	No.
+24V	BL	1
0V	PL	2
FG	BK	3
+SD	BR	4
-SD	RD	5
+RD	BR	6
-RD	RD	7
E	RD	8

Resister : 120Ω ±5%, 1/2W

Controller Side

No.	Signal	Color
1	SGA	BR
2	SGB	RD
3	5V	OR
4	ENB	-
5	EMGA	GN
6	24V	BL
7	GND	PL
8	EMGB	GY
GND	Shield	

Emergency Stop Switch

ELP-02V (J.S.T. Mfg.)

Signal	Color	No.
EMGA	GN	1
EMGB	GY	2
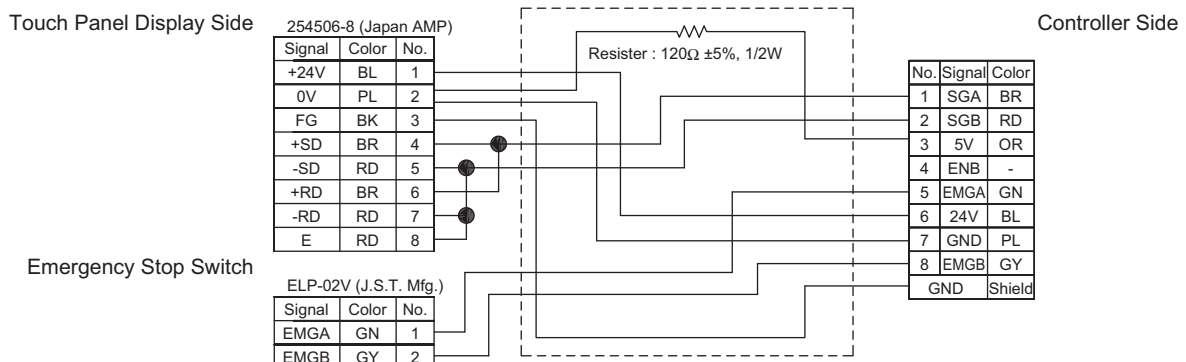
2. Functions and Specifications of Touch Panel Display

This Touch Panel Display is designed to function as the Display Operation Unit to edit or display the data (position data, some parameter data, etc.) through the communication between the controllers. User adjustment such as assignment of axis numbers cannot be performed.
This is intended to be used for the status monitoring and position data change during operation in the field.

(Note)   It is recommended to use our Teaching Pendant or PC-compatible software for equipment installation and adjustment.

This Touch Panel Display was created exclusively for PCON, ACON, SCON, ERC2 and ROBONET.
*   This is not compatible with the single version of GateWay Unit (RCM-GW-**).

2.1   Specifications

Item	Specification
Operating Ambient Temperature & Humidity	Temperature: 0° to 50°C Humidity: 10 to 85% RH (No condensation) * RH relative humidity
Environment Resistance	IP65 (In initial condition) Dust-proof and drip-proof only from the panel front
Mass	Approx. 160g

2.2 Description of Each Part
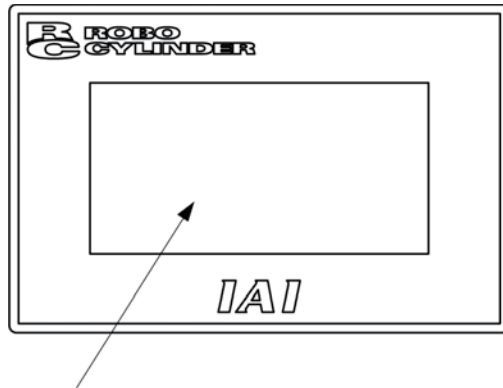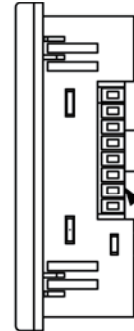
(1) Touch Panel Operation Display Screen   (2) Controller Connector

(1) Touch Panel Operation Display Screen
This is comprised of the STN monochrome LCD and touch panel.
This displays the edit and teaching contents of various set values.
Operation can be performed by the touch panel system.

(2) Controller Connector (COM Port)
This is the connector to connect with the controller.

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3. Connection with/Disconnection from Controller

3.1 Connection of Touch Panel Display

(1) Turn OFF the power to the controller.
(2) Connect the main communication port connectors on the front panel of the controller to the Touch Panel Display controller connecting connector (COM port) by the connection cable.
(3) Turn ON the power to the controller.

3.2 Disconnection of Touch Panel Display

(1) Turn OFF the power to the controller.
(2) Take OFF the connection cables from the main communication port connectors on the front panel of the controller.
(3) Turn ON the power to the controller.

Caution:	In the case of PCON, ACON, SCON, ERC2 or ROBONET, if the Touch Panel Display connected with the cable having the EMERGENCY STOP switch[1] is disconnected during operation, an instantaneous stop will be made and released. Therefore, equipment in operation such as the actuator will stop. Do not disconnect the Touch Panel Display connected with the cable having the EMERGENCY STOP switch[1] during operation. *1: Optional cable (CB-RCM-PM-SIO030-EB), etc.

Caution:	In the case of the PCON, ACON or ERC2 controller not having the AUTO/MANU switch, set the Operation Mode to "Monitor 2" before disconnecting the Touch Panel Display from the controller. (Refer to "4.6 TP Operation Mode.") In the case of ERC2 or when controller setting is made by connecting the Touch Panel Display to the gateway unit or SIO converter: ● If the Touch Panel Display is disconnected while the setting of "Teach 1" or "Teach 2" remains, I/O will become invalid and control from PLC will become impossible. ● If the Touch Panel Display is disconnected while the setting of "Monitor 1" remains, the maximum speed will become the safety speed set for the parameters regardless of a command from PLC.

4. Operation: Mode Flow Chart

(1) Positioner (PCON-PL/PO, ACON-PL/PO and SCON: Mode other than the Pulse Train Mode)

The total picture of operations performed with the Touch Panel Display has the tree structure as shown below.

ROBO CYLINDER

MoveMENU
RUN Mode:AUTO
Ena. Safety:OFF
Pos Num Jos
MoveMENU

PositMoveMENU
Cur Pos. -9999.99mm
Tar Pos.   511
PosNo.
PosMOVE

Num MOVE
Cur Pos   200.00mm
Tar Pos   200.00mm
Num MOVE

JOG
Cur Pos -9999.99mm
JOG

MOVE etc
Velocity   600.00mm
Accelerate   0.30G
Decelerate   0.30G
MOVE, etc.
(Velocity, Accelerate and
Decelerate setting)

Alarm List   No.00
Code 091
Desc 0000
Adrs 0000
Time 0000:00:00
Pos data error.
Alarm Occurrence
If an alarm occurs by MOVE, the
display will jump to this screen

Warning
Forbid editing
at AUTO mode
Displayed if any axis operation
other than TP Teach mode is
performed on the MOVE screen

Parameter
Zone Output Pos.(1) +
150.30mm
ParaNo.01
Parameter (1)
[Zone Output Pos (1)+]

Parameter
Zone Output Pos.(1) -
-0.30mm
ParaNo.02
Parameter (2)
[Zone Output Pos (1) -]

Parameter
Soft limit +
150.30mm
ParaNo.03
Parameter (3)
[Soft Limit +]

Parameter
Soft limit -
-0.30mm
ParaNo.04
Parameter (4)
[Soft Limit -]

Parameter
Zone Output Pos.(2) +
150.30mm
ParaNo.23
Parameter (5)
[Zone Output (2) +]

Parameter
Zone Output Pos.(2) -
-0.30mm
ParaNo.24
Parameter (6)
[Zone Output (2) -]

Parameter
PIO pattern select   1
ParaNo.25
Parameter (7)
[PIO pattern select]

Parameter
PIO Jog speed
100.00mm/sec
ParaNo.26
Parameter (8)
[PIO Jog speed]

Parameter
Push speed
20.00mm/sec
ParaNo.34
Parameter (9)
[Push speed]

Parameter
Safety speed
10.00mm/sec
ParaNo.35
Parameter (10)
[Safety speed]

Parameter
PIO Jog speed 2
10.00mm/sec
ParaNo.47
Parameter (11)
[PIO Jog speed 2]

Parameter
PIO Inching Distance
1.00mm
ParaNo.48
Parameter (12)
[PIO Inching Distance]

Parameter
PIO Inching Distance2
1.00mm
ParaNo.49
Parameter (13)
[PIO Inching Distance2]

Edit
Please input
a password
(The password input window
will be displayed if the
password is set to other than
'0000'.)

VersionInfo
Version AB330000
Series   PCON
Type   PCV1-AP
CPUType 0084000F
WrtCount   1256
VersionInfo 1

VersionInfo
Axis No.1
ABS Ver.00000005
DataVer.2.00
FarmVer.1.3F7
VersionInfo 2

ManuInfo
CTL Serial No.
1234567P
AXIS Serial No.
91234567B
ManuInfo

[WRT] button

Confirm
Rewrite the
parameter?
Yes / No

Confirm
Restart the
controller?
Yes / No

Confirm
Restart the
controller?
Yes / No

NoLine
Write Completed
Cycle controller
power OFF and ON

Controller restart

To Parameter
To MENU1
To MENU2

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Notice
Password change completed
Password: ****

Password change completion

Change Pass [ESC]
Please input a new password
[****]

New password input

Change Pass
Please input an old password
[****]

Change Pass

Display [ESC]
Contrast
Brightness

Display Setting
[GT system screen]
Screen adjustment
Liquid crystal contrast, Backlight brightness

Current [←][→] [MENU]
0123456789ABCDEF

All-axis current monitoring
Each current value of all axes can be monitored in bar graph form

GWstatus [Info][ESC]
T.ERR C.ERR MANU
ENBinvalid DNB OFF
StopLink non EMG

GWstatus
Display of various statuses of the gateway module

Language Set [OK]
Setting content is saved.
Japanese English

Language Set

Cur Pos [←][→] [MENU]
AxisNo00 1290.00mm
AxisNo01 312.50mm
AxisNo02 0.00mm
AxisNo03 -0.10mm

Cur Pos monitoring
Each current position of 4 axes can be monitored simultaneously

Velocity [←][→] [MENU]
AxisNo00 210.00ms
AxisNo01 312.50ms
AxisNo02 0.00ms
AxisNo03 -0.10ms

Velocity monitoring
Each velocity of 4 axes can be monitored simultaneously

Current [←][→] [MENU]
00 0.023A 04 0.003A
01 0.002A 05 1.398A
02 0.094A 06 0.067A
03 0.253A 07 4.500A

Current monitoring
Each current value of 8 axes can be monitored simultaneously

All Alarm [MENU]
00 D8 04 12
01 01 05 13
02 06 06 14
03 07 07 15

All Alarm
A list of alarm codes currently occurring in each axis can be monitored

VersionInfo [STAT][ESC]
Version 0002
Codes 0024
Baudrate:OcbFFF
Network Type:FF S1
IAI CC-Link V2

VersionInfo
Display of the gateway module version and fieldbus setting status

Configuration [ESC]
Sound Display
Language Password

Configuration

Sound Setting [OK]
Setting content is saved.
A sound sounds Axis Select.
ON OFF

Sound Setting

[RGW] button

ROBONET GATEWAY MENU
Select Position Alarm
Speed Current GWinfo

GATEWAY MENU

Alarm [ESC]
AxisNo.: 00
Code: 080
SV-OFF.Move-cmd

Alarm Occurrence (Backlight: Pink)
If an alarm occurs at linking axis, the display will jump to this screen

ROBO
CYLINDER

(2) Pulse Train (PCON-PL/PO, ACON-PL/PO and SCON: Pulse Train Mode)

The total picture of operations performed with the Touch Panel Display has the tree structure as shown below.

4. Operation: Mode Flow Chart

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4. Operation: Mode Flow Chart

Warning
Displayed if any axis operation other than TP Teach mode is performed on the MOVE screen

Forbid editing at AUTO mode

Alarm Occurrence
If an alarm occurs by MOVE, the display will jump to this screen

Alarm List No.00
Code 091
Desc 0000
Adrs 0000
Time 0000:00:00
Pos data error

MOVE etc.
Velocity 600.00mm
Accelerate 0.30G
Decelerate 0.30G
MOVE, etc.
(Velocity, Accelerate and Decelerate setting)

Num MOVE
Cur Pos 200.00mm
Tar Pos 200.00mm
Num MOVE

JOG
Cur Pos -9999.99mm
JOG

MoveMENU
RUN Mode:AUTO
Pos Num Jog
MoveMENU
No response even if you touch Pos

Edit
Please input a password
The password input window will be displayed if the password is set to other than '0000'.

Parameter Zone Output Pos.(1) +
150.30mm
ParaNo.01
Parameter (1)
[Zone Output Pos (1) +]

Parameter Zone Output Pos.(1) -
-0.30mm
ParaNo.02
Parameter (2)
[Zone Output Pos (1)-]

Parameter Soft limit +
150.30mm
ParaNo.03
Parameter (3)
[Soft Limit +]

Parameter Soft limit -
-0.30mm
ParaNo.04
Parameter (4)
[Soft Limit -]

Parameter Zone Output Pos.(2) +
150.30mm
ParaNo.23
Parameter (5)
[Zone Output (2) +]

Parameter Zone Output Pos.(2) -
-0.30mm
ParaNo.24
Parameter (6)
[Zone Output (2) -]

Parameter PIO pattern select 1
ParaNo.25
Parameter (7)
[PIO pattern select]

Parameter PIO Jog speed 100.00mm/sec
ParaNo.26
Parameter (8)
[PIO Jog speed]

Parameter Push speed 20.00mm/sec
ParaNo.34
Parameter (9)
[Push speed]

Parameter Safety speed 100.00mm/sec
ParaNo.35
Parameter (10)
[Safety speed]

Parameter PIO Jog speed 2 10.00mm/sec
ParaNo.47
Parameter (11)
[PIO Jog speed 2]

Parameter PIO Inching Distance 1.00mm
ParaNo.48
Parameter (12)
[PIO Inching Distance]

Parameter PIO Inching Distance2 1.00mm
ParaNo.49
Parameter (13)
[PIO Inching Distance2]

[WRT] button

Confirm Rewrite the parameter?
Yes / No → To Parameter

Confirm Restart the controller?
Yes / No
Controller restart → To MENU1

Notice Write Completed Cycle controller power OFF and ON → To MENU2

VersionInfo Version 0B030B0B
Series E-CON
Type 0B0400F
P/SN type 0B0400F
WrtCount 1256
VersionInfo 1

VersionInfo Axis No.1
ABS Ver 0000000
VersionInfo 2

ManuInfo CTL Serial No.
123456789 REV:1
AXIS Serial No.
123456789
ManuInfo

Confirm Restart the controller?
Yes / No
Controller restart → To MENU1 → To MENU2

Display Contrast Brightness
Setting (System Screen) Screen adjustment LCD contrast, backlight brightness

ROBO CYLINDER

Configuration

Configuration

Sound Setting
Setting content is saved.
A sound sounds at Axis Select.
ON / OFF
Sound Setting

Language Set
Setting content is saved.
Japanese / English
Language Set

Display Setting
[GT system screen]
Screen adjustment
Liquid crystal contrast, Backlight brightness

Change Pass
Please input an old password
Change Pass

Change Pass
Please input a new password
New password input

Value
Password change completed
Password: ****
Password change completion

[RGW] button

ROBO GW1 GATEWAY MENU
Select | Position | Alarm
Speed | Current | GwInfo
GATEWAY MENU

Cur Pos
AxisNo00   1290.00mm
AxisNo01   312.50mm
AxisNo02   0.00mm
AxisNo03   -0.10mm
Cur Pos monitoring
Each current position of 4 axes can be monitored simultaneously

Velocity
AxisNo00   210.00ms
AxisNo01   312.50ms
AxisNo02   0.00ms
AxisNo03   -0.10ms
Velocity monitoring
Each velocity of 4 axes can be monitored simultaneously

Current
All-axis current monitoring
Each current value of all axes can be monitored in bar graph form

Current
Current monitoring
Each current value of 8 axes can be monitored simultaneously

All Alarm
All Alarm
A list of alarm codes currently occurring in each axis can be monitored

VersionInfo
Version
Address
BaudRate
Network Type
CC-Link V2
VersionInfo
Display of the gateway module version and fieldbus setting status

GWstatus
GWstatus
Display of various statuses of the gateway module

Alarm
AxisNo.: 00
Code: 080
SV-OFF:Move-cmd
Alarm Occurrence (Backlight: Pink)
If an alarm occurs at linking axis, the display will jump to this screen

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4.1 Initial Screen upon Power-on, Japanese/English Select Screen and TP "MANU" Mode Screen

When the Touch Panel Display is connected to the controller, power is supplied to the Touch Panel Display and operation starts.

Upon power-on, the Touch Panel operation display screen (hereinafter described as the "operation screen") displays the logo of IAI and then displays the Japanese/English select screen.

Fig. 4.1
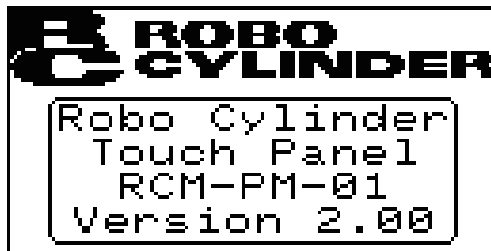
Fig. 4.2

The screen will change to the TP "MANU" mode screen.
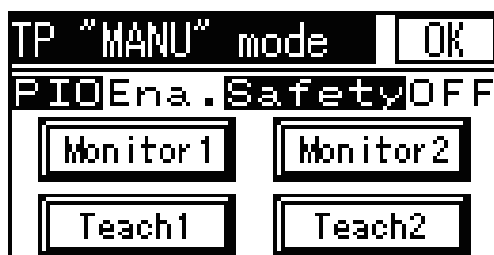
Fig. 4.3

Select and touch a TP operation mode.
Then, touch OK.
The screen will move to the Axis Select screen.

Select a TP operation mode from the following 4 modes:

- Teach 1 (PIO Non., Safety ON)
    - PIO Non.: Enables writing of position data, parameters, etc., in the controller and commands of the actuator movement system.
    - Safety ON: Keeps the maximum speed at the safety speed set for the parameters regardless of position data.

- Teach 2 (PIO Non., Safety OFF)
    - PIO Non.: Enables writing of position data, parameters, etc., in the controller and commands of the actuator movement system.
    - Safety OFF: Enables movement at the speed registered in position data.

