JANOME ELECTRO PRESS

JP-104	**JP-204**	**JP-504**	**JP-1004**
JP-1504	**JP-3004**	**JP-5004**	
JPH-104	**JPH-204**	**JPH-504**	**JPH-1004**
JPH-1504	**JPH-3004**	**JPH-5004**	
JPU-104	**JPU-204**	**JPU-504**	**JPU-1004**
JPU-1504	**JPU-3004**	**JPU-5004**	**JPU-8004**

Operation Manual

<Teaching and Operation>

Thank you for purchasing the Electro Press.

***Please read this manual thoroughly so that you are able to use this machine properly.**
Be sure to read "For Your Safety" before you use the machine. It will protect you from possible danger during operation.
***After having read this manual, keep it in a handy place so that you or the operator can refer to it whenever necessary.**

JANOME

FOR YOUR SAFETY

Safety Precautions

The precautions stated in this manual are provided for the customer to make the best use of this product safely, and to provide preventive measures against injury to the customer or damage to property.

• • • • • Be sure to follow the instructions • • • • •

Various symbols are used in this manual. Please read the following explanations to understand what each symbol stands for.

● Symbols indicating the Degree of Damage or Danger

The following symbols indicate the degree of damage or danger which may be incurred if you neglect the safety notes.

Warnings	These "Warnings" indicate the possibility of death or serious injury.
Cautions	These "Cautions" indicate the possibility of accidental injury or damage to property.

● Symbols indicating the type of Danger and Preventive Measures

The following symbols indicate the type of safety measure that should be taken.

	Indicates the type of safety measure that should be taken.
	Take care. (General caution)
	Indicates prohibition.
	Never do this. (general prohibition)
	Do not disassemble, modify or repair.
	Do not touch. (contact prohibition)
	Indicates necessity
	Be sure to follow instructions.
	Be sure to unplug the power supply from wall outlet.
	Be sure to check grounding.

FOR YOUR SAFETY

⚠ Warnings

Do not leave the unit plugged in (power cord and connectors) when it is not in use for long periods of time. Dust can cause fire.
Be sure to shut off the power supply before removing the power cord.

Regularly replace the built-in battery (optional) in the body or control box. It is preferable to replace it every 3 years.
Failure to do so may cause malfunction or defect.

Keep the emergency stop switch within reach of an operator while teaching and running the machine.
Failure to do so is dangerous because the machine cannot be stopped quickly and safely.

Regularly check that the I/O-S circuits and emergency stop switch work properly.
Failure to do so is dangerous because the machine cannot be stopped quickly and safely.

Check the mounting screws regularly so that they are always firmly tightened.
Loose screws may cause injury or damage.

Power the unit only with the rated voltage.
Excessive voltage can cause fire or malfunction of the unit.

Do not sprinkle water or oil on the unit, control box, or its cable.
Contact with water can cause electric shock, fire, or malfunction of the unit.
IP Protection Rating is IP40.

A person entering the machine's operation area may be injured.
Put up a "No Entry" or "No Operating" warning sign in a clearly visible position near the machine.

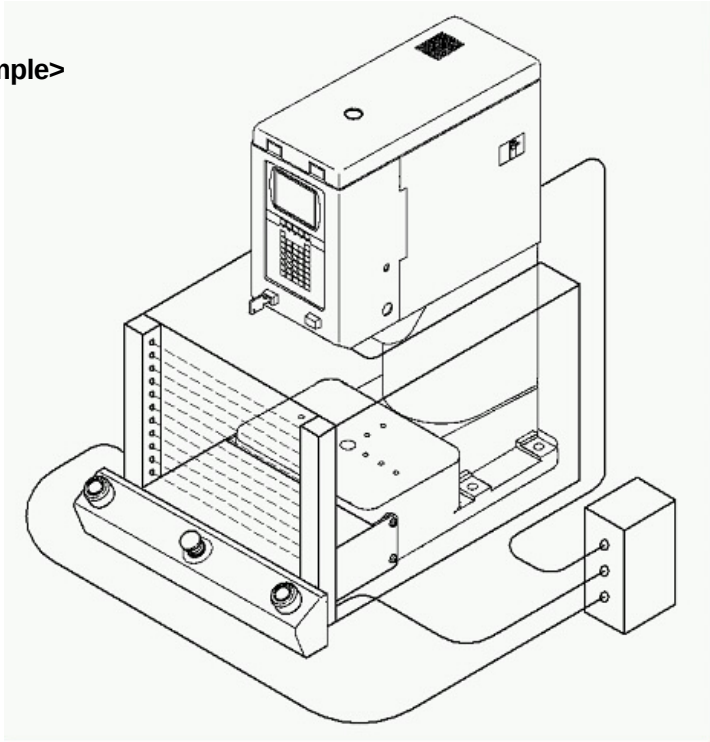
FOR YOUR SAFETY

INSTALLATION

⚠ Warnings

Install an interlock as a safeguard that triggers an emergency stop when it is activated using the I/O-S connector included in the package.

<Example>



Use protective wear (helmet, protective gloves, protective glasses and protective footwear) when installing the machine.

Place the machine in a well-ventilated area for the health and safety of the operator.

Place the machine on a suitable flat surface that can support its weight and do not cover the cooling fan vent on the top of a stand-alone and head type.
An insufficient or unstable area can cause the machine to fall, overturn, breakdown or overheat.

FOR YOUR SAFETY

⚠ Warnings

Confirm that the unit is properly grounded.
Power supply earth should be connected complying with Type D grounding. (under 100 Ω of resistance.)
Insufficient grounding can cause electric shock, fire or malfunction.

Plug the power cord into the wall outlet firmly.
Incomplete insertion into the wall outlet heats the plug and can cause fire.
Check that the plug is not covered with dust.
Be sure to shut off the power supply before connecting the power cord

Do not attempt to disassemble or modify the machine.
Disassembly or modification may cause electric shock, fire or malfunction.

Be sure to use within the voltage range indicated on the unit.
Failure to do so may cause electric shock or fire.

Do not use the unit near inflammable or corrosive gas.
If leaked gas accumulates around the unit, it can cause fire.
IP Protection Rating is IP40.

Turn off the unit before inserting and removing cables.
Failure to do so may result in electric shock, fire, or malfunction of the unit.
IP Protection Rating is “IP40.”

Use the machine in an environment between 0 to 40 degrees centigrade with a humidity of 20 to 95 percent without condensation.
Use outside tease conditions may result in malfunction.
IP Protection Rating is “IP40.”

Keep the emergency stop switch within reach of an operator while teaching and running the machine.
Failure to do so may cause danger since the machine cannot be stopped immediately and safely.

FOR YOUR SAFETY

⚠ Warnings

Use the machine in an environment where no electric noise is present.

Attach an eyebolt and use a crane or other equipment to transport the machine.
Failure to do so may result in malfunction or defect.

Do not bump or jar the machine while it is being transported or installed.
This can cause defects.

Use the machine in an environment where it is not exposed to direct sunlight.
Direct sunlight may cause malfunction or defect.

Be sure to confirm that jigs such as the electric screwdriver unit, etc. are properly connected.
Failure to do so may result in injury or defect.

Be sure to check the wiring to the main unit.
Improper wiring may cause malfunction or defect.

Be sure to shut off the power supply before plugging the power cord.

Place the control box on a flat surface more than 80 cm above the floor so that it is easier to operate it.

The installation mount should be steel. **For the stand-alone type, it should be able to support the machine's weight. For the head and unit types, it is able to support the machine's weight and pressing capacity.**

Use the machine in an environment that is not dusty or damp.
Dust and dampness may cause failure or malfunction.

FOR YOUR SAFETY

WORKING ENVIRONMENT

⚠ Warnings

When you lubricate or inspect the unit, unplug the power cord from the outlet.
Failure to do so may result in electric shock or injury.
Be sure to shut off the power supply before removing the power cord.

During operation, always have the emergency stop switch within the operator's reach.
For the operator's safety, the emergency stop switch is necessary to make a quick and safe stop in an emergency.

Always be aware of the machine's movement, even in the teaching mode.
Special attention will protect the operator from injury.

FOR YOUR SAFETY

DURING OPERATION

⚠ Warnings

When starting the machine, check that **no object will interfere with the machine's operation.**

Under no circumstances should you go inside the working area or place your hands or head inside the working area while the machine is operating.

If anything unusual (e.g. a burning smell) occurs, stop operation and unplug the cable immediately. Contact your dealer or the office listed on the last page of this manual.
Continuous use without repair can cause electric shock, fire, or breakdown of the unit.

During teaching, tests, and actual operation, always have the Emergency stop switch within the operator's reach.
For the operator's safety, the emergency stop switch is necessary to make a quick and safe stop in an emergency.

PREFACE

The operation manual for the JANOME Electro Press consists of the following volumes.
"For Your Safety" is also provided so that the customer can make the best use of this product safely. This section includes preventive measures that can be taken against injury to the customer or damage to property. Please be sure to read "For Your Safety" before using this product.

Setup	This volume explains how to set up the Electro Press. * For those who have received training in Electro Press safety and installation.
Maintenance	This volume explains Electro Press maintenance. * For those who have received training in Electro Press safety and installation.
Teaching and Operation	This volume lists part names and data structure as well as providing the basic knowledge necessary to operate the Electro Press.
Operation	This volume explains how to operate the Electro Press.
Specifications	This volume provides comprehensive specifications, including mechanical and electrical requirements.

Note: The product specifications in these volumes may differ from those of the machine you have received due to a product upgrade.

Please be sure to follow the instructions described in these volumes. Proper use of the robot will ensure continued functionality and high performance.
These volumes are based on the standard application. Menu items may vary depending on the model.

Be sure to shut off the power supply before plugging in the power cord.

BE SURE TO MAKE A PROPER GROUNDING WHEN YOU INSTALL THE MACHINE.

Be sure to save data whenever it is added or modified. **Otherwise, changes will not be saved if the power to the robot is cut off.**

CONTENTS

1. OVERVIEW

The Janome Electro Press JP Series 4 series is equipped with a servo-mechanism to control precision positioning and pressing. It performs caulking, inserting and bending jogs quietly and cleanly. In addition to various pressing functions, it is also equipped with many quality control systems. The Janome Electro Press will allow you to create highly efficient production systems.

1-1 Features

- There are 3 types of Electro Press, stand-alone, head and unit types. They are equipped with I/O to control various systems, and designed for a wide variety of uses, from automation system to desktop use.

- With an AC servomotor, precise ball screw and original load cell incorporated into the ram, it performs clean and quiet pressuring and accurate positioning.

- The various pressing modes include the preset position stop mode (the ram stops at the preset position), the preset load stop mode (the ram stops when it detects the preset load) and the constant load pressing mode (the ram keeps pressing the workpiece with the preset load.) The constant load mode allows the application to also perform securing adhesive jobs.

- The Electro Press is also equipped with various sensor modes for quality control. It maintains the load controlling at the end position within a preset range, the position checking where the ram presses the workpiece, the distance judging, etc. It also has a sampling mode to monitor the maximum and minimum load.

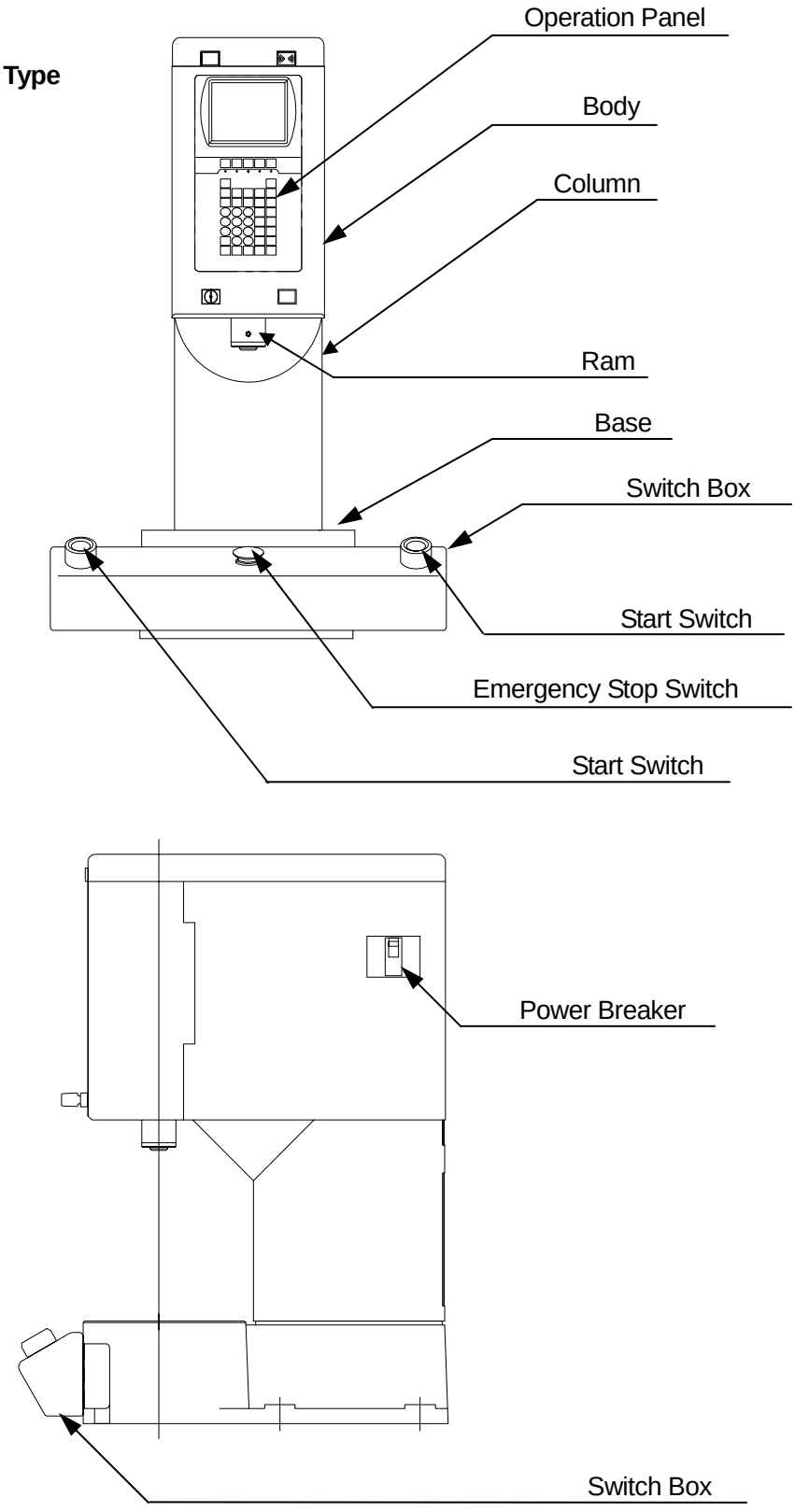
- The Electro Press is equipped with the standard RS-232C connector to transmit data to the personal computer for quality analysis and other purposes.

- To check and solve problems quickly during operation, the Electro Press is able to perform self-diagnosis.

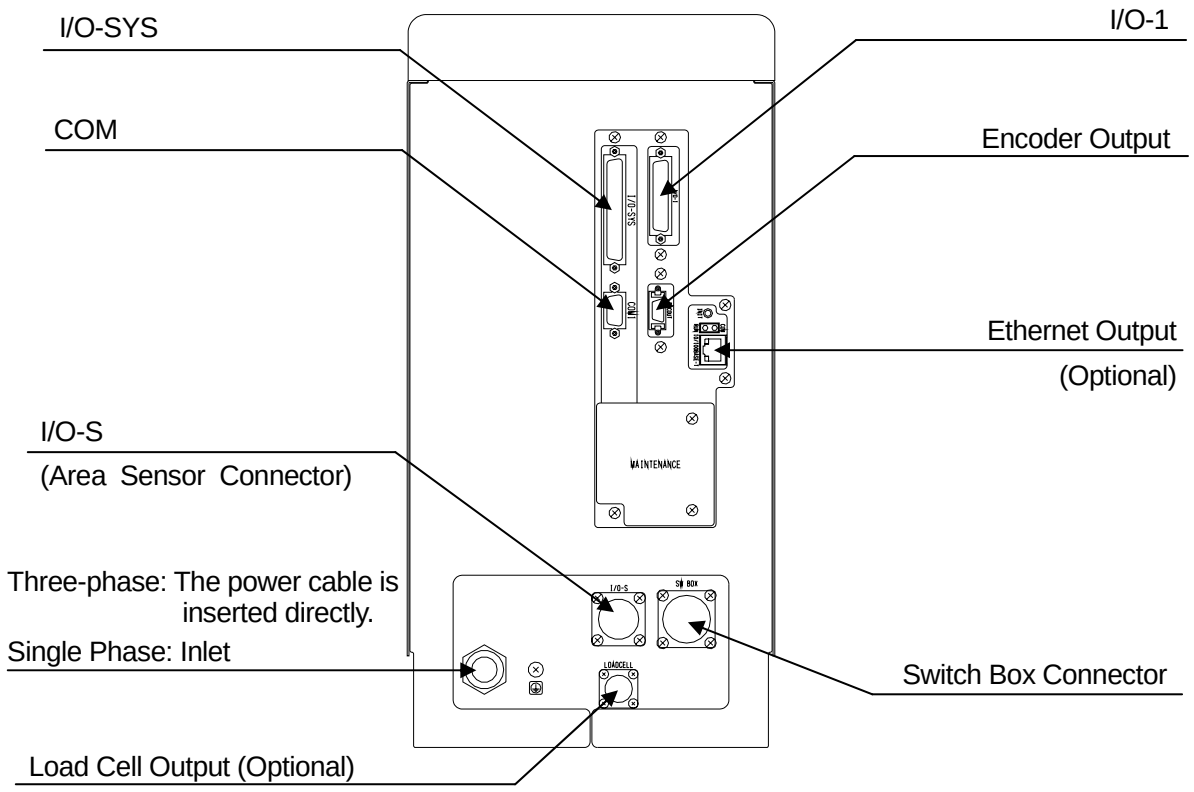
2. PARTS NAMES AND FUNCTIONS

2-1 Parts Names

2-1-1 Stand-Alone Type



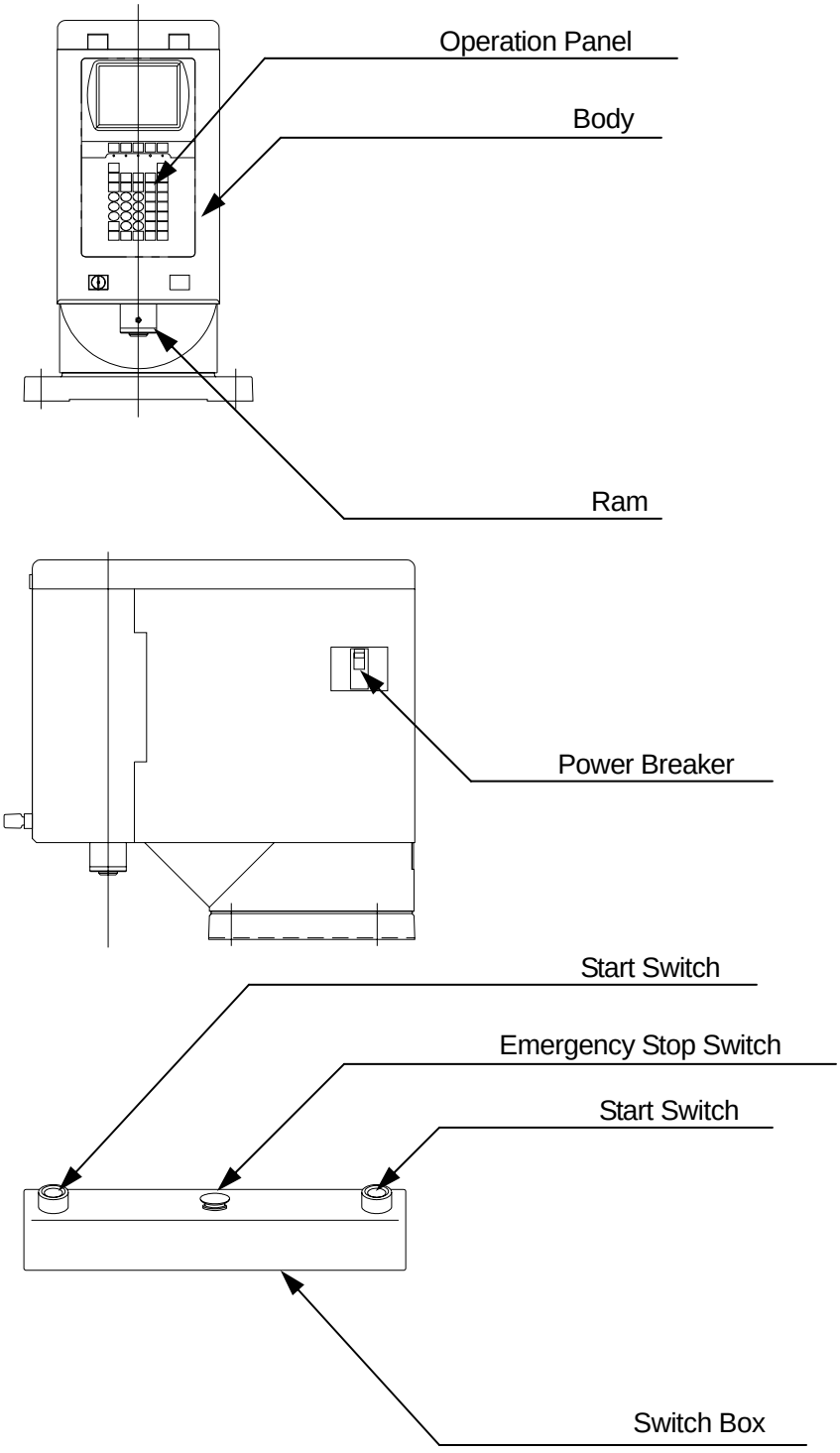
<Back of the stand-alone type>



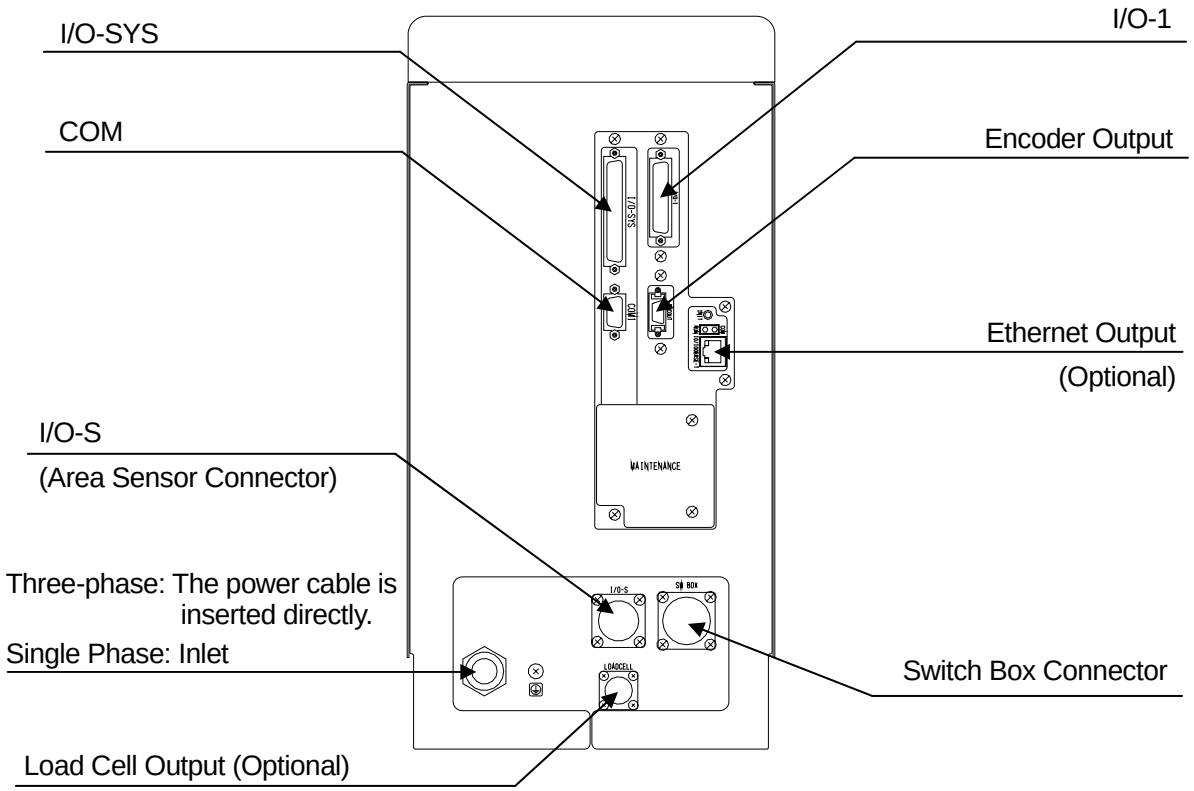
- Recommended area sensors: SFI-A series for CE
  SFI-A series for Japan and non-CE overseas
  (Both manufactured by SUNX Ltd.)

- The area sensor specifications for the JP3004, 5004 and 8004 series are the same for CE, non-CE overseas and Japan.

2-1-2 Head Type



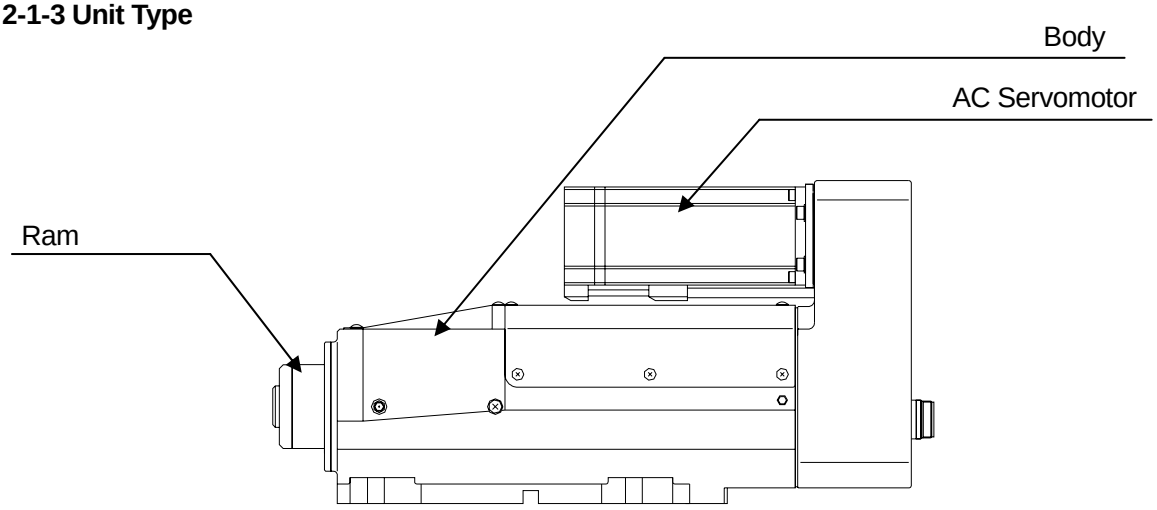
<Back of the head type>

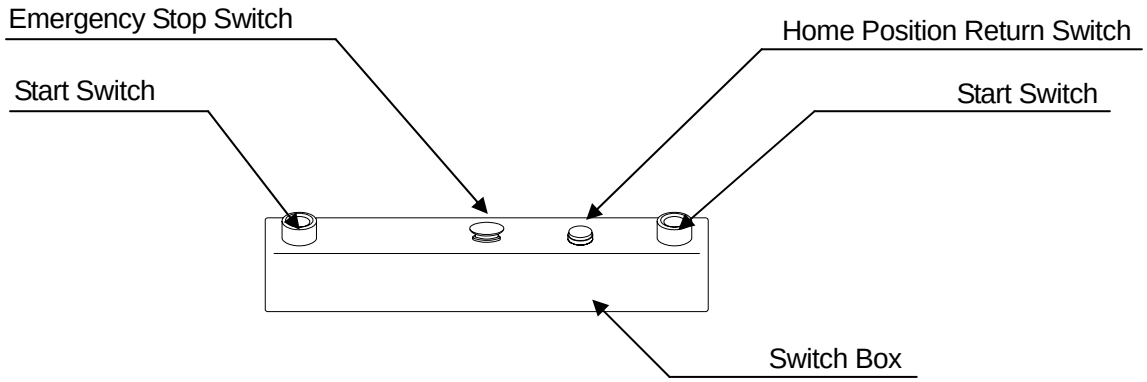


- Recommended area sensors: SFI-A series for CE
  SFI-A series for Japan and non-CE overseas
  (Both manufactured by SUNX Ltd.)

- The area sensor specifications for the JP3004 and 5004 series are the same among CE, non-CE overseas and Japan.