- Monitor 1 (PIO Ena., Safety ON)
    - PIO Ena.: Enables monitoring only. Writing of position data, parameters, etc., in the controller and commands of the actuator movement system are disabled.
    - Safety ON: Keeps the maximum speed at the safety speed set for the parameters regardless of position data.

- Monitor 2 (PIO Ena., Safety OFF)
    - PIO Ena.: Enables monitoring only. Writing of position data, parameters, etc., in the controller and commands of the actuator movement system are disabled.
    - Safety OFF: Enables movement at the speed registered in position data.

4.2 Axis (Controller) Select (upon Power-on)

On the Axis Select screen, connected axes (controllers) are displayed.
(Only the powered controller(s) will be detected when power is present for the Touch Panel Display.)

Fig. 4.4

If you touch an axis (controller) to operate, the screen will move to the MENU1 screen.

If you touch $\boxed{\text{RGW}}$, the screen will move to the GATEWAY MENU.
Refer to "5. GATEWAY MENU."

* This screen will be displayed even if the gateway unit is not connected.

The content explained hereinafter will be based on operation in response to the selected axis (controller).
* $\boxed{\text{---}}$ indicates that a controller not supported by the Touch Panel Display is detected.

![ROBO CYLINDER logo]

4.3 Menu Select

If you select a controller on the Axis Select screen, the MENU1 screen will be displayed.
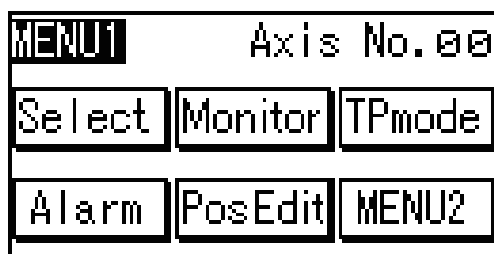
```
┌─────────────────────────────────┐
│ MENU1        Axis No.00         │
│                                 │
│ ┌──────┐ ┌───────┐ ┌──────┐     │
│ │Select│ │Monitor│ │TPmode│     │
│ └──────┘ └───────┘ └──────┘     │
│ ┌──────┐ ┌───────┐ ┌──────┐     │
│ │Alarm │ │PosEdit│ │MENU2 │     │
│ └──────┘ └───────┘ └──────┘     │
└─────────────────────────────────┘
```
Fig. 4.5

On the MENU1 screen, select and touch one of 5 options as it appears in Fig. 4.5.
The screen will move to the touched menu.
If you touch MENU2, the screen will move to the "MENU2" screen, which is the next menu select screen.

Categories of MENU1
(1) Select   : Axis (controller) select (Refer to 4.4)
(2) Monitor : Controller status display (Refer to 4.5)
(3) TPmode   : Operation mode setting (Refer to 4.6)
(4) Alarm   : Alarm content detailed display (Refer to 4.7)
(5) PosEdit : Teach and Edit function for positioned table (Refer to 4.8)

Caution:	In the case of PCON-PL/PO, ACON-PL/PO or SCON (pulse train mode), the screen will not move to the EDIT menu even if you touch "PosEdit."

If you touch "MENU2" on the MENU1 screen, the MENU2 screen will be displayed.
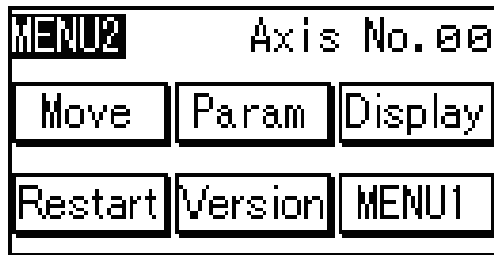
Fig. 4.6

On the MENU2 screen, select and touch one of 5 options as it appears in Fig. 4.6.
The screen will move to the touched menu.
If you touch MENU1, the screen will return to the "MENU1" screen, which is the previous menu select screen.

Categories of MENU2
(1) Move   : Axis position move, number move, jog move (Refer to 4.9)
(2) Param   : Setting of parameters such as axis zone signal output range (Refer to 4.10)
(3) Display : Environmental setting of setting of touch sound etc. (Refer to 4.11)
(4) Restart : Restarting of controller (Refer to 4.12)
(5) Version : Display of version information (Refer to 4.13)

Caution:	Only some parameters can be changed. When setting any parameter that cannot be set, use our Teaching Pendant or PC-compatible software.

![ROBO CYLINDER]

4.4   Axis (Controller) select

On the Axis Select screen, connected axes (controllers) are displayed.
(Only the powered controller(s) will be detected when power is present for the Touch Panel Display.)

Fig. 4.7

If you touch an axis (controller) to operate, the screen will move to the MENU1 screen.

If you touch RGW, the screen will move to the GATEWAY MENU.
Refer to "5. GATEWAY MENU."

* This screen will be displayed even if the gateway unit is not connected.

4.5　Monitor

The current position, I/O status and current value will be displayed for the controller selected through Axis (Controller) Select.

```
┌──────────────────────────┐
│ MENU1      Axis No.00     │
│ ┌──────┐┌───────┐┌──────┐ │
│ │Select││Monitor││TPmode│ │
│ └──────┘└───────┘└──────┘ │
│ ┌──────┐┌───────┐┌──────┐ │
│ │Alarm ││PosEdit││MENU2 │ │
│ └──────┘└───────┘└──────┘ │
└──────────────────────────┘
```

Fig. 4.8

Touch Monitor on the MENU1 screen.

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Monitor screens are comprised of 6 screens and can be changed using the ← or → key.
If you press the MENU key, the screen will return to the MENU1 screen.

MONITOR1 screen

```
MONITOR1   ←  →  MENU
Cur Pos  -9999.99 mm  ←──── Displays the axis position.
Velocity -9999.99 mm  ←──── Displays the speed of the moving axis.
Complete Pos No
 7 6 5 4 3 ② 1 0     ←──── Displays the axis complete position.
```

MONITOR2 screen

Displays the PIO pattern No. set with the parameter.

```
MONITOR2   ←  →  MENU
IN       PIO pattern  ①
□□□□□□□□□□□□□□□□
FEDCBA9876543210
□□□□□□□□□■■■□□□■
OUT
```

Displays the IN/OUT status of the PIO pattern. The ON status is displayed as ■ and the OFF status as □.
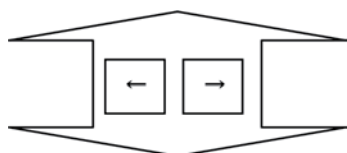
MONITOR3 screen

```
MONITOR3   ←  →  MENU
┌──────────┬──────────┐
│ Servo OFF │   HOME   │
├──────────┼──────────┤
│ORG Sensor │   AUTO   │
├──────────┼──────────┤
│ Motor Pow │  non EMG │
└──────────┴──────────┘
```
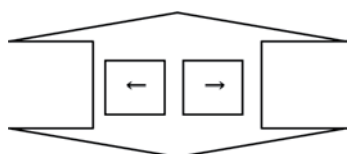
Servo ON/OFF : When the servo is ON, reversed characters will be displayed.
HOME   : After the completion of the homing, reversed characters will be displayed.
ORG Sensor   : When the origin sensor is turned ON, reversed characters will be displayed.
AUTO/MANU   : Display of the AUTO/MANU status of the controller.
Motor Pow/Motor Pow OFF:
             When the motor power is cut off, reversed characters will be displayed. The entire screen will turn red.
non EMG/EMG:
             When an emergency stop is made, reversed characters will be displayed. The entire screen will turn red.

To the "Velocity" screen
on the following page:

Velocity screen
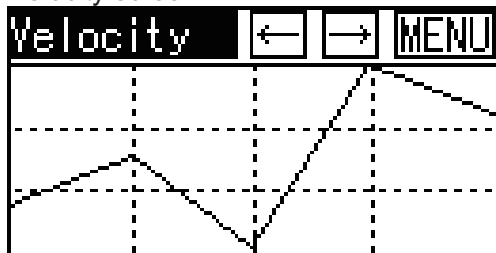
The speed of the moving axis will be displayed in graph form.
Scale will be the maximum speed of the parameter.
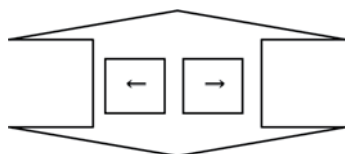
Current screen
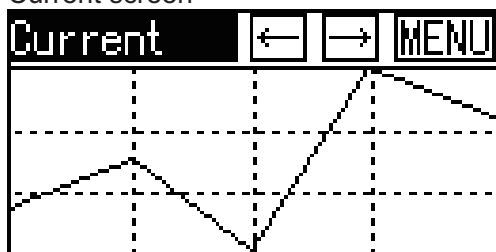
The current value of the moving axis will be displayed in graph form.
Scale will be as follows:
 PCON, ERC2 : Rated current
 ACON, SCON : Rated current × 3
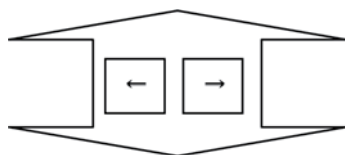
Current screen (value/ratio)

Cur. command 99.999A ← Displays the command current value.
Cur. ratio 100% ← Displays the percent maximum current.
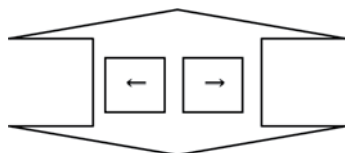
To the "MONITOR1" screen
on the previous page:

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4.6   TP Operation Mode

The operation mode will be set in the manual mode (MANU).

```
MENU1        Axis No.00
Select  Monitor  TPmode
Alarm   PosEdit  MENU2
```
Fig. 4.9
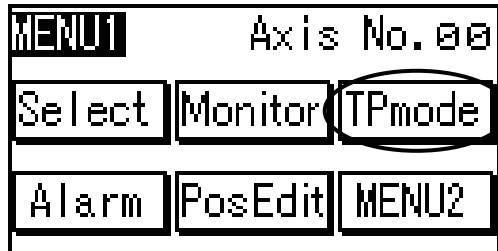
Touch TPmode on the MENU1 screen.

The TP "MANU" mode screen will be displayed.

```
TP "MANU" mode      MENU
PIO Ena. Safety OFF
   Monitor1     Monitor2
   Teach1       Teach2
```
Fig. 4.10
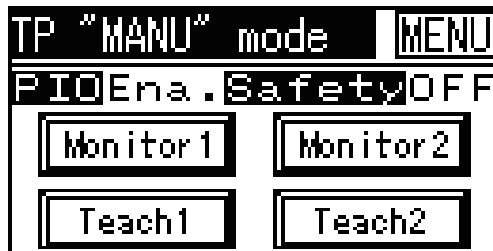
Select and touch a TP operation mode.
Then, touch MENU.
The screen will move to the MENU1 screen.

Select a TP operation mode from the following 4 modes:

- Teach 1 (PIO Non., Safety ON)
    - PIO Non.: Enables writing of position data, parameters, etc., in the controller and commands of the actuator movement system.
    - Safety ON: Keeps the maximum speed at the safety speed set for the parameters regardless of position data.

- Teach 2 (PIO Non., Safety OFF)
    - PIO Non.: Enables writing of position data, parameters, etc., in the controller and commands of the actuator movement system.
    - Safety OFF: Enables movement at the speed registered in position data.

- Monitor 1 (PIO Ena., Safety ON)
    - PIO Ena.: Enables monitoring only. Writing of position data, parameters, etc., in the controller and commands of the actuator movement system are disabled.
    - Safety ON: Keeps the maximum speed at the safety speed set for the parameters regardless of position data.

- Monitor 2 (PIO Ena., Safety OFF)
    - PIO Ena.: Enables monitoring only. Writing of position data, parameters, etc., in the controller and commands of the actuator movement system are disabled.
    - Safety OFF: Enables movement at the speed registered in position data.

4.7 Alarm Display

Errors occurring after a controller's power-on will be displayed.
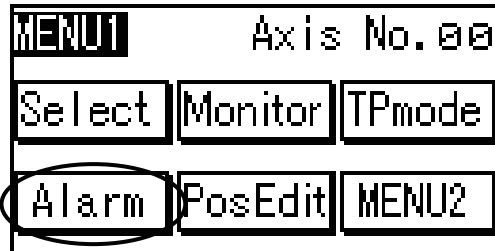
Fig. 4.11

Touch Alarm on the MENU1 screen.

The AlarmList screen will be displayed.
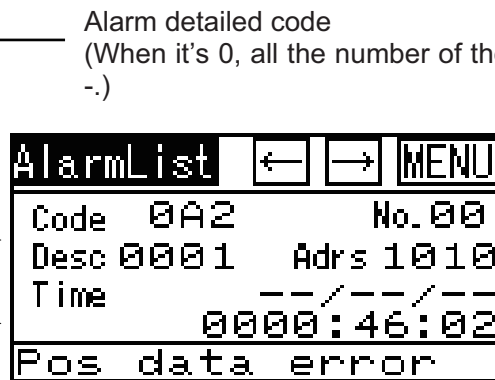
Alarm detailed code
(When it's 0, all the number of the detail, the address and the time will become -.)

Fig. 4.12

If you press ← or →, the previous error descriptions can be displayed.
Up to 16 previous alarm-level errors including the last (latest) error can be displayed.

If you touch MENU, the screen will return to the MENU1 screen.

Time lapsed from power ON
PCON-CA, ERC3 PIO Converter displays the time of occurrence.

![ROBO CYLINDER logo]

4.8 Edit

The contents of the position data stored in the controller will be displayed.
Execute teaching and editing of the position data.
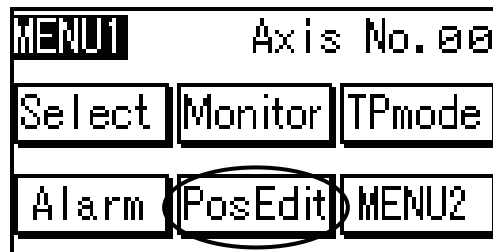
Fig. 4.13

Touch PosEdit on the MENU1 screen.

The password input screen is displayed before it shifts to the edit display, except when the password is '0000'.
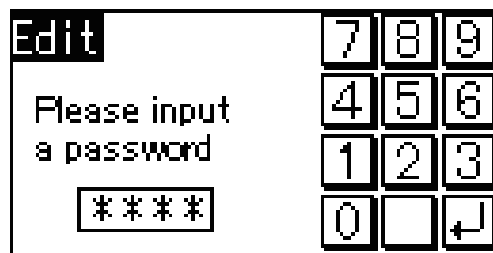
Fig. 4.14

Input the numerical value of password with the ten keys, and touch ↵.

| The password can be set by "Password change" of the main body environment setting. |

When a correct password is set, it shifts to the edit display.
The display shifts by the movement pattern.

The EDIT screen will be displayed.
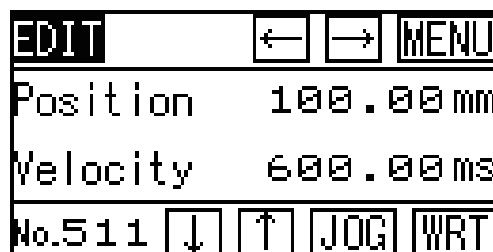
Fig. 4.15

The screen will move to the JOG screen. Teaching by jog operation can be performed.

![ROBO CYLINDER logo]

4.8.1 Basic Operation

(1) Change of Position No.
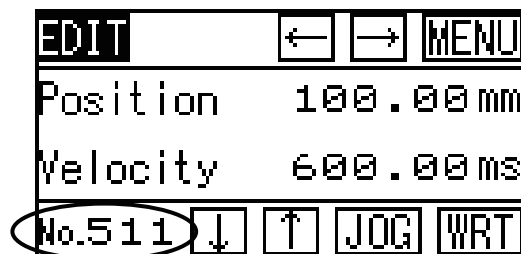
```
┌─────────────────────────────┐
│ EDIT          ←  →  MENU     │
│                             │
│ Position      100.00mm      │
│                             │
│ Velocity      600.00ms      │
│                             │
│ No.511  ↓   ↑   JOG  WRT    │
└─────────────────────────────┘
```
Fig. 4.16

↑
Position No.

If you touch ↓ or ↑, the position No. can be incremented or decremented.
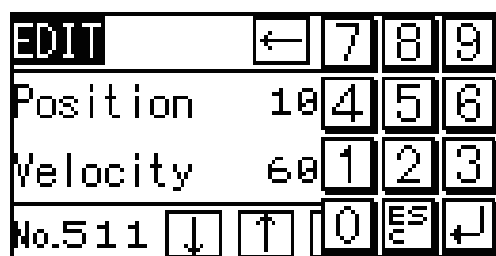
If you touch the numeric value of No., the ten keys will be displayed.

```
┌─────────────────────────────┐
│ EDIT        ←  7  8  9       │
│                             │
│ Position    10 4  5  6      │
│                             │
│ Velocity    60 1  2  3      │
│                             │
│ No.511  ↓  ↑   0 ESC ↵      │
└─────────────────────────────┘
```
Fig. 4.17

The position No. can also be input by directly inputting a numeric value of the position No. and touching ↵ .
When stopping input, touch the ESC key.

If you press the MENU key, the screen will return to the MENU1 screen.

(2) Change of Position Data Table Display
EDIT screens (position data table) are comprised of 6 screens and can be changed using the ← or → key. (For details, refer to "4.8.2 Position Data Table Contents.")
If you press the MENU key, the screen will return to the MENU1 screen.

Position, Velocity

```
EDIT        ←  →  MENU
Position      100.00mm
Velocity      600.00ms
No.511  ↓  ↑  JOG  WRT
```

PosZone±

```
EDIT        ←  →  MENU
PosZone+        0.00mm
PosZone-       10.00mm
No.511  ↓  ↑  JOG  WRT
```
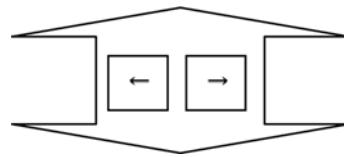
Accelerate, Decelerate

```
EDIT        ←  →  MENU
Accelerate      0.30G
Decelerate      0.30G
No.511  ↓  ↑  JOG  WRT
```
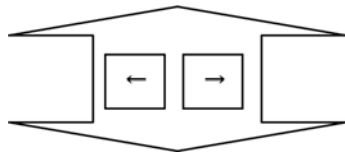
Incremental specification, Threshold

```
EDIT        ←  →  MENU
Incremental        0
Threshold         50%
No.511  ↓  ↑  JOG  WRT
```
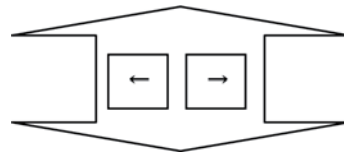
Pos.band, Push

```
EDIT        ←  →  MENU
Pos.band       0.10mm
Push             70%
No.511  ↓  ↑  JOG  WRT
```
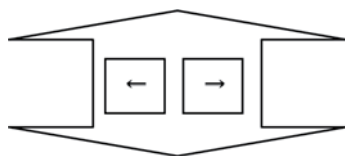
Acc/Dcl Mode, Stop Mode

```
EDIT        ←  →  MENU
Acc/Dcl Mode       0
Stop Mode          4
No.511  ↓  ↑  JOG  WRT
```
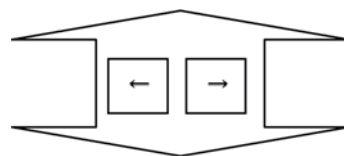
To PosZone±   To Position, Velocity

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(3) How to Rewrite Numeric Value
An example of target position rewriting is shown below.

```
┌─────────────────────────────┐
│ EDIT      ←   →   MENU       │
│                             │
│ Position    (100.00 mm)     │
│                             │
│ Velocity    600.00 ms       │
│ No.511  ↓   ↑   JOG   WRT   │
└─────────────────────────────┘
```
Fig. 4.18

Touch the numeric value of Position.

```
┌─────────────────────────────┐
│ EDIT      ←   →   MENU       │
│                             │
│ Position    100.00 mm       │
│ 1 2 3 4 5 ± CLR ESC         │
│ 6 7 8 9 0 . Bs ↵            │
└─────────────────────────────┘
```
Fig. 4.19

The ten keys will be displayed.
Input a numeric value and touch ↵.

```
┌─────────────────────────────┐
│ EDIT      ←   →   MENU       │
│                             │
│ Position    200.00 mm       │
│                             │
│ Velocity    600.00 ms       │
│ No.511  ↓   ↑   JOG  (WRT)  │
└─────────────────────────────┘
```
Fig. 4.20

The value of Position will be changed.
To write to the controller, touch WRT.

```
┌─────────────────────────────┐
│ Confirm       YES   NO      │
│ ┌─────────────────────────┐ │
│ │   Rewrite the           │ │
│ │   position data?        │ │
│ └─────────────────────────┘ │
└─────────────────────────────┘
```
Fig. 4.21

If you touch YES, the position data will be written to the controller.
(When stopping writing, touch NO.)

```
┌─────────────────────────────┐
│ Notice              (ESC)   │
│ ┌─────────────────────────┐ │
│ │      Write              │ │
│ │      complete           │ │
│ └─────────────────────────┘ │
└─────────────────────────────┘
```
Fig. 4.22

The message "Write Complete" will be displayed.
If you touch ESC, the screen will return to the EDIT screen.

ROBO CYLINDER

(4) JOG screen

Fig. 4.23

Touch JOG.

Fig. 4.24

The screen will move to the JOG screen.

JOG Screen Operation
1. SVON : If you touch the key when the display is SVON, the servo will be turned ON.
             If you touch the key when the display is SVOG, the servo will be turned OFF.
2. HOME : If you touch the key during servo ON, homing will be executed.
             After the completion of the homing, the display will change to HEND.
3. JVEL   : Select the PIO jog speed or PIO jog speed 2.
             In the case of display with shadow, the jog speed will be the PIO jog speed.
             In the case of display without shadow, the jog speed will be the PIO jog speed 2.
4. INC   : If you touch the key when the display is INC, operation will change to inching.
             If you touch the key when the display is JOG, operation will change to jog.
                (Note) The jog speed will be the PIO jog speed or PIO jog speed 2 set with the
                         parameter. Select the speed using JVEL.
                         The inching distance will be the PIO Inching Distance set with the
                         parameter.
5. ← →   : The axis will perform jog or inching movement.
6. Teac   : Teaching of the current position will be given to the position No. displayed on
             the screen.
             After teaching, return to the position table screen of EDIT and perform writing to
             the controller.
7. ESC   : The screen will return to the previous position table screen of EDIT.

4.8.2　Position Data Table Contents

The setting items of the position data table are Position, Velocity, Accelerate, Decelerate, Pos.band, Push, PosZone+, PosZone-, Incremental, Threshold, Acc/Dcl Mode and Stop Mode. They are displayed in 6 screens.
The items of PosZone+, PosZone-, Acc/Dcl Mode and Stop Mode are enabled (ON) or disabled (OFF) according to the controller type.

List of ON/OFF of Position Table According to Model

Position Table		Zone +/-	Acc/Dcl Mode			Stop Mode	
			Trapezoid	S-shape	First-order Delay	Full Servo	Auto Servo OFF
ERC2	○	PIO pattern: 3	○	×	×	○	○
ERC2-SE	○	-	○	×	×	○	×
ERC3	○	PIO pattern: 2	○	○	○	○	○
ERC3 PIO Converter	○	PIO pattern: 0, 1, 2, 4, 5	○	○	○	○	○
PCON-C/CG/CF	○	PIO pattern: 0, 1, 2, 4, 5	○	×	×	○	○
-CA	○	PIO pattern: 0, 1, 2, 4, 5	○	○	○	○	○
-CY	○	PIO pattern: 1	○	×	×	○	○
-SE	○	-	○	×	×	○	×
ACON-C/CG	○	PIO pattern: 0, 1, 2, 4, 5	○	○	○		○
-CY	○	PIO pattern: 1	○	○	○		○
-SE	○	-	○	○	○		×
SCON positioner	○	PIO pattern: 0, 1, 2, 4, 5	○	○	○		○

(1) Position　　　Input the target position to move the actuator to, in [mm].
　　　　　　　　• Absolute Coordinates:　Input the target location by determining the distance between the original point and target position. No negative value can be input.
　　　　　　　　• Relative Coordinates:　Input the target location by determining the distance between the current position and target position. Any negative value can be input (if coordinates are in the negative direction).

(2) Vel   • Input the speed at which the actuator will be moved, in [mm/sec]. The initial value will depend on the actuator type.

(3) Acc/Dcc   • Input the acceleration/deceleration at which the actuator will be moved, in [G].
Basically, use acceleration/deceleration within the catalog rated value range.
The input range allows larger value input than the catalog rated values, on the assumption that the tact time will be reduced if the transfer mass is significantly smaller than the rated value.
Make the numeric value smaller if transfer work vibrates and causes trouble during acceleration/deceleration.

Speed

Acceleration
0.3G

Deceleration
0.2G

Time

Start position

Target position
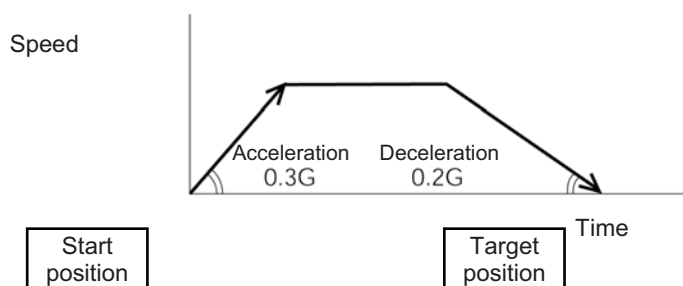
The acceleration will become sudden if the numeric value is made larger and it will become gradual if the numeric value is made smaller.

Caution:	Enter appropriate values for Vel and Acc/Dec in such a way as to prevent excessive impact or vibration from being applied to the actuator in consideration of the installation conditions and the shape of transferred work by referring to the "List of Actuator Specifications" in the Appendix. Increasing such values largely relates to the transfer mass and the actuator characteristics vary depending on the model, consult IAI regarding the input-limiting values.

(4) Range   • The "positioning operation" and "push operation" have different meanings.
Positioning operation:
It defines the distance to the target position from a position at which the position complete signal turns ON.
The default value is 0.1 mm.

Standard type

Since increasing the positioning width value hastens the next sequence operation, it becomes a factor for tact time reduction. Set the optimum value by considering the balance of the entire equipment.

Timing of position complete signal turning ON

Positioning width

Target position

ROBO CYLINDER
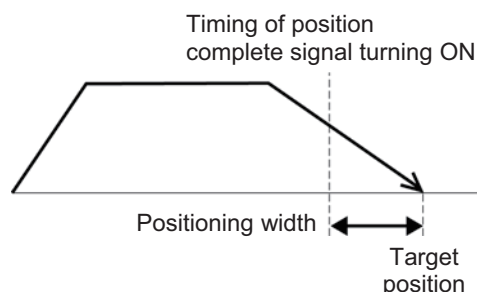
However, it defines the width of the position complete signal to turn ON for the 3-point type of PCON-C/CG, ACON-C/CG and SCON and the proximity switch type of PCON-CY and ACON-CY.

3-point type and proximity switch type

Position complete signal

ON

OFF

Positioning width
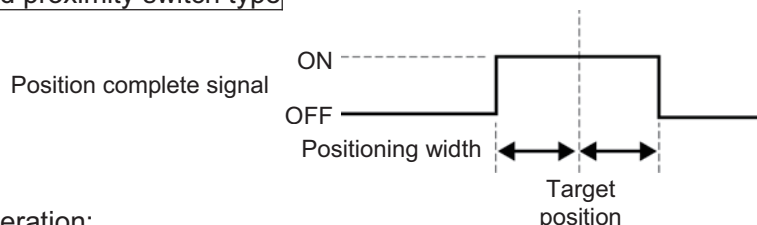
Target position

Push operation:
It defines the maximum push amount from the target position in the push operation.
Set the positioning width in such a way as to prevent positioning completion before the actuator contacts work by considering mechanical variations of work.

Position at which the position complete signal turns ON when the actuator contacts work and push completion is judged

Work

Positioning width
(Maximum push amount)

Target position
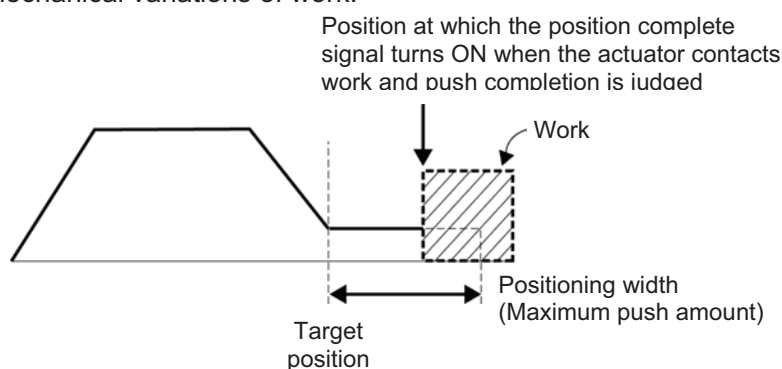
(5) Push
• Select the positioning operation or push operation.
The default value is "0."
0   : Normal positioning operation
Other than 0 : Indicates the current-limiting value and indicates the push operation.

Caution: Always specify absolute coordinates for the 3-point type of PCON-C/CG, ACON-C/CG and SCON-C and the proximity switch type of PCON-CY and ACON-CY.
If you specify relative coordinates, a position data error will occur.
In the above case, if you specify "Push," push completion cannot be judged.

(6) Pos Zone +/-
• It defines the zone where the zone output signal of the standard type turns ON.
Individual setting is available for each target position to give flexibility.

[Setting example]

No.	Position [mm]	Pos Zone+ [mm]	Pos Zone- [mm]	Comment
0	5.00	100.00	0.00	Backward end
1	380.00	400.00	300.00	Forward end
2	200.00	250.00	150.00	Midpoint

Movement command to backward end
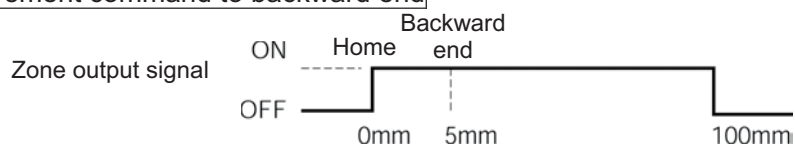
Movement command to forward end
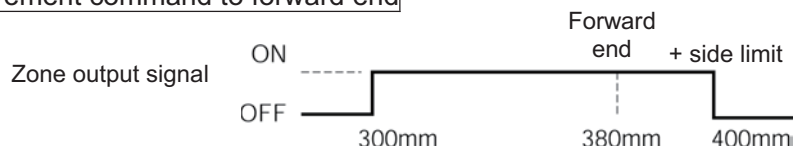
Movement command to midpoint
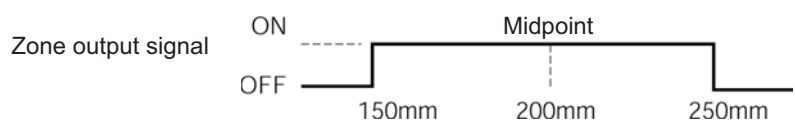
(7) Incremental • Select the absolute coordinate specification or relative coordinate specification.
0: Absolute coordinate specification
1: Relative coordinate specification

(8) LoTh • In the case of the PCON-CF controller, the load output signal (PIO) will be output if the command torque exceeds the value (%) set to "LoTh."
Set the test range with "Pos Zone+/-".
Use it to judge whether push has been performed normally.
* For details, refer to the Operating Manual of PCON-C/CG/CF Controller.

(9) Acc/Dcl Mode • It defines the acceleration/deceleration characteristics.
The default value is 0.
0: Trapezoid pattern
1: S-shaped motion
2: First-order delay filter

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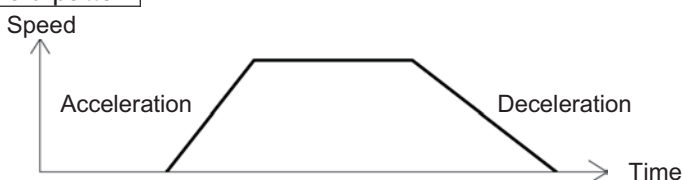
* Set the acceleration and deceleration in the "Acc" and "Dcl" fields of the position table.

S-shaped motion

A curve, which is gradual at the beginning of acceleration but rises sharply halfway, is drawn.
Use it in the applications for which you want to set the acceleration/deceleration high due to tact time requirement but desire a gradual curve at the beginning of movement or immediately before stop.

Speed

Time
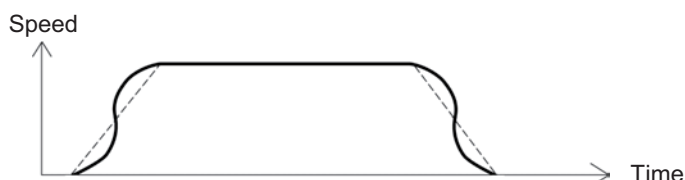
* Set the degree of the S-shaped motion with the parameter No. 56 [S-shaped motion ratio setting]. The setting unit is % and the setting range is between 0 and 100.
(The above is the image graph when 100% setting is made.)
If "0" is set, the S-shaped motion becomes invalid.
However, it will not be reflected in jogging/increment movement by PC or Teaching Pendant operation. Set the parameter with the Teaching Pendant or PC-compatible software.
(Note) It cannot be set for the ERC2 or PCON controller. The parameter No. 56 is reserved.

First-order delay filter

More gradual acceleration/deceleration curves are drawn than the linear acceleration/deceleration (trapezoid pattern).
Use this in the applications by giving micro vibrations to work during acceleration/deceleration not desired.

Speed

Time
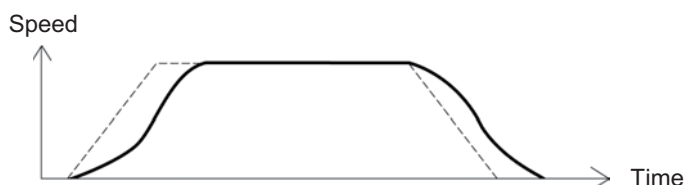
* Set the degree of the first-order lag with the parameter No. 55 (constant for the position command first-order filtering). The setting unit is 0.1msec. and the setting range is between 0.0 to 100.0.
If "0" is set, the first-lag filter will become invalid.
However, it will not be reflected in jogging/increment movement by PC or Teaching Pendant operation. Set the parameter with the Teaching Pendant or PC-compatible software.
(Note) It cannot be set for the ERC2 or PCON controller. The parameter No. 55 is reserved.

(10) Stop Mode • It defines the power saving method on standby after completion of positioning to the target position set in the "Position" field of the position number.
0: Invalid power saving method   * The default setting is 0 (invalid).
1: Auto servo OFF method. Delay time defined with the parameter No. 36
2: Auto servo OFF method. Delay time defined with the parameter No. 37
3: Auto servo OFF method. Delay time defined with the parameter No. 38
4: Full servo control method

* Set the parameters for delay time with the Teaching Pendant or PC-compatible software.

Full servo control method

The holding current can be reduced by servo-controlling the pulse motor.
The degree of reduction varies depending on the actuator model, load condition, etc., but the holding current decreases approximately by a factor of 2 to 4.
No displacement occurs since this method maintains the servo ON status.
The actual holding current can be checked on the monitoring screen.

Auto servo OFF method

When a given length of time has elapsed after completion of positioning, the servo OFF status is automatically entered.
(Since the holding current does not flow, the power consumption can be saved by the same amount.)
When a movement command is subsequently given from PLC, the status returns to the servo ON and the actuator starts to move.

Movement command

Servo status

Auto servo OFF
(Green LED flashing)

Servo ON status

Actuator movement

Target position

T: Delay time (sec) until the servo OFF status is entered after completion of positioning
It is set with the parameter.