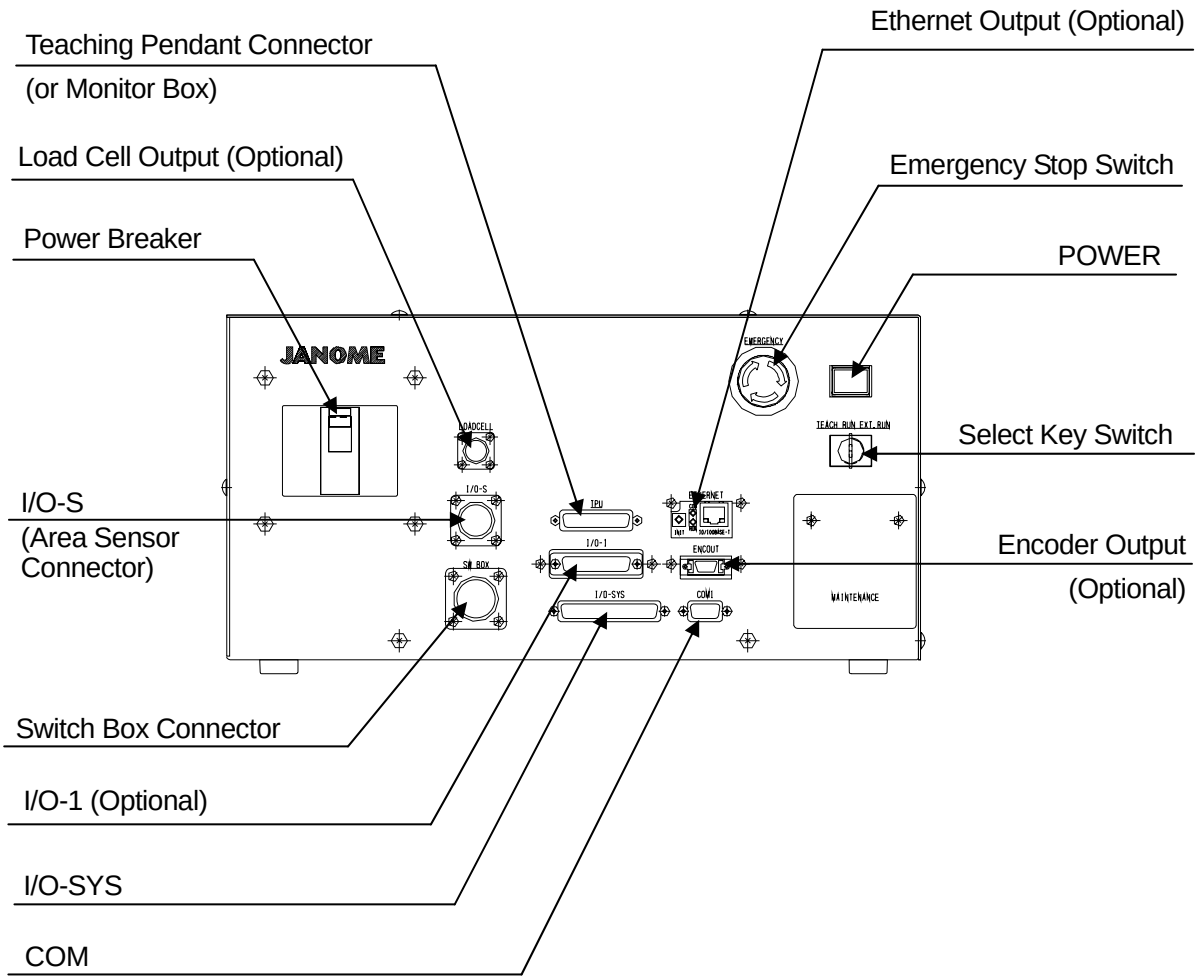
2-1-3 Unit Type



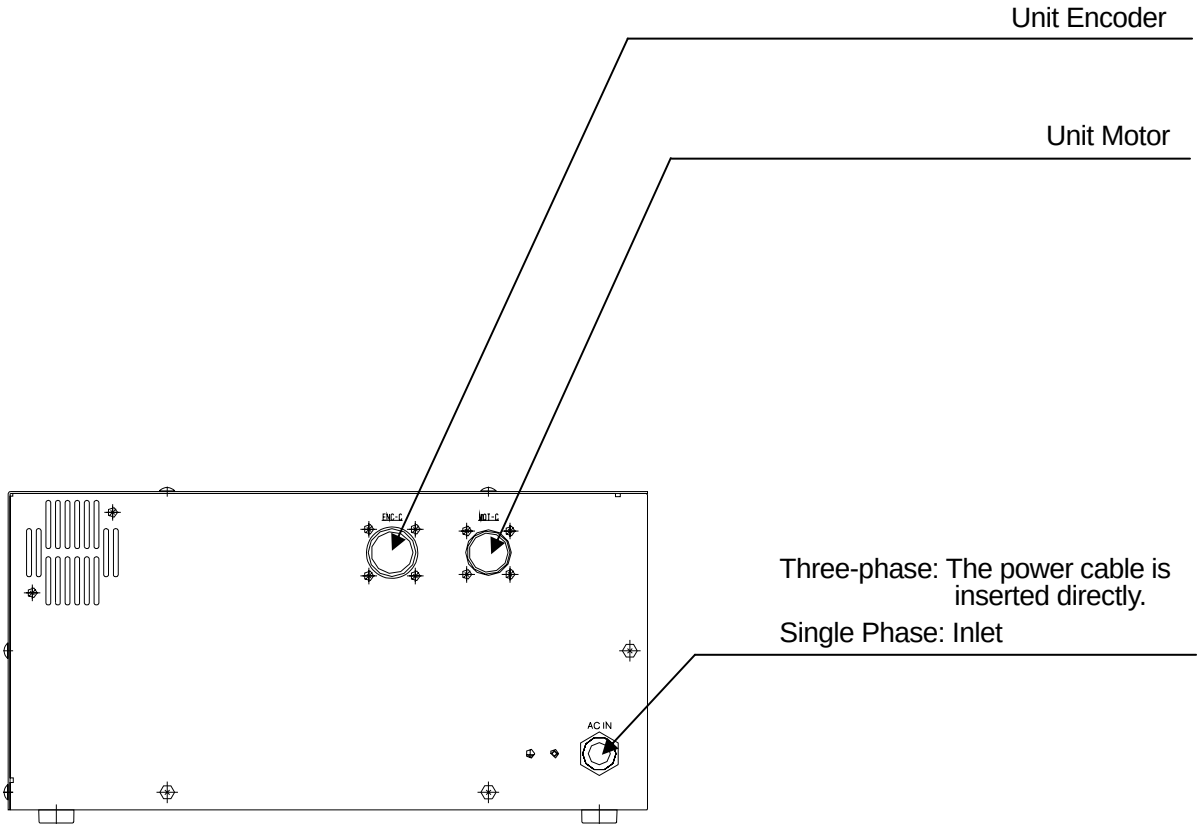


2-1-4 Control Box (Unit Type)

<Control Box (Front) (JPB-104 – 1504)>

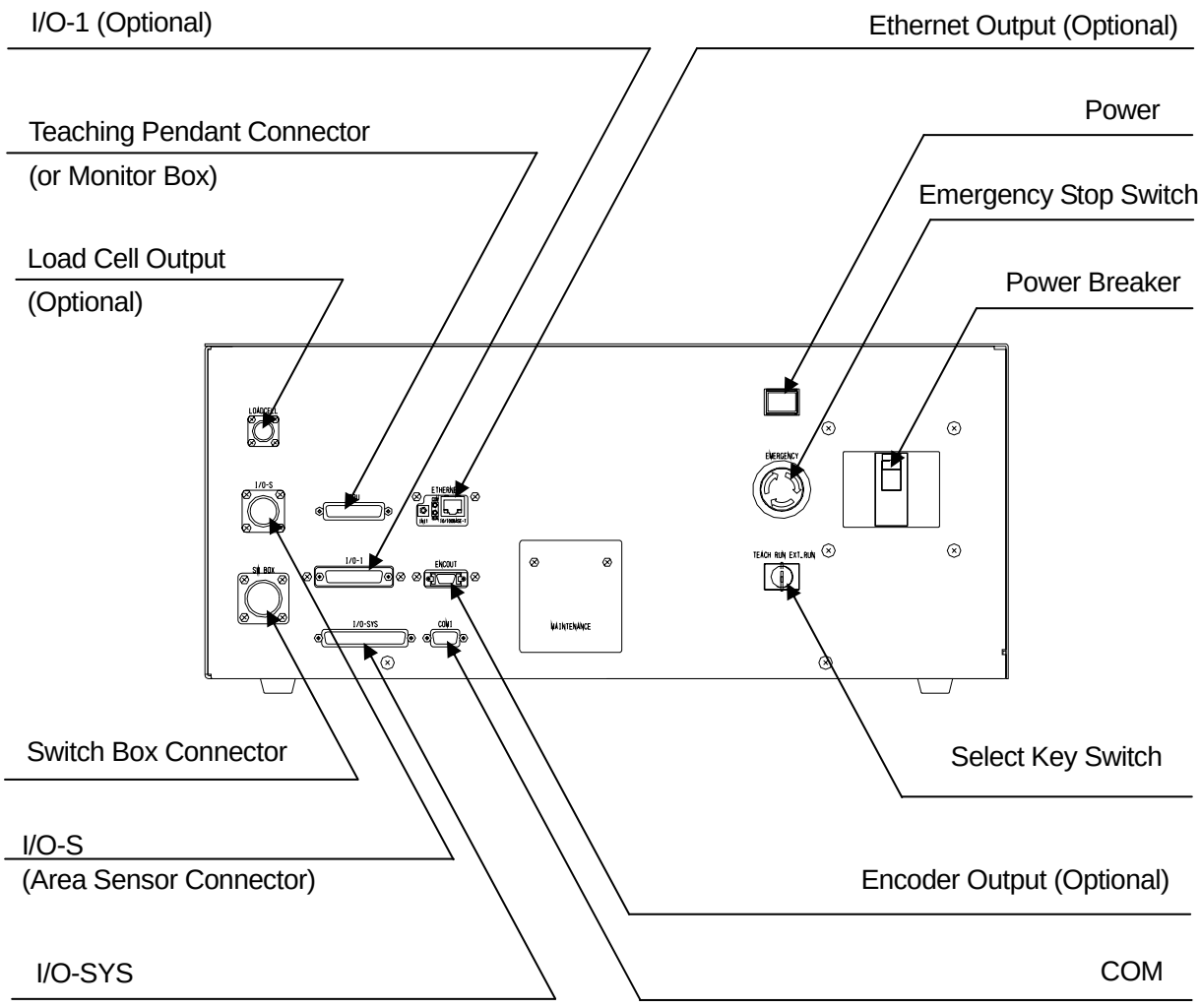


<Control Box (Rear) (JPB104 – 1504)>

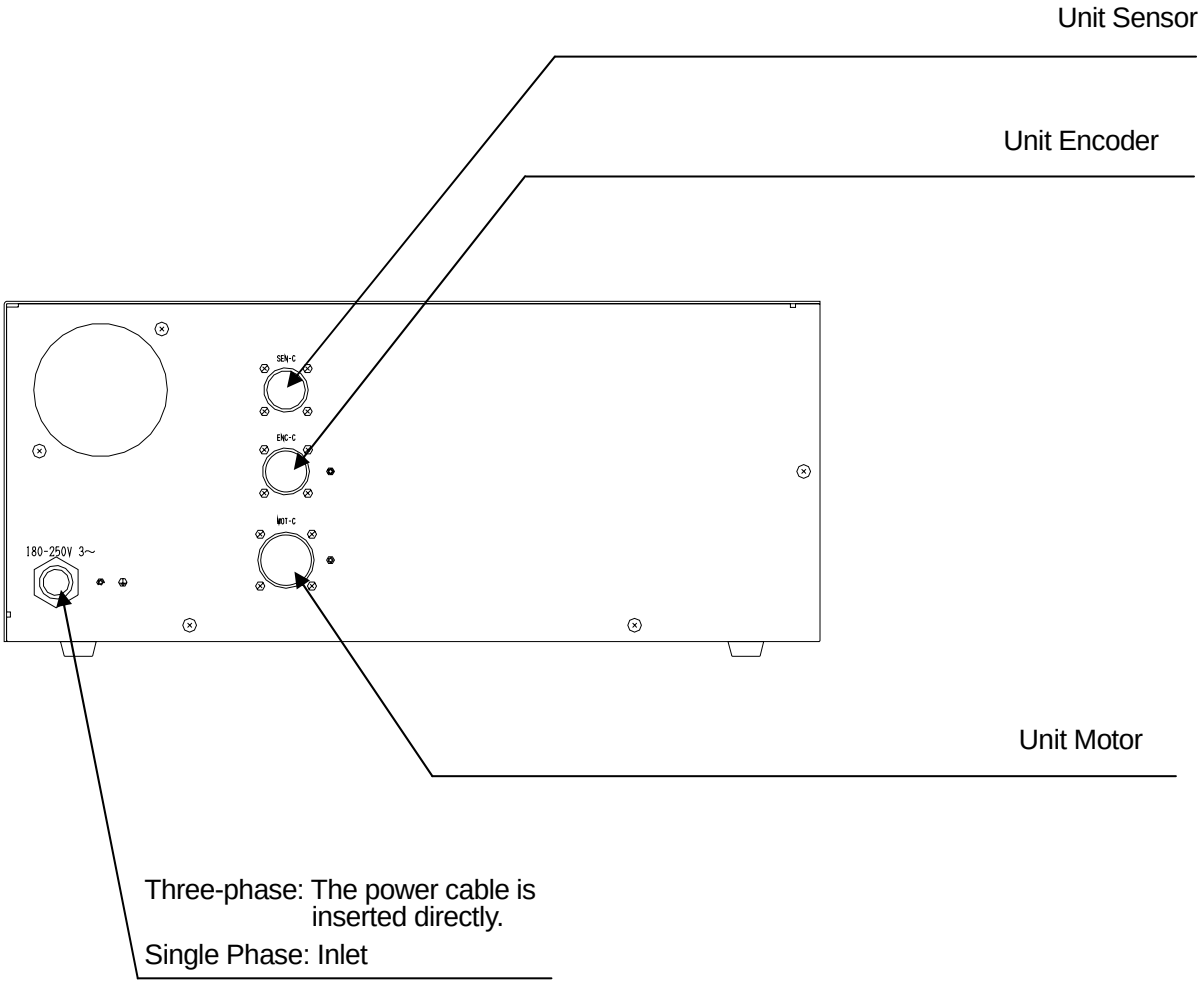


- Recommended area sensors: SFI-A series for CE
  SFI-A series for Japan and non-CE overseas
  (Both manufactured by SUNX Ltd.)

<Control Box (Front) (JPB-3004 – 8004)>



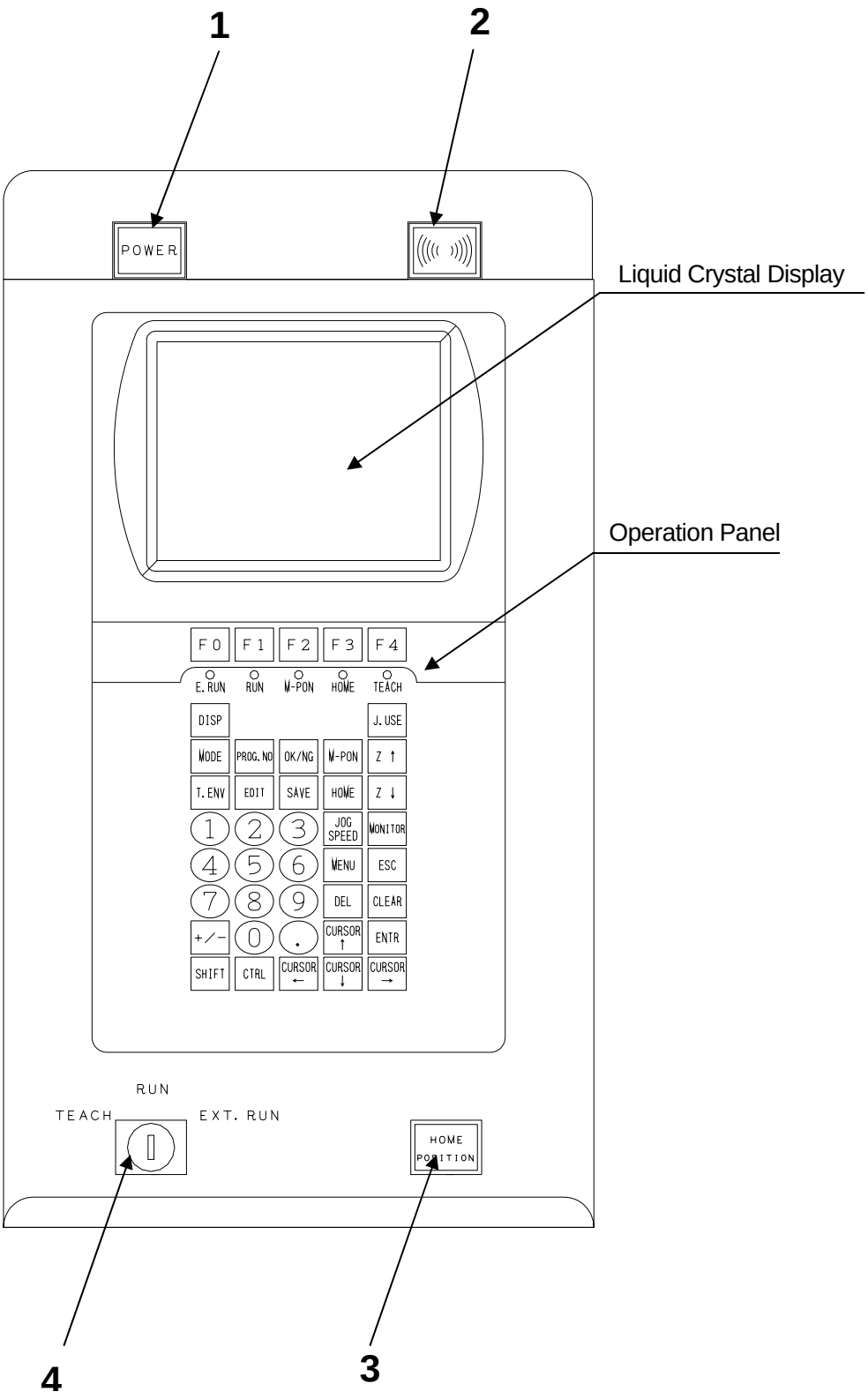
<Control Box (Rear) (JPB-3004 – 8004)>



- Recommended area sensors: SFI-A series for CE
  SFI-A series for Japan and non-CE overseas
  (Both manufactured by SUNX Ltd.)

2-2 Operation Panel

2-2-1 Operation Panel (Stand-Alone/Head Type)



2-2-2 Operation Panel Functions

- **Lamp, Alarm and Switch**

1. 

[POWER]: Lights up when the power switch is turned on.

2.  [ALARM]: Sounds when an error occurs

3. 

[HOME POSITION]: The ram returns to home position when the power is turned on.

4.  [SELECT KEY SWITCH]: The key that switches between RUN, TEACH, and EXT. RUN

- **Operation Panel Keys**

1 ～ 9 0	: Numeric Entry Keys. Enters numbers.
CLEAR	: Clears entered numbers.
DEL	: Deletes 1 digit.
ENTR	: Fixes entered numbers or items.
ESC	: Cancels entered items and restores previous items.
MENU	: Displays mode menu.
DISP	: Changes display to show operation results.
MODE	: Displays maintenance menu.
T.ENV	: Displays environmental setting menu such as display unit, etc.
PROG.NO	: Switches program number (enter/call.)
EDIT	: Displays edit menu. Items such as adding and deleting teaching data from a pressing operation.
OK/NG	: Displays OK/NG edit menu. Items such as adding and deleting teaching data to be judged.
SAVE	: Saves teaching data.
MONITOR	: Performs check run or I/O connection check.
J.USE	: Substitutes the current position as a setting value in JOG mode. Makes JOG mode effective.
JOG SPEED	: Switches the ram speed while in teaching mode.

F.0 ～ F.4 : Function Keys; various functions.

SHIFT : Changes the function when pressed simultaneously with another key.

CTRL : Changes the function when pressed simultaneously with another key.

CURSOR↑ : Shifts the cursor (highlight) upward or to the previous page.

CURSOR↓ : Shifts the cursor (highlight) downward or to the next page.

CURSOR← : Shifts the cursor (highlight) to the left.

CURSOR→ : Shifts the cursor (highlight) to the right.

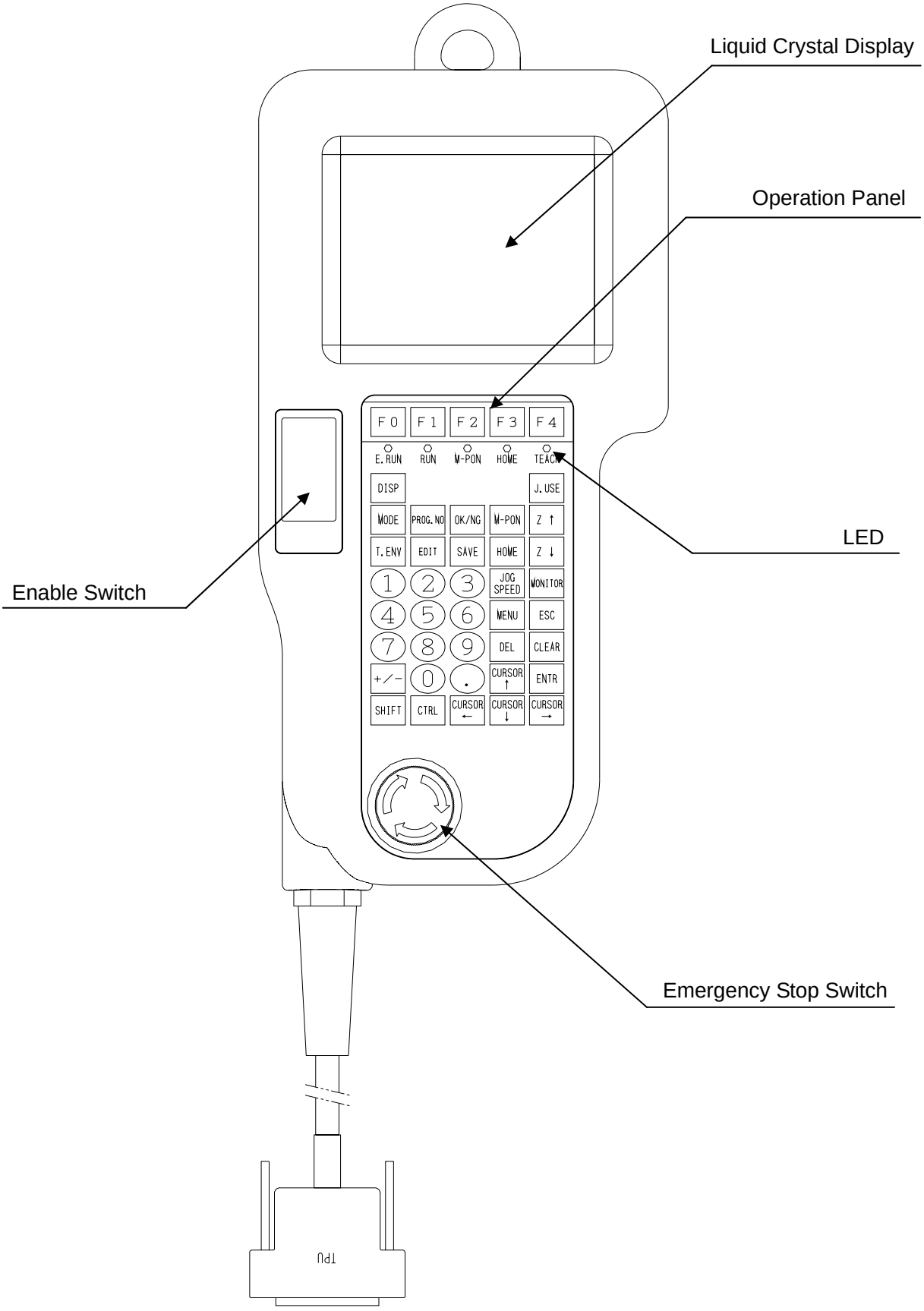
M-PON, Z↑, Z↓, HOME: Unused keys

- **LED**

E.RUN : Lights up when in external run mode.
RUN : Lights up when in run mode.
Both “RUN” and “TEACH” light up during check run.
M-PON : Lights up when the motor power is ON.
HOME : Lights up when the ram is at the mechanical home position.
TEACH : Lights up when in teaching mode.
Both “RUN” and “TEACH” light up during check run.

2-3 Teaching Pendant (Unit Type)

2-3-1 Teaching Pendant



2-3-2 Teaching Pendant Functions

- **Operation Panel Keys**

[1] ～ [9] [0]	: Numeric Entry Keys. Enters numbers.
[CLEAR]	: Clears entered numbers.
[DEL]	: Deletes 1digit.
[ENTR]	: Fixes entered numbers or items.
[ESC]	: Cancels entered items and restores previous items.
[MENU]	: Displays mode menu.
[DISP]	: Changes display to show operation results.
[MODE]	: Displays maintenance menu.
[T.ENV]	: Displays environmental setting menu such as display unit, etc.
[PROG.NO]	: Switches program number (enter/call.)
[EDIT]	: Displays edit menu. Items such as adding and deleting teaching data from a pressing operation.
[OK/NG]	: Displays OK/NG edit menu. Items such as adding and deleting teaching data to be judged.
[SAVE]	: Saves teaching data.
[MONITOR]	: Performs check run or I/O connection check.
[J.USE]	: Substitutes the current position as a setting value in JOG mode. Makes JOG mode effective.
[Z↑]	: Shifts the ram upward when this button is pressed in teaching mode while the enable switch is pressed.
[Z↓]	: Shifts the ram downward when this button is pressed in teaching mode while the enable switch is pressed.
[HOME]	: Shifts the ram to the work home position when this button is pressed in teaching mode while the enable switch is pressed.
[JOG SPEED]	: Switches the ram speed while in teaching mode.
[F.0] ～ [F.4]	: Function Keys;various functions.
[SHIFT]	: Changes the function when pressed simultaneously with another key.
[CTRL]	: Changes the function when pressed simultaneously with another key.
[CURSOR↑]	: Shifts the cursor (highlight) upward or to the previous page.
[CURSOR↓]	: Shifts the cursor (highlight) downward or to the next page.
[CURSOR←]	: Shifts the cursor (highlight) to the left.
[CURSOR→]	: Shifts the cursor (highlight) to the right.

[MODE], [MONITOR] : Unused keys

- **LED**

E.RUN : Lights up when in external run mode.
RUN : Lights up when in run mode.
Both “RUN” and “TEACH” light up during check run.
M-PON : Lights up when the motor power is ON.
HOME : Lights up when the ram is at the mechanical home position.
TEACH : Lights up when in teaching mode.
Both “RUN” and “TEACH” light up during check run.

- **Switch**

Emergency Stop Switch: Press this switch in an emergency to stop the electro press immediately.
It shuts off power to the motor.

Enable Switch: Turn this switch ON and execute key operations to shift the ram for data teaching.
The ram will not shift unless this switch is turned ON.
Pressed Half: ON
Released: OFF
Pressed firmly: OFF

2-4 Monitor Box (Optional for Unit Type)

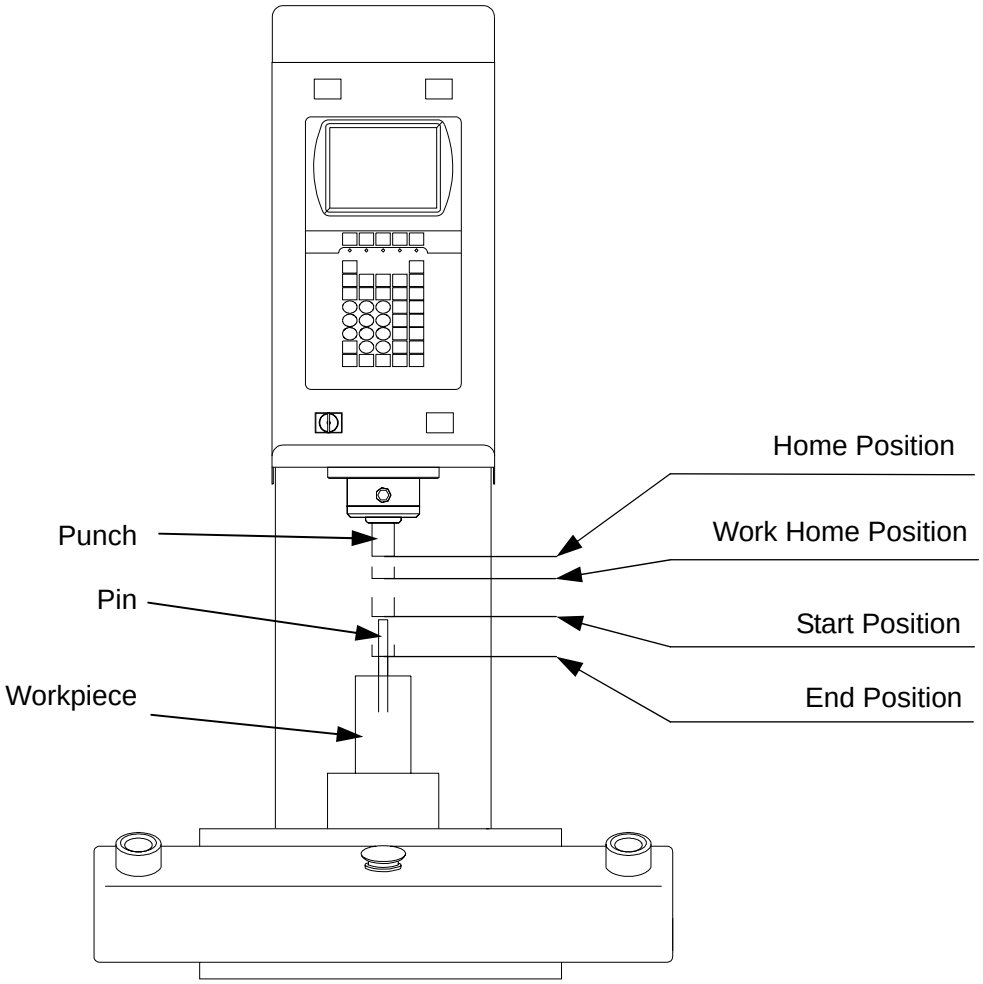
Under development.

3. BASIC OPERATION AND SENSOR FUNCTIONS

In this section, the basic operations and sensor functions of the Electro Press are explained.
The Electro Press is equipped with various pressing modes. As an example, the “Constant Speed･Set Stop Position mode” is explained below. Assume that you are pressing a pin into a workpiece placed on the fixture up to a preset depth with a punch attached to the ram.
Basically, there are the following four positions during operation.

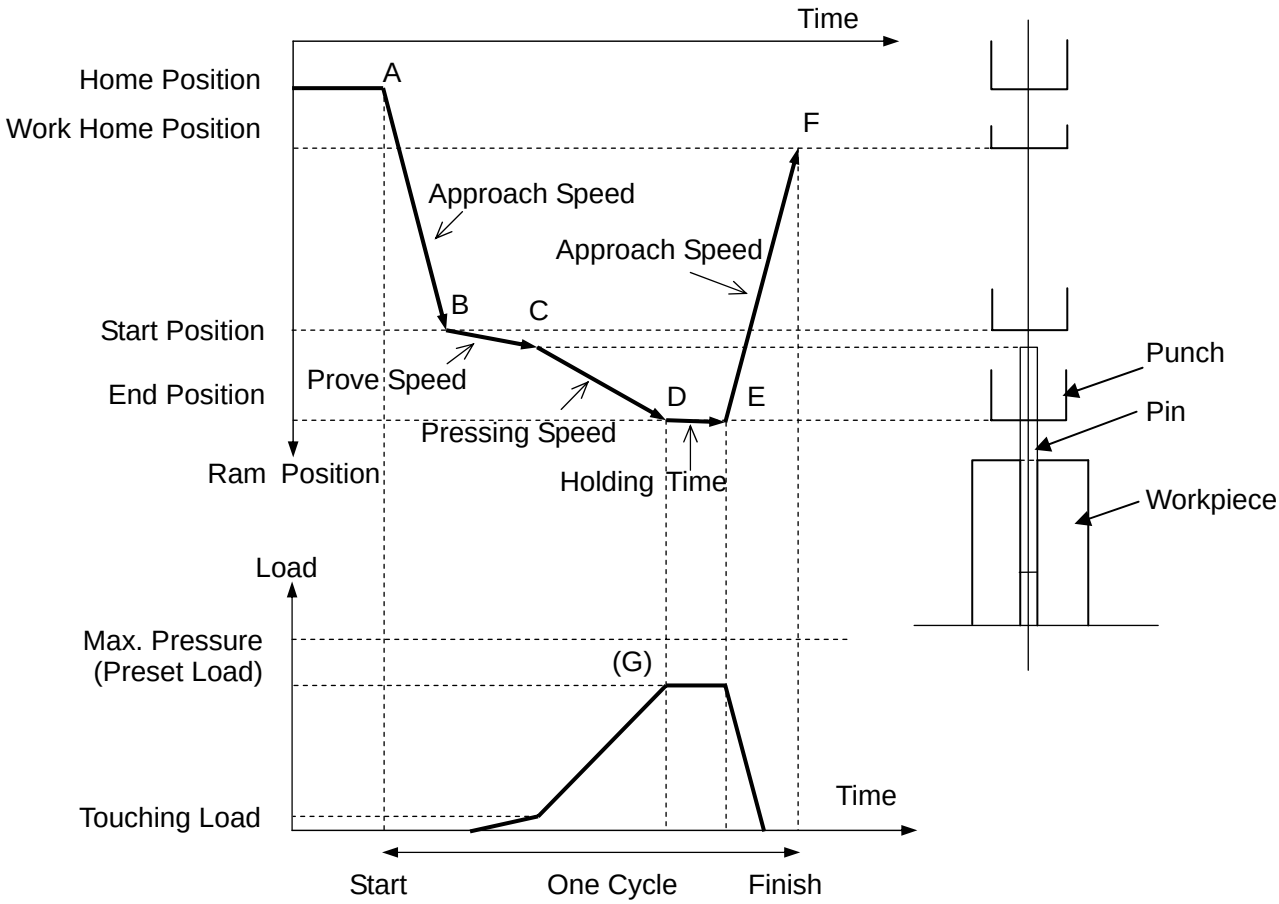
1. Home Position: original position of the ram
2. Work Home Position: position to eliminate redundant strokes
3. Start Position: position just before touching the workpiece
4. End Position: position where the pressing ends

Except for the mechanical home position, all other positions can be set in the teaching mode.
The basic operations of the Electro Press are explained on the next page.