45
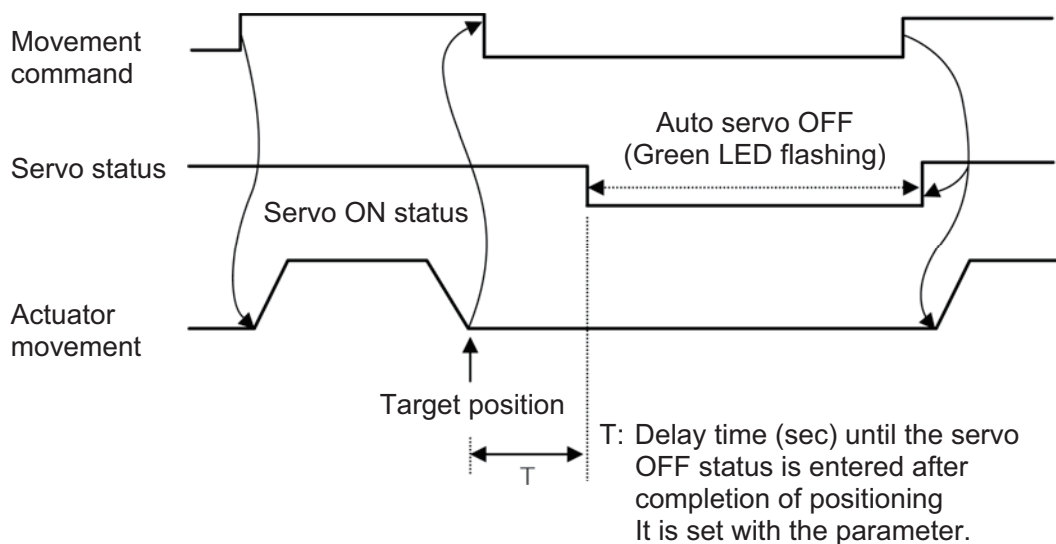
4.8.3 Data New Input
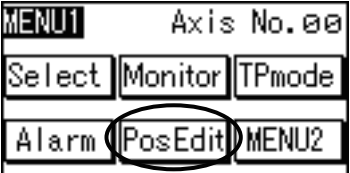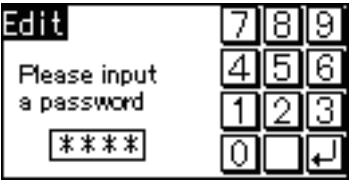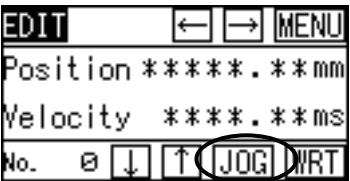
The following 4 ways to input new position data exist:

(1) Numeric Input — • Numerically input the position data directly from the ten keys at the EDIT screen.

(2) Direct Teach — • Turn the servo controller OFF, manually move the slider to match the desired location and read and command that location (current position) into the position table.

(3) Jog — • Use the arrow key to jog move and match the desired location and read that location (current position) into the position table. If you continue pressing the arrow key, the actuator will move at a specified speed (PIO jog speed, PIO jog speed 2 (parameter)). However, only the maximum speed will be gained if the maximum speed is slower than the specified speed.

(4) Increment — • Use the arrow key to incrementally move and match the desired location and read that location (current position) into the position table.
If you press the arrow key once, the actuator will move by a specified pitch (PIO inching distance (parameter)).

Examples of each operation will be explained as follows.
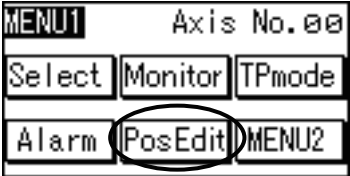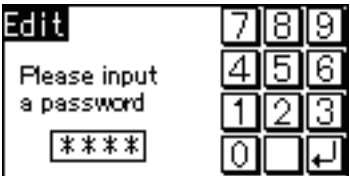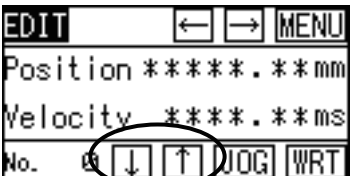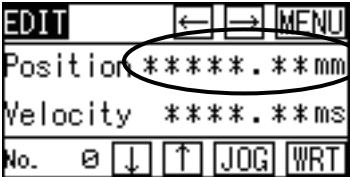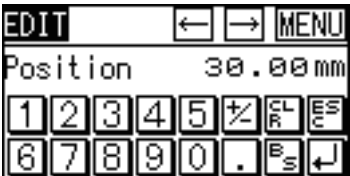
Caution:	When input position data is performed first after power-on or method of (2), (3) or (4), it is required to perform home return in advance. (Increment specification)
:	Jog and Increment movement prior to homing incomplete status is possible up to the slider end. Visually, perform the interference check.
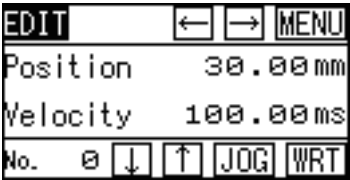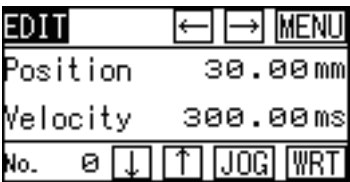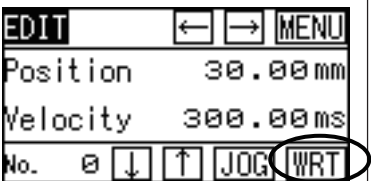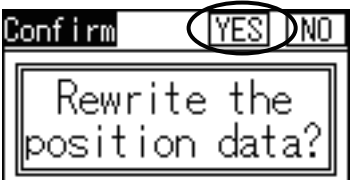
1) Homing

	Operation	Screen	Reference
1.	Touch PosEdit on the MENU1 screen.	MENU1 Axis No.00 Select Monitor TPmode Alarm PosEdit MENU2	
2.	The password input screen will be displayed if the password is set to other than '0000'. Input the password.	Edit Please input a password ✱✱✱✱ 7 8 9 4 5 6 1 2 3 0 ↵	The password of the edit can be set by "Password change" of the main body environment setting.
3.	Touch JOG on the EDIT screen.	EDIT ← → MENU Position ✱✱✱✱✱.✱✱mm Velocity ✱✱✱✱.✱✱ms No. 0 ↓ ↑ JOG WRT	
4.	When the servo is OFF, touch SVON to put into the servo ON status.	JOG PosNo. 0 ESC Cur Pos 15.00mm INC JVEL HOME SVON ← → Teac	
5.	Touch HOME.	JOG PosNo. 0 ESC Cur Pos 0.00mm INC JVEL HOME SVON ← → Teac	Homing will automatically be executed.
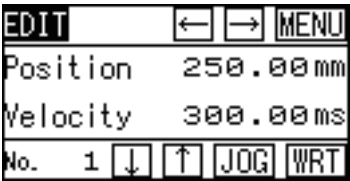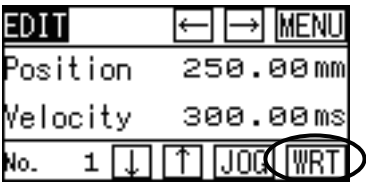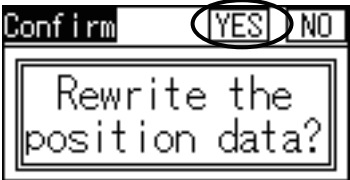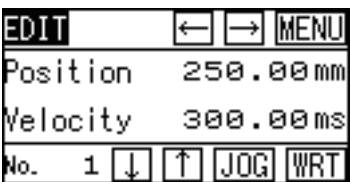
2) Numeric Input

Example 1:	2 point continuous loop move 30mm ↔ 250mm, Speed 300mm/sec

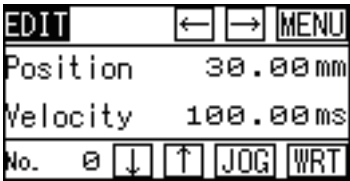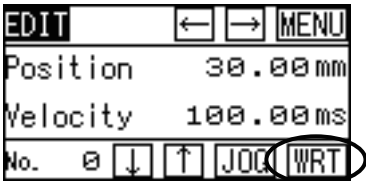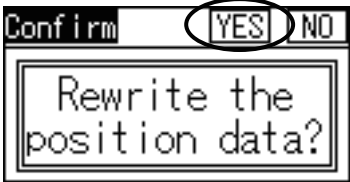|	Operation	Screen	Reference
1.	Touch PosEdit on the MENU1 screen.	MENU1 Axis No.00 Select Monitor TPmode Alarm PosEdit MENU2	
2.	The password input screen will be displayed if the password is set to other than '0000'. Input the password.	Edit 7 8 9 Please input a password 4 5 6 1 2 3 **** 0 ↵	The password of the edit can be set by "Password change" of the main body environment setting.
3.	Move the cursor to the position where you want to input using ↓ or ↑. Alternatively, touch the position No. The ten keys will be displayed and you can also set the position No. directly.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 0 ↓ ↑ JOG WRT Position No.	
4.	Touch the numeric value of Position. The ten keys will be displayed.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 0 ↓ ↑ JOG WRT	For any unregistered data, the display will show "*."
5.	Touch 3 0 and touch ↵.	EDIT ← → MENU Position 30.00mm 1 2 3 4 5 ± ⁵ᴸ ᴱˢ 6 7 8 9 0 . ᴮˢ ↵	To stop during numeric input, touch ESC. Example) With the left operation, by pressing ESC immediately after inputting 3 0, the status will return to the "*" display.

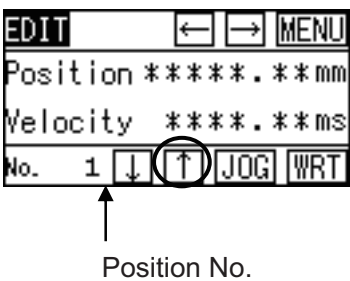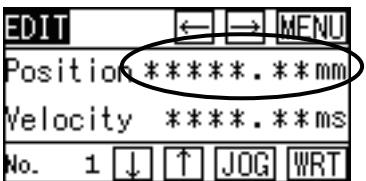|	Operation	Screen	Reference
6.		EDIT ← → MENU Position 30.00mm Velocity 100.00ms No. 0 ↓ ↑ JOG WRT	During new position data registration, the initial values set with the user parameters for Velocity, Accelerate, Decelerate, etc., will automatically be input. In the left screen, the initial value is set as 100mm/sec.
7.	Touch the numeric value of Velocity. The ten keys will be displayed.	1 2 3 4 5 ½ SLR ES 6 7 8 9 0 . BS ↵ Velocity 100.00ms No. 0 ↓ ↑ JOG WRT	
8.	Here, touch 3 0 0 and touch ↵.	EDIT ← → MENU Position 30.00mm Velocity 300.00ms No. 0 ↓ ↑ JOG WRT	
9.	Touch WRT.	EDIT ← → MENU Position 30.00mm Velocity 300.00ms No. 0 ↓ ↑ JOG (WRT)	
10.	Touch YES.	Confirm (YES) NO Rewrite the position data?	To stop rewriting, touch NO.
11.	Touch ESC.	Notice (ESC) Write complete	
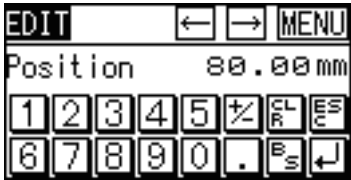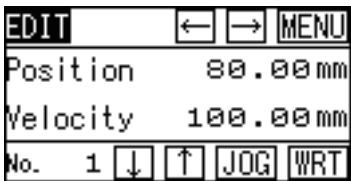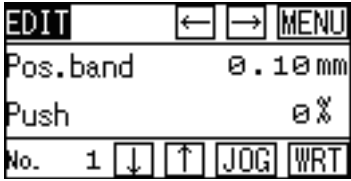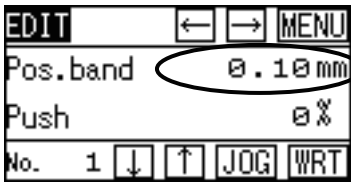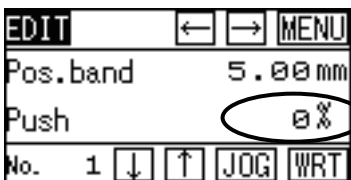
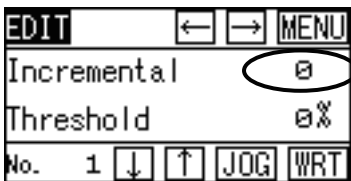|	Operation	Screen	Reference
12.	Match to the next position (No. 1) using ⬆.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ⬆ JOG WRT Position No.	
13.	Touch the numeric value of Position. The ten keys will be displayed.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ⬆ JOG WRT	
14.	Touch 2 5 0 and touch ↵.	EDIT ← → MENU Position 250.00mm 1 2 3 4 5 ⅍ ꜱᴸ ᴇꜱ 6 7 8 9 0 . ᴮꜱ ↵	To stop during numeric input, touch ESC.
15.		EDIT ← → MENU Position 250.00mm Velocity 100.00ms No. 1 ↓ ⬆ JOG WRT	During new position data registration, the initial values set with the user parameters for Velocity, Accelerate, Decelerate, etc., will automatically be input. In the left screen, the initial value is set as 100mm/sec.
16.	Touch the numeric value of Velocity. The ten keys will be displayed.	1 2 3 4 5 ⅍ ꜱᴸ ᴇꜱ 6 7 8 9 0 . ᴮꜱ ↵ Velocity 100.00ms No. 1 ↓ ⬆ JOG WRT	
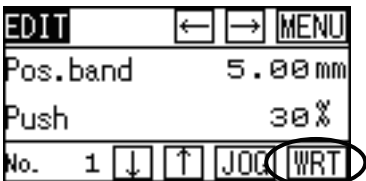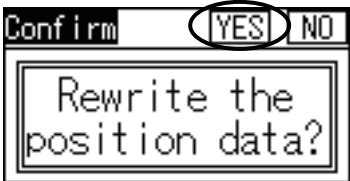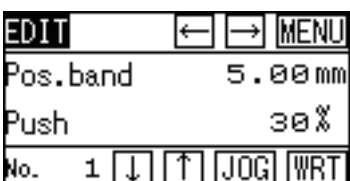
	Operation	Screen	Reference
17.	Here, touch ③ ⓪ ⓪ and touch ↵.	EDIT ← → MENU Position 250.00mm Velocity 300.00ms No. 1 ↓ ↑ JOG WRT	
18.	Touch WRT.	EDIT ← → MENU Position 250.00mm Velocity 300.00ms No. 1 ↓ ↑ JOG (WRT)	
19.	Touch YES.	Confirm (YES) NO Rewrite the position data?	
20.	Touch ESC.	Notice (ESC) Write complete	
21.		EDIT ← → MENU Position 250.00mm Velocity 300.00ms No. 1 ↓ ↑ JOG WRT	

Example 2:	2 point continuous loop move	Push operation 10mm position ↔ 80mm position (Push range 5mm)
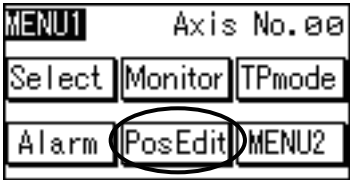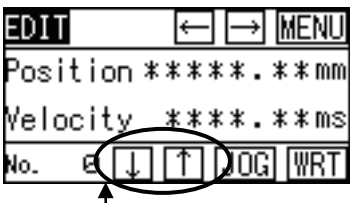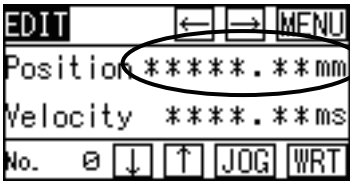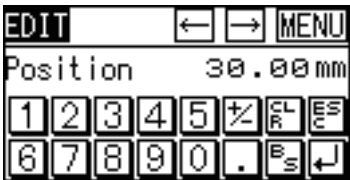
	Operation	Screen	Reference
1.	Touch PosEdit on the MENU1 screen.	**MENU1** Axis No.00 Select Monitor TPmode Alarm PosEdit MENU2	
2.	The password input screen will be displayed if the password is set to other than '0000'. Input the password.	**Edit** 7 8 9 Please input 4 5 6 a password 1 2 3 **** 0 ↵	The password of the edit can be set by "Password change" of the main body environment setting.
3.	Move the cursor to the position where you want to input using ↓ or ↑. Alternatively, touch the position No. The ten keys will be displayed and you can also set the position No. directly.	**EDIT** ← → **MENU** Position *****.**mm Velocity ****.**ms No. 0 ↓ ↑ JOG WRT Position No.	
4.	Touch the numeric value of Position. The ten keys will be displayed.	**EDIT** ← → **MENU** Position *****.**mm Velocity ****.**ms No. 0 ↓ ↑ JOG WRT	For any unregistered data, the display will show "*."
5.	Touch 1 0 and touch ↵.	**EDIT** ← → **MENU** Position 10.00mm 1 2 3 4 5 % ᴿᴸ ᴱˢ 6 7 8 9 0 . ᴮˢ ↵	To stop during numeric input, touch ESC. Example) With the left operation, by pressing ESC immediately after inputting 1 0, the status will return to the "*" display.