3-1 Basic Operation of the Electro Press

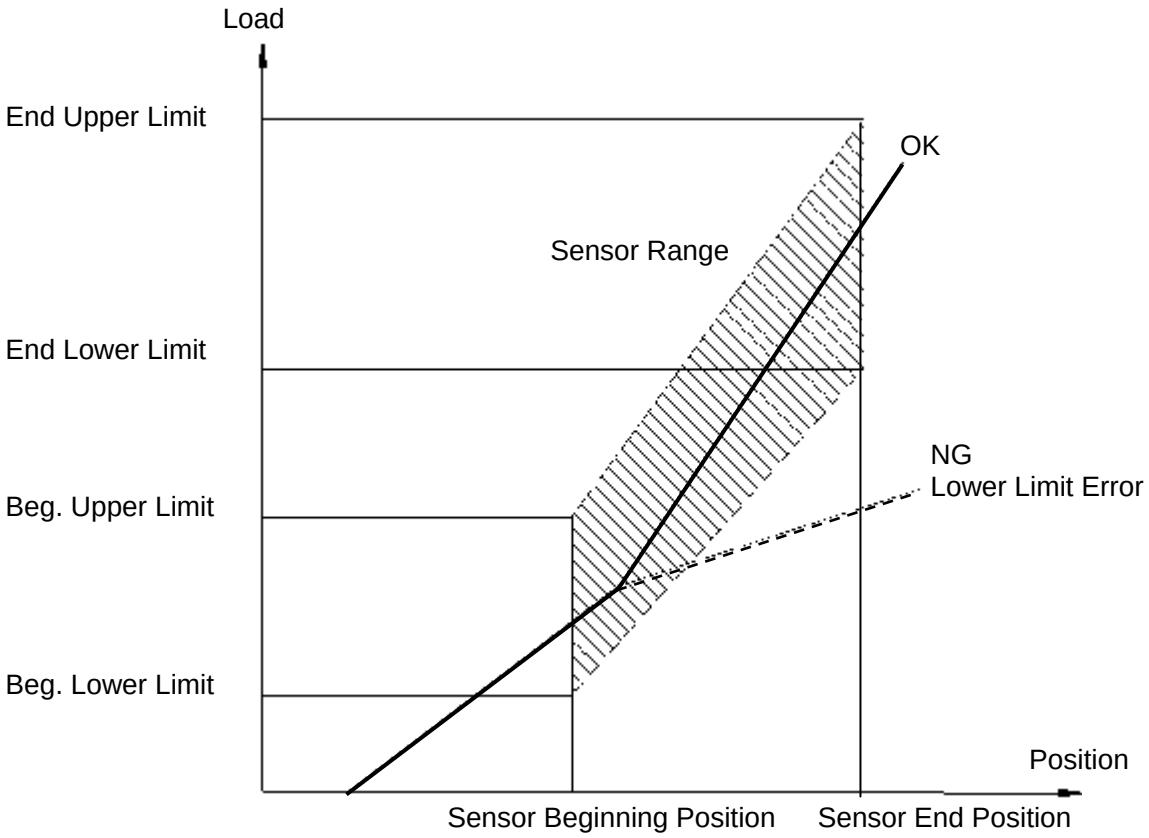
Ram Movement and Load Detection
(Constant Speed・Set Stop Position)



When the start switches are pressed, the ram descends from the home position (A) to the start position (B) at the approach speed. The ram then descends slowly at the probe speed until the ram touches the workpiece. After the ram reaches the touching load (C), its speed changes to the pressing speed and descends up to the end position (D) (and performs the pressing.)
After the holding time (E) at the end position, the ram ascends up to the work home position (F) and finishes one cycle of operation. The next cycle will be started from the work home position.
The above operation mode is Constant Speed・Set Stop Position, which is available to press the workpiece up to the set position.
In Constant Speed・Set Stop Load mode, the ram stops at the position where the ram detected the preset load (G) instead of the end position. The other operations are the same as the Set Stop Position mode. This mode is useful for thrust fitting.
The other pressing modes (refer to the Operation Manual) can be selected. Choose the mode that suits to your requirements.

3-2 General View of Sensor Function

The Electro Press is equipped with various sensor functions.
In this section, as an example, the load sensor within the position range in the Constant Speed・Set Stop Position mode is explained.



The Electro Press can monitor the load continuously when the sensor range is set.
The sensor range is set by designating the upper and lower limits of the load at the sensor beginning position and at the sensor end position. If the load deviates from the sensor range, the ram ascends and the LCD indicates an NG (No Good) sign, the load and position where the deviation is detected.
There are other sensor functions, the position sensor at the start position, distance and load sensors at the end position. Load sampling modes are also available.

The other sensor modes (refer to the Operation Manual) can be selected. Choose the mode that suits to your requirements.

4. BASIC OPERATION

4-1 Before Starting Up

- Check the following before turning on the power.

<Stand-Alone/Head Type>

- Make sure the breaker on the upper right side of the body is set to OFF.
- For the head type, connect the switch box to the body.

<Unit Type>

- Connect the control box to the body with the following three connecting cables.
  - UNIT IN1
  - UNIT IN2
  - UNIT OUT

- Make sure the breaker on the front panel of the control box is set to OFF.

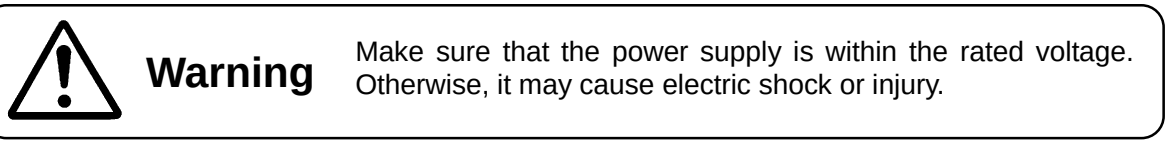
- When you are not using the switch box, be sure to connect the short connector to the switch box connector. If the switch box is not used, there is no home position return button. Activate the external I/O signal Home Position Return (IN17). (Refer to the Chapter 6 “CONNECTING EXTERNAL EQUIPMENT TO ELECTRO PRESS”.)

- When you are not using the teaching pendant, be sure to connect the short connector to the teaching pendant connector.

- In this case, connect the teaching pendant to the control box, as it is needed for the teaching operation.

The following notices apply to all models.

- Connect the power cord into the AC outlet firmly.



○ Check that no obstacle is inside or around the electro press working area.

4-2 Start Up

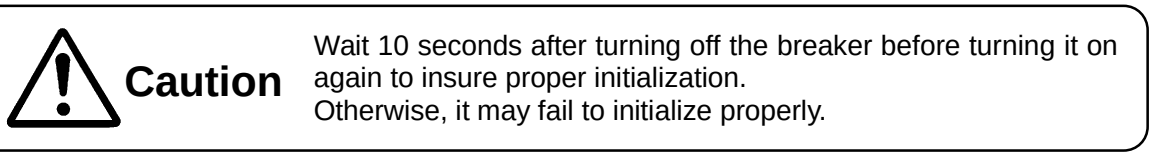
<Stand-Alone/Head Type>

- Set the select key switch to [TEACH] (teaching mode).
- Set the breaker located on the upper right side of the front panel to ON and turn the power ON.

<Unit>

- Make sure the teaching pendant is connected to the Electro Press.
- Set the select key switch on the control box to [TEACH] (teaching mode).
- Set the breaker located on the front panel of the control box to ON and turn on the power.

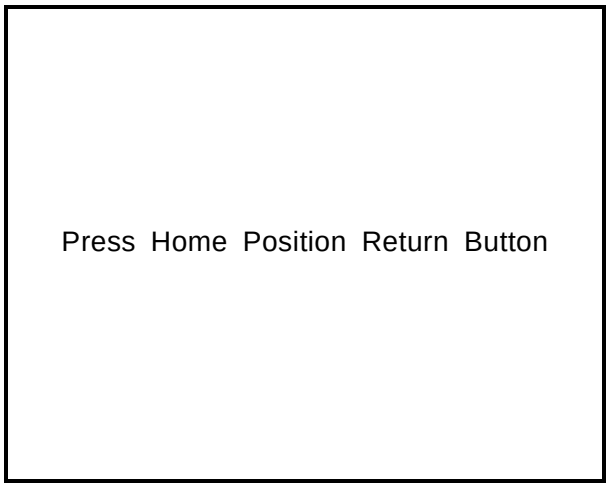
The following notices apply to all models.



The message to the right will be displayed on the LCD.

- Follow the message and slowly press the home position return switch.

The same condition can be reached by turning ON the external I/O signal Home Position Return. If you have removed the switch box from the unit type, there will be no Home Position Return Switch. Use the external I/O signal Home Position Return (IN17) instead. (Refer to the Chapter 6 “CONNECTING EXTERNAL EQUIPMENT TO ELECTRO PRESS”.)

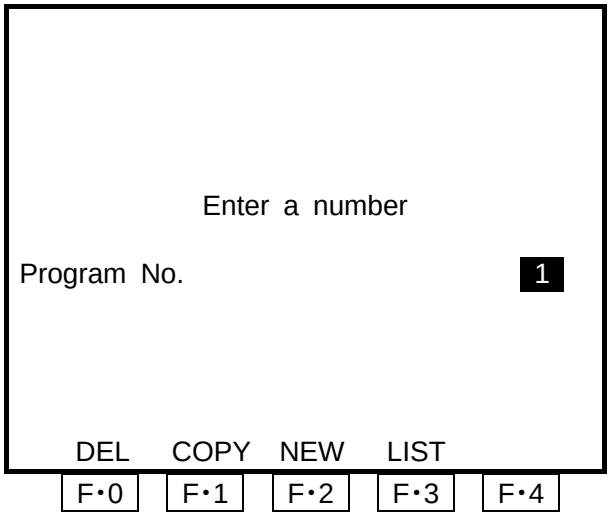


The message to right will be displayed on the LCD and the ram slowly returns to the home position.

- After the ram reaches the home position, the following message will be displayed (the digit blinks.)

- As instructed on the LCD, enter a program number using the numeric keys (0 to 9.)

If there is no teaching data program, the screen to the right will be displayed.
If programs with registered data exist, the program selected when the power was turned OFF the last time will be displayed. In this case, press the PROG.NO key to display the screen to the right.



Here, enter Program No. 1.

- The program numbers can be set up to 100.
- Press the F•2 key to display a list of vacant program numbers.
- Press the F•3 key to display a list of occupied program numbers and their titles.
- If you entered the wrong numbers, press the [DEL] key to delete them.
- Use the [CLEAR] key to clear all the numbers.
- Press the [CURSOR↑] key to increase the number.
- Press the [CURSOR↓] key to decrease the number.
- Press the [CURSOR→] key to shift the cursor rightward.
- Press the [CURSOR←] key to shift the cursor leftward.

- Press the [ENTR] key to fix the settings.

4-3 Teaching

4-3-1 Teaching for Operation Mode Setting

If a new program number is set, the operation mode selection screen will appear.
In this section, [Constant Speed·Set Stop Position] will be explained. For other operation modes, follow the instructions on the LCD and set conditions with reference to this section.

● Highlight the [Constant Speed • Set Stop Position] and press the [ENTR] key.

- Press the [CURSOR ↓] key to shift the highlight downward.
- Press the [CURSOR ↑] key to shift the highlight upward.
- Press the [SHIFT] + [CURSOR ↓] keys to display the next page.

Select Item 1/2
Const Speed • Set Stop Pos'n
Const Speed • Set Stop Load
Const Speed • Set Dist. Mode
Const Speed • Timed Presser
Const Speed • Set Stop Pos'n
Const Speed • Set Dist. Mode
2 Section • PP
2 Section • DD
2 Section • LL
2 Section • PL
2 Section • DL
2 Section • LP

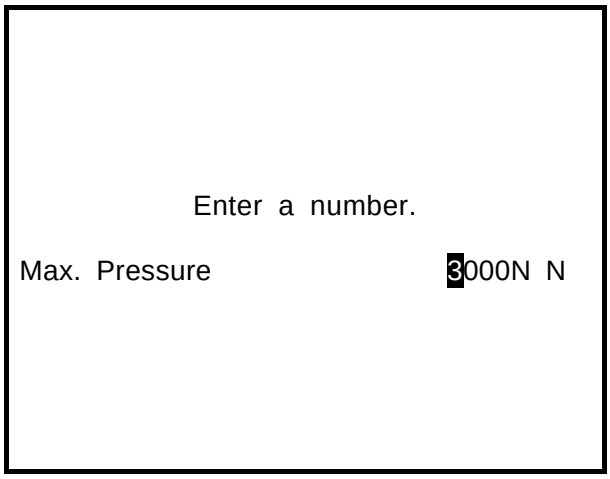
● A screen to enter the pressing speed will be displayed. Enter the speed with the numeric and decimal keys. Press the [ENTR key to fix the numbers. Here, we will enter 10.8 mm/s as the pressing speed for the purpose of illustration.

- Press the [CURSOR ↑] key to increase the number.
- Press the [CURSOR ↓] key to decrease the number.
- Press the [CURSOR →] or [CURSOR ←] key to shift the cursor.
- Press the [DEL] key to delete the digit on the cursor.
- Press the [CLEAR] key to clear all the numbers.

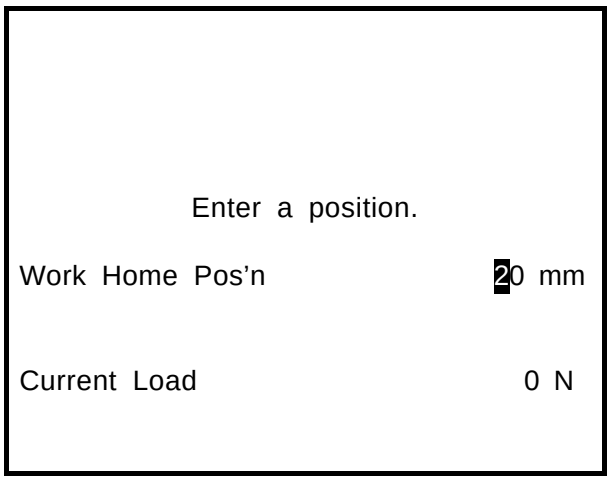
Enter a number.

Pressing Speed 10.8 mm/s

- A screen to enter the maximum pressure will be displayed. Enter the value with the numeric and decimal keys. Press the [ENTR] key to fix the number. Here, we set the maximum pressure to 3000N.



- Next, you will be asked to set the work home position. The work home position is the position where the ram ascends after one cycle of pressing job and waits for the next cycle. Perform position entry using the two start switches ([Z↓] and [Z↑] keys for the unit type.)



How to Perform Position Entry

Stand-Alone/Head Type

- To make the ram descend, press the two start switches at the same time.
- To stop the ram on the spot, release one of the two start switches.
- To make the ram ascend, release both hands from the two start switches.

Shift the ram to the desired work home position and press the [ENTR] key to fix the position.

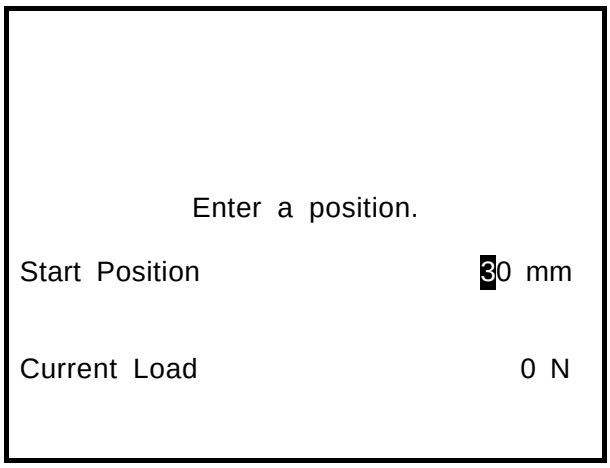
Unit Type

- To make the ram descend, press the [Z↓] key while pressing the enable switch.
- To make the ram ascend, press the [Z↑] key while pressing the enable switch.
- To stop the ram on the spot, release the key.
- To return the ram to the home position, press the [HOME] key while pressing the enable switch.

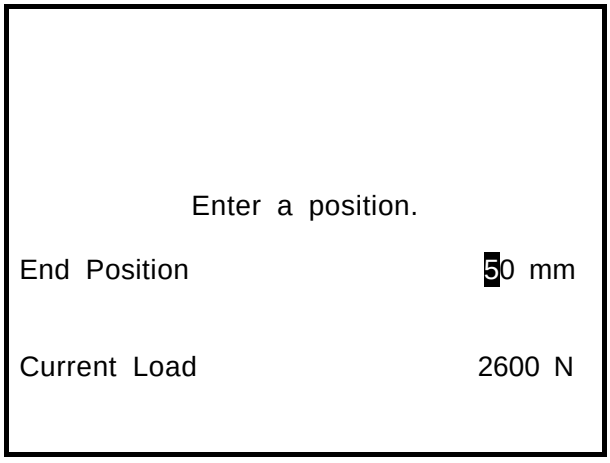
Shift the ram to the desired work home position and press the [ENTR] key to fix the position.

- If you know coordinates to enter, you can set it using the numeric and decimal keys.

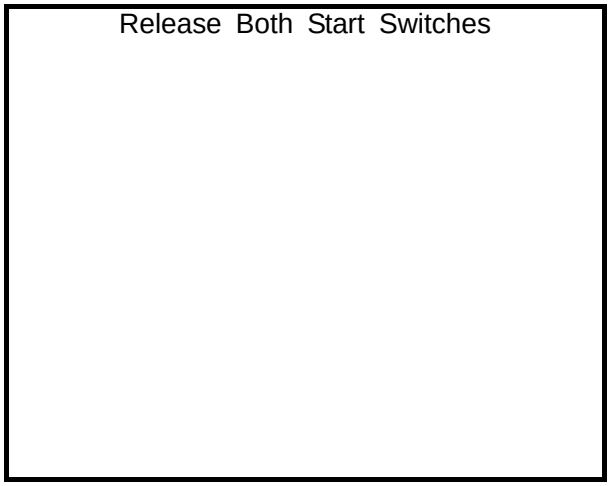
- Next, a screen to enter the start position will be displayed. Perform position entry. (The start position must be set at the position just before the ram touches the workpiece.)



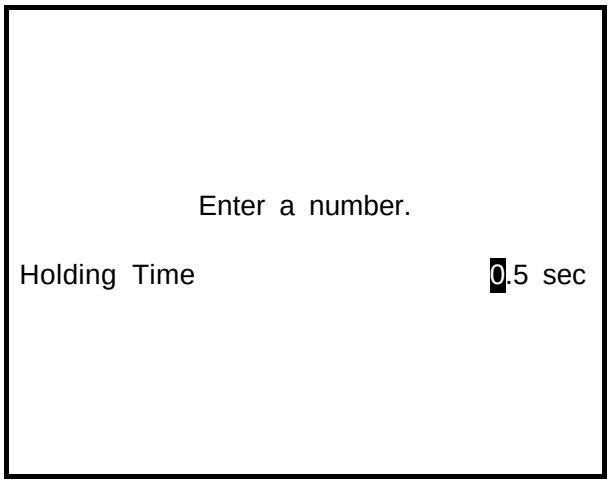
- The End Position setting screen will prompt you to set the ram end position. Perform position entry. (The end position should be set at the point where the ram ends the pressing.)



- As the message says, release both of the start switches, and the ram ascends to the home position. For the unit type, press the enable switch and the [HOME] key together to ascend the ram to the home position.



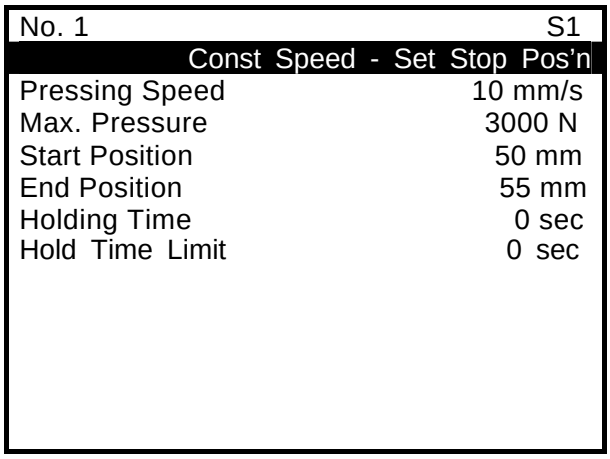
- A screen to enter the holding time will be displayed. Enter the numbers with the numeric and decimal keys and press the [ENTR] key to fix the time. Here, we will enter 0.5 sec. for the purposes of illustration.



- All the entered numbers will be displayed on the next screen. Confirm the numbers you have entered.

On this screen, press the keys below to check each item.

[CURSOR→] key: Sensor setting
[CURSOR←] key: Approach setting



If you want to divide the pressing section into more than 2 sections, press the EDIT key. You can add a section from the EDIT menu.

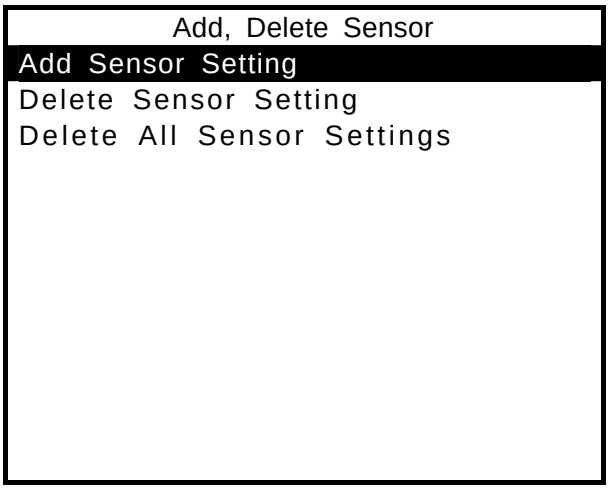
4-3-2 Teaching for Sensor Mode Setting

This illustration explains how to set [Sensor Load • Position Range]. For other modes, follow the instructions displayed on the LCD and set the mode with reference to the procedures explained in this illustration. If you don't need to set the Sensor Load • Position Range, this step is unnecessary.

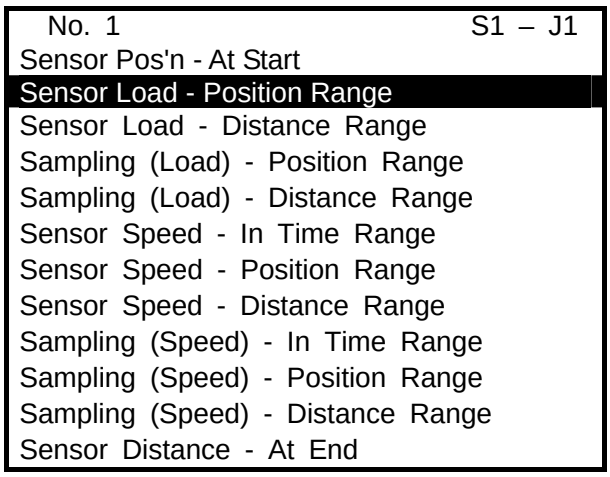
● Press the [OK/NG] key.

● Highlight [Add Sensor Setting] and press the [ENTR] key.

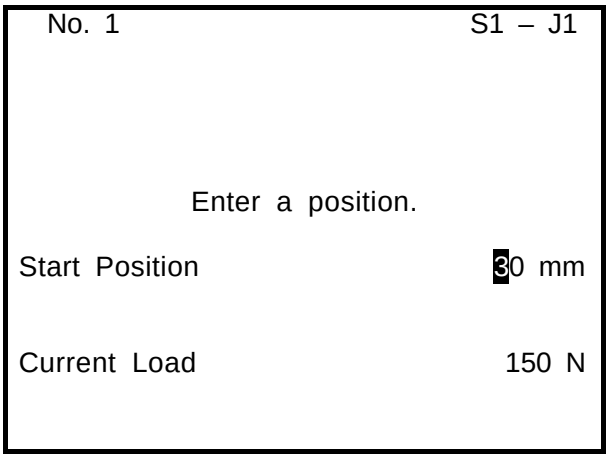
- Press the [CURSOR ↓] key to shift the highlight downward.
- Press the [CURSOR ↑] key to shift the highlight upward.



● Highlight [Sensor Load • Position Range] and press the [ENTR] key.



● The LCD then displays the setting s creen for the Sensor Beginning Posit ion. Perform position entry.



How to Perform Position Entry

Stand-Alone/Head Type

- To make the ram descend, press the two start switches at the same time.
- To stop the ram on the spot, release one of the two start switches.
- To make the ram ascend, release the two start switches.

Shift the ram to the desired work home position and press the [ENTR] key to fix the position.

Unit Type

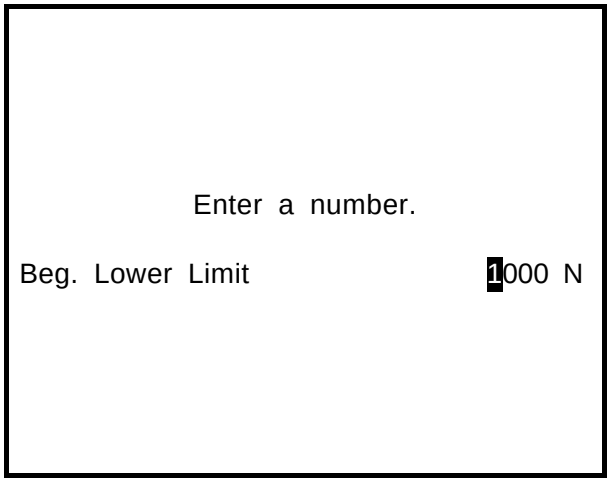
- To make the ram descend, press the [Z ↓] key while pressing the enable switch.
- To make the ram ascend, press the [Z ↑] key while pressing the enable switch.
- To stop the ram on the spot, release the key.
- To return the ram to the home position, press the [HOME] key while pressing the enable switch.

Shift the ram to the desired work home position and press the [ENTR] key to fix the position.

- If you know the coordinates to enter, you can also set the work home position using the numbers directly. Press the [J.USE] key to display the number entry screen and enter the desired number using the numeric and decimal keys.

- After entering a Start Position, the setting screen for the Sensor End Position is displayed on the LCD. Perform position entry in the same as you did for the Sensor Beginning Position.

- The setting screen will prompt you to set the lower limit of the sensor beginning position. Enter the value with the numeric and decimal keys. Press the [ENTR] key to fix it. Here, we will set 1400N for the purposes of illustration.



- Press the [CURSOR ↑] key to increase the number.
- Press the [CURSOR ↓] key to decrease the number.
- Press the [CURSOR→] or [CURSOR←] key to shift the cursor.
- Press the [DEL] key to delete the digit on the cursor.
- Press the [CLEAR] key to clear all the numbers.

- A screen to enter the upper limit of the sensor beginning position will be displayed. Enter the value with the numeric and decimal keys. Press the [ENTR] key to fix it. Here, we will enter 1600N for the purposes of illustration.

- The setting screen will prompt you to set the lower limit of the sensor end position. Enter the value with the numeric and decimal keys. Press the [ENTR] key to fix it. Here, we will enter 2400N for the purposes of illustration.

- The next setting screen will prompt you to enter the upper limit of the sensor end position. Enter the value with the numeric and decimal key. Press the [ENTR] key to fix it. Here, we will enter 2600N.

- The necessary entries of the parameters are completed. The LCD now displays a list of the entered sensor mode settings.

No. 1	S1
Const Speed • Set Stop Pos'n	
Pressing Speed	10 mm/s
Max. Pressure	5000 N
Start Position	50 mm
End Position	35 mm
Holding Time	0 sec

- Press the [CURSOR ↓] key to check the sensor settings.

No. 1	S1-J1
Sensor Load • Position Range	
	Stop on Fault
Sensor Beg. Pos'n	25.000 mm
Sensor End Pos'n	30.000 mm
Beg. Lower Limit	1400 N
Beg. Upper Limit	1600 N
End Lower Limit	2400 N
End Upper Limit	2600 N

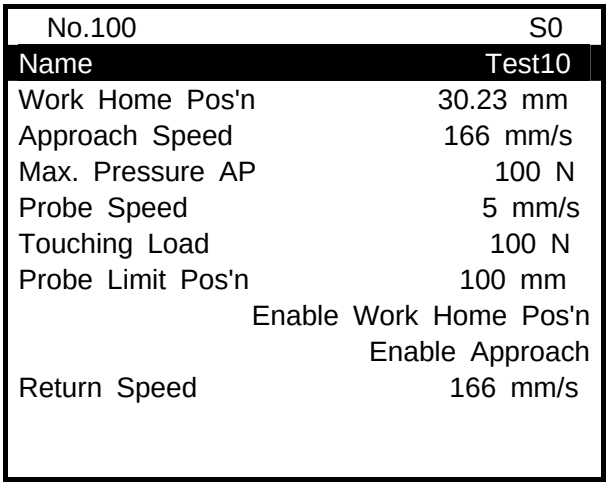
4-3-3 Program Name Entry

You can name a teaching program to identify it.
The program name is displayed in the following conditions.

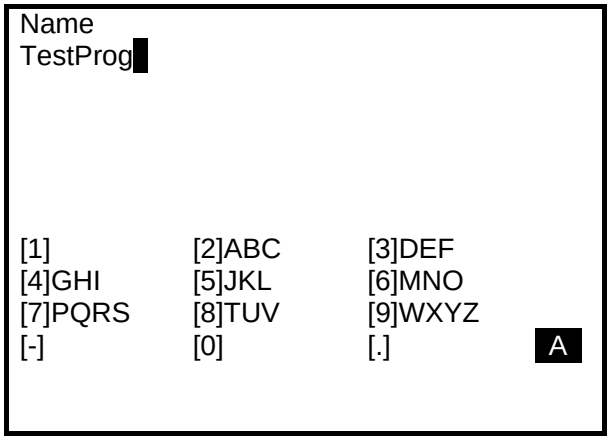
- When the teaching mode base condition “S0” is displayed.
- When you press the [F • 3] key (LIST) in program number entry.
- On the program list screen.
- When standing by for running.

How to Enter a Program Name

When the teaching mode base condition “S0” to the right is displayed, select “Name.” The program name entry screen below will appear.



It is possible to enter up to 40 alphanumeric characters and symbols in one name.
You can also change a program name already registered.



- Enter a name using [1] to [9], [0], [±] and [.] keys and press the [ENTR] key to fix it.
- If you press the [2] key once, “A” is entered. If twice, “B” is entered.
  For example, if you want to enter “AB”, enter “A”, press the [ENTR] key and enter “B.”
- Each time you press the [F • 4] key, the character entry type will be changed in order of **Alphabetic uppercase characters ← Alphabetic lowercase characters ← Numbers ← Alphabetic uppercase characters**
- Press the [DEL] key to delete one character. Press the [CLEAR] key to clear the character string you entered.

4-3-4 Saving Teaching Data

The teaching data is stored temporarily in the body of the Electro Press. However, if you leave the Electro Press OFF for some time, **the data stored will be deleted**. Be sure to save the data after data teaching.

Caution

Be sure to save data whenever it is added or modified. **Otherwise, changes will not be saved if the power to the robot is cut off.**

How to save data

- Press the “SAVE” key.

Caution

Do not turn the power to the Electro Press OFF during the save operation.
If the machine stops while saving data due to emergency stop, the save operation will be canceled. To re-save the data, release the emergency stop, return the ram to the mechanical home position so that the LCD displays the base screen and press the SAVE key.

Backup

If you want to back up data in case of accident, transfer the data to your PC using the software “JP Designer (optional)” or “JP Designer Limited Edition (included in the Operation Manual CD-ROM)” and save it in a file.

4-4 Running

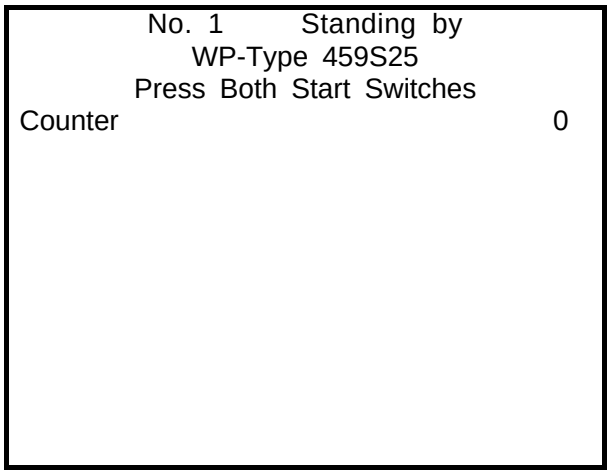
You can run the program with the start switches.

- Change the operation mode from [TEACH] to [Run] with the select key switch.

Note:

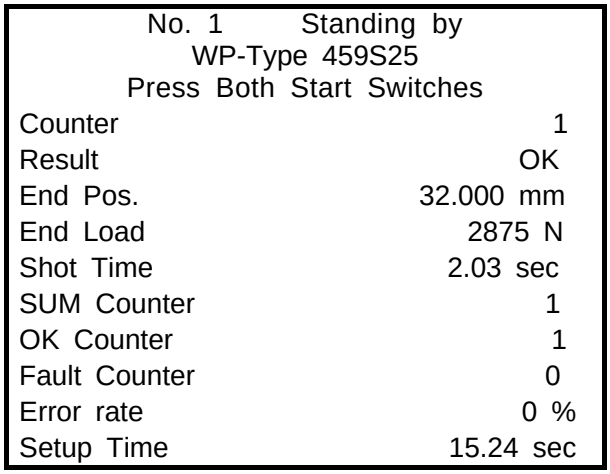
- Operate the Electro Press by using the switch box. For operation instructions without a switchbox see Section 4-5 “EXTERNAL I/O OPERATIONS”.
- If you are using the unit type, a switch box is available as an option.
  To use the switch box for the unit type, it is necessary to set “Switch Box” to “Valid” under “System Settings” from [MENU].

- Place a workpiece beneath the ram.



- Press the two start switches on the switch box together. The ram shifts according to the registered settings. Keep pressing both start switches until the ram starts ascending.
  If you release one switch while the ram is descending, the ram stops on the spot. Then, the ram returns to the work home position if you release the other switch.
  This returns a [Stop in Middle] NG and the buzzer sounds. To stop the buzzer, press either the start switches, [F·1], [F·2], or [F·3] key.
  The ram returns to the work home position and the operation result will be displayed will be displayed after releasing the start switches.

  The buzzer also sounds if the start switches are pressed even though the ram returns to the work home position. In this case, the message “Release Both Start Buttons” will be displayed on the LCD.
  Release the start switches once and restart running.