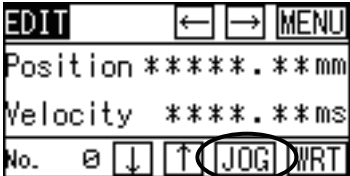|	Operation	Screen	Reference
6.		EDIT ←|→ MENU Position 10.00mm Velocity 100.00mm No. 0 ↓ ↑ JOG WRT	During new position data registration, the initial values set with the user parameters for Velocity, Accelerate, Decelerate, etc., will automatically be input. In the left screen, the initial value is set as 100mm/sec.
7.	Touch WRT.	EDIT ←|→ MENU Position 10.00mm Velocity 100.00mm No. 0 ↓ ↑ JOG WRT	
8.	Touch YES.	Confirm YES NO Rewrite the position data?	To stop rewriting, touch NO.
9.	Touch ESC.	Notice ESC Write complete	
10.	Match to the next position (No. 1) using ↑.	EDIT ←|→ MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ↑ JOG WRT Position No.	
11.	Touch the numeric value of Position. The ten keys will be displayed.	EDIT ←|→ MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ↑ JOG WRT	
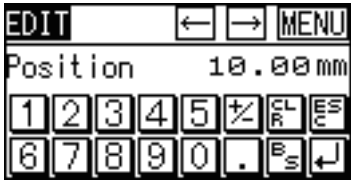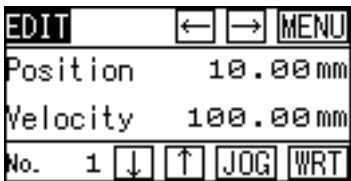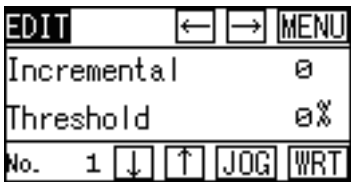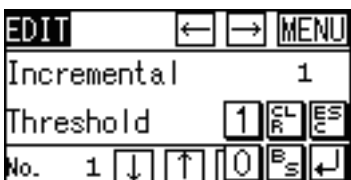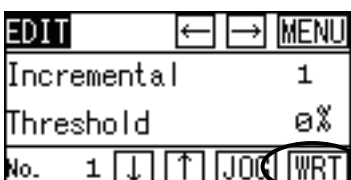
	Operation	Screen	Reference
12.	Touch 8 0 and touch ↵.	EDIT ← → MENU Position 80.00mm 1 2 3 4 5 ½ ⁵ₗ ᴱₛ 6 7 8 9 0 . ᴮₛ ↵	To stop during numeric input, touch ESC.
13.		EDIT ← → MENU Position 80.00mm Velocity 100.00mm No. 1 ↓ ↑ JOG WRT	During new position data registration, the initial values set with the user parameters for Velocity, Accelerate, Decelerate, etc., will automatically be input. In the left screen, the initial value is set as 100mm/sec.
14.	Touch → twice to display the Push setting screen.	EDIT ← → MENU Pos.band 0.10mm Push 0% No. 1 ↓ ↑ JOG WRT	
15.	Touch the numeric value of Pos.band. The ten keys will be displayed.	EDIT ← → MENU Pos.band 0.10mm Push 0% No. 1 ↓ ↑ JOG WRT	
16.	Input a maximum push range during push into Pos.band. In this example, input 5mm. Touch 5 and touch ↵.	EDIT ← → MENU Pos.band 5.00mm 1 2 3 4 5 ½ ⁵ₗ ᴱₛ 6 7 8 9 0 . ᴮₛ ↵	
17.	Touch the numeric value of Push. The ten keys will be displayed.	EDIT ← → MENU Pos.band 5.00mm Push 0% No. 1 ↓ ↑ JOG WRT	
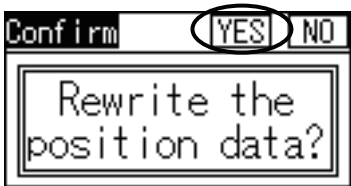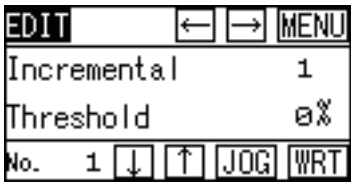
	Operation	Screen	Reference
18.	Input the current value during push. In this example, input 30%. Touch ③ ⓪ and touch ↵.	1 2 3 4 5 % ⁵ᴿ ᴱˢ 6 7 8 9 0 . ᴮˢ ↵ Push 30% No. 1 ↓ ↑ JOG WRT	
19.	Touch WRT.	EDIT ← → MENU Pos.band 5.00mm Push 30% No. 1 ↓ ↑ JOG WRT	
20.	Touch YES.	Confirm YES NO Rewrite the position data?	To stop rewriting, touch NO.
21.	Touch ESC.	Notice ESC Write complete	
22.		EDIT ← → MENU Pos.band 5.00mm Push 30% No. 1 ↓ ↑ JOG WRT	

4. Operation: Mode Flow Chart

Example 3:	Relative Coordinates pitch movement 30 mm → 40 mm → 50 mm….

	Operation	Screen	Reference
1.	Touch PosEdit on the MENU1 screen.	MENU1　Axis No.00 Select　Monitor　TPmode Alarm　PosEdit　MENU2	
2.	The password input screen will be displayed if the password is set to other than '0000'. Input the password.	Edit　　　7 8 9 Please input　4 5 6 a password　1 2 3 ****　　　0　↵	The password of the edit can be set by "Password change" of the main body environment setting.
3.	Move the cursor to the position where you want to input using ↓ or ↑. Alternatively, touch the position No. The ten keys will be displayed and you can also set the position No. directly.	EDIT　←　→　MENU Position *****.**mm Velocity ****.**ms No.　0 ↓ ↑ JOG WRT Position No.	
4.	Touch the numeric value of Position. The ten keys will be displayed.	EDIT　←　→　MENU Position *****.**mm Velocity ****.**ms No.　0 ↓ ↑ JOG WRT	For any unregistered data, the display will show "*."
5.	Touch 3 0 and touch ↵.	EDIT　←　→　MENU Position　30.00mm 1 2 3 4 5 ± ⌐ᴸ Eˢ 6 7 8 9 0 . ᴮₛ ↵	To stop during numeric input, touch ESC. Example) With the left operation, by pressing ESC immediately after inputting 3 0, the status will return to the "*" display.

	Operation	Screen	Reference
6.		EDIT ← → MENU Position 30.00mm Velocity 100.00ms No. 0 ↓ ↑ JOG WRT	During new position data registration, the initial values set with the user parameters for Velocity, Accelerate, Decelerate, etc., will automatically be input. In the left screen, the initial value is set as 100mm/sec.
7.	Touch WRT.	EDIT ← → MENU Position 30.00mm Velocity 100.00ms No. 0 ↓ ↑ JOG WRT	
8.	Touch YES.	Confirm YES NO Rewrite the position data?	To stop rewriting, touch NO.
9.	Touch ESC.	Notice ESC Write complete	
10.	Match to the next position (No. 1) using ↑.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ↑ JOG WRT Position No.	
11.	Touch the numeric value of Position. The ten keys will be displayed.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ↑ JOG WRT	

	Operation	Screen	Reference
12.	Touch 1 0 and touch ↵.	EDIT ← → MENU Position 10.00mm 1 2 3 4 5 % ⁶ᴸᴿ ᴱˢ 6 7 8 9 0 . ᴮˢ ↵	To stop during numeric input, touch ESC.
13.		EDIT ← → MENU Position 10.00mm Velocity 100.00mm No. 1 ↓ ↑ JOG WRT	During new position data registration, the initial values set with the user parameters for Velocity, Accelerate, Decelerate, etc., will automatically be input. In the left screen, the initial value is set as 100mm/sec.
14.	Touch → four times to display the Incremental setting screen.	EDIT ← → MENU Incremental 0 Threshold 0% No. 1 ↓ ↑ JOG WRT	
15.	Touch the numeric value of Incremental. The ten keys will be displayed.	EDIT ← → MENU Incremental 0 Threshold 0% No. 1 ↓ ↑ JOG WRT	
16.	Touch 1 and touch ↵.	EDIT ← → MENU Incremental 1 Threshold 1 ᶜᴸᴿ ᴱˢ No. 1 ↓ ↑ 0 ᴮˢ ↵	
17.	Touch WRT.	EDIT ← → MENU Incremental 1 Threshold 0% No. 1 ↓ ↑ JOG WRT	

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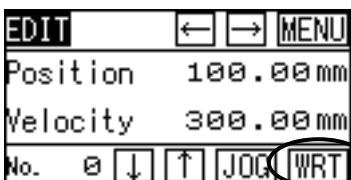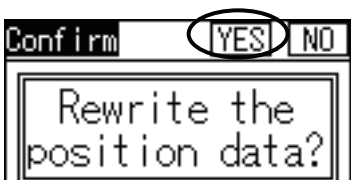
	Operation	Screen	Reference
18.	Touch YES.	Confirm YES NO Rewrite the position data?	To stop rewriting, touch NO.
19.	Touch ESC.	Notice ESC Write complete	
20.		EDIT ← → MENU Incremental 1 Threshold 0% No. 1 ↓ ↑ JOG WRT	
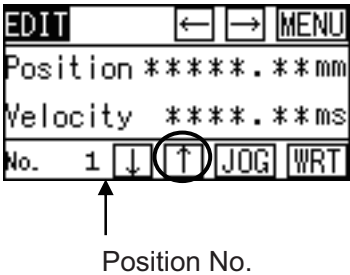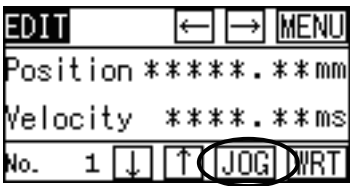
3) Direct Teach (Method: Manually moving the actuator, matching to the desired position and teaching that position into the position table)
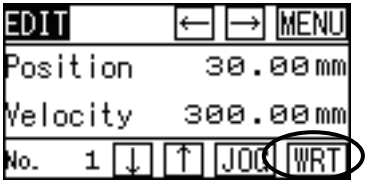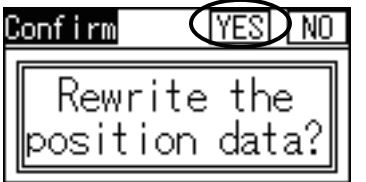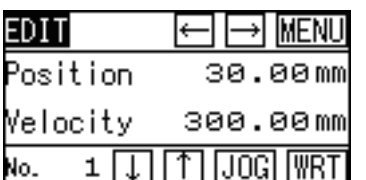
When direct teach operation is performed first after power-on, it is required to perform homing operation in advance. (Refer to page 47.) (In the case of increment specification)
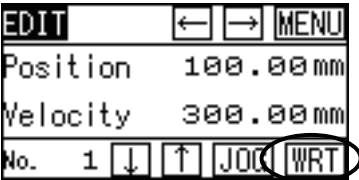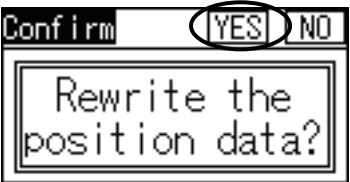
Example:	2 point continuous loop Point A → Point B, speed 300mm/sec

	Operation	Screen	Reference
1.	Touch PosEdit on the MENU1 screen.	MENU1　Axis No.00 Select Monitor TPmode Alarm PosEdit MENU2	
2.	The password input screen will be displayed if the password is set to other than '0000'. Input the password.	Edit　7 8 9 Please input 4 5 6 a password 1 2 3 **** 0 ↵	The password of the edit can be set by "Password change" of the main body environment setting.
3.	Move the cursor to the position where you want to input using ↓ or ↑. Alternatively, touch the position No. The ten keys will be displayed and you can also set the position No. directly.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 0 ↓ ↑ JOG WRT Position No.	
4.	Touch JOG.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 0 ↓ ↑ JOG WRT	
5.	When the servo is ON, touch SVOF to put into the servo OFF status.	JOG PosNo. 0 ESC Cur Pos 0.00mm INC JVEL HOME SVOF ← → Teac	

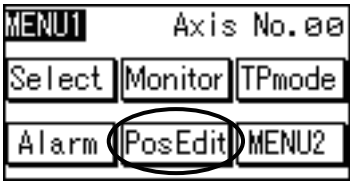|	Operation	Screen	Reference
6.	Manually move the slider and match to the desired position.	JOG PosNo. 0 ESC Cur Pos 100.00mm INC JVEL HOME SVON ← → Teac	
7.	Touch Teac.	JOG PosNo. 0 ESC Cur Pos 100.00mm INC JVEL HOME SVON ← → Teac	
8.	Touch ESC.	JOG PosNo. 0 ESC Cur Pos 100.00mm INC JVEL HOME SVON ← → Teac	
9.	Touch WRT.	EDIT ← → MENU Position 100.00mm Velocity 300.00mm No. 0 ↓ ↑ JOG WRT	The Position on the EDIT screen will be the position to which teaching is given. As for the Velocity, Accelerate, Decelerate, etc., the initial value set with the user parameter will automatically be input. In the example at the left, the initial value is 300mm/sec. (Only during position data input)
10.	Touch YES.	Confirm YES NO Rewrite the position data?	To stop rewriting, touch NO.
11.	Touch ESC.	Notice ESC Write complete	

	Operation	Screen	Reference
12.	Match to the next position (No. 1) using ↑.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ (↑) JOG WRT ↑ Position No.	
13.	Touch JOG.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ↑ (JOG) WRT	
14.	Manually move the slider and match to the desired position.	JOG PosNo. 1 ESC Cur Pos 30.00mm INC JVEL HOME SVON ← → Teac	
15.	Touch Teac.	JOG PosNo. 1 ESC Cur Pos 30.00mm INC JVEL HOME SVON ← → (Teac)	
16.	Touch ESC.	JOG PosNo. 1 (ESC) Cur Pos 30.00mm INC JVEL HOME SVON ← → Teac	

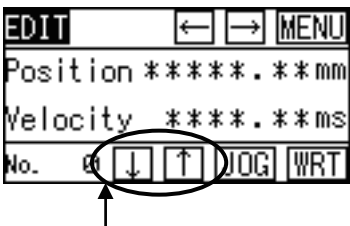|	Operation	Screen	Reference
17.	Touch WRT.	EDIT ← → MENU Position　30.00mm Velocity　300.00mm No.　1 ↓ ↑ JOG WRT	The Position on the EDIT screen will be the position to which teaching is given. As for the Velocity, Accelerate, Decelerate, etc., the initial value set with the user parameter will automatically be input. In the example at the left, the initial value is 300mm/sec. (Only during position data input)
18.	Touch YES.	Confirm　YES NO Rewrite the position data?	To stop rewriting, touch NO.
19.	Touch ESC.	Notice　ESC Write complete	
20.		EDIT ← → MENU Position　30.00mm Velocity　300.00mm No.　1 ↓ ↑ JOG WRT	

**ROBO
CYLINDER**

4) Jog (Method: Jogging the actuator with the direction arrow key (← or →), matching to the desired position and teaching that position [current position] into the position table)
If you continue touching the direction arrow key (← or →), the actuator will move at a specified speed (PIO jog speed or PIO jog speed 2).
However, only the maximum speed will be gained if the maximum speed is slower than the specified speed.
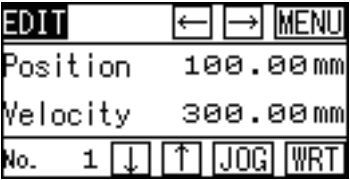
When jog operation is performed first after power-on, it is required to perform home return operation in advance. (Refer to page 47.) (Increment specification)

Example:	2 point continuous loop Point A → Point B, speed 300mm/sec

	Operation	Screen	Reference
1.	Touch PosEdit on the MENU1 screen.	MENU1 Axis No.00 Select Monitor TPmode Alarm PosEdit MENU2	
2.	The password input screen will be displayed if the password is set to other than '0000'. Input the password.	Edit 7 8 9 Please input 4 5 6 a password 1 2 3 **** 0	The password of the edit can be set by "Password change" of the main body environment setting.
3.	Move the cursor to the position where you want to input using ↓ or ↑. Alternatively, touch the position No. The ten keys will be displayed and you can also set the position No. directly.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 0 ↓ ↑ JOG WRT Position No.	
4.	Touch JOG.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 0 ↓ ↑ JOG WRT	
5.	When the servo is OFF, touch SVON to put into the servo ON status.	JOG PosNo. 0 ESC Cur Pos 0.00mm INC JVEL HEND SVON ← → Teac	

	Operation	Screen	Reference
6.	Select the speed with JVEL. Move the slider with ← or → and match to the desired position. ←: Positive direction of the displayed coordinates →: Negative direction of the displayed coordinates	JOG PosNo. 0 ESC Cur Pos 500.00mm INC JVEL HEND SVOF ← → Teac	JVEL: Selection of speed Display with shadow: PIO jog speed (parameter) Display without shadow: PIO jog speed 2 (parameter)
7.	Touch Teac.	JOG PosNo. 0 ESC Cur Pos 500.00mm INC JVEL HEND SVOF ← → Teac	
8.	Touch ESC.	JOG PosNo. 0 ESC Cur Pos 500.00mm INC JVEL HEND SVOF ← → Teac	
9.	Touch WRT.	EDIT ← → MENU Position 500.00mm Velocity 300.00mm No. 0 ↓ ↑ JOG WRT	The Position on the EDIT screen will be the position to which teaching is given. As for the Velocity, Accelerate, Decelerate, etc., the initial value set with the user parameter will automatically be input. In the example at the left, the initial value is 300mm/sec. (Only during position data input)
10.	Touch YES.	Confirm YES NO Rewrite the position data?	To stop rewriting, touch NO.
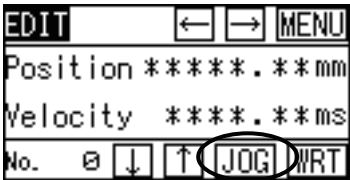
	Operation	Screen	Reference
11.	Touch ESC.	Notice ESC Write complete	
12.	Match to the next position (No. 1) using ⬆.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ↑ JOG WRT ↑ Position No.	
13.	Touch JOG.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ↑ JOG WRT	
14.	Move the slider with ← or → and match to the next desired position.	JOG PosNo. 1 ESC Cur Pos 100.00mm INC JVEL HOME SVON ← → Teac	
15.	Touch Teac.	JOG PosNo. 1 ESC Cur Pos 100.00mm INC JVEL HEND SVOF ← → Teac	
16.	Touch ESC.	JOG PosNo. 1 ESC Cur Pos 100.00mm INC JVEL HEND SVOF ← → Teac	

	Operation	Screen	Reference
17.	Touch WRT.	EDIT ← → MENU Position 100.00mm Velocity 300.00mm No. 1 ↓ ↑ JOG WRT	The Position on the EDIT screen will be the position to which teaching is given. As for the Velocity, Accelerate, Decelerate, etc., the initial value set with the user parameter will automatically be input. In the example at the left, the initial value is 300mm/sec. (Only during position data input)
18.	Touch YES.	Confirm YES NO Rewrite the position data?	To stop rewriting, touch NO.
19.	Touch ESC.	Notice ESC Write complete	
20.		EDIT ← → MENU Position 100.00mm Velocity 300.00mm No. 1 ↓ ↑ JOG WRT	
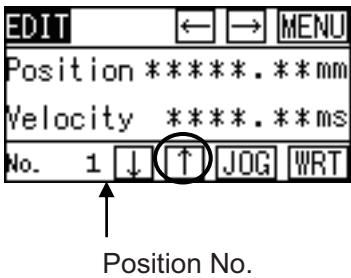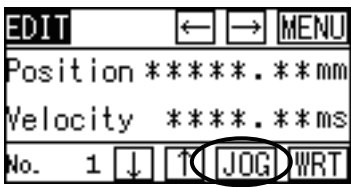
5) Inching (Method: Inching the actuator with the direction arrow key (← or →), matching to the desired position and teaching that position [current position] into the position table)
If you touch the direction arrow key (← or →), the actuator will move by a specified distance (PIO Inching Distance). Finer movement than jogging is possible.
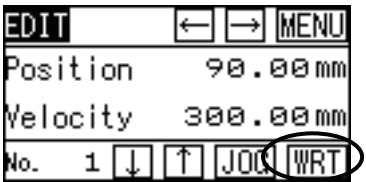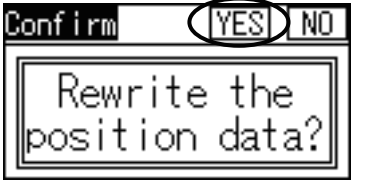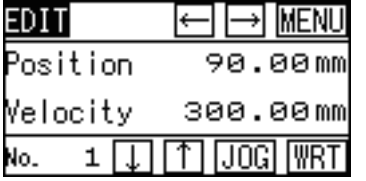
> When inching movement is performed first after power-on, it is required to perform home return operation in advance. (Refer to page 47.) (Increment specification)

Example:	2 point continuous loop Point A → Point B, speed 300mm/sec

	Operation	Screen	Reference
1.	Touch PosEdit on the MENU1 screen.	MENU1　　Axis No.00 Select Monitor TPmode Alarm (PosEdit) MENU2	
2.	The password input screen will be displayed if the password is set to other than '0000'. Input the password.	Edit　　7 8 9 Please input 4 5 6 a password 1 2 3 ＊＊＊＊ 0 　 ↵	The password of the edit can be set by "Password change" of the main body environment setting.
3.	Move the cursor to the position where you want to input using ↓ or ↑. Alternatively, touch the position No. The ten keys will be displayed and you can also set the position No. directly.	EDIT　← → MENU Position ＊＊＊＊＊.＊＊mm Velocity ＊＊＊＊.＊＊ms No.　0 ↓ ↑ JOG WRT Position No.	
4.	Touch JOG.	EDIT　← → MENU Position ＊＊＊＊＊.＊＊mm Velocity ＊＊＊＊.＊＊ms No.　0 ↓ ↑ (JOG) WRT	
5.	When the servo is OFF, touch SVON to put into the servo ON status.	JOG　PosNo.　0 ESC Cur Pos　0.00mm INC JVEL HEND (SVON) ← → Teac	

	Operation	Screen	Reference
6.	Touch INC to change to inching operation.	JOG PosNo. 0 ESC Cur Pos 0.00mm INC JVEL HEND SVOF ← → Teac	
7.	Move the slider with ← or → and match to the desired position. ←: Positive direction of the displayed coordinates →: Negative direction of the displayed coordinates	JOG PosNo. 0 ESC Cur Pos 0.00mm INC JVEL HEND SVOF ← → Teac	Inching Distance: PIO Inching Distance (parameter)
8.	Touch Teac.	JOG PosNo. 0 ESC Cur Pos 0.00mm INC JVEL HEND SVOF ← → Teac	
9.	Touch ESC.	JOG PosNo. 0 ESC Cur Pos 10.00mm INC JVEL HEND SVOF ← → Teac	
10.	Touch WRT.	EDIT ← → MENU Position 10.00mm Velocity 300.00mm No. 0 ↓ ↑ JOG WRT	The Position on the EDIT screen will be the position to which teaching is given. As for the Velocity, Accelerate, Decelerate, etc., the initial value set with the user parameter will automatically be input. In the example at the left, the initial value is 300mm/sec. (Only during position data input)
11.	Touch YES.	Confirm YES NO Rewrite the position data?	To stop rewriting, touch NO.

4. Operation: Mode Flow Chart

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	Operation	Screen	Reference
12.	Touch ESC.	Notice ESC Write complete	
13.	Match to the next position (No. 1) using ⇧.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ⇧ JOG WRT Position No.	
14.	Touch JOG.	EDIT ← → MENU Position *****.**mm Velocity ****.**ms No. 1 ↓ ⇧ JOG WRT	
15.	Move the slider with ← or → and match to the next desired position.	JOG PosNo. 1 ESC Cur Pos 90.00mm INC JVEL HEND SVOF ← → Teac	
16.	Touch Teac.	JOG PosNo. 1 ESC Cur Pos 90.00mm INC JVEL HEND SVOF ← → Teac	

	Operation	Screen	Reference
17.	Touch ESC.	JOG PosNo. 1 (ESC) Cur Pos 100.00mm [INC] [JVEL] [HEND] [SVOF] [←] [→] [Teac]	
18.	Touch WRT.	EDIT [←][→] [MENU] Position 90.00mm Velocity 300.00mm No. 1 [↓][↑] [JOG] (WRT)	The Position on the EDIT screen will be the position to which teaching is given. As for the Velocity, Accelerate, Decelerate, etc., the initial value set with the user parameter will automatically be input. In the example at the left, the initial value is 300mm/sec. (Only during position data input)
19.	Touch YES.	Confirm (YES) NO Rewrite the position data?	To stop rewriting, touch NO.
20.	Touch ESC.	Notice (ESC) Write complete	
21.		EDIT [←][→] [MENU] Position 90.00mm Velocity 300.00mm No. 1 [↓][↑] [JOG] [WRT]	

4.8.4　Data Modification

You may write over all of the position data.
Similar to new input, the following 4 cases exist:

(1) Numeric Input	: Manually enter the position data directly from Touch Panel Display ten keys.
(2) Direct Teach	: Turns the servo OFF, manually move the slider to the desired location and read that location (current position) into the position table.
(3) Jog	: Use the arrow keys to jog to the desired location and read that location (current position) into the position table.
(4) Increment	: Use the arrow keys to incrementally move and read that location (current position) into the position table.

Caution during data modification:
* As for manual input, the data entered will erase the old data.
* The position will be updated only when the Return key is pressed to read in the current location (direct teach, jog, increment). It does not influence speed and others.
* Once the position data is cleared, the previous data will no longer remain anywhere. Therefore, when the next position data is registered, any data other than position will be default values. When clearing to re-set the push assign position data, be sure to confirm all items of the position data to input required data.

![ROBO CYLINDER logo]

4.9 Move

Movement toward a position registered in the position data table, movement by directly setting a position to move to and jog movement are possible.

4.9.1 Basic Operation

```
┌─────────────────────────┐
│ MENU2      Axis No.00    │
│  ┌──────┐┌──────┐┌───────┐│
│ (│ Move │)│Param ││Display││
│  └──────┘└──────┘└───────┘│
│  ┌──────┐┌──────┐┌───────┐│
│  │Restart││Version││ MENU1 ││
│  └──────┘└──────┘└───────┘│
└─────────────────────────┘
```
Fig. 4.25

Touch Move on the MENU2 screen.

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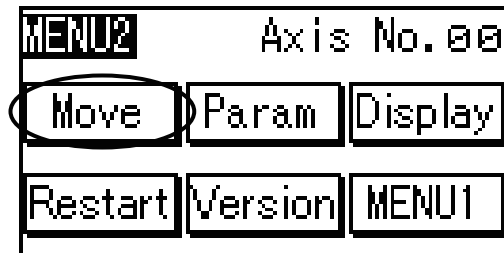
(1) Pos (Position) Move
The actuator will move to a position registered in the position data table.

MoveMENU ... MENU
RUN Mode:AUTO
PID Ena. Safety OFF
Pos | Num | Jog

Fig. 4.26

Touch Pos.

PosMOVE OVRD100% MENU
Cur Pos -9999.99 mm
Tar Pos -9999.99 mm
Pos No. → PosNo. 511 HOME SVON
POS- POS+ START STOP
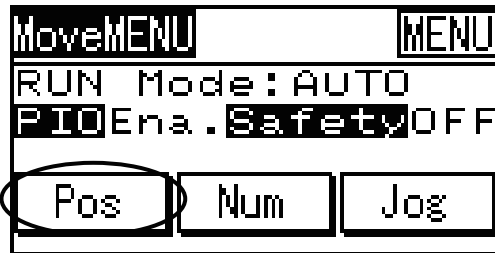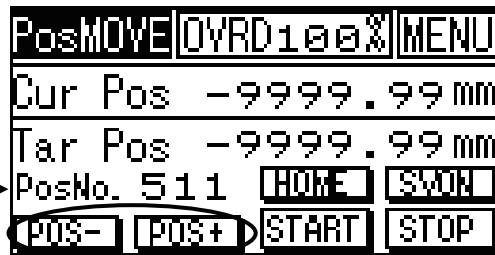
Fig. 4.27

Touch Pos- or Pos+ and set the No. of the target position to move to (PosNo.).

PosMOVE OVRD100% MENU
Cur Pos -9999.99 mm
Tar Pos -9999.99 mm
PosNo. 511 HEND SVOF
POS- POS+ START STOP
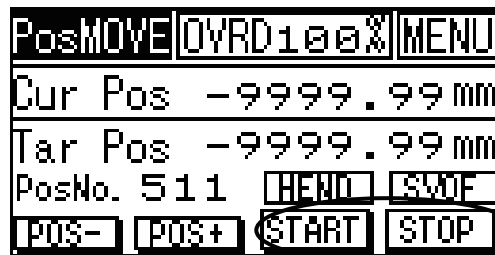
Fig. 4.28

If you touch START, the actuator will move to the set target position.
To stop during movement, touch STOP.

Caution: Always turn the servo ON (SVOF display) and perform homing (after completion, HEND will be displayed) before movement.

If you touch MENU, the screen will return to the MoveMenu.

* Pos (Position) Move Speed
The actuator will move at a speed set in the position table.
The speed can be changed by changing OVRD (speed override ratio).

Caution: The maximum speed will be the safety speed set for the parameter if the TP operation mode is set to Teach 1 (Safety: ON).

Caution: The controller which decides the position and outputs completion outputs the completion position after positioning is completed, and turns ON the positioning completion output.
However, positioning completion ON is not done when missing in the pressing mode.

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Other Operations
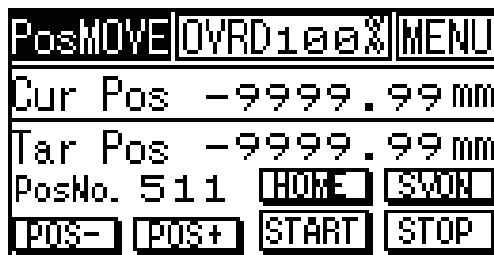
Fig. 4.29

1. SVON : If you touch the key when SVON is displayed, the servo will be turned ON.
  If you touch the key when SVOF is displayed, the servo will be turned OFF.
2. HOME : If you touch the key when the servo is ON, homing will be performed.
  After the completion of the homing, the display will change to HEND.
3. OVRD : Set the speed override ratio.
  If you touch OVRD xxx%, the ten keys will be displayed.
  Input a numeric value and touch ⏎. The ratio (%) will be set.

(2) Num Move

The actuator will move through direct setting of a position to move to.
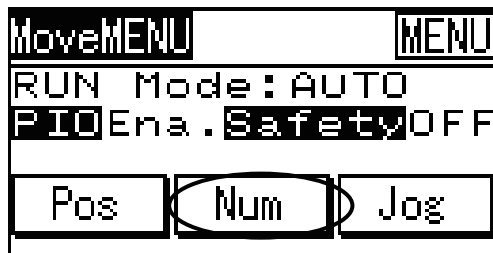
Touch Num.
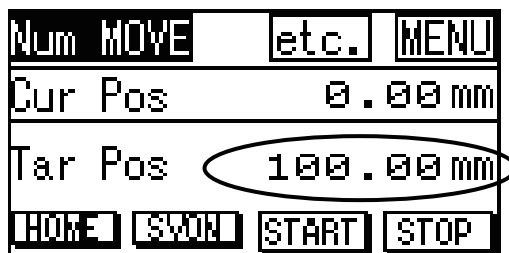
Fig. 4.30

Touch the numeric value of Tar Pos.
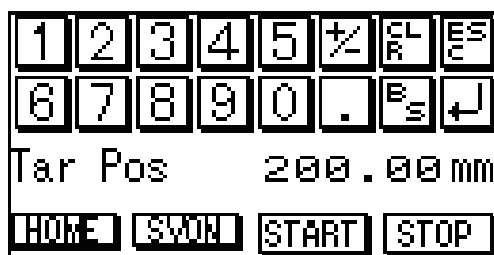
Fig. 4.31

Input the target position to move to and touch ⏎.
The target position will be input.

Fig. 4.32

If you touch START, the actuator will move to the set target position.
To stop during movement, touch STOP.

Caution: Always turn the servo ON (SVOF display) and perform homing (after completion, HEND will be displayed) before movement.

Fig. 4.33

If you touch MENU, the screen will return to the MoveMenu screen.

Caution: The controller which decides the position and outputs completion outputs the completion position after positioning is completed, and turns ON the positioning completion output.
However, positioning completion ON is not done when missing in the pressing mode.

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Other Operations

```
Num MOVE     etc.  MENU
Cur Pos    200.00mm
Tar Pos    200.00mm
HEND  SVOF  START  STOP
```
Fig. 4.34

1. SVON   : If you touch the key when SVON is displayed, the servo will be turned ON.
             If you touch the key when SVOF is displayed, the servo will be turned OFF.
2. HOME   : If you touch the key when the servo is ON, homing will be performed.
             After the completion of the homing, the display will change to HEND.
3. etc.   : Set Velocity, Accelerate and Decelerate when performing direct move.

MOVE etc Screen

```
MOVE etc          ESC
Velocity   600.00ms
Accelerate    0.30G
Decelerate    0.30G
```
Fig. 4.35

4. Operation: Mode Flow Chart

(3) Jog Move
       The actuator will move by jogging.
       However, teaching of a position cannot be given to the position data.
       To perform jog move for teaching operation, execute jog operation by touching JOG on
       EDIT.
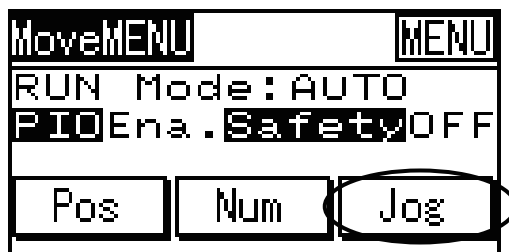
Touch Jog.

Fig. 4.36
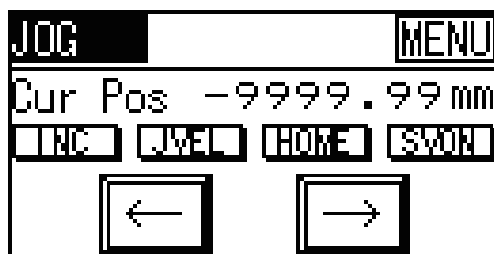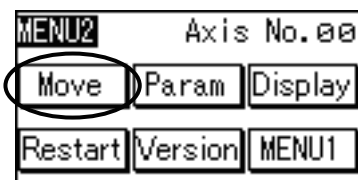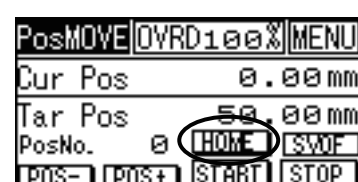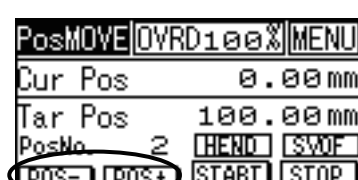
The JOG screen will be displayed.

Fig. 4.37

JOG Screen Operation
1. SVON   : If you touch the key when SVON is displayed, the servo will be turned ON.
                   If you touch the key when SVOF is displayed, the servo will be turned OFF.
2. HOME   : If you touch the key when the servo is ON, homing will be performed.
                   After homing, the display will change to HEND.
3. JVEL   : Select the PIO jog speed or PIO jog speed 2.
                   In the case of display with shadow, the jog speed will be the PIO jog speed.
                   In the case of display without shadow, the jog speed will be the PIO jog speed
                   2.
4. INC   : If you touch the key when the display is INC, operation will change to inching.
                   If you touch the key when the display is JOG, operation will change to jog.
                   (Note) The jog speed will be the PIO jog speed or PIO jog speed 2 set with
                               the parameter. Select the speed using JVEL.
                               The inching distance will be the PIO Inching Distance set with the
                               parameter.
5. ← →   : The axis will perform jog or inching movement.
6. MENU   : The screen will return to the MoveMENU screen.

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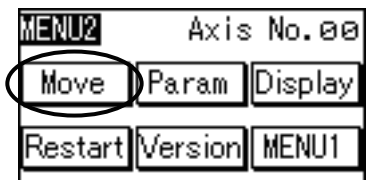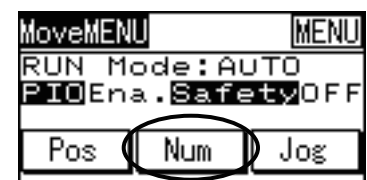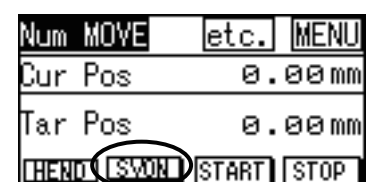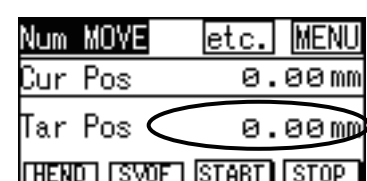
1) Pos (Operation: Registered position data number assigned move)
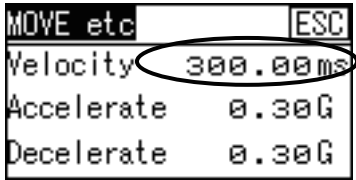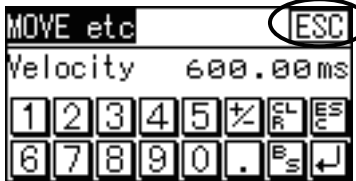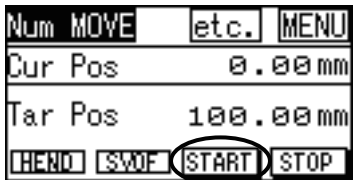
Example:	Current position → Move towards position number 2, 3

	Operation	Screen	Reference
1.	Touch Move on the MENU2 screen.	MENU2 Axis No.00 Move Param Display Restart Version MENU1	
2.	Touch Pos on the MoveMENU edit screen.	MoveMENU MENU RUN Mode:AUTO PIOEna. Safety OFF Pos Num Jog	
3.	When the servo is OFF, touch SVON to put into the servo ON status.	PosMOVE OVRD100% MENU Cur Pos 0.00mm Tar Pos 50.00mm PosNo. 0 HOME SVON POS- POS+ START STOP	
4.	If homing has not been executed, touch HOME to perform homing.	PosMOVE OVRD100% MENU Cur Pos 0.00mm Tar Pos 50.00mm PosNo. 0 HOME SVOF POS- POS+ START STOP	
5.	Assign PosNo. (position No.) with Pos- or Pos+. In this example, set position No. 2.	PosMOVE OVRD100% MENU Cur Pos 0.00mm Tar Pos 100.00mm PosNo. 2 HEND SVOF POS- POS+ START STOP	
6.	If you touch START, the actuator will move from the current position to the location of position No. 2. When stopping during movement, touch STOP.	PosMOVE OVRD100% MENU Cur Pos 100.00mm Tar Pos 100.00mm PosNo. 2 HEND SVOF POS- POS+ START STOP	The move speed can be changed by touching "OVRDxxx%" and changing the override value. (Note) The maximum speed will be the safety speed set for the parameter if the TP operation mode is set to Teach 1 (Safety: ON).