Note:

- Each time the start switch is pressed, the Electro Press performs operations and the operation results will be displayed accordingly.

4-5 External I/O Operations

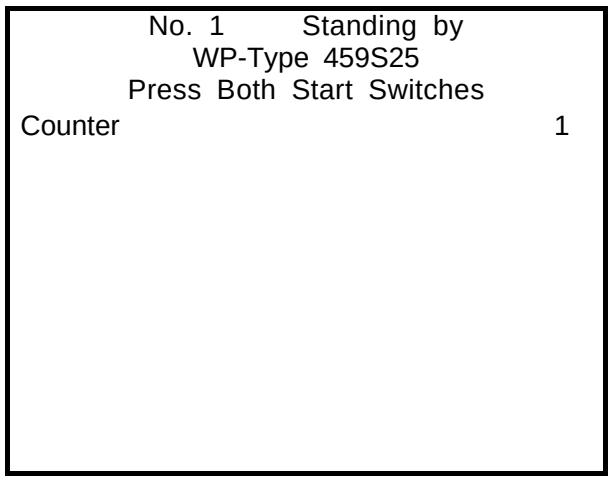
The following explains how to run the Electro Press via the external I/O.
For details of the I/O wiring or connection, follow the instructions described in the chapter “3. CONNECTING EXTERNAL EQUIPMENT TO ELECTRO PRESS” (standard specification.)

Stand-Alone / Head Type

- Change the operation mode from [TEACH] to [EXT.RUN] with the select key switch.

Unit Type

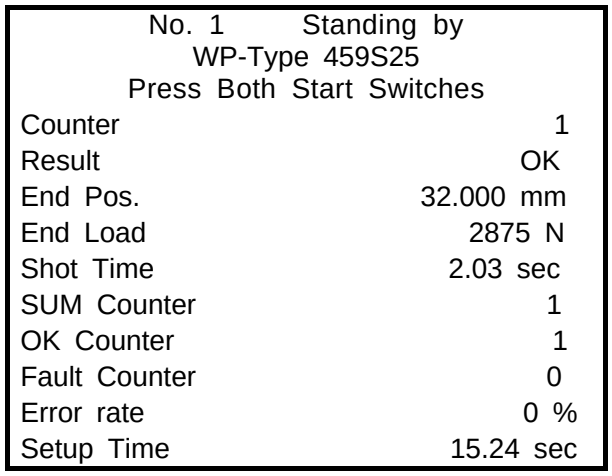
- Turn off the power and remove the switch box. Connect the short connector to the switch box connector.



- Place a workpiece beneath the ram.

- Turn ON the external input start-up signal (IN1.) The ram will shift according to the registered settings. Keep the IN1 signal ON until the ram starts ascending. If you turn OFF the IN1 signal, the ram stops on the spot and returns to the work home position. This returns a sensor result NG error and the buzzer sounds. To stop the buzzer, turn ON the external input reset signal (IN13).

- The ram returns to the work home position, and if you turn OFF the external input start-up signal (IN1), the operation result will be displayed. Keep the IN1 signal ON until the ram starts ascending.



Note:

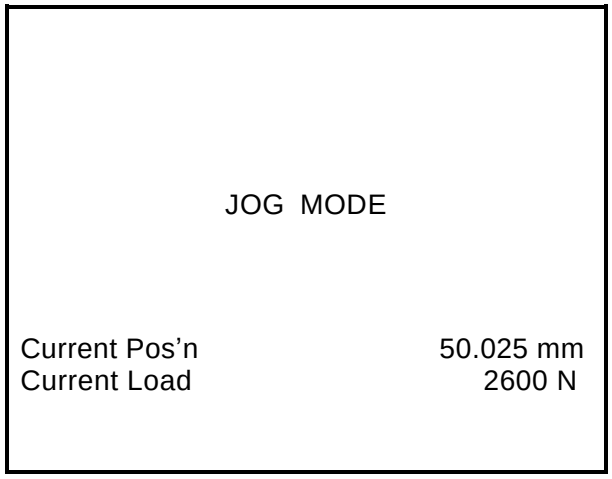
- Each time the external input start-up signal (IN1) is turned ON, the Electro Press performs operation and the operation result will be displayed accordingly.

4-6 JOG Mode

You can make the ram descend or ascend at low speed to adjust the workpiece or jig position.

- You can set a load restriction while in JOG mode under “Teaching Environments Setting.” It is also possible to select restriction values.

- Press the [J.USE] key.



Stand-Alone / Head Type

- Adjust the ram position with the start switches.
  - To make the ram descend, press both start switches together.
  - To stop the ram on the spot, release one start switch.
  - To make the ram ascend, release both start switches together.

Unit Type

- Make the ram ascend or descend with the keys ([Z↓] – [Z↑], [HOME]) on the teaching pendant.
  - To make the ram descend, press the [Z↓] key while pressing the enable switch.
  - To make the ram ascend, press the [Z↑] key while pressing the enable switch.
  - To stop the ram on the spot, release the key.
  - To shift the ram to the home position, press the [HOME] key while pressing the enable switch.

- If you use the monitor box instead of the teaching pendant, make the ram descend or ascend with the switch box.
  - Press the [DISP] key on the monitor box to enter the JOG Mode.
  - To make the ram descend, press both start switches together.
  - To stop the ram on the spot, release one start switch.
  - To make the ram ascend, release both start switches.

- To exit the JOG Mode, press the [J.USE] key while the ram is stopped.

When you exit the JOG Mode, be sure to shift the ram to the home position. Otherwise, the ram shifts to the registered pressing position at the approach speed when you start the Electro Press.

4-7 Emergency Stop

- The Electro Press is equipped with the utmost safety measures.

  1. If the CPU runs out of control, a fail-safe circuit is automatically activated to shut off the electric supply to the AC servomotor via the electromagnetic relay. The Electro Press will stop promptly.
  2. The emergency stop switch is also available. When it is activated, the electric supply to the AC servomotor is forcibly shut off via the electromagnetic relay and the Electro Press will stop promptly.

- To restart the Electro Press, turn the emergency stop switch counterclockwise to release the mechanical locking. Then, press the home position return switch.

4-8 Key Operation

4-8-1 Base Screen

The following screens are called base screens.
Run Mode: Standby screen
Teaching Mode: Pressing condition screen (S1, S2 and so on)

<Example of Confirmation Screen>

No. 98	Standing by
WP-Type 459S25	
Press Both Start Switches	
Counter	154
Result	OK
End Pos.	30.25 mm
End Load	1050 N
Shot Time	5.23 sec
SUM Counter	2568
OK Counter	150
Fault Counter	4
Error rate	2.6 %
Setup Time	5.24 sec

No. 1	S1
Const Speed・Set Stop Pos'n	
Pressing Speed	10 mm/s
Max.Pressure	5000 N
Start position	50 mm
End Position	55 mm
Stop Time	0 sec

MENU ..... Displays the menu.

T.ENV ..... Displays the Teaching Environments Setting menu.

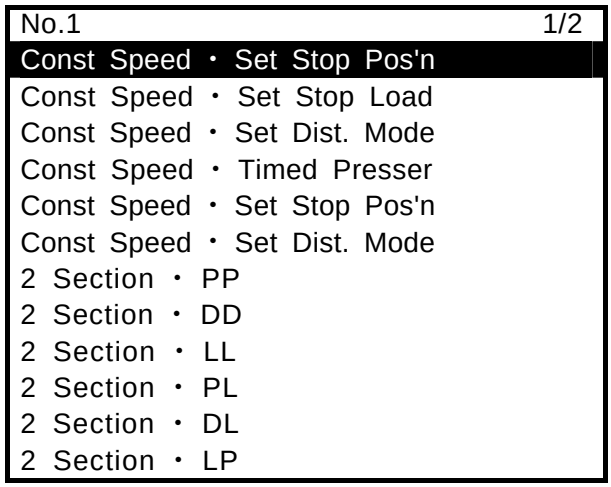
PROG.NO ..... Displays the Program Number entry screen.
This key is used to change the selected program number or register a new program.

SAVE ..... Displays Data Saving screen.
This key is used to save teaching data.

4-8-2 Selection

The menu and confirmation screens are classified as “selection screens.”
“Select” means to highlight an item and fix it (press the [ENTR] key.)

The selection screen sometimes covers multiple pages. The sign “1/2” in the upper-left corner of the screen means this page is page 1 of 2 pages.



<Example of Selection Screen>

[1] - [0] ..... Press these keys to highlight the corresponding line counted from the first line of the first page. Press the [0] key to highlight the tenth line. (Any number larger than the total number of lines is invalid.)

[CURSOR ↑] ..... Shifts the highlight up one line. This key is invalid if the first line of the first page is already highlighted.

[CURSOR ↓] ..... Shifts the highlight down one line. The highlight will shift to the first line of the next page if the last line is highlighted. This key is invalid if the last line of the last page is already highlighted.

[SHIFT] + [CURSOR ↑] ..... Displays the previous page. (This key is invalid if the first page is displayed.)

[SHIFT] + [CURSOR ↓] ..... Displays the next page. (This key is invalid if the last page is displayed.)

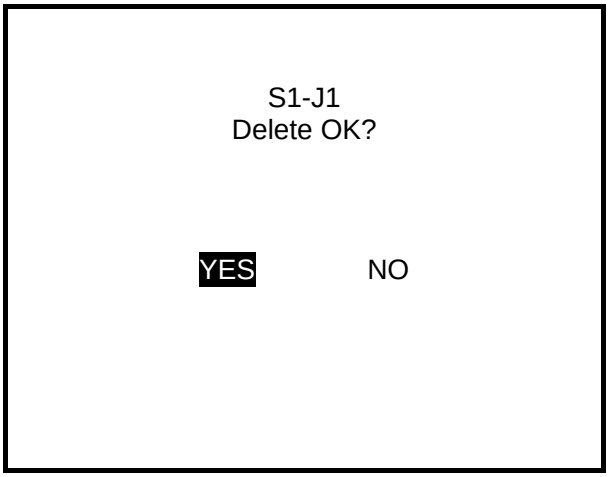
[.] ..... Highlights the last line. (If the menu screen covers multiple pages, the last line of the last page will be highlighted.)

[±] ..... Toggles the highlighted item between the two choices such as [ON]/[OFF].

[ENTR] ..... Fixes the highlighted item. Also displays the setting screen or the relative menu for the selected item.

[ESC] ..... Displays the previous menu or base screen. This key is invalid on the Program Number selection screen if no program is registered.

SHIFT + ESC ..... Displays the base screen.
This key is invalid on the Program Number selection screen if no program is registered.



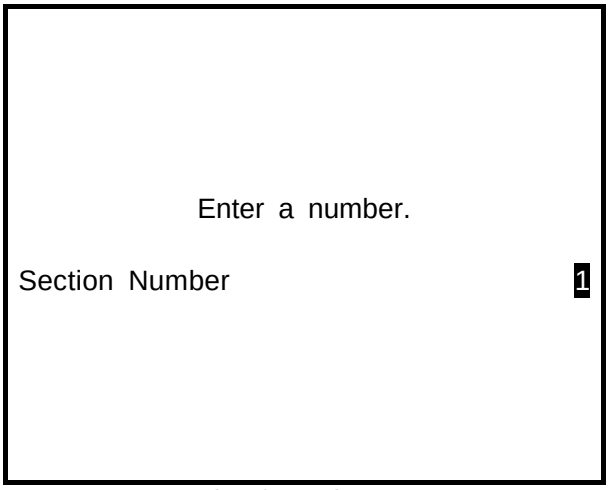
<Example of Confirmation Screen>

CURSOR ← ..... Shifts the highlight leftward. This key is invalid if the leftmost item is highlighted.

CURSOR → ..... Shifts the highlight rightward. This key is invalid if the rightmost item is highlighted.

ENTR ..... Fixes a highlighted item.

4-8-3 Entering Numbers



<Example of Number Entry Screen>

The cursor blinks on a character or number.

CURSOR ↑ ..... Increases the number. If you release this key within 0.5 seconds, the number increases by the minimum increment*. If you press this key for more than 0.5 seconds, the number keeps increasing every 0.2 seconds.

CURSOR ↓ ..... Decreases the number. If you release this key within 0.5 seconds, the number decreases by the minimum increment*. If you press this key for more than 0.5 seconds, the number keeps decreasing every 0.2 seconds.

* Minimum increment:
Position or Distance: 0.001 mm, Speed: 0.1 mm/s
Load: 1N (JP/JPH/JPU-104 to 1504), 10N (JP/JPH/JPU-3004 and 5004, JPU-8004)

SHIFT + CURSOR ↑ ... Increases the number ten times as much as when the CURSOR ↑ key is pressed.

SHIFT + CURSOR ↓ ... Decreases the number ten times as much as when the CURSOR ↓ key is pressed.

CURSOR ← ..... Shifts the cursor leftward. This key is invalid if the cursor is on the leftmost digit. If the cursor is hidden, press this key to display the cursor on the rightmost digit.

CURSOR → ..... Shifts the cursor rightward. If the cursor is on the rightmost digit, press this key to hide the cursor. This key is invalid if the cursor is hidden.

[1] - [0] ..... Overwrites the figure under the cursor with the number pressed.
If the cursor is hidden, the digits will shift leftward and the selected number will be entered as the last digit.

[.] ..... Enters a decimal point. This key is invalid if the number contains a decimal point or no decimal fraction is possible.

[±] ..... Reverses plus and minus signs. This key is invalid if no negative (-) number exists.

[CLEAR] ..... Clears the entire value. The value becomes 0 (zero.)

[DEL] ..... Deletes the figure or decimal point on which the cursor blinks.
The cursor and the figures on the left side of the cursor shift rightward. However, the decimal point cannot be deleted if the number exceeds the entry range without the decimal point.
If the cursor is hidden, the lowest figure of the decimal fraction will be deleted and the figures will shift rightward.

[ENTR] ..... Fixes the number and returns to the previous menu or base screen. If you enter a new point, the entry or selection screen for the next setting item of the point data will appear. If there is no setting item, the new position entry screen for the next point will appear.

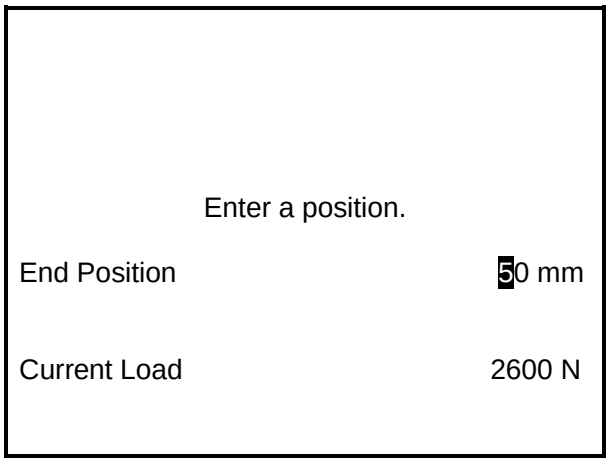
[ESC] ..... Returns to the previous menu or base screen without fixing the number. This key is invalid on the Program Number entry screen if no program is registered.

[SHIFT] + [ESC] ..... Returns to the base screen without fixing the number. This key is invalid on the Program Number entry screen if no program is registered.

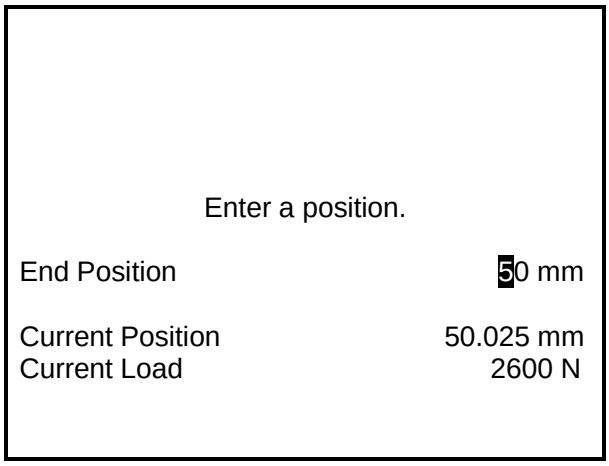
4-8-4 Position Entry

Caution During position entry it is necessary for the operator to be aware of the ram's movement.

The screen where positions such as the work home position and start position are entered is called Position Entry Screen. There are 2 types of Position Entry Screen, one for JOG entry and the other for entering numeric values.
On the JOG Position Entry Screen, the value of the current ram position is displayed. The value increases and decreases as the ram moves.
On the numeric value Position Entry Screen, the current ram position and load are displayed as reference values at the bottom of the screen.



<Position Entry Screen: JOG Entry>



<Position Entry Screen: Numeric Values Entry>

- Key operations used for both JOG entry and numeric value entry

ESC ..... When pressed during modification the screen returns to the Setting Value Display Screen (base screen). This key is invalid when entering a new position.

JOG SPEED ..... Changes the ram speed in position entry.

ENTR ..... Fixes the entered position and ends position entry.

<Stand-Alone and Head Types>
Start Switches ..... When both start switches are pressed the ram is lowered.
When both start switches are released the ram ascends.
When one of the switches is pressed ram movement is stopped.

<Unit Type>

[↑Z] ..... When this is pressed while holding down the enable switch the ram ascends.

[↓Z] ..... When this is pressed while holding down the enable switch the ram is lowered.

[HOME] ..... When this is pressed while holding down the enable switch the ram the ram returns to the mechanical home position.

● JOG Entry Screen

The value of the current ram position is displayed on the position entry screen. The value increases and decreases as the ram moves.

[0] - [9] [+/-] [.] ..... Press these keys to change from JOG entry to numeric value entry.

● Numeric Value Entry Screen

The current ram position and load are displayed as reference values at the bottom of the entry screen.

[1] - [0] ..... The number entered replaces the figure under the cursor. If the cursor is hidden, the digits will shift to the left and the selected number will be entered as the last digit.

[.] ..... Enters a decimal point. This key is invalid if a decimal point has already been entered.

[CLEAR] ..... Clears the entire value. The value becomes 0 (zero.)

[ESC] ..... When pressed during modification the screen returns to the Setting Value Display Screen (base screen). This key is invalid when entering a new position.

[ENTR] ..... Fixes the entered position and ends position entry.

[J.USE] ..... Replaces the displayed value with the current ram position and switches to the JOG entry screen.

- See ”Entering Numbers” on page 41 for how to enter values using numeric keys.
- If the position on the numeric entry screen is lower than the current ram position (the value is bigger), and the ram is lowered, the ram moves down to the position displayed on the screen and stops there. (It is necessary to hold down the start switches or the [↓Z] key until the ram reaches the diplayed position.)
  When the ram reaches the displayed position and stops, the screen switches to the JOG entry screen. After the ram has stopped, if one of the start switches (the [↓Z] key for the unit type) is released and then pressed again, the ram starts descending again.

● How to Enter a New Position (JOG Entry Screen)

Stand-Alone and Head Types

1) Press both start switches to lower the ram.
2) When the ram reaches the target position, release one of the switches to stop the ram.
3) Fine tune the ram's position using the start switches.

Start Switches ..... Press both switches → The ram is lowered
Release both switches → The ram ascends
Press one of the switches → The ram stops on the spot.

4) When the position is adjusted, release one of the start switches and press [ENTR] to fix it.

Unit Type

1) Press the [↓Z] key while holding down the enable switch to lower the ram.
2) When the ram reaches the target position, release the [↓Z] key to stop the ram.
3) Fine tune the ram's position by holding down the enable switch and using the [↓Z] and [↑Z] keys.

[↑Z] ..... Press this key while holding down the enable switch to raise the ram.
[↓Z] ..... Press this key while holding down the enable switch to lower the ram.

4) When the position is adjusted, press [ENTR] to fix it.

● How to Modify the Position (Numeric Value Entry Screen)

Stand-Alone and Head Types

1) Press both start switches to lower the ram.
2) When the ram descends to the position displayed on the screen*, it switches to JOG entry.
3) Move the ram to the new position to register it using the start switches.

Start Switches ..... Press both switches → The ram is lowered.
Release both switches → The ram ascends.
Press one of the switches → The ram stops on the spot.

4) When the position is adjusted, release one of the start switches and press [ENTR] to fix it.

* The ram stops descending when the position displayed on the position value entry screen is lower than the current ram position. If a start switch is released and both switches are pressed again, the ram starts descending again.

Unit Type

1) Press the [↓Z] key while holding down the enable switch to lower the ram.
2) When the ram descends to the position displayed on the screen*, it switches to JOG entry.
3) Move the ram to the new position to register it by holding down the enable switch and using the [↓Z] and [↑Z] keys.

[↑Z]	Press this key while holding down the enable switch to raise the ram.
[↓Z]	Press this key while holding down the enable switch to lower the ram.

4) When the position is adjusted, press [ENTR] to fix it.

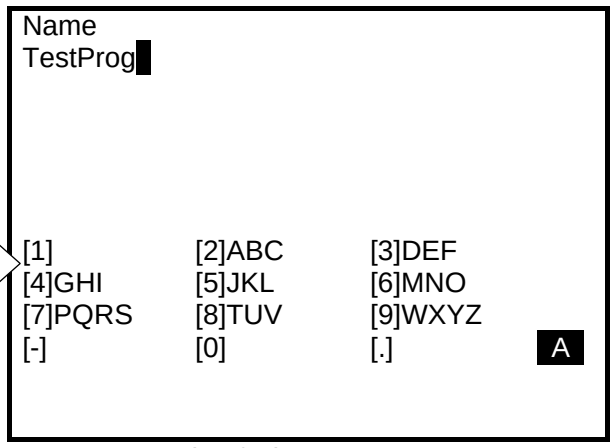
* The ram stops descending when the position displayed on the position value entry screen is lower than the current ram position. If a start switch is released and both switches are pressed again, the ram starts descending again.

4-8-5 Entering Characters

You can give a name to each registered program or point job data. The following explains the character entry key operations.

This is an example of the character entry screen that appears when entering characters.

Enterable character assignment list



<Example of Character Entry Screen>

[0] - [9] [+/-] [.] ..... The corresponding characters will be entered according to the character assignment list on the screen.
In the example above, if you press the [2] key once, the letter "A" will be entered. If you press the key twice, the letter "B" will be entered.
If you want to enter the letters "AB", press the [CURSOR→] key after entering the letter "A." Then shift the cursor to the right and enter "B."
Any key which no character is assigned to, like [1] above, is invalid.

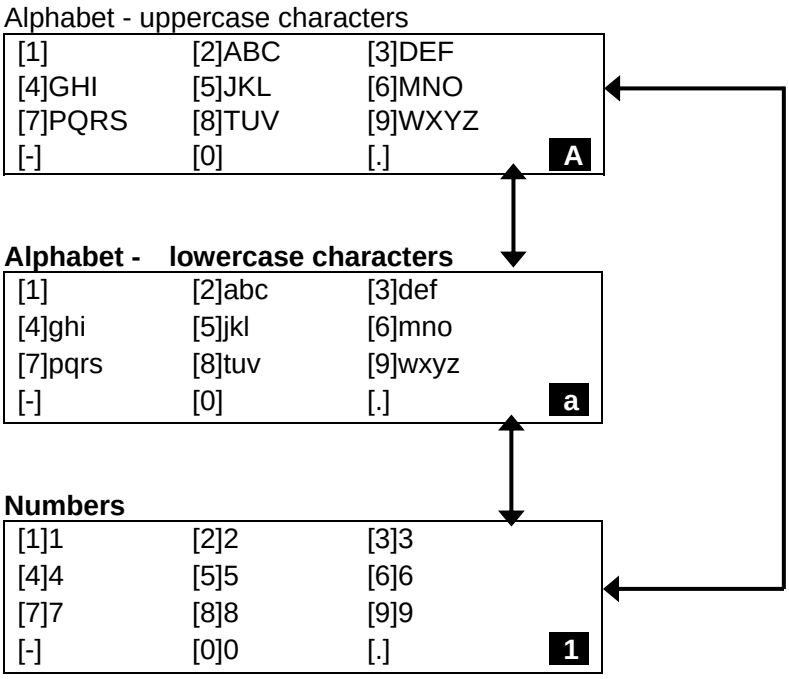
[ESC] ..... Returns to the previous screen (without registering the character string.)

[ENTR] ..... Ends character string entry and registration.
You cannot register a name if the number of characters exceeds the limit. Also, you cannot register a name which includes any unusable characters.

[F.4] ..... Each time this key is pressed, the type of character assignment will switch in this order: **Alphabet uppercase characters → Alphabet lowercase characters → Numbers → Alphabet uppercase characters**

[SHIFT] + [F.4] ..... Each time this key is pressed, the type of character assignment will switch in this order: **Alphabet uppercase characters → Alphabet lowercase characters → Numbers → Alphabet uppercase characters**

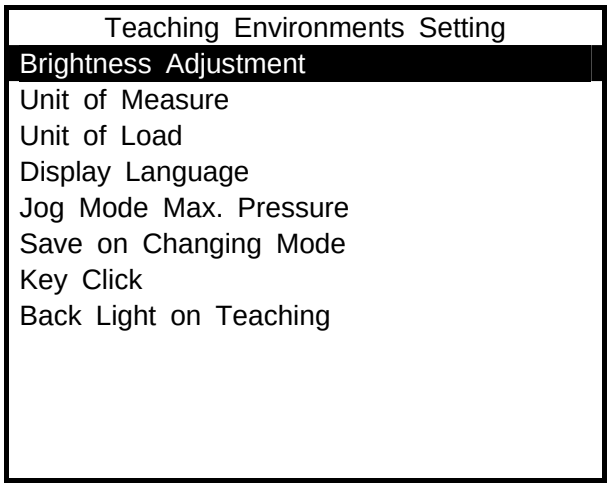
Character Assignment Switching



CURSOR ↑	Shifts the cursor upward (in the character string.)
CURSOR ↓	Shifts the cursor downward (in the character string.)
CURSOR←	Shifts the cursor to the left (in the character string.)
CURSOR→	Shifts the cursor to the right (in the character string.)
SHIFT + CURSOR ↑	Shifts the cursor to the uppermost line.
SHIFT + CURSOR ↓	Shifts the cursor to the lowest line.
SHIFT + CURSOR ←	Shifts the cursor to the top of the character string.
SHIFT + CURSOR →	Shifts the cursor to the end of the character string.
DEL	Deletes the character under the cursor. If the cursor is at the far right of the character string, the last character will be deleted.
CLEAR	Clears the entire character string.

4-9 Teaching Environments Setting

You can set operational environments such as LCD brightness, etc.

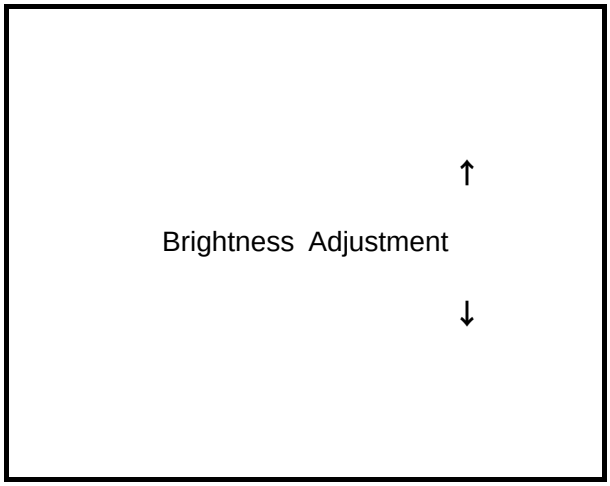


Press the [T.ENV] key when Standing by in Run mode. The screen to right will appear.

Select an item to set and press the [ENTR] key. The setting screen will appear.

● Brightness Adjustment

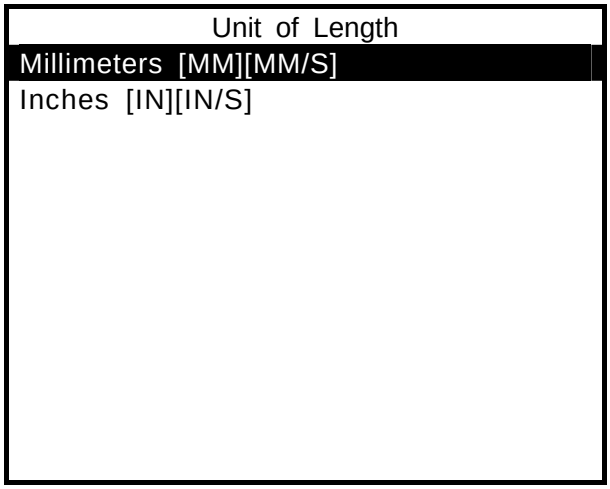
If you select “Brightness Adjustment”, the screen to the right will appear.



Press the following keys to adjust the screen brightness.
[CURSOR ↑] key: Brighter
[CURSOR ↓] key: Darker

If you press the [CLEAR] key, the brightness adjustment returns to the previously fixed setting.
If you press the [ENTR] key, the brightness setting is fixed and the screen goes back to the Teaching Environments Setting menu.

● Unit of Length



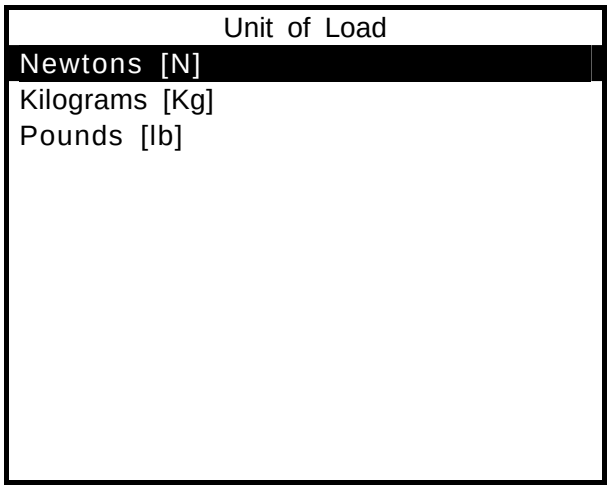
Select the unit of measurement in which to display length on the screen from the following.

- Millimeters [MM][MM/S]
- Inches [IN][IN/S]

● Unit of Load

Select the unit of measurement in which to display load on the screen from the following items.

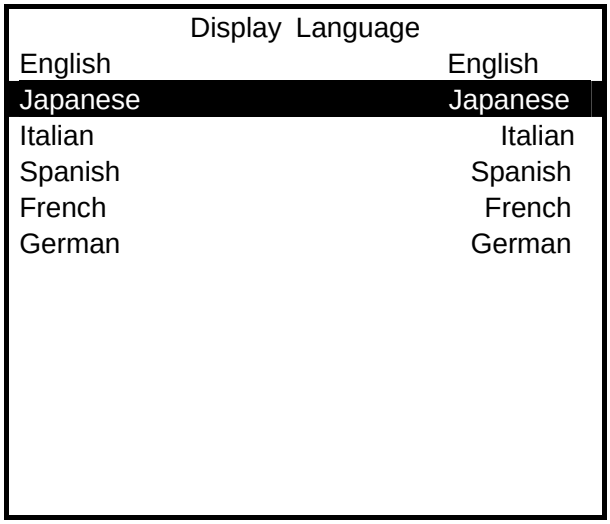
- Newtons [N]
- Kilograms [Kg]
- Pounds [lb]



● Display Language

Select a language from the following.

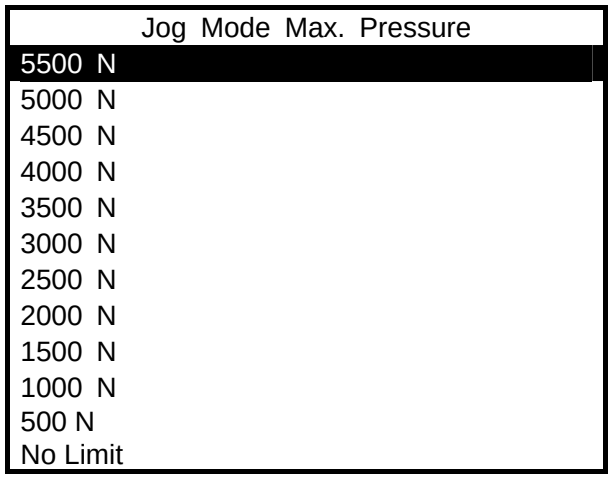
- English
- Japanese
- Italian
- Spanish
- French
- German



● Jog Mode Max. Pressure

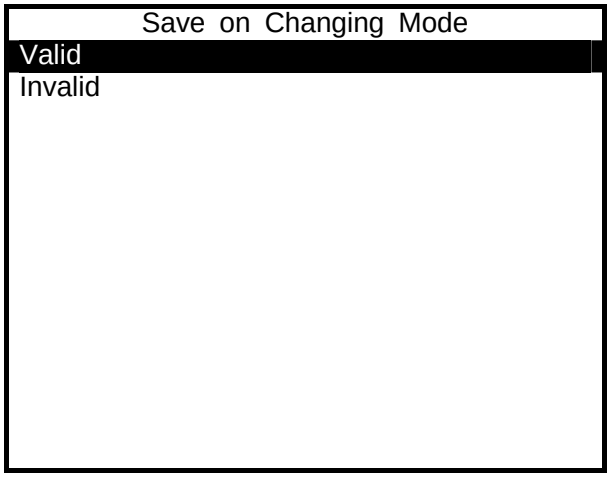
Press the [J.USE] key while in teaching mode, to enter JOG mode.