	Operation	Screen	Reference
7.	When moving towards No. 3 position continuously, assign 3 to PosNo. with Pos- or Pos+.	PosMOVE OVRD100% MENU Cur Pos 100.00mm Tar Pos 200.00mm PosNo. 3 HEND SVOF POS- POS+ START STOP	
8.	If you touch START, the actuator will move from the current position to position No. 3. When stopping during movement, touch STOP.	PosMOVE OVRD100% MENU Cur Pos 200.00mm Tar Pos 200.00mm PosNo. 3 HEND SVOF POS- POS+ START STOP	If you touch MENU, the screen will return to the MoveMENU screen.
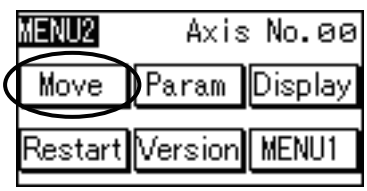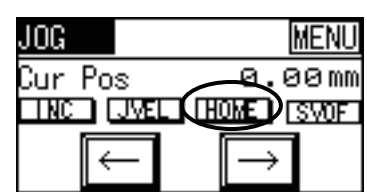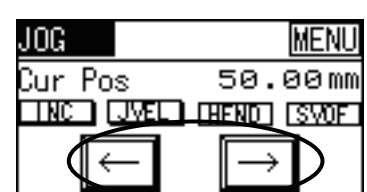
Caution: When moving towards position in push mode
After the actuator pushes the work and position complete output turns ON, the actuator is in a state of continuously pressing the work.
Be extremely careful about handling at this time.

2) Num (Operation: Target position directly-assigned move)
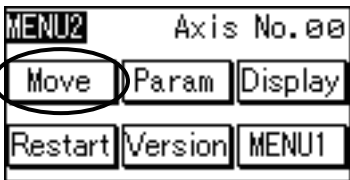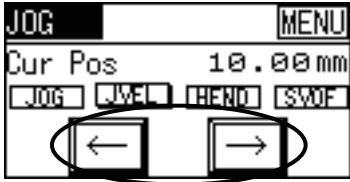
Example:	Current position → Move towards target position 100mm (Num)

	Operation	Screen	Reference
1.	Touch Move on the MENU2 screen.	MENU2 Axis No.00 Move Param Display Restart Version MENU1	
2.	Touch Num on the MoveMENU edit screen.	MoveMENU MENU RUN Mode:AUTO PIO Ena. Safety OFF Pos Num Jog	
3.	When the servo is OFF, touch SVON to put into the servo ON status.	Num MOVE etc. MENU Cur Pos 0.00mm Tar Pos 0.00mm HEND SVON START STOP	
4.	If homing has not been executed, touch HOME to perform homing.	Num MOVE etc. MENU Cur Pos 0.00mm Tar Pos 0.00mm HOME SVOF START STOP	
5.	Touch the numeric value of Tar Pos. The ten keys will be displayed.	Num MOVE etc. MENU Cur Pos 0.00mm Tar Pos 0.00mm HEND SVOF START STOP	
6.	Touch 1 0 0 for Tar Pos and touch ⏎.	1 2 3 4 5 ± SL ES 6 7 8 9 0 . Bs ↵ Tar Pos 100.00mm HEND SVOF START STOP	

4. Operation: Mode Flow Chart

	Operation	Screen	Reference
7.	Touch etc. to display the MOVE etc screen.	MOVE etc ESC Velocity 300.00ms Accelerate 0.30G Decelerate 0.30G	
8.	Touch the numeric value of the item to change from among Velocity, Accelerate and Decelerate. The ten keys will be displayed. Input a numeric value with the ten keys and touch ↵. After setting the numeric value, touch ESC.	MOVE etc ESC Velocity 600.00ms 1 2 3 4 5 ⅟ ᴿᴸ ᴱˢ 6 7 8 9 0 . ᴮₛ ↵	In the left screen, 600 is set as Velocity.
9.	If you touch START, the actuator will move from the current position to the target position. When stopping during movement, touch STOP.	Num MOVE etc. MENU Cur Pos 0.00mm Tar Pos 100.00mm HEND SVOF START STOP	(Note) The maximum speed will be the safety speed set for the parameter if the TP operation mode is set to Teach 1 (Safety: ON).

3) Jog (Move) Move the actuator by jogging with the direction arrow key (← or →). However, no teaching can be given to the position table.
If you continue touching the direction arrow key (← or →), the actuator will move at a specified speed (PIO jog speed or PIO jog speed 2).
However, only the maximum speed will be gained if the maximum speed is slower than the specified speed.

	Operation	Screen	Reference
1.	Touch Move on the MENU2 screen.	MENU2 Axis No.00 Move Param Display Restart Version MENU1	
2.	Touch Jog on the MoveMENU edit screen.	MoveMENU MENU RUN Mode:AUTO PIO Ena. Safety OFF Pos Num Jog	
3.	When the servo is OFF, touch SVON to put into the servo ON status.	JOG MENU Cur Pos 0.00mm INC JVEL HOME SVON ← →	
4.	If homing has not been executed, touch HOME to perform homing.	JOG MENU Cur Pos 0.00mm INC JVEL HOME SVOF ← →	
5.	Select the speed with JVEL. Move the slider with ← or → and match to the desired position. ←: Positive direction of the displayed coordinates →: Negative direction of the displayed coordinates	JOG MENU Cur Pos 50.00mm INC JVEL HEND SVOF ← →	JVEL: Selection of speed Display with shadow: PIO jog speed (parameter) Display without shadow: PIO jog speed 2 (parameter)

4) Inching (Move) Move the actuator by inching with the direction arrow key (← or →). However, no teaching can be given to the position table.
If you touch the direction arrow key (← or →), the actuator will move by a specified distance (PIO Inching Distance). Finer movement than jogging is possible.

	Operation	Screen	Reference
1.	Touch Move on the MENU2 screen.		
2.	Touch Jog on the MoveMENU edit screen.		
3.	When the servo is OFF, touch SVON to put into the servo ON status.		
4.	If homing has not been executed, touch HOME to perform homing.		
5.	Touch INC to change to inching operation.		
6.	Move the slider with ← or → and match to the desired position. ←: Positive direction of the displayed coordinates →: Negative direction of the displayed coordinates		Inching Distance: PIO Inching Distance (parameter)

![ROBO CYLINDER logo]

4.10 Parameters

Parameters will be displayed and edited.

Caution:	In contrast to the Teaching Pendant and PC-compatible software, only some parameters can be displayed and edited.
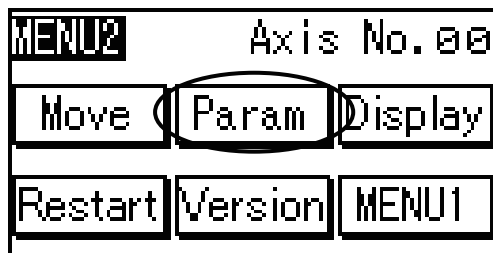
Fig. 4.38

Touch Param on the MENU2 screen.

The password input screen is displayed before it shifts to the parameter setting display, except when the password is "0000".
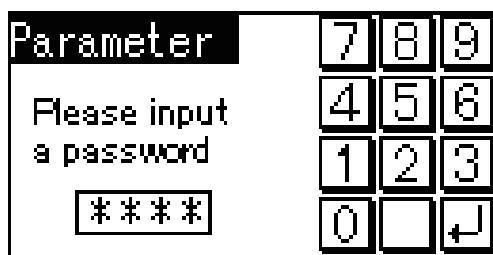
Fig. 4.39

Input the numerical value of password with the ten keys, and touch ↵.

The password can be set by "Password change" of the main body environment setting.

When a correct password is set, it shifts to the edit display.
The display shifts by the movement pattern.

(1) Setting of Parameter Value

Parameter ← → MENU

Zone Output Pos.(1) +

9999.99 mm

ParaNo.01 WRT
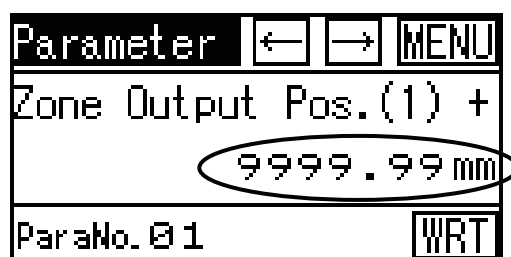
Fig. 4.40

If you touch a numeric value, the ten keys will be displayed.

1 2 3 4 5 ±⁄ CLR ESC
6 7 8 9 0 . Bs ↵

9999.99 mm

ParaNo.01 WRT
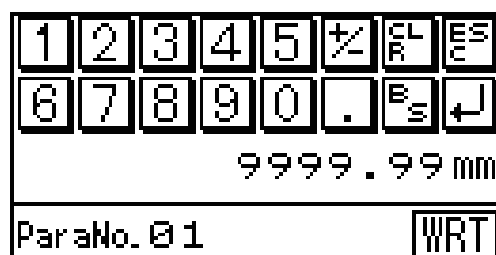
Fig. 4.41

Input a numeric value and touch ↵.
When stopping input, touch the ESC key.

Parameter ← → MENU

Zone Output Pos.(1) +

9999.99 mm

ParaNo.01 WRT

Fig. 4.42

Touch WRT.

Confirm YES NO

Rewrite the
parameter?
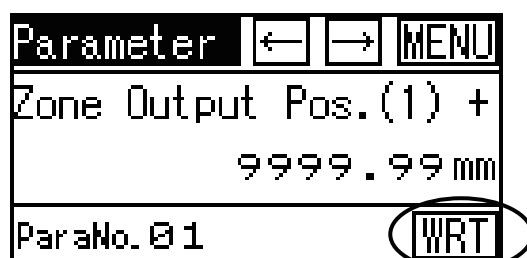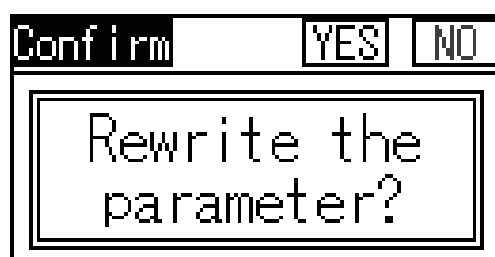
Fig. 4.43

Touch YES.
(When stopping rewriting, touch NO.)

Confirm YES NO

Restart the
controller?
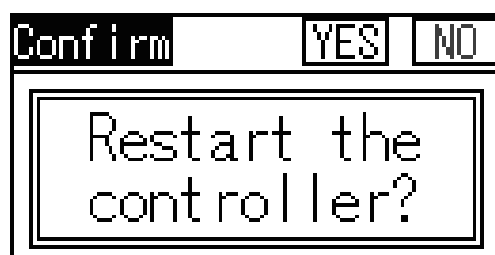
Fig. 4.44

Touch YES.
The controller will restart and the
parameter will be changed.
(When stopping restart, touch NO.)

Caution: The changed parameter will become valid by restoring the power or resetting software.

(2) Parameter Display Change

Parameter screens are comprised of 13 screens and can be changed with the ← or → key. Parameters which can be rewritten with this Touch Panel Display are only 13 items shown below.

If you touch MENU, the screen will return to the MENU1 screen.

Zone Output Pos. (1) +

```
Parameter ← → MENU
Zone Output Pos.(1) +
                 150.30mm
ParaNo.01            WRT
```

Soft Limit -

```
Parameter ← → MENU
Soft limit -
                 -0.30mm
ParaNo.04           WRT
```

Zone Output Pos. (1) -

```
Parameter ← → MENU
Zone Output Pos.(1) -
                 -0.30mm
ParaNo.02           WRT
```
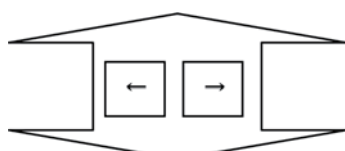
Zone Output Pos (2) +

```
Parameter ← → MENU
Zone Output Pos.(2) +
                 150.30mm
ParaNo.23           WRT
```
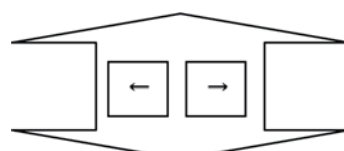
Soft Limit +

```
Parameter ← → MENU
Soft limit +
                 150.30mm
ParaNo.03           WRT
```

Zone Output Pos. (2) -

```
Parameter ← → MENU
Zone Output Pos.(2) -
                 -0.30mm
ParaNo.24           WRT
```
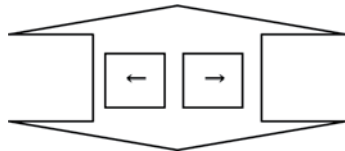
To Soft Limit -

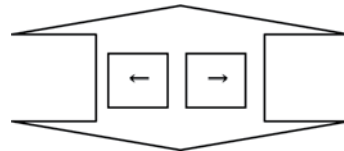To PIO pattern select
(To the next page)

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PIO pattern select

```
Parameter  ←  →  MENU
PIO pattern select
                    1
ParaNo.25         WRT
```
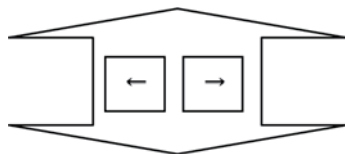
↕

← →

PIO Jog speed

```
Parameter  ←  →  MENU
PIO Jog speed
        100.00mm/sec
ParaNo.26         WRT
```
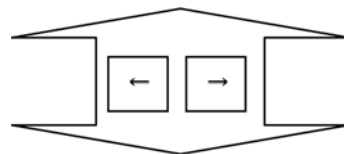
↕

← →

Push speed

```
Parameter  ←  →  MENU
Push speed
         20.00mm/sec
ParaNo.34         WRT
```

↕

← →

Safety speed

```
Parameter  ←  →  MENU
Safety speed
         10.00mm/sec
ParaNo.35         WRT
```

↕

← →

To PIO Jog speed 2

PIO Jog speed 2

```
Parameter  ←  →  MENU
PIO Jog speed 2
         10.00mm/sec
ParaNo.47         WRT
```

↕

← →

PIO Inching Distance

```
Parameter  ←  →  MENU
PIO Inching Distance
              1.00mm
ParaNo.48         WRT
```
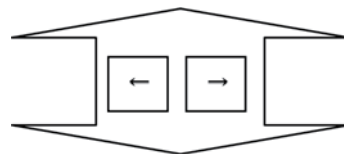
↕

← →
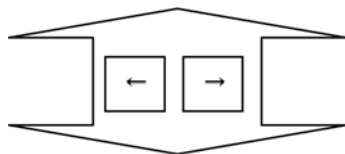
PIO Inching Distance 2

```
Parameter  ←  →  MENU
PIO Inching Distance2
              1.00mm
ParaNo.49         WRT
```
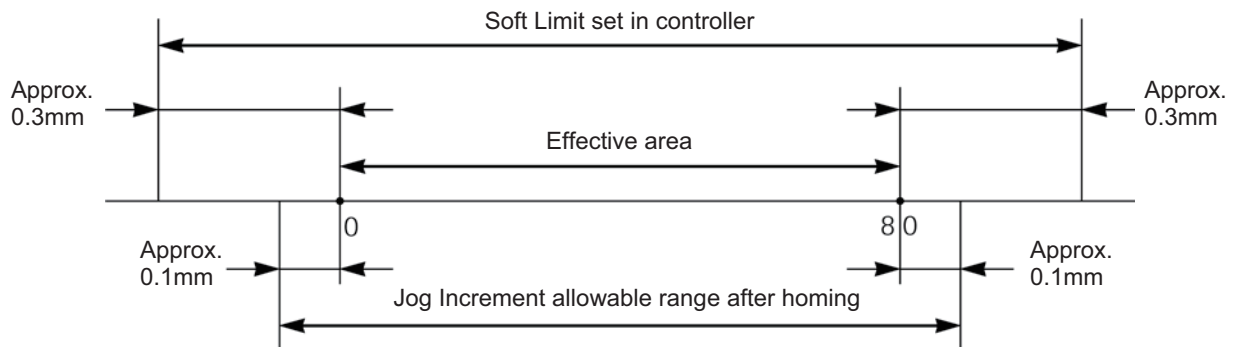
↕

← →
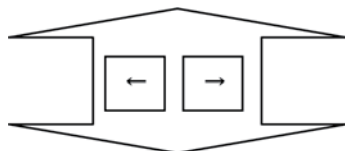
To Zone Output (1) +
(To the previous page)

- When soft limit is modified at the customer site, please set a value which extends 0.3mm outside of the effective area.

  Example: When setting the effective area between 0mm to 80mm

  Soft limit + side: 80.3

  Soft limit - side: -0.3

Soft Limit set in controller

Approx.
0.3mm

Effective area

Approx.
0.3mm

0

80

Approx.
0.1mm

Approx.
0.1mm

Jog Increment allowable range after homing

Caution:	Please restore the controller power after making parameter changes. Alternatively, reset software in the case of any model which supports the software reset function.

* Regarding parameter, please refer to the Controller Operating Manual.