“Jog Mode Max. Pressure” is the load limit in JOG mode.



● Save on Changing Mode

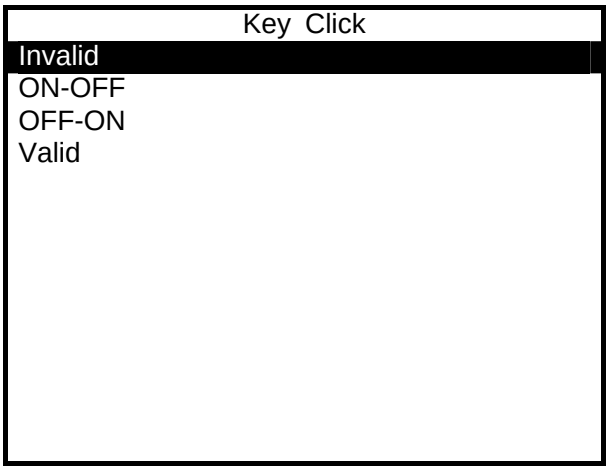
When this item is set to “Valid” (default) the save teaching data confirmation screen will appear when switching from teaching mode to run mode.
To save, select “YES.” If you don’t want to save, select “NO.”



● Key Click

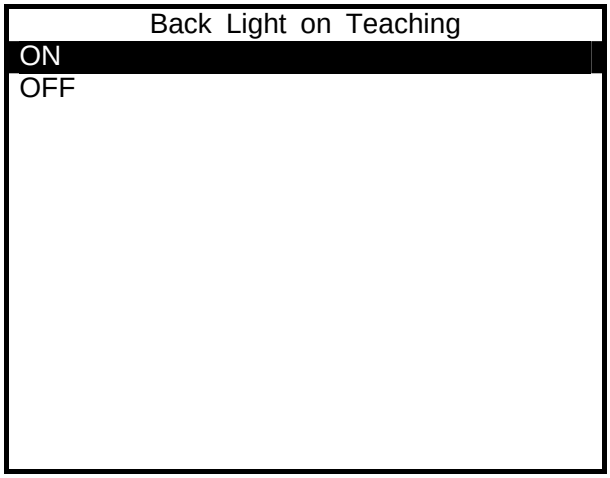
You can select where clicking sounds occur when you press keys on the operation panel.

- Invalid: No sound
- ON-OFF: For the control box only
- OFF-ON: For the teaching pendant only
- Valid: For both the control box and the teaching box



● Back Light on Teaching

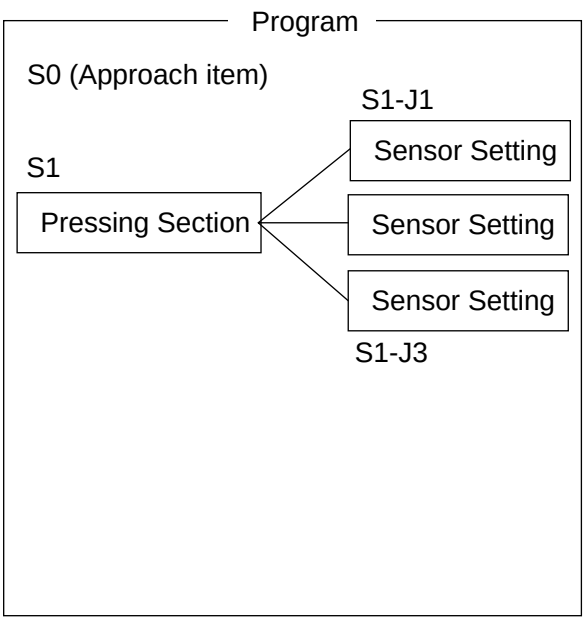
If you select “OFF”, the back light of the LCD screen in teaching mode will be turned OFF.



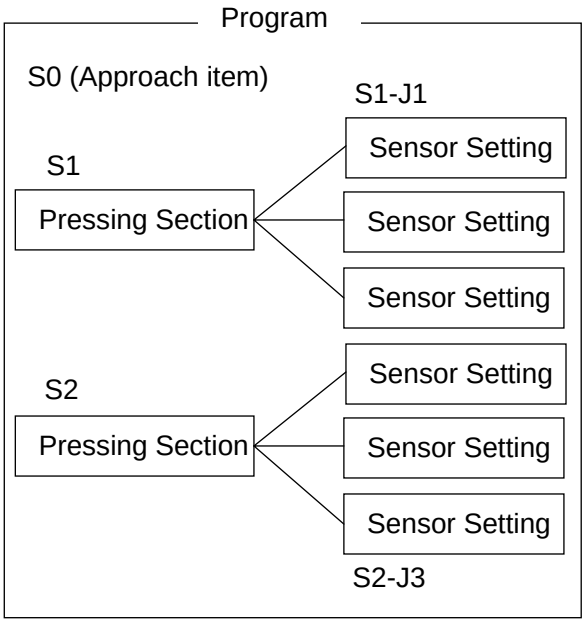
5. PROGRAM

A program is a series of pressing job settings from the start of run to pressing to returning to the work home position. It consists of the main “Pressing Sections” and the corresponding “Sensor Settings.”
In a 1-section pressing program, one “Pressing Section” and several “Sensor Settings” are set as the basic program. (It is also possible not to set sensor modes.) A multiple-section pressing program has as many pressing sections as the number of sections.
The setting screen of a pressing section shows “S1” on the LCD screen. If there are multiple sections, “S1”, “S2” and so on will be displayed according to section number.
Sensor settings are displayed as “S1-J1”, “S1-J2” and so on.

<1-Section Pressing>



<2-Section Pressing>



In addition to pressing sections and sensor settings, there are settings related to the entire program such as Approach Speed, etc.
The display screen of these setting items shows “S0” on the LCD screen.
You can change the settings of the following items.

S0 (Approaching Items)

1. Name: Program Name
2. Work Home Position: Stand by position (where the ram returns to)
3. Approach Speed: Approach speed of the ram
4. Maximum Pressure (AP): Maximum applicable pressure while approaching
5. Probe Speed: Probe speed. If you set it to “0”, probe driving is not executed.
6. Touching Load: Load value when the ram changes its driving method from probing to pressing.
7. Probe Limit Position: Probe limit position value
8. Approach - Valid/Invalid:
   Enable Approach: Approaching (Default)
   Disable Approach: Not approaching
   When running is started the ram descends at probe speed.

9. Returning to Work Home Pos'n - Valid/Invalid:
   Enable Work Home Pos'n: The ram returns to the work home position after operations. (Default)
   Disable Work Home Pos'n: The ram does not return to the work home position after operations.
   WorkHome on Fault: The ram returns to the work home position only when an error occurs.
10. Return Speed: Speed at which the ram returns to the work home position.
11. End Pos. Output Off/ON: Not available with standard specifications. (Optional setting)
12. End Load Output Off/ON: Not available with standard specifications. (Optional setting)
    If Result data output is set under I/O Function Assignment, you can choose whether or not the result data is output.

- Pease refer to "Special Operations" on page 79 in the following cases.
  - To disable probe pressing by setting probe speed (5) to "0."
  - To disable Approach (8.)
  - To disable Returning Work Home Pos'n (9.)
  - To disable pressing by setting "Pressing Speed" (operation mode item) to "0."

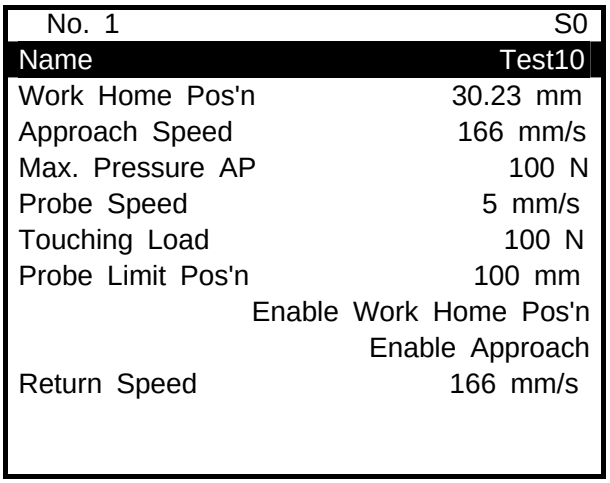
How to Make Changes

The display screen of these items is displayed as "S0" on the LCD screen.

Press the [CURSOR ←] key on the "S1" setting screen to display the "S0" screen.

Highlight an item to change it on the setting screen to the right.

When you select an item, a setting value entry screen will appear. Change the setting on the screen.



5-1 Pressing Mode

Six “1-section pressing” and seven “2-section pressing” (13 in total) pressing section parameters can be selected. To set a pressing with more than 2 sections, enter 1-section pressings as many times as the desired number of sections.

- 2-section pressing can be selected only when new data entry.

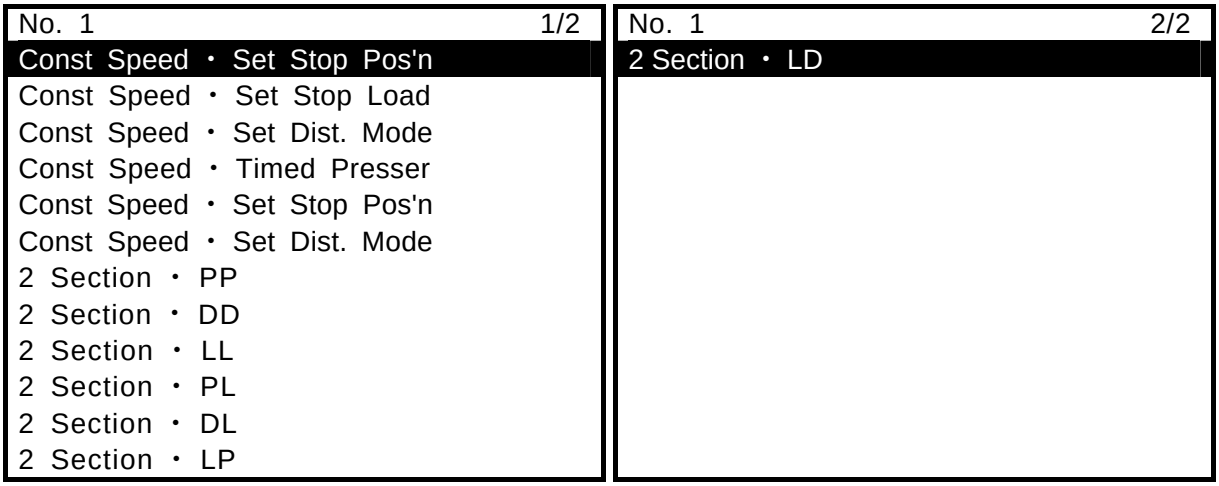
1-Section Pressing

1) Const Speed ・ Set Stop Pos'n
2) Const Speed ・ Set Stop Load
3) Const Speed ・ Set Dist. Mode
4) Const Speed ・ Timed Presser
5) Const Speed ・ Set Stop Pos'n
6) Const Speed ・ Set Dist. Mode

2-Section Pressing

7) 2 Section ・ PP (Stop Pos'n, Stop Pos'n)
8) 2 Section ・ DD (Dist. Mode, Dist. Mode)
9) 2 Section ・ LL (Stop Load, Stop Load)
10) 2 Section ・ PL (Stop Pos'n, Stop Load)
11) 2 Section ・ DL (Dist. Mode, Stop Load)
12) 2 Section ・ LP (Stop Load, Stop Pos'n)
13) 2 Section ・ LD (Stop Load, Dist. Mode)

- To shift the highlight down, press the [CURSOR ↓ .]
- To shift the highlight up, press the [CURSOR ↑ .]
- To display the next page, press the [SHIFT]+[CURSOR ↓ .]
- Press the [ENTR] key to fix the setting.



<Pressing Mode Selection Screen>

When you select Pressing Mode, an entry screen for each setting will appear.

Enter numbers using the numeric and decimal point keys.

- To shift the cursor, press the [CURSOR←] or [CURSOR→] keys.
- To delete the digit under the cursor, press the [DEL] key.
- To clear all the numbers, press the [C] key.
- To fix the setting, press the [ENTR] key.

Perform position entry using the two start switches, or [Z↓] and [Z↑] keys.

If you know the coordinates that you want to enter, you can set them using the numeric and decimal point keys.

How to Enter a Position

Stand-Alone / Head Type

- To make the ram descend, press both start switches together.
- To stop the ram on the spot, release one start switch.
- To make the ram ascend, release the other start switch.

Shift the ram to the desired position and press the [ENTR] key.

Unit Type

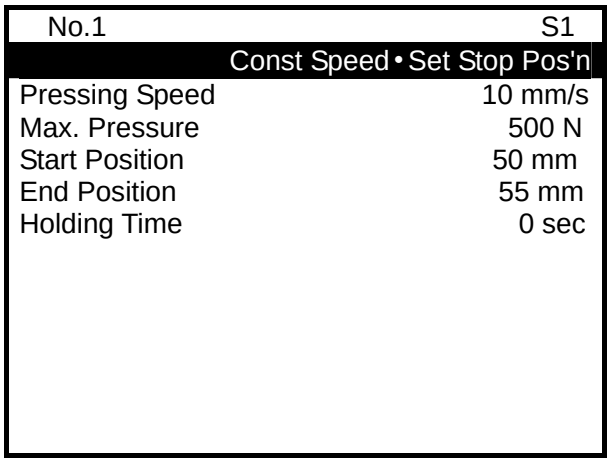
- To make the ram descend, press the [Z↓] key while holding down the enable switch.
- To make the ram ascend, press the [Z↑] key while holding down the enable switch.
- To stop the ram, release the key.
- To shift the ram to the work home position, press the [HOME] key while pressing the enable switch.

Shift the ram to the desired position and press the [ENTR] key.

Note:
When in the numeric value position entry screen, after the ram is moved using the start switches or [Z↓] and [Z↑], be sure to press the [J.USE] key before pressing the [ENTR] key.

After entering each setting value, the screen will switch to the setting value display screen to the right.

Default values will be set if there are items for which no data is entered.
To change these values, select the item to change from the setting display screen.
When an item is selected, the screen will switch to the setting value entry screen. Enter a value for each setting.



Even after pressing modes are set, the following parameters can be changed.

<Const Speed • Set Stop Pos'n>

1. Pressing Speed: Pressing speed of the ram
2. Maximum Pressure: Maximum applicable pressure
3. Work Home Position: Standby position (return position) of the ram
4. Start Position: Transition position where the ram changes from approaching to probing
5. End Position: Position where pressing ends
6. Holding Time: Holding time at the point where the ram stops
   (Press the [+/-] key to change the holding time and the hold time limit alternatively.)

<Const Speed • Set Stop Load>

1. Pressing Speed: Pressing speed of the ram
2. Start Position: Transition position where the ram changes from approaching to probing
3. End Load: Load when pressing ends
4. Holding Time: Holding time at the point where the ram stops
   (Press the [+/-] key to altermate between holding time and hold time limit alternatively.)
5. Hold Time Limit: If a “stop in middle” I/O signal does not come ON within the specified time, an error occurs.
6. Slow Down Load Rate: When a set percentage of the load is detected during pressing, the speed is reduced in preparation to stop.
7. Stop Reference Position: Position where the ram starts reducing pressing speed before stoping.
8. Limit Position: Value of the pressing position limit

- The ram starts reducing pressing speed at the Slow Down Load Rate or Stop Reference Position. This occurs at whichever position is detected first.

<Const Speed • Set Dist. Mode>

1. Pressing Speed: Pressing speed of the ram
2. Maximum Pressure: Maximum applicable pressure
3. Pressing Distance: Pressing distance from the position where the ram touches a workpiece.
4. Start Position: Transition position where the ram changes from approaching to probing
5. Work Home Position: Standby position (return position) of the ram
6. Holding Time: Holding time at the point where the ram stops
   (Press the [+/-] key to change the holding time and the hold time limit alternatively.)

<Const Load • Timed Presser>

1. Pressing Load: Load with which the ram presses the workpiece
2. Maximum Speed: Maximum pressing speed
3. Work Home Position: Standby position (return position) of the ram
4. Start Position: Transition position where the ram changes from approaching to probing
5. Pressing Time: Pressing time from the position where the ram touches a workpiece.
6. Holding Time: Holding time at the point where the ram stops
   (Press the [+/-] key to change the holding time and the hold time limit alternatively.)

<Const Load・Set Stop Pos'n>

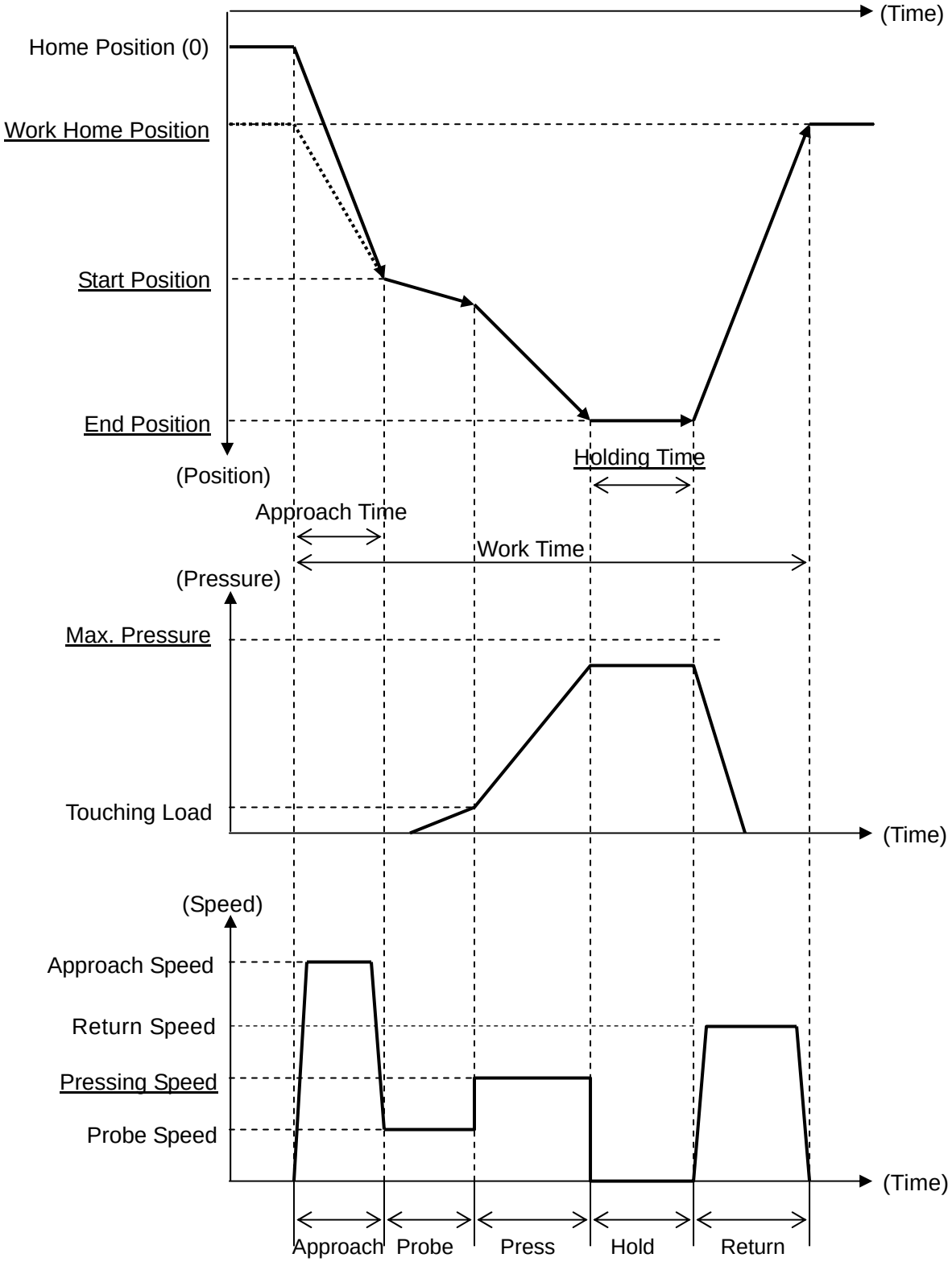
1. Pressing Load: Load with which the ram presses the workpiece
2. Maximum Speed: Maximum pressing speed
3. Work Home Position: Standby position (return position) of the ram
4. Start Position: Transition position where the ram changes from approaching to probing
5. End Position: Position where pressing ends
6. Holding Time: Holding time at the point where the ram stops
   (Press the [+/-] key to change the holding time and the hold time limit alternatively.)

<Const Load・Set Dist. Mode>

1. Pressing Load: Load with which the ram presses the workpiece
2. Maximum Speed: Maximum pressing speed
3. Pressing Distance: Pressing distance from the position where the ram touches a workpiece.
4. Work Home Position: Standby position (return position) of the ram
5. Start Position: Transition position where the ram changes from approaching to probing
6. Holding Time: Holding time at the point where the ram stops
   (Press the [+/-] key to change the holding time and the hold time limit alternatively.)

5-1-1 Constant Speed - Set Stop Position

In this mode, after approaching and probing, the ram descends for the predetermined distance from the position where the ram touched the workpiece, and then stops. After the holding time, the ram returns to the work home position at the return speed. (See chart below.)



Note: The underlined parameters must be set during teaching.

<Pressing Mode Setting>

The following Constant Speed • Set Stop Position parameters are required.

1. Pressing Speed: Pressing speed of the ram
2. Maximum Pressure: Maximum pressure that can be applied
3. Start Position: Transition position where the ram changes from approaching to probing (just before the ram touches the workpiece)
4. End Position: Position where pressing ends
5. Holding Time: Holding time at the point where the ram stops
4. Hold Time Limit: If a “stop in middle” I/O signal does not come ON within the specified hold time limit, an error occurs.

“#” indicates items that can be set when a new program is registered.
“##” indicates items that can be changed in the setting value display screen.

- “Holding Time” or “Hold Time Limit” can be selected using the [+/-] key.
- When you register a new 1-section pressing program, enter “Work Home Position” under the items marked ##.

How to Set

- Set the Pressing Speed, Maximum Pressure, and Holding Time with the numeric and decimal keys.

- Set the Work Home Position, Start Position, and End Position using the two start switches ([Z ↓] and [Z ↑] for the unit type.)

<Setting Range>

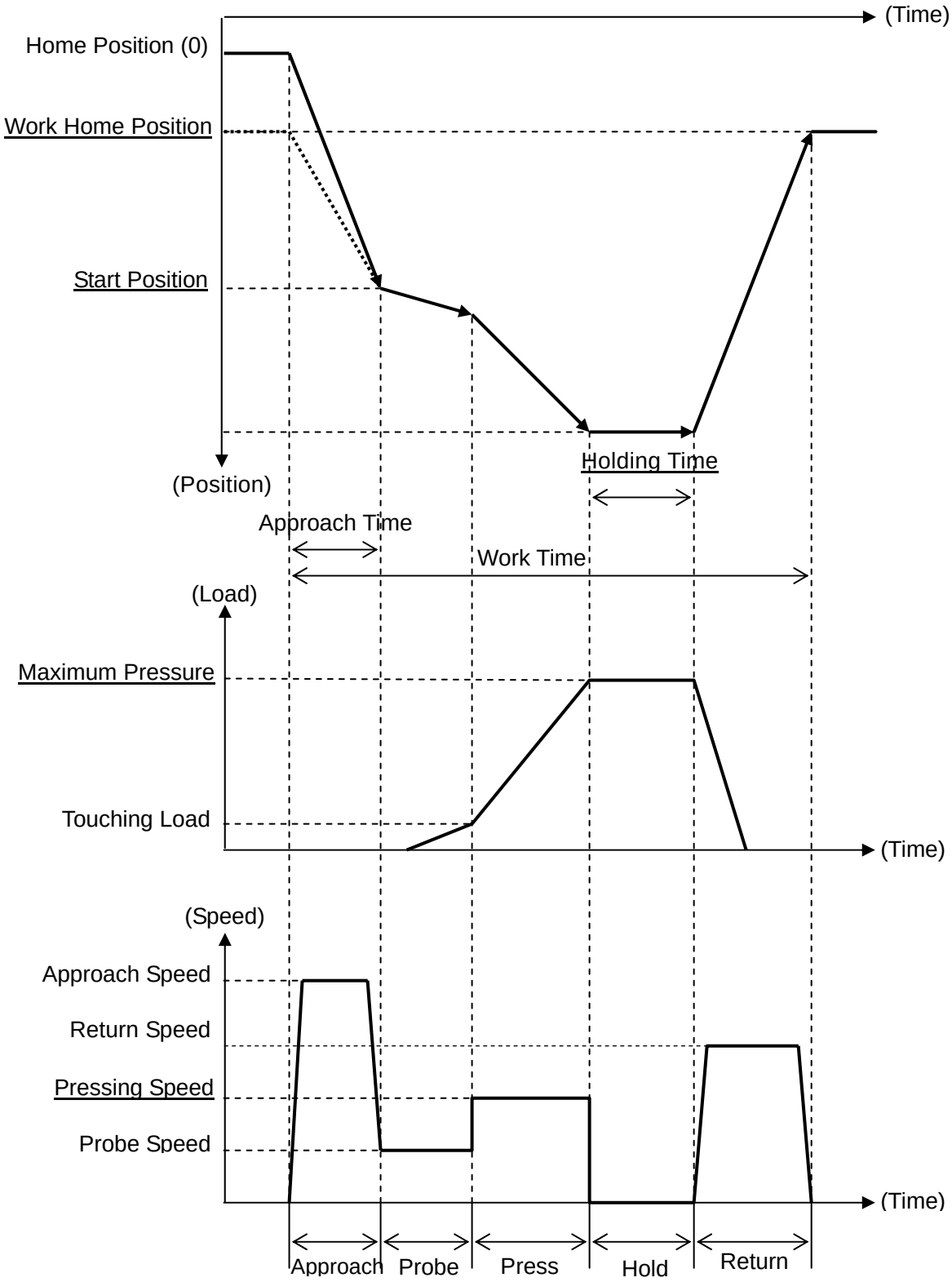
Model	JP/JPH/JPU 104		JP/JPH/JPU 204		JP/JPH/JPU 504		JP/JPH/JPU 1004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Max. Pressure	550	5	2200	20	5500	50	11000	100	**N**
Home Position	80	0	80	0	100	0	100	0	mm
Start Position	80	0	80	0	100	0	100	0	mm
End Position	80	0	80	0	100	0	100	0	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

Model	JP/JPH/JPU 1504		JP/JPH/JPU 3004		JP/JPH/JPU 5004		JPU 8004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Max. Pressure	16.5	0.15	33	0.3	55	0.5	80	0.8	**K N**
Work Home P.	100	0	200	0	200	0	200	0	mm
Start Position	100	0	200	0	200	0	200	0	mm
End Position	100	0	200	0	200	0	200	0	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

*** Note:** The holding time for the JP/JPH/JPU-504, 1004, 1504, 3004, 5004 and JPU-8004 becomes shorter as the maximum pressure increases. This is due to the capacity of the motor.

5-1-2 Constant Speed - Set Stop Load

In this mode, the ram approaches, probes and presses the workpiece at a given speed, and then stops when the load cell detects the end load. After the holding time, the ram returns to the work home position at the return speed. (See chart below.)



Note: The underlined parameters must be set during teaching.

<Pressing Mode Setting>

The Constant Speed • Set Stop Load mode requires the following parameters.

1. Pressing Speed: Pressing speed of the ram
2. Start Position: Transition position where the ram changes from approaching to probing
3. End Load: Load when pressing ends
4. Holding Time: Holding time at the point where the ram stops
(Press the [+/-] key to alternate between holding time and hold time limit.)
5. Hold Time Limit: If a “stop in middle” I/O signal does not come ON within the specified time, an error occurs.
6. Slow Down Load Rate: When a set percentage of the load is detected during pressing, the speed is reduced in preparation to stop.
7. Stop Reference Position: Position where the ram starts reducing pressing speed before stopping.
8. Limit Position: Value of pressing position limit

- The ram starts reducing pressing speed at the Slow Down Load Rate or Stop Reference Position. This occurs at whichever position is detected first.

# indicates items that can be set when a new program is registered.
indicates items that can be changed in the setting value display screen.

- **Slow Down Load Rate and Stop Reference Position**

A pressing operation in “Set Stop Load” has two features.
One is to reduce speed to 3 mm/s when the actual pressing load is close to the specified stop load. Specify “Slow Down Load Rate” to start reducing speed at the position where the specified load rate (%) against stop load is applied. For example, if it is set to the default value 95%, the ram starts reducing speed to 3 mm/s when it reaches 95% of the end load.
The other is to reduce speed to 0.2 mm/s at Stop Reference Position so that the ram can stop immediately when it reaches stop load.
However, when you operate the machine without using shock-absorbing mechanism such as a dieset, the feature does not work even if Slow Down Load Rate is specified. This is because load drastically increases when the ram hits a jig and stops. In this case, please set Stop Reference Position to decrease pressing speed.

How to Set

- Set the Pressing Speed, End Load, and Holding Time with the numeric and decimal keys.
- Set the Sensor Beginning Position and Sensor End Position using the two start switches ([Z ↓] and [Z ↑] for the unit type.)

<Setting Range>

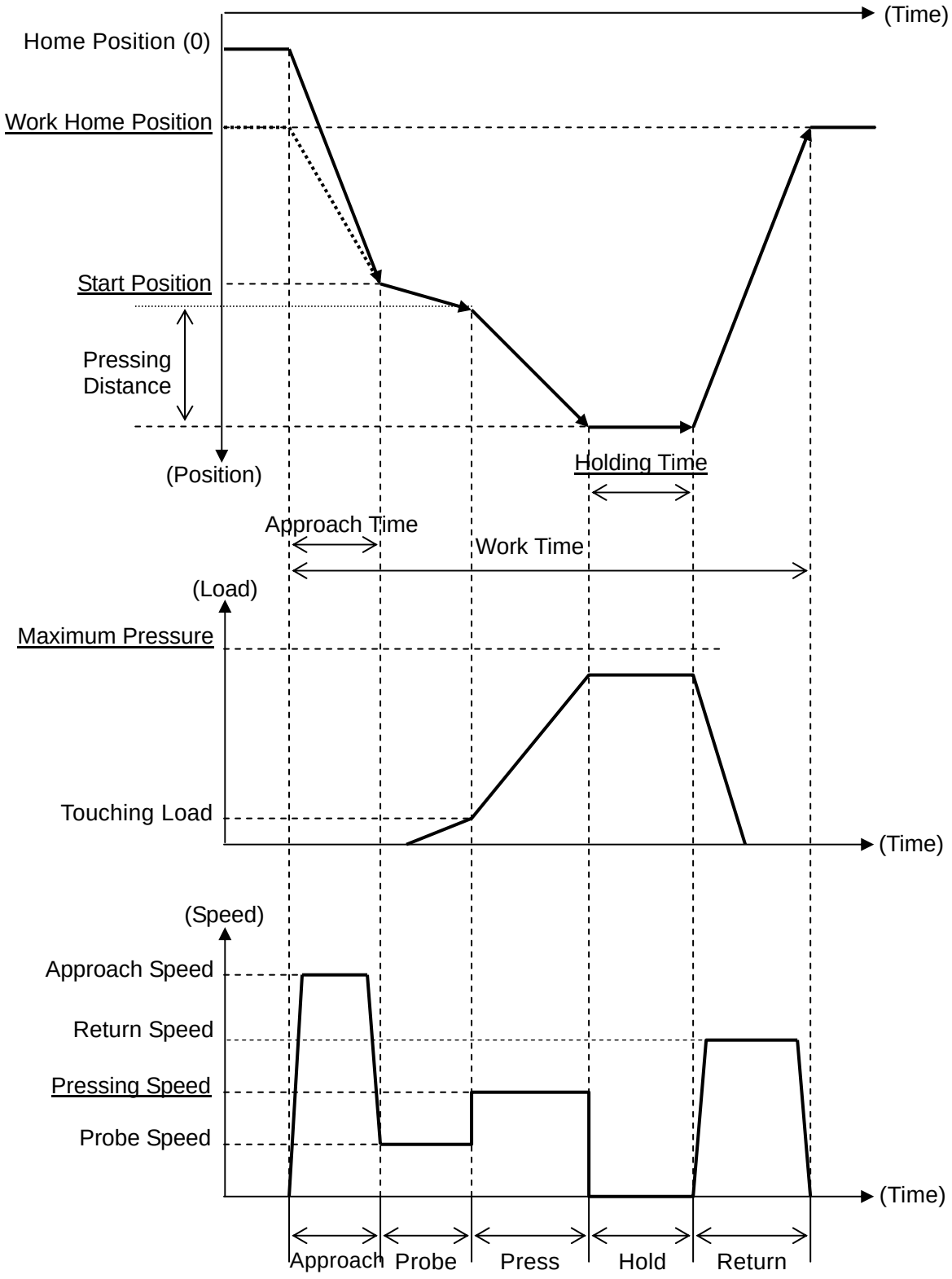
Model	JP/JPH/JPU 104		JP/JPH/JPU 204		JP/JPH/JPU 504		JP/JPH/JPU 1004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
End Load	1100	5	2200	20	5500	50	11000	100	**N**
Work Home P.	80	0	80	0	100	0	100	0	mm
Start Position	80	0	80	0	100	0	100	0	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

Model	JP/JPH/JPU 1504		JP/JPH/JPU 3004		JP/JPH/JPU 5004		JPU 8004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
End Load	16.5	0.15	33	0.3	55	0.5	88	0.8	KN
Work Home P.	100	0	200	0	200	0	200	0	mm
Start Position	100	0	200	0	200	0	200	0	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

*** Note:** The holding time for the JP/JPH/JPU-504, 1004, 1504, 3004, 5004 and JPU-8004 becomes shorter as the maximum pressure increases. This is due to the capacity of the motor.

5-1-3 Constant Speed - Set Distance Mode

In this mode, after approaching and probing, the ram descends for the predetermined distance from the position where the ram touched the workpiece, and then stops. After the holding time, the ram returns to the work home position at the return speed. (See chart below.)



Note: The underlined parameters must be set during teaching.

<Pressing Mode Setting>

The Constant Speed • Set Distance Mode requires the following parameters:

1. Pressing Speed: Speed at which the ram presses the workpiece
2. Maximum Pressure: Maximum pressure that can be applied
3. Start Position: Transition position where the ram changes from approaching to probing
4. Pressing Distance: Distance pressed from point where the ram touches the workpiece
5. End Position: Position where pressing ends
6. Holding Time: Holding time at the point where the ram stops
5. Hold Time Limit: If a “stop in middle” I/O signal does not come ON within the specified hold time limit, an error occurs.

“#” indicates items that can be set when a new program is registered.
“##” indicates items that can be changed in the setting value display screen.

- “Holding Time” or “Hold Time Limit” can be selected using the [+/-] key.
- When you register a new 1-section pressing program, enter “Work Home Position” under the items marked ##.

How to Set

- Set the Pressing Speed, Maximum Pressure, Pressing Distance, and Holding Time with the numeric and decimal keys.
- Set the Work Home Position and Start Position using the two start switches ([Z↓] and [Z↑] for the unit type.)

<Setting Range>

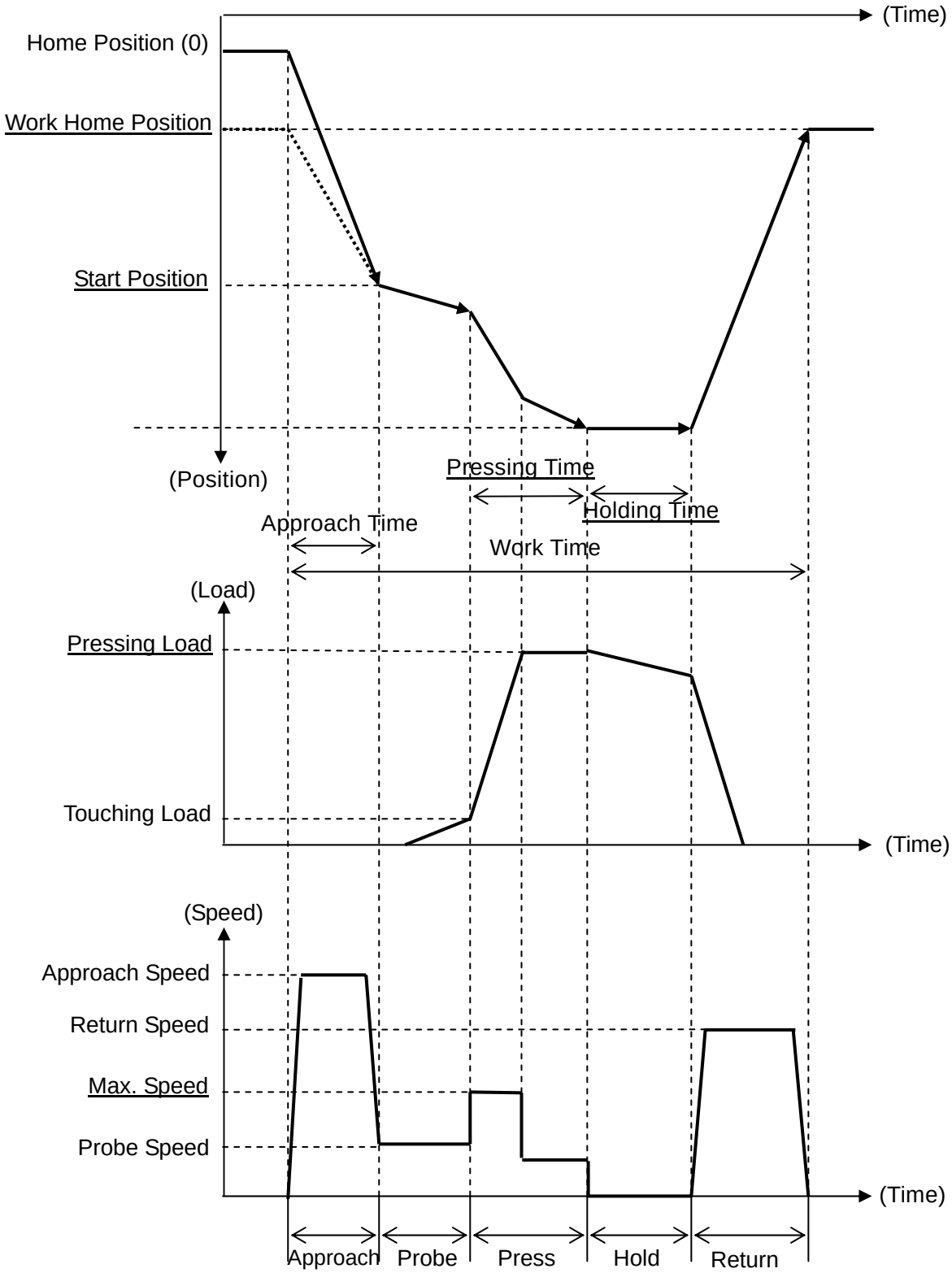
Model	JP/JPH/JPU 104		JP/JPH/JPU 204		JP/JPH/JPU 504		JP/JPH/JPU 1004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Max. Pressure	1100	5	2200	20	5500	50	11000	100	N
Pressing Dist.	80	1	80	1	100	1	100	1	mm
Start Position	80	0	80	0	100	0	100	0	mm
Work Home P.	80	0	80	0	100	0	100	0	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

Model	JP/JPH/JPU 1504		JP/JPH/JPU 3004		JP/JPH/JPU 5004		JPU 8004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Max. Pressure	16.5	0.15	33	0.3	55	0.5	80	0.8	**K N**
Pressing Dist.	100	1	200	1	200	1	200	1	mm
Start Position	100	0	200	0	200	0	200	0	mm
Work Home P.	100	0	200	0	200	0	200	0	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

*** Note:** The holding time for the JP/JPH/JPU-504, 1004, 1504, 3004, 5004 and JPU-8004 becomes shorter as the maximum pressure increases. This is due to the capacity of the motor.

5-1-4 Constant Load - Timed Pressure

In this mode, after approaching and probing, the ram presses the workpiece with the given load for the time designated and then stops. After the holding time, the ram returns to the work home position at the return speed. (See chart below.)



Note: The underlined parameters must be set during teaching.

<Pressing Mode Setting>

The Constant Load • Timed Pressure mode requires the following parameters:

1. Pressing Load: Load with which the ram presses the workpiece
2. Maximum Speed: Maximum pressing speed
3. Start Position: Transition position where the ram changes from approaching to probing (just before the ram touches the workpiece)
4. Pressing Time: Pressing time from when the ram touches the workpiece
5. Holding Time: Holding time at the point where the ram stops
6. Hold Time Limit: If a "stop in middle" I/O signal does not come ON within the specified hold time limit, an error occurs.

"#" indicates items that can be set when a new program is registered.
"##" indicates items that can be changed in the setting value display screen.

- "Holding Time" or "Hold Time Limit" can be selected using the [+/-] key.
- When you register a new 1-section pressing program, enter "Work Home Position" under the items marked ##.

How to Set

- Set the Pressing Load, Maximum Speed, Pressing Time, and Holding Time with the numeric and decimal keys.
- Set the Work Home Position and Start Position using the two start switches ([Z↓] and [Z↑] for the unit type.)

<Setting Range>

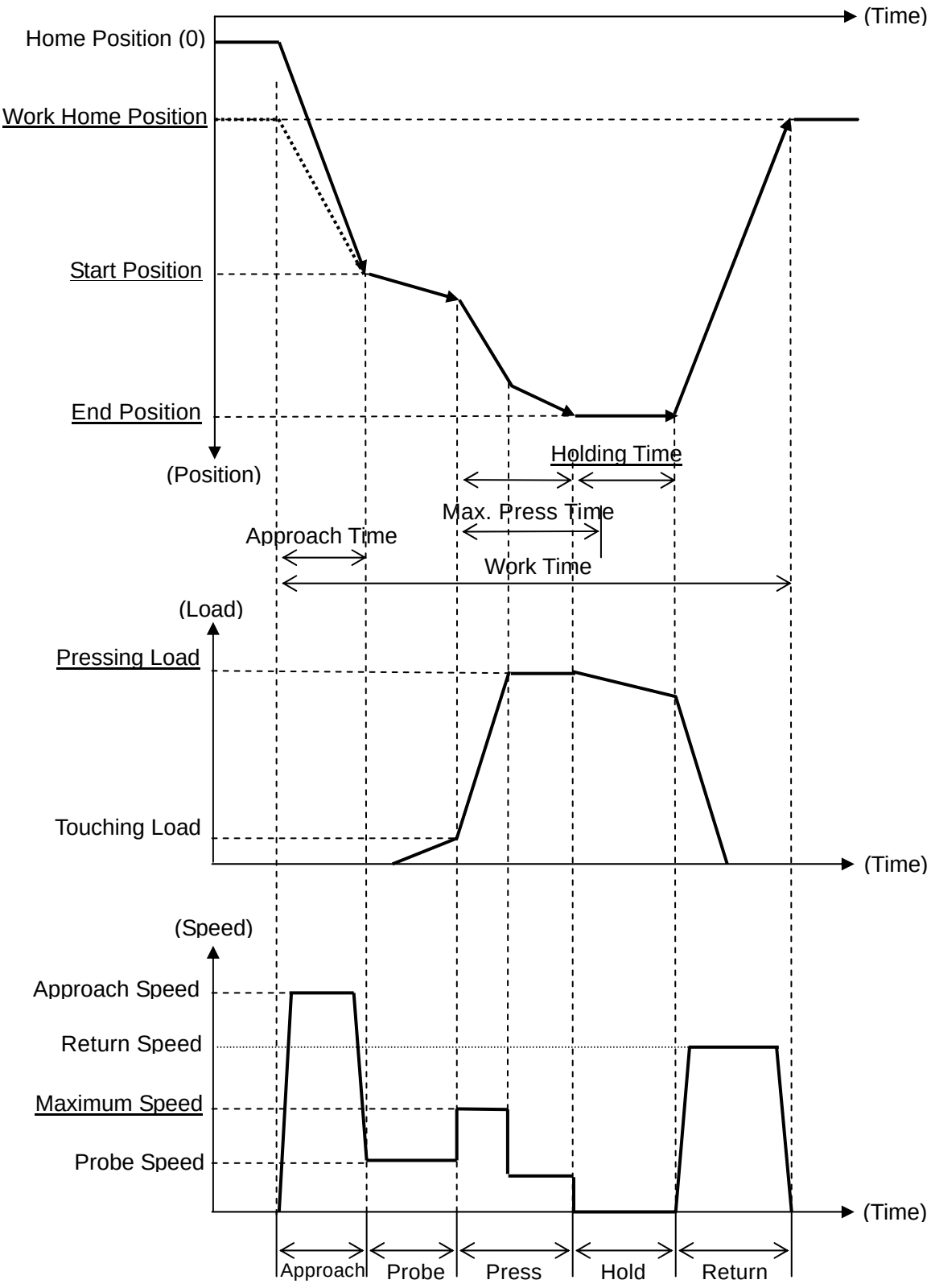
Model	JP/JPH/JPU 104		JP/JPH/JPU 204		JP/JPH/JPU 504		JP/JPH/JPU 1004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Load	1000	10	2000	20	5000	50	10000	100	N
Maximum Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Work Home P.	80	0	80	0	100	0	100	0	mm
Start Position	80	0	80	0	100	0	100	0	mm
Pressing Time	99.9	0.1	99.9	0.1	99.9	0.1	99.9	0.1	sec
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

Model	JP/JPH/JPU 1504		JP/JPH/JPU 3004		JP/JPH/JPU 5004		JPU 8004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Load	15	0.15	30	0.3	50	0.5	80	0.8	**K N**
Maximum Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Work Home P.	100	0	200	0	200	0	200	0	mm
Start Position	100	0	200	0	200	0	200	0	mm
Pressing Time	99.9	0.1	99.9	0.1	99.9	0.1	99.9	0.1	sec
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

*** Note:** The holding time for the JP/JPH/JPU-504, 1004, 1504, 3004, 5004 and JPU-8004 becomes shorter as the maximum pressure increases. This is due to the capacity of the motor.

5-1-5 Constant Load - Set Stop Position

In this mode, after approaching and probing, the ram descends applying the given load and stops at the end position. After the holding time, the ram returns to the work home position at the return speed (see chart below.)



Note: The underlined parameters must be set during teaching.

<Pressing Mode Setting>

The Constant Load • Set Stop Position mode requires the following parameters:

1. Pressing Load: Load with which the ram presses the workpiece
2. Maximum Speed: Maximum pressing speed
3. Start Position: Transition position where the ram changes from approaching to probing (just before the ram touches the workpiece)
4. End Position: Position where the ram stops pressing
5. Holding Time: Holding time at the point where the ram stops
4. Hold Time Limit: If a “stop in middle” I/O signal does not come ON within the specified hold time limit, an error occurs.
5. Max. Press Time: Maximum pressing time (If pressing time exceeds the set time, an error occurs.)

“#” indicates items that can be set when a new program is registered.
“##” indicates items that can be changed in the setting value display screen.

- “Holding Time” or “Hold Time Limit” can be selected using the [+/-] key.
- When you register a new 1-section pressing program, enter “Work Home Position” under the items marked ##.

How to Set

- Set the Pressing Load, Maximum Speed, and Holding Time with the numeric and decimal keys.
- Set the Work Home Position, Start Position, and End Position using the two start switches ([Z ↓] and [Z ↑] for the unit type.)

<Setting Range>

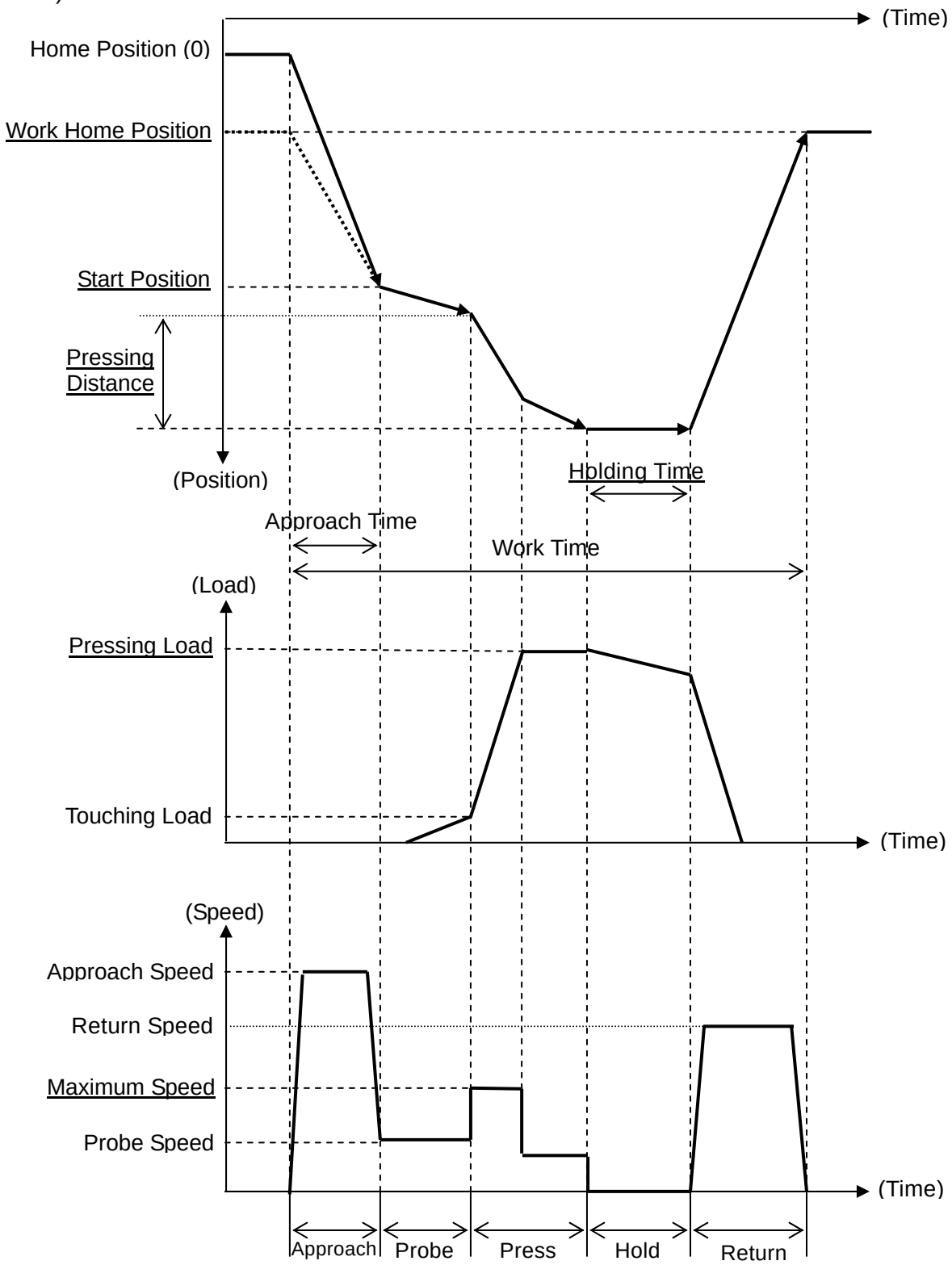
Model	JP/JPH/JPU 104		JP/JPH/JPU 204		JP/JPH/JPU 504		JP/JPH/JPU 1004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Load	1000	10	2000	20	5000	50	10000	100	N
Max. Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Work Home P.	80	0	80	0	100	0	100	0	mm
Start Position	80	0	80	0	100	0	100	0	mm
End Position	80	0	80	0	100	0	100	0	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

Model	JP/JPH/JPU 1504		JP/JPH/JPU 3004		JP/JPH/JPU 5004		JPU 8004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Load	15	0.15	30	0.3	50	0.5	80	0.8	KN
Max. Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Work Home P.	100	0	200	0	200	0	200	0	mm
Start Position	100	0	200	0	200	0	200	0	mm
End Position	100	0	200	0	200	0	200	0	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

*** Note:** The holding time for the JP/JPH/JPU-504, 1004, 1504, 3004, 5004 and JPU-8004 becomes shorter as the maximum pressure increases. This is due to the capacity of the motor.

5-1-6 Constant Load - Set Distance Mode

In this mode, after approaching and probing, the ram descends applying the given load for the preset pressing distance from the position where the ram touches the workpiece, and then stops. After the holding time, the ram returns to the work home position at return speed. (See chart below.)



*** Note:** The holding time for the JP/JPH/JPU-504, 1004, 1504, 3004, 5004 and JPU-8004 becomes shorter as the maximum pressure increases. This is due to the capacity of the motor.

<Pressing Mode Setting>

The Constant Load • Set Distance Mode requires the following parameters.

1. Pressing Load: load with which the ram presses the workpiece
2. Maximum Speed: maximum pressing speed
3. Start Position: transition position where the ram changes from approaching to probing (just before the ram touches the workpiece)
4. Pressing Distance: pressing distance from the point where the ram touches the workpiece
5. Holding Time: holding time at the point where the ram stops
6. Hold Time Limit: If a “stop in middle” I/O signal does not come ON within the specified hold time limit, an error occurs.
7. Max. Press Time: Maximum value of pressing time (If pressing time exceeds the setting time, an error occurs.)

“#” indicates items that can be set when a new program is registered.
“##” indicates items that can be changed in the setting value display screen.

- “Holding Time” or “Hold Time Limit” can be selected using the [+/-] key.
- When you register a new 1-section pressing program, enter “Work Home Position” under the items marked ##.

How to Set

- Set the Pressing Load, Maximum Speed, Pressing Distance, and Holding Time with the numeric and decimal keys.
- Set the Work Home Position and Start Position using the two start switches ([Z↓] and [Z↑] for the unit type.)

<Setting Range>

Model	JP/JPH/JPU 104		JP/JPH/JPU 204		JP/JPH/JPU 504		JP/JPH/JPU 1004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Load	1000	10	2000	20	5000	50	10000	100	N
Maximum Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Work Home P.	80	0	80	0	100	0	100	0	mm
Start Position	80	0	80	0	100	0	100	0	mm
Pressing Distance	80	1	80	1	100	1	100	1	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

Model	JP/JPH/JPU 1504		JP/JPH/JPU 3004		JP/JPH/JPU 5004		JPU 8004		Unit
Range / Item	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
Pressing Load	15	0.15	30	0.3	50	0.5	80	0.8	KN
Maximum Speed	35	0.01	35	0.01	35	0.01	35	0.01	mm/s
Work Home P.	100	0	200	0	200	0	200	0	mm
Start Position	100	0	200	0	200	0	200	0	mm
Pressing Distance	100	1	200	1	200	1	200	1	mm
Holding Time *	99.9	0	99.9	0	99.9	0	99.9	0	sec

*** Note:** The holding time for the JP/JPH/JPU-504, 1004, 1504, 3004, 5004 and JPU-8004 becomes shorter as the maximum pressure increases. This is due to the capacity of the motor.

5-1-7 2-Section PP (Position Stop - Position Stop)

In this mode, the Constant Speed • Set Stop Position (S1, S2) is performed in two sections.

In the first section, after approaching and probing, the ram shifts at the pressing speed (S1) and stops at the end position (S1). In the second section, after the holding time (S1), the ram shifts at the pressing speed (S2) and stops at the end position (S2). After the holding time (S2), the ram returns to the work home position at the approaching speed.

For details of the setting procedure, refer to the Section 5-1-1 “Constant Speed • Set Stop Position.”

5-1-8 2-Section DD (Distance Pressing - Distance Pressing)

In this mode, the Constant Speed • Set Distance (S1, S2) is performed in two sections.

In the first section, after approaching and probing, the ram shifts at the pressing speed (S1) by a certain distance (S1), from a position where the ram touches the workpiece, and stops. In the second section, after the holding time (S1), the ram shifts by a certain pressing distance (S2) at the pressing speed (S2) and stops. After the holding time (S2), the ram returns to the work home position at the approaching speed.

For details of the setting procedure, refer to the Section 5-1-3 “Constant Speed • Set Distance Mode.”

5-1-9 2-Section LL (Load Stop - Load Stop)

In this mode, the Constant Speed • Set Stop Load (S1, S2) is performed in two sections.

In the first section, after approaching and probing, the ram shifts at pressing speed (S1) and stops at a position where the load cell detects the end load (S1). In the second section, after the holding time (S1), the ram shifts at the pressing speed (S2) and stops at the position where the load cell detected the end load (S2). After the holding time (S2), the ram returns to the work home position at the approaching speed.

For details of the setting procedure, refer to the Section 5-1-2 “Constant Speed • Set Stop Load.”

5-1-10 2-Section PL (Position Stop - Load Stop)

In this mode, the Constant Speed • Set Stop Position (S1) and Constant Speed • Set Stop Load (S2) are performed in two sections.

In the first section, after approaching and probing, the ram shifts at the pressing speed (S1) and stops at the end position (S1.) In the second section, after the holding time (S1), the ram shifts at the pressing speed (S2) and stops at the position where the load cell detects the end load (S2). After the holding time (S2), the ram returns to the work home position at the approaching speed.

For details of the setting procedure, refer to the Sections 5-1-1 “Constant Speed • Set Stop Position” and 5-1-2 “Constant Speed • Set Stop Load.”

5-1-11 2-Section DL (Distance Pressing - Load Stop)

In this mode, the Constant Speed•Set Distance (S1) and Constant Speed•Set Stop Load (S2) are performed in two sections.

In the first section, after approaching and probing, the ram shifts at the pressing speed (S1) by a certain pressing distance (S1), from a position where the ram touches the workpiece, and stops. In the second section, after the holding time (S1), the ram shifts at the pressing speed (S2) and stops at the position where the load cell detects the end load (S2). After the holding time (S2), the ram returns to the work home position at the approaching speed.

For details of the setting procedure, refer to the Sections 5-1-3 “Constant Speed • Set Distance Mode” and 5-1-2 “Constant Speed • Set Stop Load.”

5-1-12 2-Section LP (Load Stop - Position Stop)

In this mode, the Constant Speed • Set Stop Load (S1) and Constant Speed • Set Stop Position (S2) are performed in two sections.

In the first section, after approaching and probing, the ram shifts at the pressing speed (S1) and stops at the position where the load cell detected the end load (S1). In the second section, after the holding time (S1), the ram shifts at the pressing speed (S2) and stops at the end position (S2). After the holding time (S2), the ram returns to the work home position at the approaching speed.

For details of the setting procedure, refer to the Sections 5-1-2 “Constant Speed • Set Stop Load” and 5-1-1 “Constant Speed • Set Stop Position.”

5-1-13 2-Section LD (Load Stop - Distance Pressing)

In this mode, the Constant Speed•Set Stop Load (S1) and Constant Speed•Set Distance (S2) are performed in two sections.

In the first section, after approaching and probing, the ram shifts at the pressing speed (S1) and stops at the position where the load cell detected the end load (S1). After the holding time (S1), the ram shifts by a certain pressing distance (S2) at the pressing speed (S2) and stops. After the holding time (S2), the ram returns to the work home position at the approaching speed.

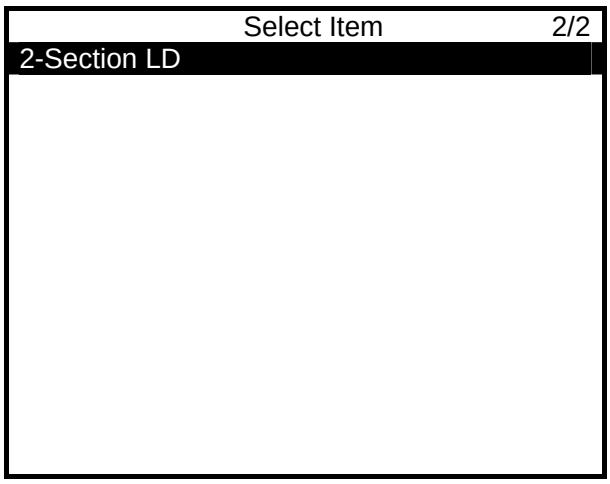
For details of the setting procedure, refer to the Sections 5-1-2 “Constant Speed • Set Stop Load” and 5-1-3 “Constant Speed • Set Distance Mode.”

5-1-14 Setting 2-Pressing Section

● How to Enter a New 2-Pressing Section

When a new program number is set, the pressing mode selection screen will appear.
For convenience, the new 2-pressing section registration procedure is different to that of a 1-pressing section.
This section will explain “2 Section LD.” For other modes, follow the instructions on the LCD screen in the same way as you do in this example.

Highlight “2-Section LD” on page 2 of the pressing mode selection screen and press the [ENTR] key.



In a new 2-pressing section registration, the order of data is; numeric values entry→position entry→holding time.
The order of data entry for “2 Section LD” is as follows. Enter the desired value for each item.

1st Section (S1) Pressing Speed
↓
1st Section (S1) End Load
↓
2nd Section (S2) Pressing Speed
↓
2nd Section (S2) Maximum Pressure
↓
2nd Section (S2) Pressing Distance
↓
Work Home Position
↓
1st Section (S1) Start Position
↓
2nd Section (S2) Holding Time

Numeric value entry

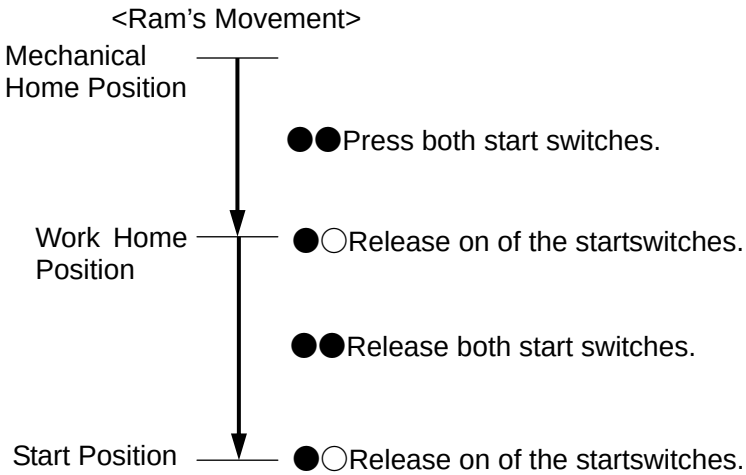
Position entry

Enter a position using the start switches (or the [↓Z] key.)

Press both start switches to lower the ram. When the ram reaches the position to be set as the work home position, release one of the switches and press the [ENTR] key.

When the [ENTR] key is pressed, the position will be fixed as the work home position and the screen will switch to the entry screen for the 1st section start position

Press both start switches again to lower the ram to the position to be set as the start position and press the [ENTR] key.



When data entry is complete, the S1 setting value display screen will appear.
Other than the items you have entered, items such as 1st section Holding Time can also be set. To set these items, select the desired item from the setting value display screen.

[CURSOL←] : Switches the display screen in the order S0 ← S1 ← S2.

[CURSOL→] : Switches the display screen in the order S0 → S1 → S2.

● End load and end position at the 1st section end will not be displayed as operation results. To see these, set sensor mode. (End Load: Sensor Load-At End, End Position: Sensor Position-At End)

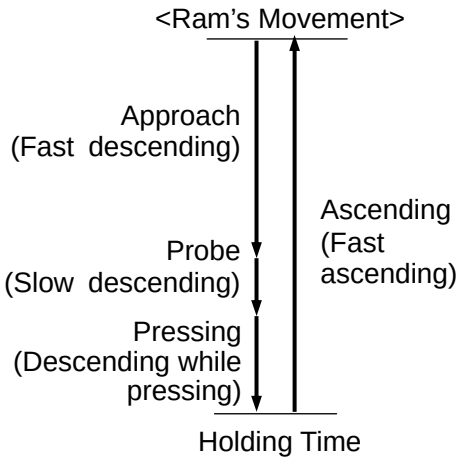
[OK/NG] : Adds or deletes sensor modes.

5-1-15 Special Operations

Normal operation consists of the following five steps:

1. Approach
2. Probe
3. Pressing
4. Holding Time
5. Ascending

You can eliminate the Holding Time by setting it to zero seconds [0sec].



A special feature is that it is possible to divide a normal operation into two or more programs.

e.g.) Program 1: Enable Approach, Probe Speed "10", Press Speed "5",
Disable Work Home Pos'n
Program 2: Disable Approach, Probe Speed "0", Press Speed "0", Enable Work Home Pos'n

In case of the above 2 programs, operations would proceed as below.
The ram will not ascend until programs are switched and a start instruction is given.

Program 1: Start Instruction → Approach → Probe → Pressing
Program 2: Start Instruction → Ascend

- When a program in which "Returning Work Home Position" is set to "Disable" is executed, an operation is finished with pressure applied. If in these circumstances a program in which "Approach" is set to "Enable" is run, an error "Approach Pressure Over " will occur. Even when a program in which "Approach" is set to "Enable" is run, pressing finishes at the same time as operation starts if the pressure at that point reaches End load.