4.11 Display

Screen contrast and brightness can be adjusted.
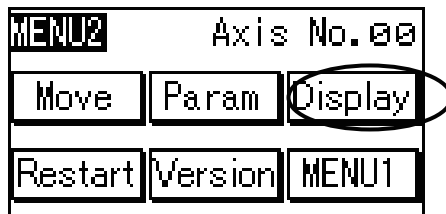
Fig. 4.45

Touch Display on the MENU2 screen.
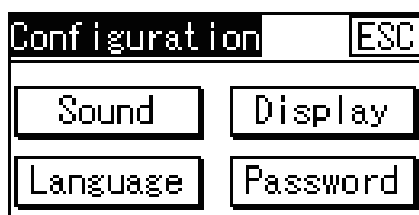

Fig. 4.46

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

- Sound Setting : Set whether or not the touch sound is output or not.
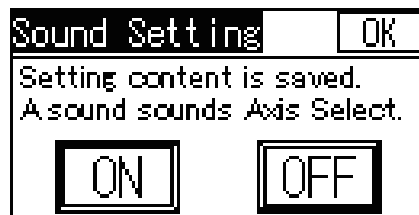
Fig. 4.47

- Language Set : Select either Japanese or English for the display language.
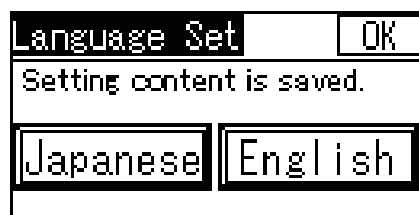
Fig. 4.48

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

Fig. 4.49

[1]   Basic Operation
  [Sound Setting]
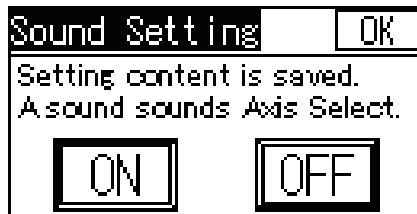
Fig. 4.50

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

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

Fig. 4.51

  [Language Set]

Fig. 4.52

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

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

Fig. 4.53

**ROBO
CYLINDER**

[Display Setting]

```
■Display        ESC
   ┌─────────────┐
   │  Contrast   │
   └─────────────┘
   ┌─────────────┐
   │ Brightness  │
   └─────────────┘
```
Fig. 4.54

When the contrast in the figure is to be adjusted, touch Contrast.
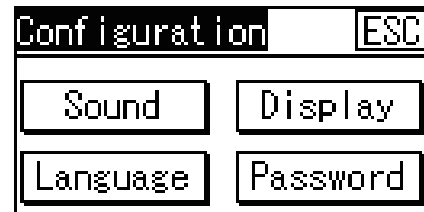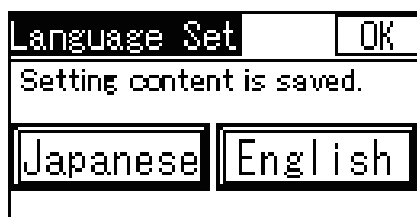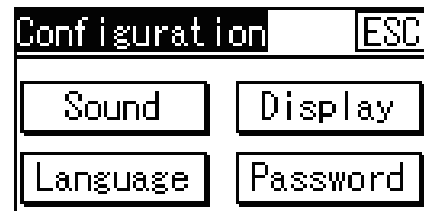When the brightness in the screen is to be adjusted, touch Brightness.
The adjustment screen corresponding to the touched button item is displayed.
Touching ESC returns to the Machine Setup screen for the main machine is returned.
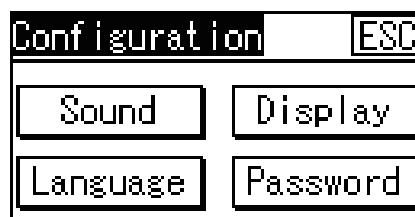
```
Configuration      ESC
  ┌─────────┐ ┌─────────┐
  │  Sound  │ │ Display │
  └─────────┘ └─────────┘
  ┌─────────┐ ┌─────────┐
  │Language │ │Password │
  └─────────┘ └─────────┘
```
Fig. 4.55

• Contrast Adjustment
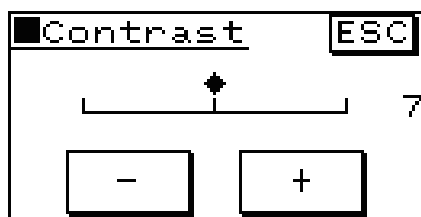
```
■Contrast       ESC

        ◆
   └────┴────────┘  7
   ┌─────┐ ┌─────┐
   │  −  │ │  +  │
   └─────┘ └─────┘
```
Fig. 4.56

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

• Brightness Adjustment
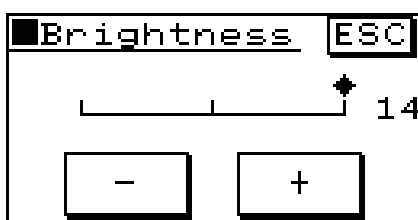
```
■Brightness     ESC

                ◆
   └────┴───────┘ 14
   ┌─────┐ ┌─────┐
   │  −  │ │  +  │
   └─────┘ └─────┘
```
Fig. 4.57

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

Touching ESC returns to the Display Setting screen.

```
■Display        ESC
   ┌─────────────┐
   │  Contrast   │
   └─────────────┘
   ┌─────────────┐
   │ Brightness  │
   └─────────────┘
```
Fig. 4.58

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[Change Sys-Pass]

Using this function, the operation is performed to change the password for the position editing and parameter editing.
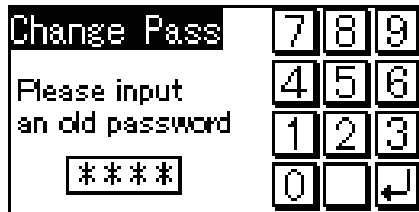
Fig. 4.59

Enter the value and touch ↵.
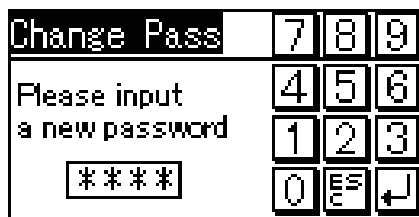
Fig. 4.60

Enter the value and touch ↵.

Fig. 4.61

The system password will be changed.

Touching ESC returns to the Parameter Menu screen.
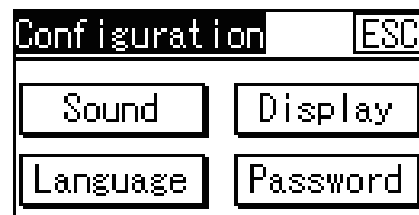
Fig. 4.62

4.12 Restart

The controller will be restarted.

MENU2	Axis No.00
Move	Param	Display
Restart	Version	MENU1
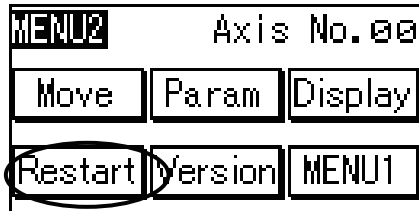
Fig. 4.63

Touch Restart on the MENU2 screen.

| Confirm | YES | NO |
| Restart the controller? |
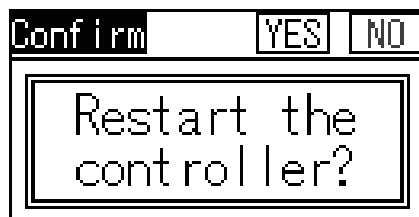
Fig. 4.64

Touch YES.
The controller will restart.
(When stopping restart, touch NO.)

4.13 Version

You can confirm the controller type, version information and writing count into the flash ROM.
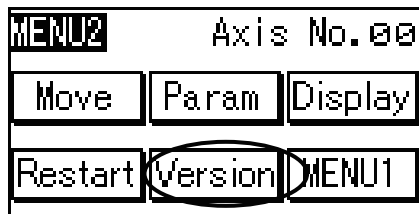
```
┌─────────────────────────┐
│ MENU2      Axis No.00   │
│  ┌──────┐┌─────┐┌───────┐│
│  │ Move ││Param││Display││
│  └──────┘└─────┘└───────┘│
│ ┌───────┐┌──────┐┌──────┐│
│ │Restart││Version││MENU1 ││
│ └───────┘└──────┘└──────┘│
└─────────────────────────┘
```
Fig. 4.65

Touch Version on the MENU2 screen.
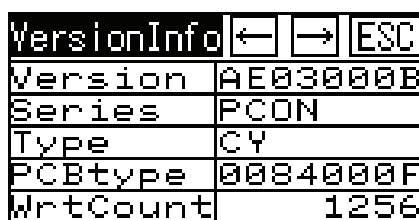
```
┌─────────────────────────┐
│VersionInfo│←││→││ESC│    │
│Version  │AE03000B        │
│Series   │PCON            │
│Type     │CY              │
│PCBtype  │0084000F        │
│WrtCount │       1256     │
└─────────────────────────┘
```
Fig. 4.66

VersionInfo 1 will be displayed.

If you touch ESC, the screen will return to the MENU2 screen.

```
     ┌──────┐┌──────┐
     │  ←   ││  →   │
     └──────┘└──────┘
```
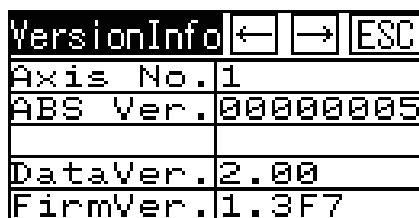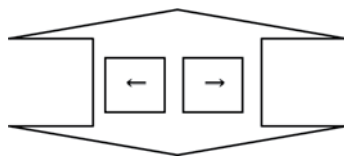
```
┌─────────────────────────┐
│VersionInfo│←││→││ESC│    │
│Axis No.│1               │
│ABS Ver.│00000005        │
│                         │
│DataVer.│2.00            │
│FirmVer.│1.3F7           │
└─────────────────────────┘
```
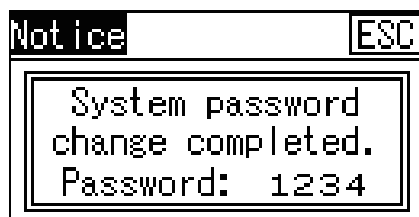Fig. 4.67

VersionInfo 2 will be displayed.

If you touch ESC, the screen will return to the MENU2 screen.

```
     ┌──────┐┌──────┐
     │  ←   ││  →   │
     └──────┘└──────┘
```
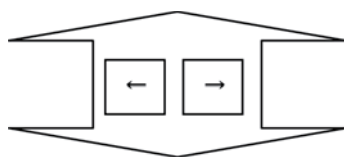
```
┌─────────────────────────┐
│ManuInfo   │←││→││ESC│    │
│CTL Serial No.           │
│123456789                │
│M.REV: A│F.REV: 1        │
│AXIS Serial No.          │
│012345678                │
└─────────────────────────┘
```
Fig. 4.68

ManuInfo will be displayed.

If you touch ESC, the screen will return to the MENU2 screen.

![ROBO CYLINDER logo]

5. GATEWAY MENU

Up to 16 axes can be monitored simultaneously by connecting to the ROBONET GATEWAY.

Axis Select Screen
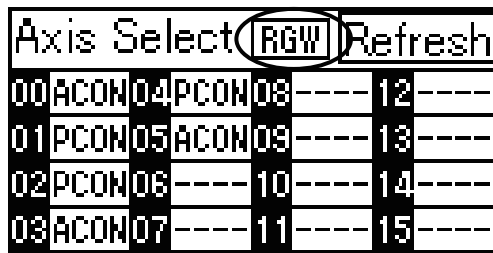
Fig. 5.1

Touch RGW.

Fig. 5.2

Touch an item to monitor on the
ROBONET GATEWAY MENU screen.

(1) Axis Select
This is the screen to select axes.
When axes are selected, only the selected axes can be monitored.
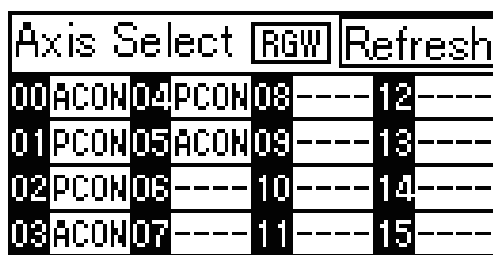
Fig. 5.3

(2) Cur Pos

The current position of each axis will be displayed. Four axes can be monitored simultaneously.

```
┌─────────────────────────────┐
│Cur Pos    │←│ │→│ │MENU│    │
├─────────────────────────────┤
│AxisNo00    1290.00 mm       │
│AxisNo01     312.58 mm       │
│AxisNo02       0.00 mm       │
│AxisNo03      -0.10 mm       │
└─────────────────────────────┘
```
Fig. 5.4

You can change to the next screen with ←| or |→.

If you touch ESC, the screen will return to the ROBONET GATEWAY MENU screen.

(3) All Alarm

Alarms currently occurring in each axis can be checked.

```
┌─────────────────────────────┐
│All Alarm            │MENU│  │
├─────────────────────────────┤
│00│D8│04│  │08│  │12│  │     │
│01│81│05│  │09│  │13│  │     │
│02│  │06│  │10│  │14│  │     │
│03│  │07│  │11│  │15│  │     │
└─────────────────────────────┘
```
Fig. 5.5

If you touch ESC, the screen will return to the ROBONET GATEWAY MENU screen.

(4) Velocity

The current speed of each axis will be displayed. Four axes can be monitored simultaneously.

```
┌─────────────────────────────┐
│Velocity   │←│ │→│ │MENU│    │
├─────────────────────────────┤
│AxisNo00    210.00 ms        │
│AxisNo01    312.58 ms        │
│AxisNo02      0.00 ms        │
│AxisNo03     -0.10 ms        │
└─────────────────────────────┘
```
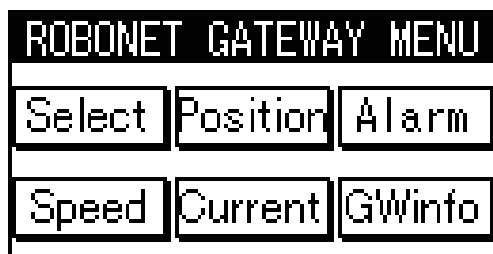Fig. 5.6

You can change to the next screen with ←| or |→.

If you touch ESC, the screen will return to the ROBONET GATEWAY MENU screen.

(5) Current
The current current value of each axis will be displayed. Eight axes can be monitored
simultaneously.

Fig. 5.7

You can change to the next screen with
← or →.
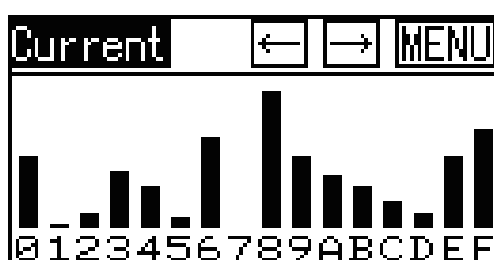
Fig. 5.8

If you touch ← or →, the current values of
all axes can be displayed in graph form.

If you touch ESC, the screen will return to
the ROBONET GATEWAY MENU
screen.

(6) VersionInfo
The gateway module version and fieldbus setting status will be displayed.

Fig. 5.9

If you touch STAT, the screen will return
to the GWstatus screen.

Fig. 5.10

The gateway status can be checked.

If you touch Info, the screen will return to
the ROBONET GATEWAY MENU
screen.
If you touch ESC, the screen will return to
the ROBONET GATEWAY MENU
screen.

6. Message Area

In the message screen, content during error and warning will be displayed.

Code No.	Error Label	Error Reset	Reference
080 to 0FF	Controller Error	Note	Error inside the controller

Note) Refer to "6.2 Controller Error."

6.1 Touch Panel Display Message Level Error

Touch Panel Display Operational Mistake:
   When you attempt to input an incorrect value, the message label error will occur.
   For example, if you input an excessive numeric value into Position and write it into the controller, the following message will be displayed:
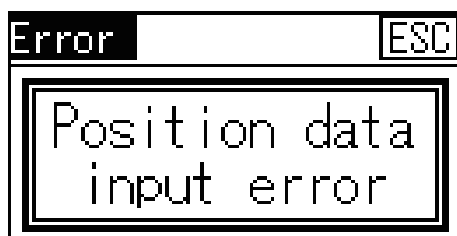
6.2 Controller Error

An alarm detected from the controller side can be displayed.
When an alarm occurs, the Touch Panel backlight will turn pink.
This is a critical error due to an abnormality related to servo control and electricity. Please read through the RC Controller Operating Manual carefully for error compliance.
If any errors of the code numbers listed below occur, it is required to perform error reset of the controller (press the RES key on the screen where the alarm is displayed) to reset it in the case of a movement release error. It is required to perform the reset of the controller software in the case of a cold start level error. (Refer to 4.12.)

> Code No : 0A1h, 0A2h, 0B0h, 0B1h,0B8h, 0B9h, 0BAh, 0BBh, 0BCh, 0BDh, 0BEh,
> 0C0h, 0C1h, 0C9h, 0CAh, 0CCh, 0CEh, 0D0h, 0D1h, 0D8h, 0E0h, 0E8h,
> 0E9h, 0EAh
> 0F4h, 0F5h, 0F6h, 0F8h, 0FAh, etc.

> For details of error codes, refer to the operating manual of the controller you use.

7. Warranty

7.1 Warranty Period

One of the following periods, whichever is shorter:
• 18 months after our shipment
• 12 months after delivery to the place designated by you

7.2 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.

7.3 Honoring Warranty

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

7.4 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.

7.5 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.

7.6 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

* Appendix
Touch Panel Display Error Message

A message will be displayed in cases where you input an excessive numeric value into Position and write it to the controller etc.
Confirm that the input numeric value is correct and reset it again.

For the controller errors, refer to the operating manual of each controller.

Error Message

Position No. error
Position data input error
Velocity input too large
Accelerate input too large
Decelerate input too large
Pos.band input error
PosZone input error
Acc/Dcl mode input error
Command mode input error
Stop mode input error

Warning message

Non MANU Teach mode data edit prohibit	Warning when editing is performed with the Touch Panel Display during AUTO
Non MANU Teach mode axis operation prohibit	Warning when axis operation is performed with the Touch Panel Display during AUTO

Change History

Revision Date	Revision Description

November 2011	Third Edition
	• Please Read Before Use added
	• 1. Foreword and 2. Before You Begin deleted
	• Safety Precautions changed to Safety Guide
	• Caution in Handling added
	• ERC3 and PCON-CA are added in Support Models
	• Pg. 40
	  ERC3 and PCON-CA are added in List
	• Pg. 18, 19, 22, 35, 47, 48, 52, 56, 60, 64, 68, 85
	  Password setting added
	• Pg. 18, 21, 34
	  Alarm List screen changed
	• Pg. 90 to 93
	  Sound Setting, Language Set and Display Setting are added in 4.11 Display
	• Pg. 19, 22, 95
	  VersionInfo and ManuInfo are added
	• Contents changed in 7. Warranty

Change History

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