Making Approach and Ascending Ineffective

Perform normal teaching first. Enter a new program number, select the pressing mode, and enter values for the pressing speed, work home position, etc., and finally, holding time. The following setting screen will be displayed.

No. 1	S1
Const Speed・Set Stop Pos'n	
Pressing Speed	10 mm/s
Max. Pressure	5000 N
Start position	50 mm
End Position	55 mm
Stop Time	0 sec

- If you press the [CURSOR←] key, the setting screen S0" to the right will appear.

On this screen, you will see the items [Enable Work Home Position] and [Enable Approach.] Under the standard settings, both items are set to [Enable.]
This setting can be changed with the [CHANGE] key.

No. 1	S0
Name	Test10
Work Home Pos'n	30.23 mm
Approach Speed	166 mm/s
Max. Pressure AP	100 N
Probe Speed	5 mm/s
Touching Load	100 N
Probe Limit Pos'n	100 mm
Enable Work Home Pos'n	
Enable Approach	
Return Speed	166 mm/s

For the approach, you can select either of the following two settings.

- Enable Approach: Default

After the start instruction, the ram follows the steps Approach → Probe → Pressing → Holding Time → Ascending.

- Disable Approach

After the start instruction, the ram follows the steps Probe → Pressing → Holding Time → Ascending.

For the work home position, you can select from the following three settings.

- Enable Work Home Position: Default

After the start instruction, the ram follows the steps Approach → Probe → Pressing → Holding Time → Ascending.

- Disable Work Home Position

After the start instruction, the ram follows the steps Approach → Probe → Pressing → Holding Time.
The ram stands by for the next start instruction at the position where a pressing operation is complete and does not return to the work home position.

- Work Home on Fault

After the start instruction, the ram follows the steps Approach → Probe → Pressing → Holding Time.
The ram stands by for the next start instruction at the position where the pressing operation is complete and It does not return to the work home position.
However, the ram occasionally returns to the work home position when operation errors or sensor errors such as “Pressure Over”, “Position Over” or “Stop in Middle” occur while running.

<Maximum Approach Speed for the models>

The maximum approach speed is limited depending on the model as below.

- JP/JPH/JPU-104: 166 [mm/sec]
- JP/JPH/JPU-204: 166 [mm/sec]
- JP/JPH/JPU-504: 166 [mm/sec]
- JP/JPH/JPU-1004: 150 [mm/sec]
- JP/JPH/JPU-3004: 200 [mm/sec]
- JP/JPH/JPU-5004: 200 [mm/sec]

Making Probe and Pressing Ineffective

Set the probe and pressing speed parameters to [0mm/s] to make them ineffective.
The following two screens show the normal setting (shown on the left) and the ineffective setting (shown on the right.)

Ineffective (pressing speed 0 mm/s)

No. 1	S1
Const Speed • Set Stop Pos’n	
Pressing Speed	Disable Pressing
Max. Pressure	5000 N
Start Position	50 mm
End Position	55 mm
Holding Time	0 sec

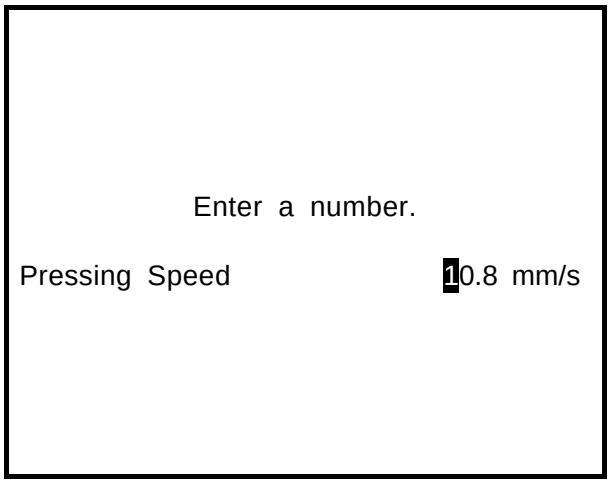
Normal (pressing speed 20 mm/s)

No. 1	S1
Const Speed • Set Stop Pos’n	
Pressing Speed	10 mm/s
Max. Pressure	5000 N
Start Position	50 mm
End Position	55 mm
Holding Time	0 sec

Even if a normal value (e.g. 5 mm/s) has been set, it is possible to set it to “Disable Pressing” by changing the value.

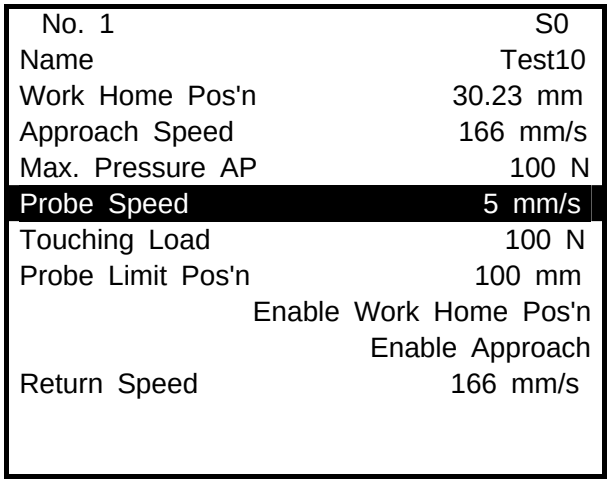
Select “Pressing Speed” on the pressing speed display screen (S1) to display the pressing speed entry screen to right.
If you press the [CLEAR] key, the value is cleared to “0.” Press the [ENTR] key to set it to “Disable Pressing.”

You can also change the setting from “Disable Pressing” (0 mm/s) to a normal value (e.g. 20 mm/s) here.



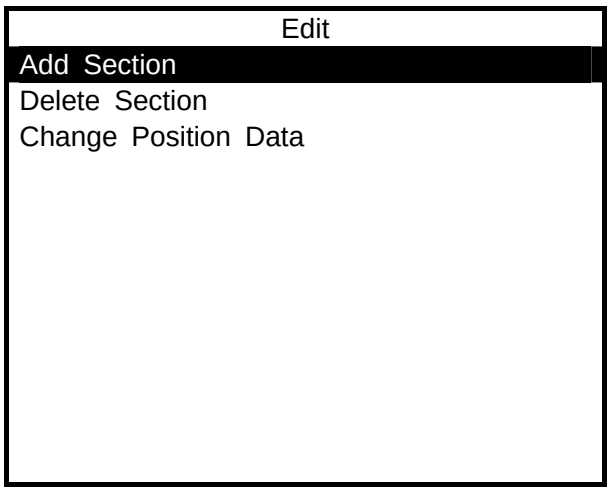
In the same way, set the probe speed to 0 mm/s to make the probe ineffective

Switch to the probe speed display screen (S0) and select “Probe Speed” to display the pressing speed entry screen to right.
Press the [CLEAR] key to make the value “0.” Press the [ENTR] key to set it to “Disable Probe.”



5-1-16 Add and Delete Section, Change Position Data

Press the [EDIT] key in teaching mode to display the EDIT menu.
It is possible to add or delete a section and to change position data of pressing sections.



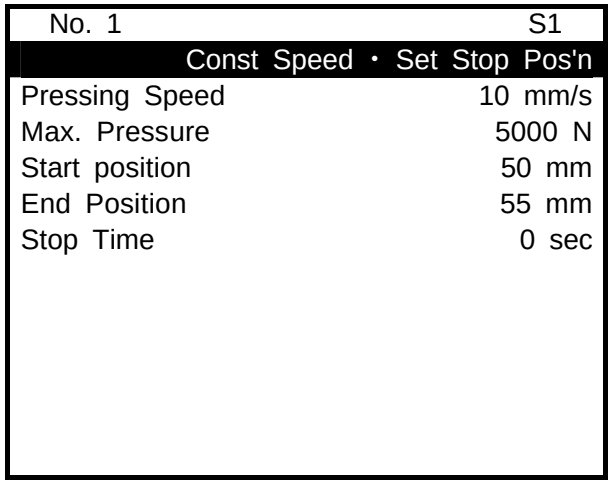
<EDIT Menu>

<Adding a Pressing Section>

Select “Add Section” from the EDIT menu, the pressing mode selection screen will appear. Select a pressing mode to add a pressing section of the selected pressing mode in the current program. However, a 2-section pressing cannot be added in this way. To add a 2-section pressing, add 1-section pressing twice.

The pressing section will be added at the end. In case of a 1-section pressing program, it will be added as the 2nd section. In case of a 2-section pressing program, it will be added as the 3rd section.

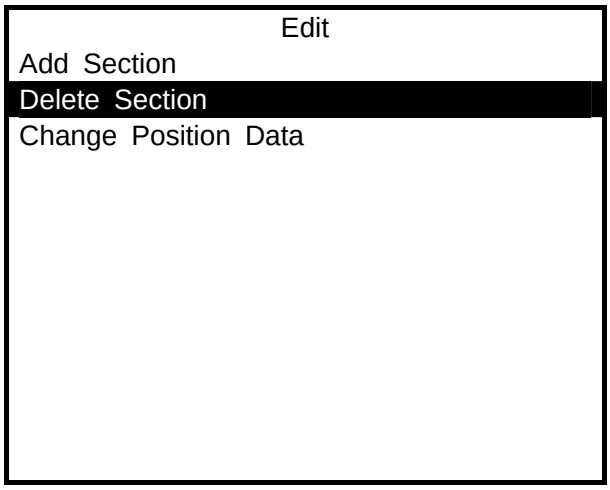
A default value is set for each item in the added pressing section.
To change these values, select the item to change from the setting display screen.
When an item is selected, the screen will switch to the setting value entry screen. Enter a value for each setting.



<Setting Value Display Screen>

<Deleting a Pressing Section>

If there are 2 or more pressing sections in a program, a pressing section can be deleted.
Press the [EDIT] key in teaching mode and select “Delete Section.”
The pressing section at the end will be deleted.
In case of a 2-section pressing program, the 2nd section will be deleted. In case of a 3-section pressing program, the 3rd section will be deleted.



- If there is only a 1-section pressing mode, it cannot be deleted. (It is not possible to create a program without a pressing section.)

<Changing Position Data>

When you select “Change Position Data”, all the position data in the current program (except for work home position) will be changed to the value of the entered number added to/deducted from the position data.
Press the [EDIT] key and select “Change Position Data.” The entry screen will appear. Enter the desired value.

5-2 Sensor Mode Setting

In the teaching mode, press the [OK/NG] key to add, delete, or clear the sensor settings.
If the program is 1-Section, the screen on the left side will appear. If it is 2-Section or more, the screen on the right side will appear.

Add, Delete Sensor
Add Sensor Setting
Delete Sensor Setting
Delete All Sensor Settings

Add, Delete Sensor
Add Sensor Setting
Delete Sensor Setting
Delete All For Single Section
Delete All For All Sections

<Adding Sensor Setting>

● Select [Add Sensor Setting] to choose a sensor setting from the following 16 options.

1. Sensor Position - At Start
2. Sensor Load - Position Range
3. Sensor Load - Distance Range
4. Sampling (Load) - Position Range
5. Sampling (Load) - Distance Range
6. Sensor Speed - In Time Range
7. Sensor Speed - Position Range
8. Sensor Speed - Distance Range
9. Sampling (Speed) - In Time Range
10. Sampling (Speed) - Position Range
11. Sampling (Speed) - Distance Range
12. Sensor Distance - At End
13. Sensor Position - At End
14. Sensor Load - At End
15. Sensor Time - At End
16. Sensor Load - In Pause

After adding a sensor setting, the following items can be changed.

J1… (Sensor Items)

1. Switching between Stop on Fault/Continue on Fault/Sampling
   Stop on Fault: As soon as NG is detected by a sensor setting, it is judged as NG and the ram returns to the work home position. (Default)
   Continue on Fault: The operation is carried on even if NG is detected by a sensor setting. After the operation is complete, it is judged as NG.
   Sampling: Data is only taken for sampling. It is not judged as NG, even if NG is detected.

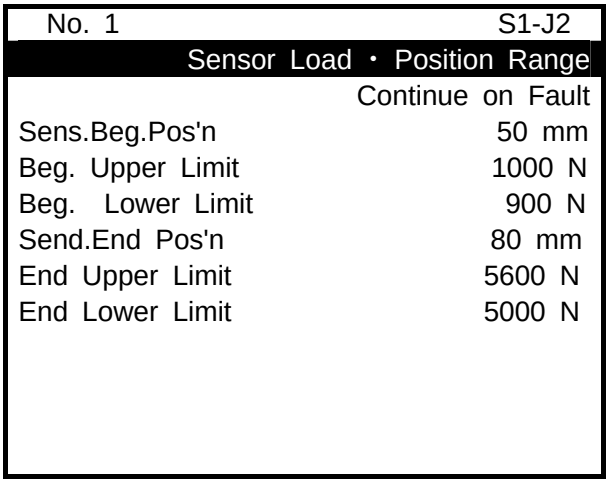
2. Values entered for each sensor setting

3. Slant Value: The value at a position where a sharp change can be seen, detected in Sampling (Differential.)

4. Sensor On/Off: **Not available with the standard specifications.** (Optional setting)
   If Result data output is set under I/O Function Assignment, you can change whether or not the result data is output.

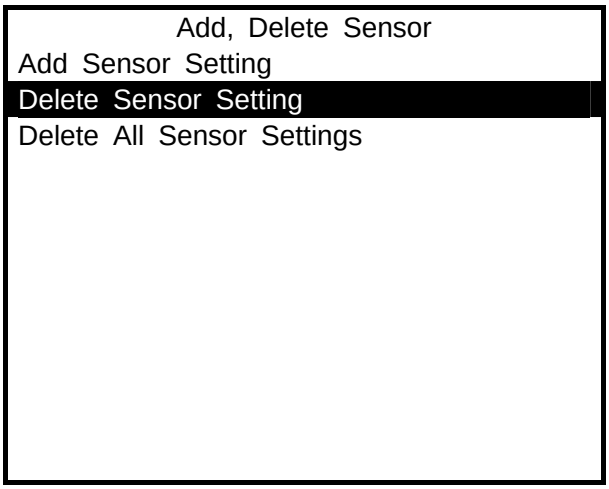
How to Make Changes

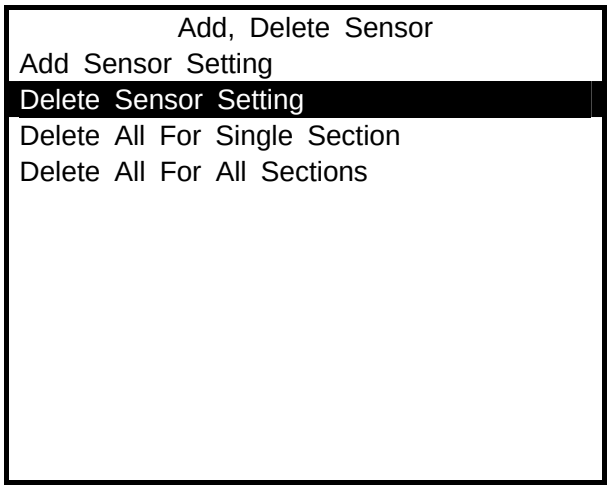
- Select the item to be changed on the setting screen to the right.
- The entry screen will appear. Change the value on the screen.



<Deleting Sensor Setting>

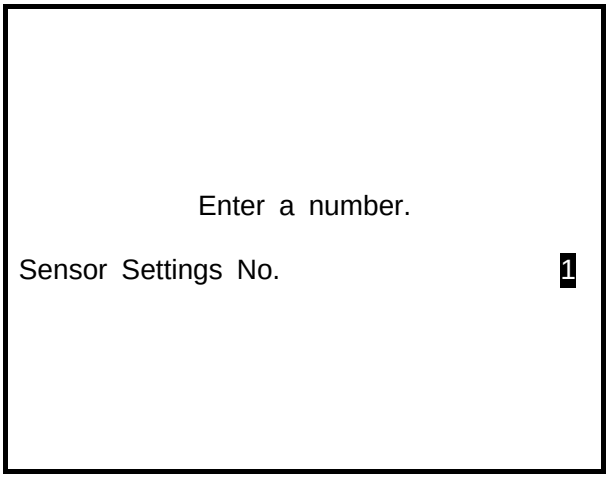
In the teaching mode, press the [OK/NG] key to add, delete, or clear the sensor settings.
Select [Delete Sensor Setting] to delete unnecessary settings.
If the program is 1-Section, the screen on the left side will appear. If it is 2-Section or more, the screen on the right side will appear.



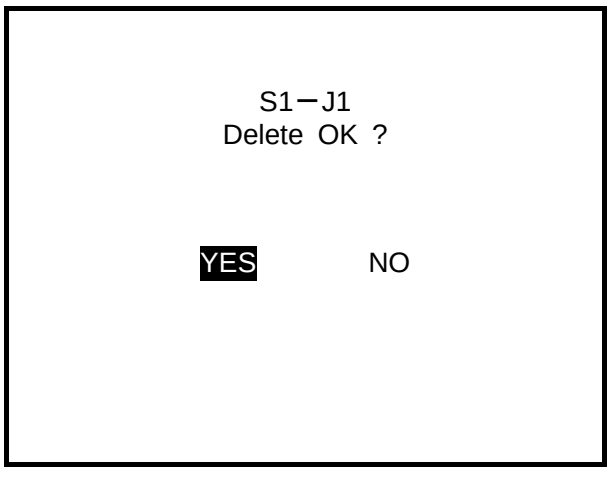


How to Delete

- Select “Delete Sensor Setting.”
- Set the sensor setting number to be deleted using the numeric keys.



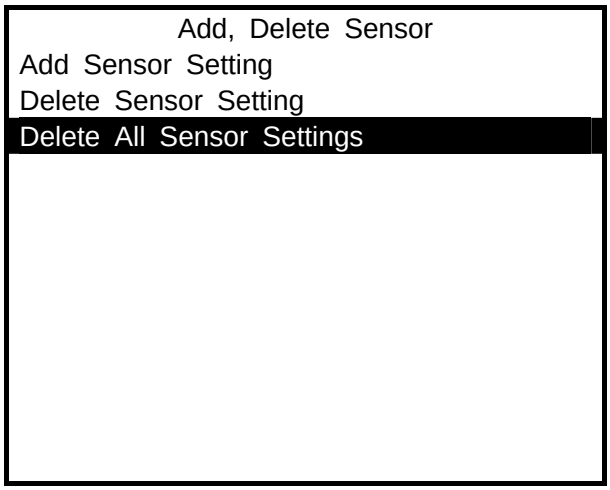
- Select [YES] to delete the setting.



<Deleting All Sensor Settings>

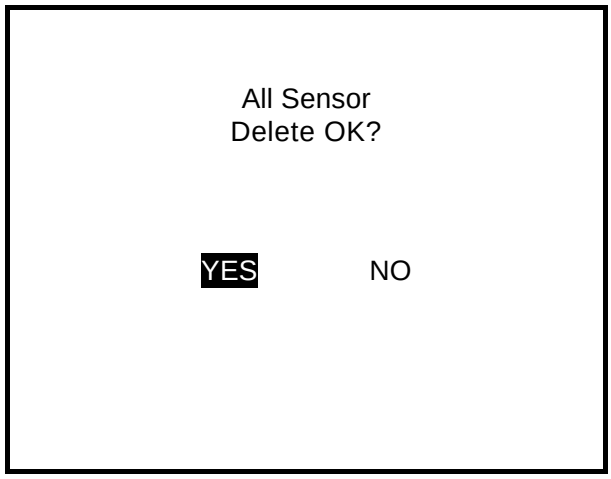
In the teaching mode, press the [OK/NG] key to add, delete, or clear the sensor settings.

Select [Delete All Sensor Settings] to delete all settings.



How to Delete

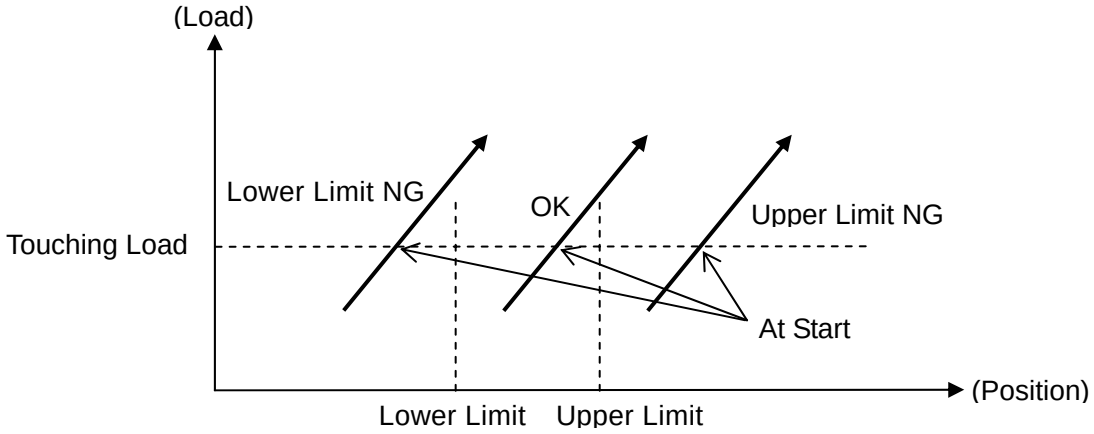
- Select [Delete All Sensor Settings.]
- Select [YES] to delete all sensor settings.



5-2-1 Sensor Position - At Start

The Electro Press detects the value of the touching load, and checks if the position where the ram makes the transition from probing to pressing is within the upper and lower limits.

Select Item	1/2
Sensor Pos'n - At Start	
Sensor Load - Position Range	
Sensor Load - Distance Range	
Sampling (Load) - Position Range	
Sampling (Load) - Distance Range	
Sensor Speed - In Time Range	
Sensor Speed - Position Range	
Sensor Speed - Distance Range	
Sampling (Speed) - In Time Range	
Sampling (Speed) - Position Range	
Sampling (Speed) - Distance Range	
Sensor Distance - At End	



Enter the following parameters in the Sensor Position • At Start mode.

1. Lower Limit: Lower value of sensor position
2. Upper Limit: Upper value of sensor position

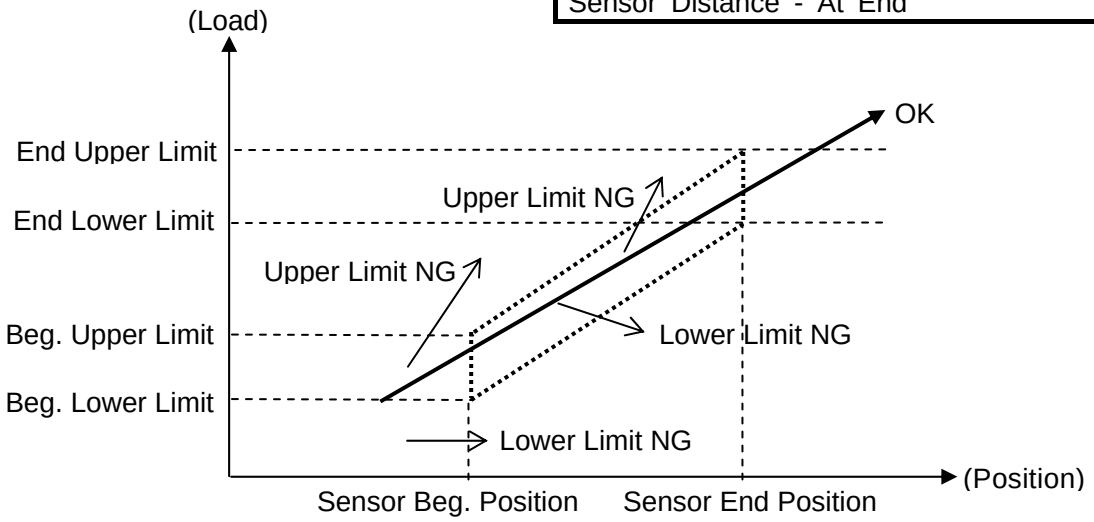
How to Set

- Select [Sensor Pos'n - At Start.]
- Set the Lower Limit and Upper Limit using the two start switches ([Z↓] and [Z↑] for the unit type.)

5-2-2 Sensor Load - Position Range

The Electro Press checks whether the load inside the pre-set range is within the upper and lower limits.

Select Item	1/2
Sensor Pos'n - At Start	
Sensor Load - Position Range	
Sensor Load - Distance Range	
Sampling (Load) - Position Range	
Sampling (Load) - Distance Range	
Sensor Speed - In Time Range	
Sensor Speed - Position Range	
Sensor Speed - Distance Range	
Sampling (Speed) - In Time Range	
Sampling (Speed) - Position Range	
Sampling (Speed) - Distance Range	
Sensor Distance - At End	



- The area enclosed by the dotted lines indicates the position range.

Enter the following parameters for the Sensor Load • Position Range mode.

1. Sensor Beginning Position: Position where sensing starts
2. Sensor End Position: Position where sensing ends
3. Beginning Lower Limit: Lower load limit at sensor beginning position
4. Beginning Upper Limit: Upper load limit at sensor beginning position
5. End Lower Limit: Lowest lower load limit at sensor end position
6. End Upper Limit: Upper load limit at sensor end position

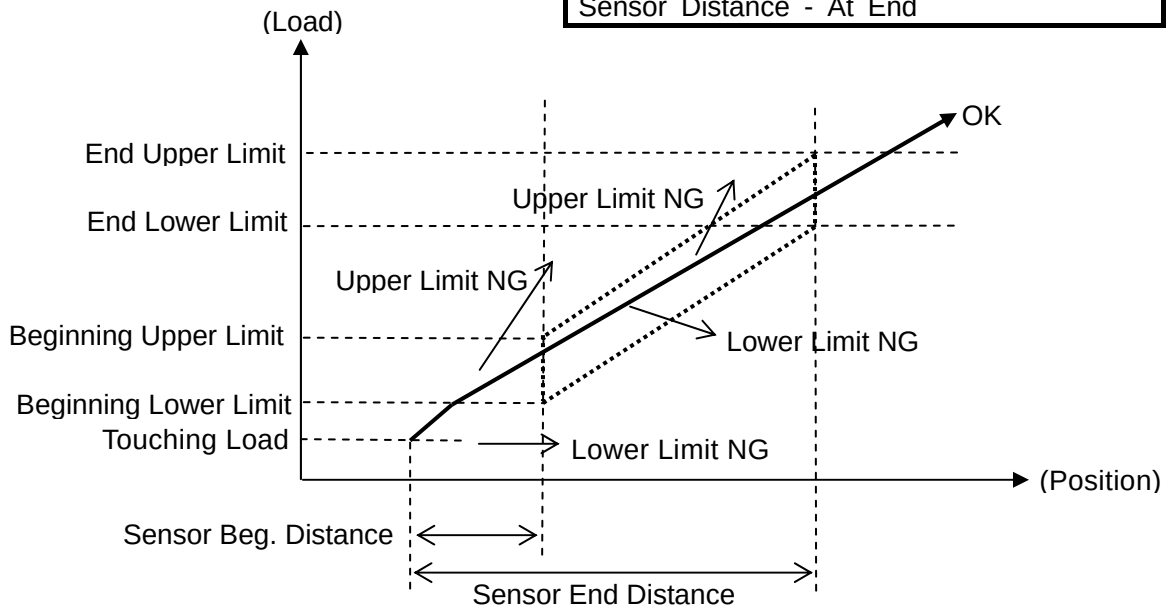
How to Set

- Select [Sensor Load - Position Range.]
- To set the Sensor Beginning Position, Sensor End Position, Beginning Lower Limit and Beginning Upper Limit use the numeric and decimal keys.

5-2-3 Sensor Load - Distance Range

The Electro Press checks whether the load inside the distance range, between At Start (where it detected the touching load) and At End (where the sensing ends), is within the upper and lower limits.

Select Item 1/2
Sensor Pos'n - At Start
Sensor Load - Position Range
Sensor Load - Distance Range
Sampling (Load) - Position Range
Sampling (Load) - Distance Range
Sensor Speed - In Time Range
Sensor Speed - Position Range
Sensor Speed - Distance Range
Sampling (Speed) - In Time Range
Sampling (Speed) - Position Range
Sampling (Speed) - Distance Range
Sensor Distance - At End



- The area enclosed by the dotted lines indicates the position range.

Enter the following parameters for the Sensor Load - Distance Range mode.

1. Sensor Beginning Distance: Area where sensing starts
2. Sensor End Distance: Area where sensing ends
3. Beginning Lower Limit: Lower load limit within sensor beginning distance
4. Beginning Upper Limit: Upper load limit within sensor beginning distance
5. End Lower Limit: Lower load limit within sensor end distance
6. End Upper Limit: Upper load limit within sensor end distance

How to Set

- Select [Sensor Load - In Dist. Range.]
- Set the Sensor Beginning Distance, Sensor End Distance, Beginning Lower Limit, Beginning Upper Limit, End Lower Limit, and End Upper Limit using the numerical and decimal keys.

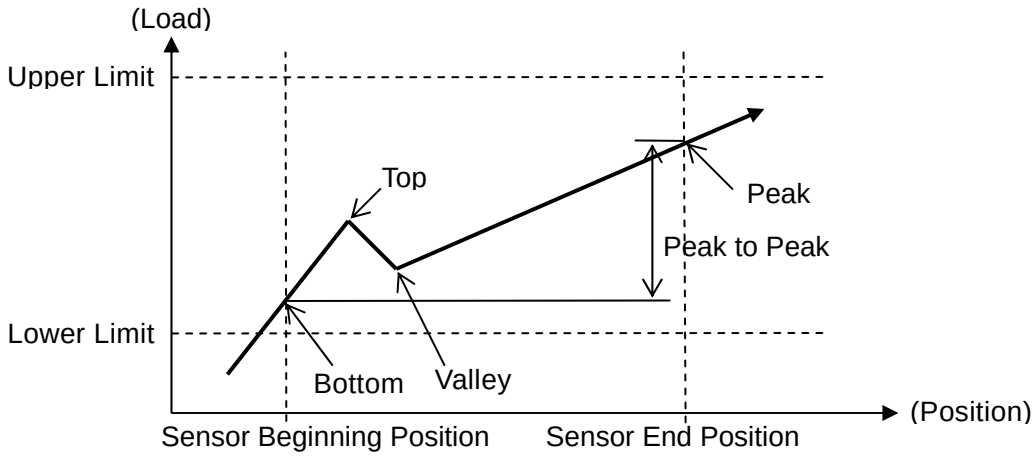
5-2-4 Sampling (Load) - Position Range

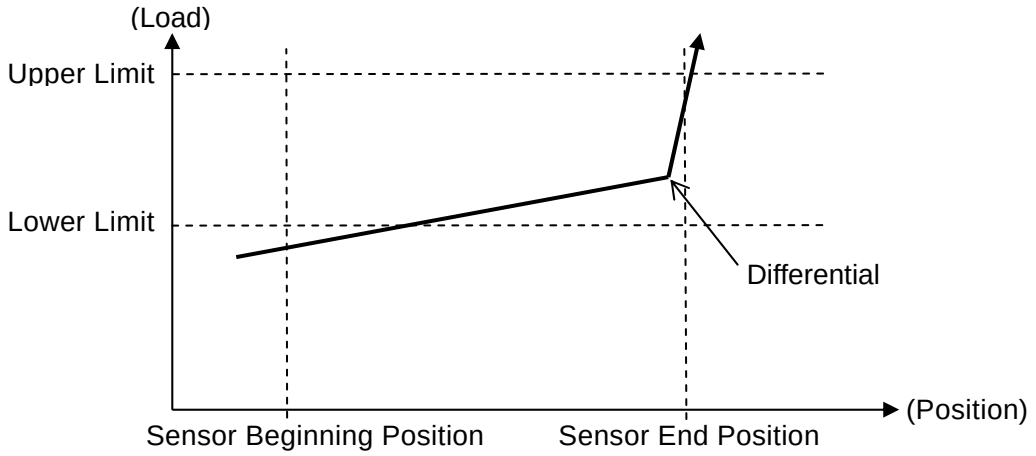
The Electro Press samples the load in the position range and checks if the sampled load is within the desired range.

Select Item 1/2
Sensor Pos'n - At Start
Sensor Load - Position Range
Sensor Load - Distance Range
Sampling (Load) - Position Range
Sampling (Load) - Distance Range
Sensor Speed - In Time Range
Sensor Speed - Position Range
Sensor Speed - Distance Range
Sampling (Speed) - In Time Range
Sampling (Speed) - Position Range
Sampling (Speed) - Distance Range
Sensor Distance - At End

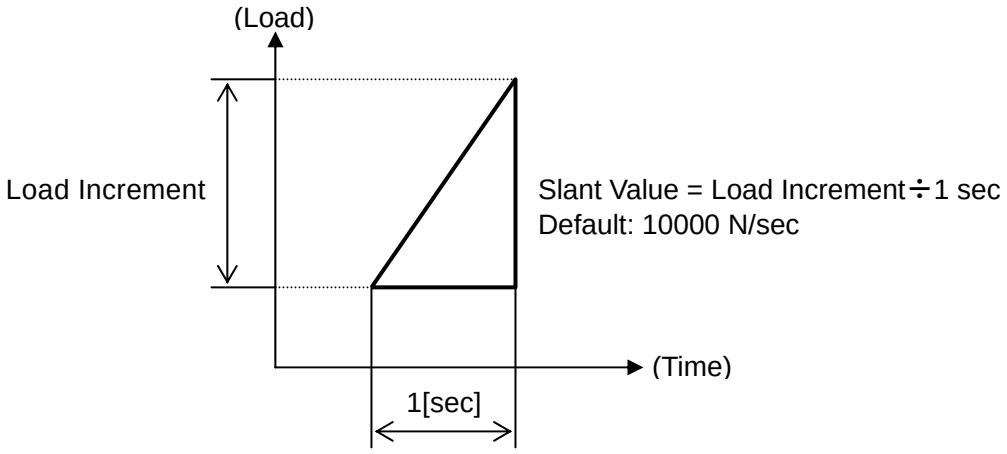
The following six parameters are provided.

1. Peak: Maximum load in the assigned range
2. Bottom: Minimum load in the assigned range
3. Differential: The load just before a sharp change of load in the assigned range
4. Peak to Peak: The difference between the maximum and minimum load
5. Top: The first peak load in the assigned range
6. Valley: The first bottom load after the first peak load in the assigned range





- A sharp change is defined as when the load variation per second is more than 10,000N (sampling time 2 msec.)

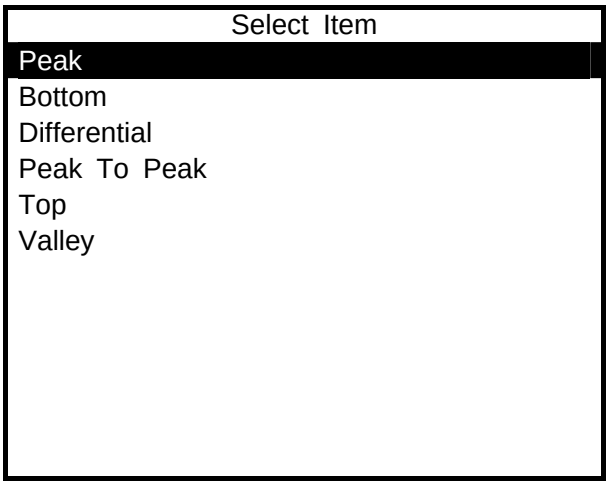


Enter the following parameters for the Sampling (Load) - Position Range mode.

1. Sensor Beginning Position: Position where sampling starts
2. Sensor End Position: Position where sampling ends
3. Lower Limit: Lower sensor limit for the sampled load
4. Upper Limit: Higher sensor limit for the sampled load

How to Set

- Select [Sampling (Load) - Position Range.]
- Select the item from the following six parameters.
- Set the Sensor Beginning Position and Sensor End Position using the two start switches ([Z↓] and [Z↑] for the unit type.)
- Set the Lower Limit and Upper Limit using the numeric and decimal keys.



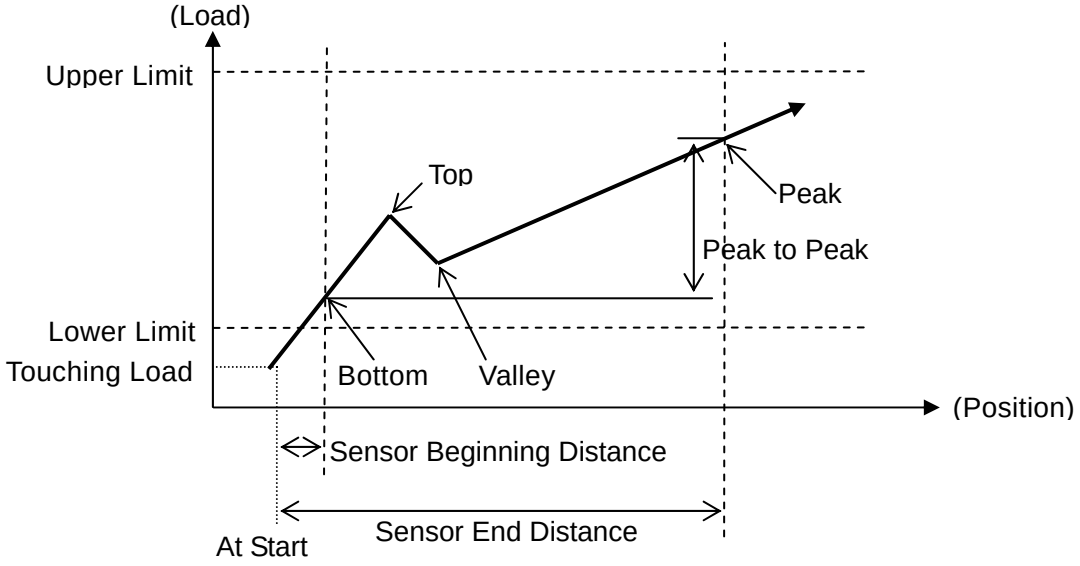
5-2-5 Sampling (Load) - Distance Range

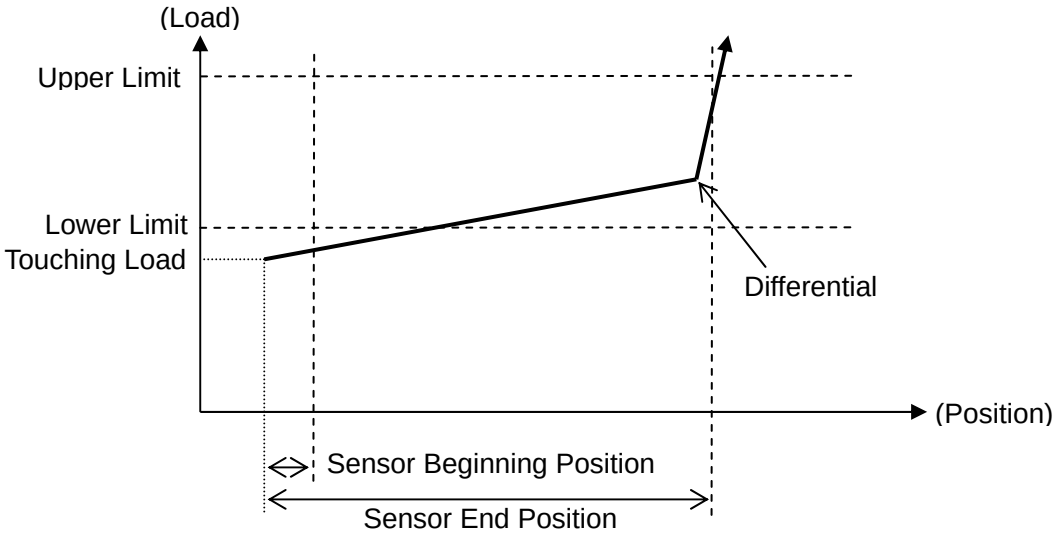
The Electro Press samples the load in the distance range from the starting position (At Start - position where it detected the touching load) and checks whether the sampled load is within the desired range.

Select Item 1/2
Sensor Pos'n - At Start
Sensor Load - Position Range
Sensor Load - Distance Range
Sampling (Load) - Position Range
Sampling (Load) - Distance Range
Sensor Speed - In Time Range
Sensor Speed - Position Range
Sensor Speed - Distance Range
Sampling (Speed) - In Time Range
Sampling (Speed) - Position Range
Sampling (Speed) - Distance Range
Sensor Distance - At End

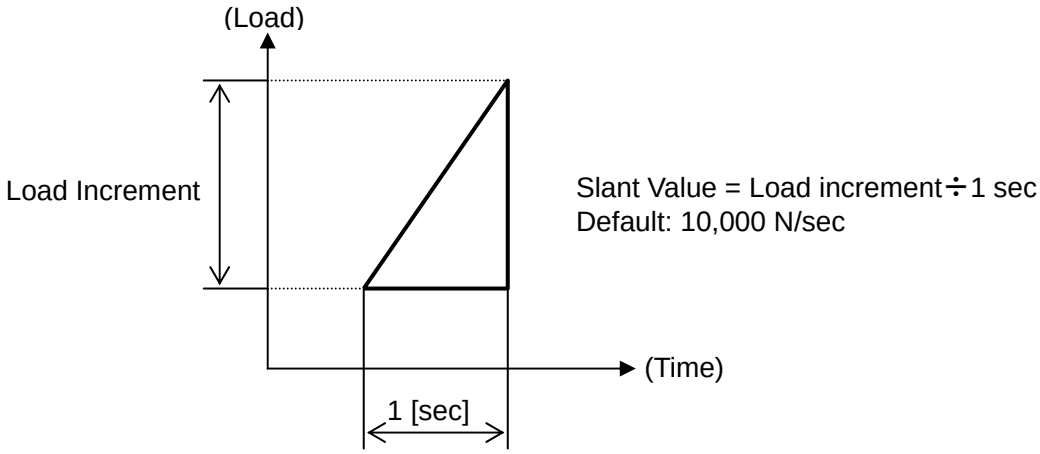
The following six parameters are provided.

1. Peak: Maximum load in the assigned range
2. Bottom: Minimum load in the assigned range
3. Differential: Load just before a sharp change of load in the assigned range
4. Peak to Peak: Difference between the maximum and minimum load
5. Top: First peak load in the assigned range
6. Valley: First bottom load after the first peak load in the assigned range.





- A sharp change is defined as when the load variation per second is more than 10,000 N (sampling time 2 msec.)

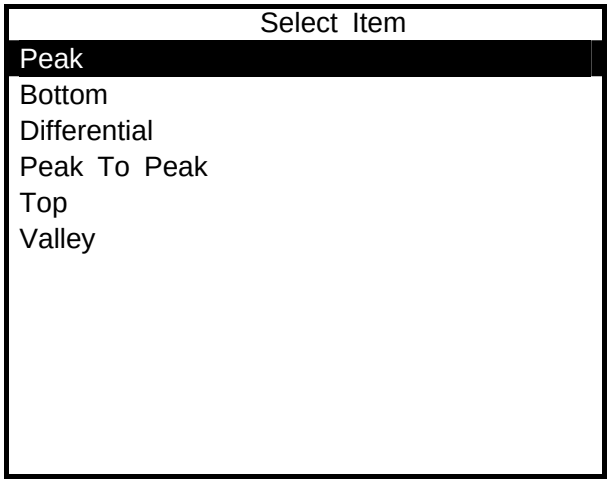


Enter the following parameters for the Sampling (Load) - Distance Range mode.

1. Sensor Beginning Distance: Distance where sampling starts
2. Sensor End Distance: Distance where sampling ends
3. Lower Limit: Lower sensor limit for the sampled load
4. Upper Limit: Upper sensor limit for the sampled load

How to Set

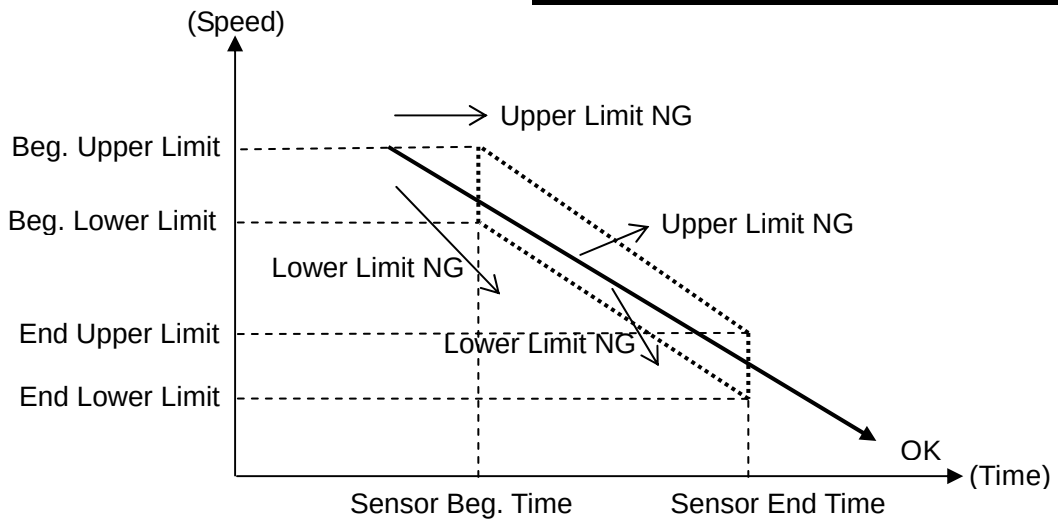
- Select [Sampling (Load) - In Dist. Range.]
- Select an item from the following six parameters.
- Set the Sensor Beginning Distance, Sensor End Distance, Lower Limit, and Upper Limit using the numeric and decimal keys.



5-2-6 Sensor Speed - In Time Range

The Electro Press checks whether the speed inside the preset time range is within the upper and lower limits.

Select Item	1/2
Sensor Pos'n - At Start	
Sensor Load - Position Range	
Sensor Load - Distance Range	
Sampling (Load) - Position Range	
Sampling (Load) - Distance Range	
Sensor Speed - In Time Range	
Sensor Speed - Position Range	
Sensor Speed - Distance Range	
Sampling (Speed) - In Time Range	
Sampling (Speed) - Position Range	
Sampling (Speed) - Distance Range	
Sensor Distance - At End	



- The area enclosed by the dotted lines is the In Time Range.

Enter the following parameters for the Sensor Speed - In Time Range mode.

1. Sensor Beginning Time: Time when sensing starts
2. Sensor End Time: Time when sensing ends
3. Beginning Lower Limit: Lower speed limit within sensor beginning time
4. Beginning Upper Limit: Upper speed limit within sensor beginning time
5. End Lower Limit: Lower speed limit within sensor end time
6. End Upper Limit: Upper speed limit within sensor end time

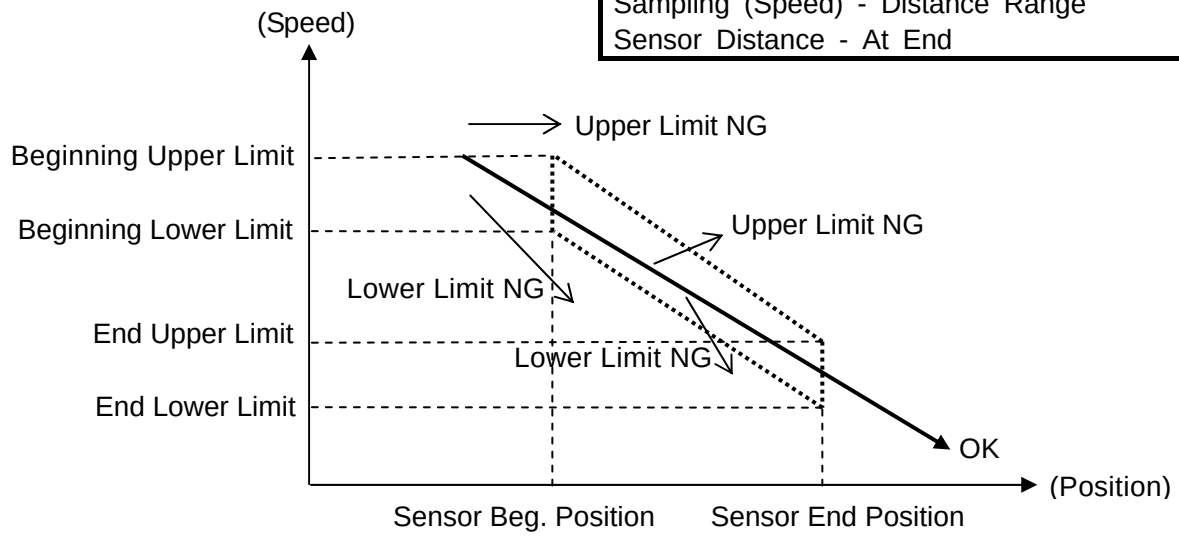
How to Set

- Select [Sensor Speed - In Time Range.]
- Set the Sensor Beginning Time, Sensor End Time, Beginning Lower Limit, Beginning Upper Limit, End Lower Limit, and End Upper Limit using the numeric and decimal keys.

5-2-7 Sensor Speed - Position Range

The Electro Press checks whether the speed inside the position range is within the upper and lower limits.

Select Item 1/2
Sensor Pos'n - At Start
Sensor Load - Position Range
Sensor Load - Distance Range
Sampling (Load) - Position Range
Sampling (Load) - Distance Range
Sensor Speed - In Time Range
Sensor Speed - Position Range
Sensor Speed - Distance Range
Sampling (Speed) - In Time Range
Sampling (Speed) - Position Range
Sampling (Speed) - Distance Range
Sensor Distance - At End



- The area enclosed by the dotted lines is the position range.

Enter the following parameters for the Sensor Speed - Position Range mode.

1. Sensor Beginning Position: Position where sensing starts
2. Sensor End Position: Position where sensing ends
3. Beginning Lower Limit: Lower speed limit at the sensor beginning position
4. Beginning Upper Limit: Upper speed limit at the sensor beginning position
5. End Lower Limit: Lower speed limit at the sensor end position
6. End Upper Limit: Upper speed limit at the sensor end position

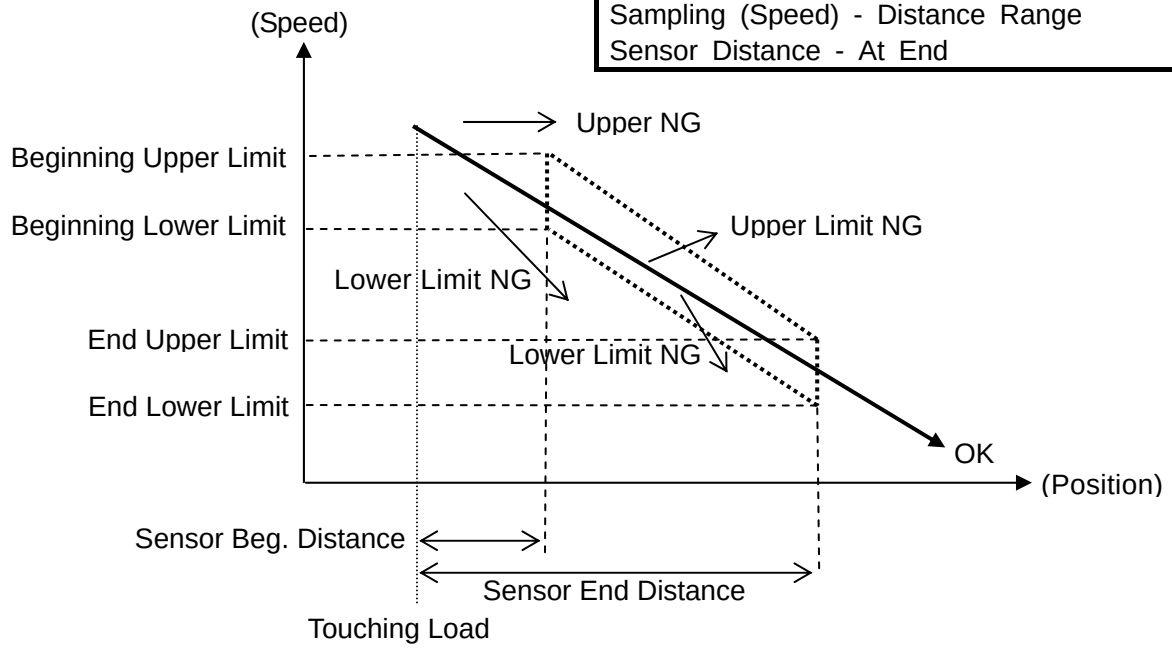
How to Set

- Select [Sensor Speed - Position Range.]
- Set the Sensor Beginning Position and Sensor End Position using the two start switches ([Z ↓] and [Z ↑] for the unit type.)
- Set the Beginning Lower Limit, Beginning Upper Limit, End Lower Limit, and End Upper Limit using the numeric and decimal keys.

5-2-8 Sensor Speed - Distance Range

The Electro Press checks whether the speed inside the distance range is within the upper and lower limits.

Select Item	1/2
Sensor Pos'n - At Start	
Sensor Load - Position Range	
Sensor Load - Distance Range	
Sampling (Load) - Position Range	
Sampling (Load) - Distance Range	
Sensor Speed - In Time Range	
Sensor Speed - Position Range	
Sensor Speed - Distance Range	
Sampling (Speed) - In Time Range	
Sampling (Speed) - Position Range	
Sampling (Speed) - Distance Range	
Sensor Distance - At End	



- The area enclosed by the dotted lines is the position range.

Enter the following parameters for the Sensor Speed - Distance Range mode.

1. Sensor Beginning Position: Position where sensing starts
2. Sensor End Position: Position where sensing ends
3. Beginning Lower Limit: Lower load limit within sensor beginning distance
4. Beginning Upper Limit: Upper load limit within sensor beginning distance
5. End Lower Limit: Lower load limit within sensor end distance
6. End Upper Limit: Upper load limit within sensor end distance

How to Set

- Select [Sensor Speed - In Dist. Range.]
- Set the Sensor Beginning Distance, Sensor End Distance, Beginning Lower Limit, Beginning Upper Limit, End Lower Limit, and End Upper Limit using the numeric and decimal keys.

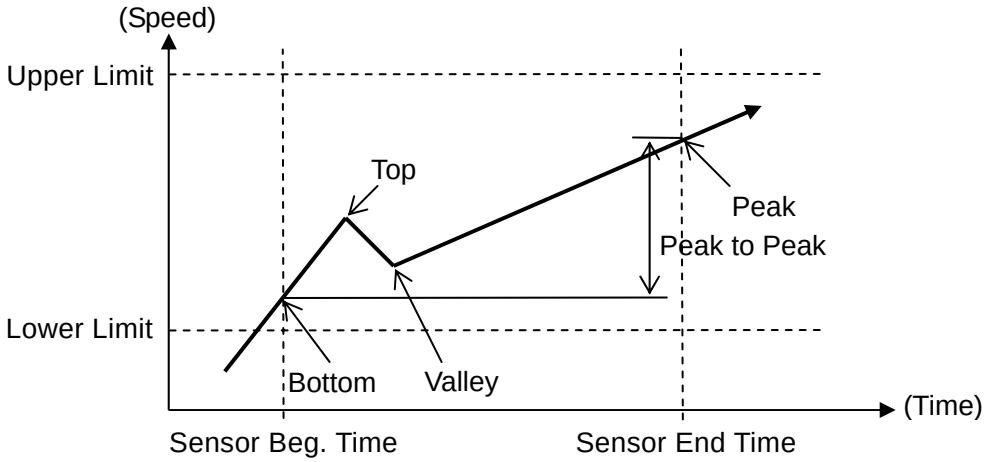
5-2-9 Sampling (Speed) - In Time Range

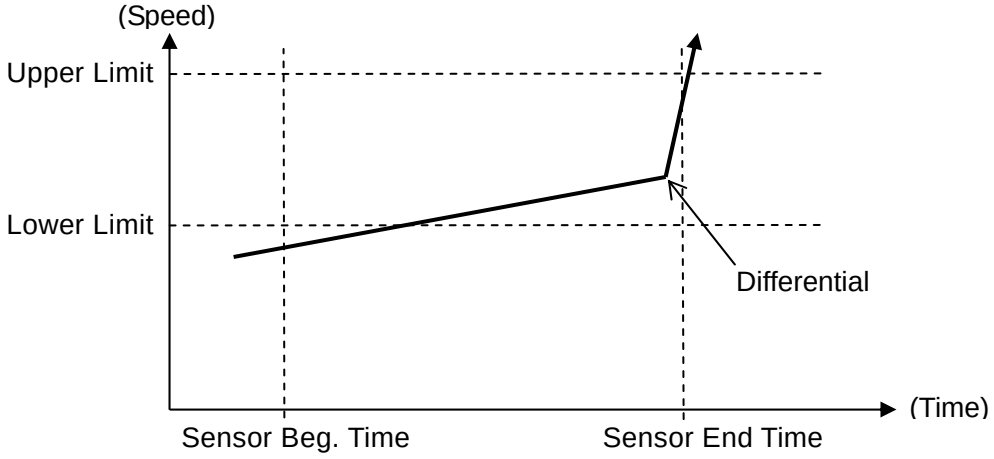
The Electro Press samples the speed in the time range and checks whether the sampled speed is within the desired range.

Select Item	1/2
Sensor Pos'n - At Start	
Sensor Load - Position Range	
Sensor Load - Distance Range	
Sampling (Load) - Position Range	
Sampling (Load) - Distance Range	
Sensor Speed - In Time Range	
Sensor Speed - Position Range	
Sensor Speed - Distance Range	
Sampling (Speed) - In Time Range	
Sampling (Speed) - Position Range	
Sampling (Speed) - Distance Range	
Sensor Distance - At End	

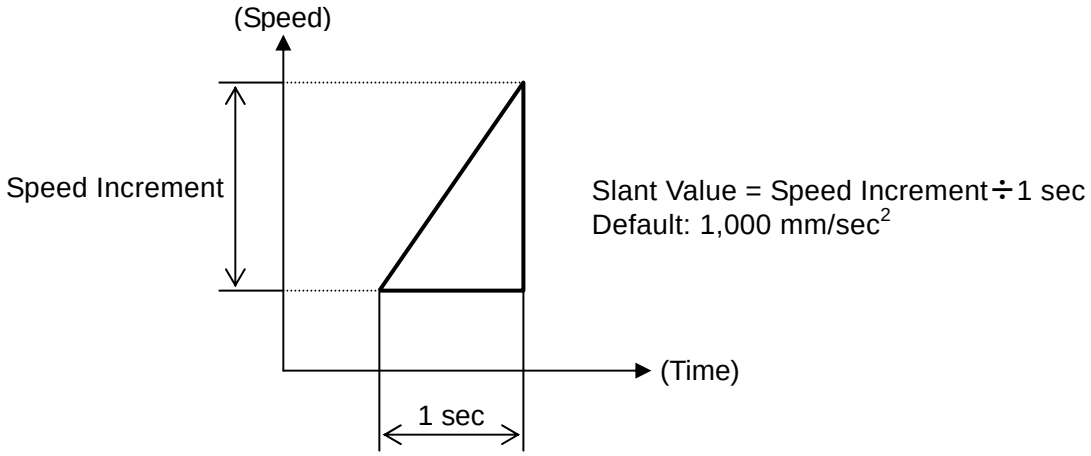
The following six samples are provided.

1. Peak: Maximum speed in the assigned time range
2. Bottom: Minimum speed in the assigned time range
3. Differential: Speed just before a sharp change of speed in the assigned time range
4. Peak to Peak: Difference between the maximum and minimum speeds
5. Top: The first peak speed in the assigned time range
6. Valley: The first bottom speed after the first peak speed in the assigned time range





- A sharp change is defined as when the speed variation per second is more than 1,000 mm/sec (sampling time 2 msec.)

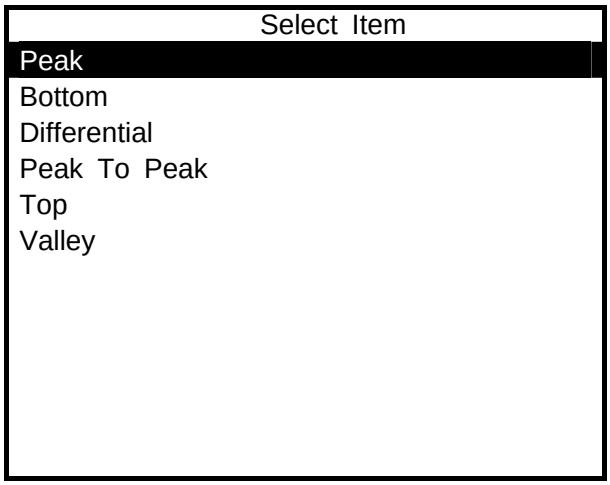


Enter the following parameters for the Sampling Speed - In Time Range mode.

1. Sensor Beginning Time: Time when sampling starts
2. Sensor End Time: Time when sampling ends
3. Lower Limit: Lower sensor limit for the sampled speed
4. Upper Limit: Upper sensor limit for the sampled speed

How to Set

- Select [Sampling Speed - In Time Range.]
- Select an item from the following six options.
- Set the Sensor Beginning Time, Sensor End Time, Lower Limit, and Upper Limit with the numeric and decimal keys.



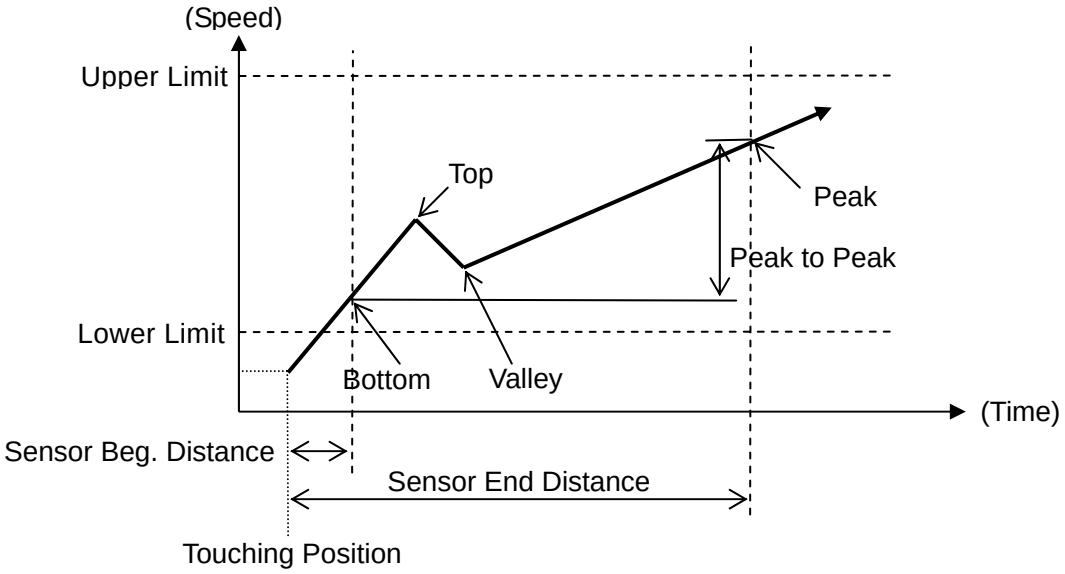
5-2-10 Sampling (Speed) - Distance Range

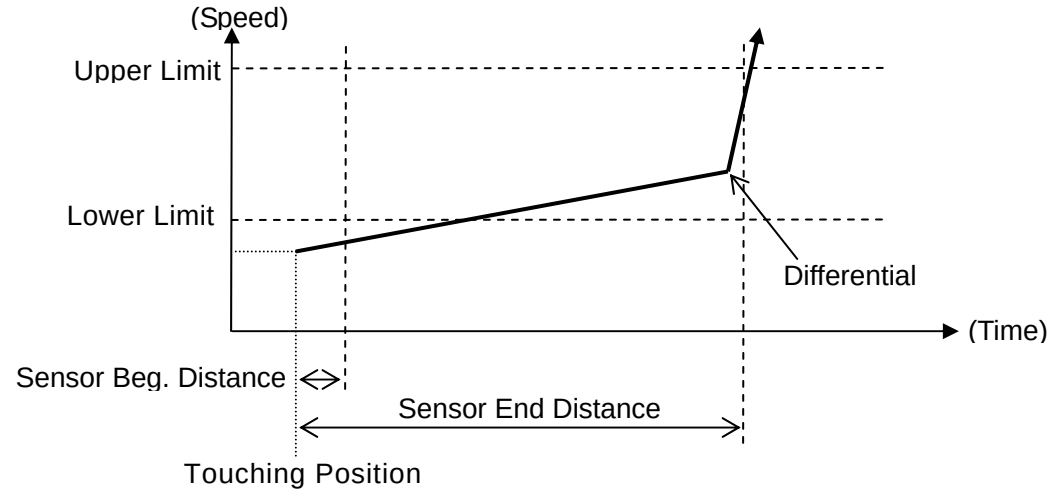
The Electro Press samples the speed in the distance range and checks whether the sampled speed is within the desired range.

Select Item
Sensor Pos'n - At Start
Sensor Load - Position Range
Sensor Load - Distance Range
Sampling (Load) - Position Range
Sampling (Load) - Distance Range
Sensor Speed - In Time Range
Sensor Speed - Position Range
Sensor Speed - Distance Range
Sampling (Speed) - In Time Range
Sampling (Speed) - Position Range
Sampling (Speed) - Distance Range
Sensor Distance - At End

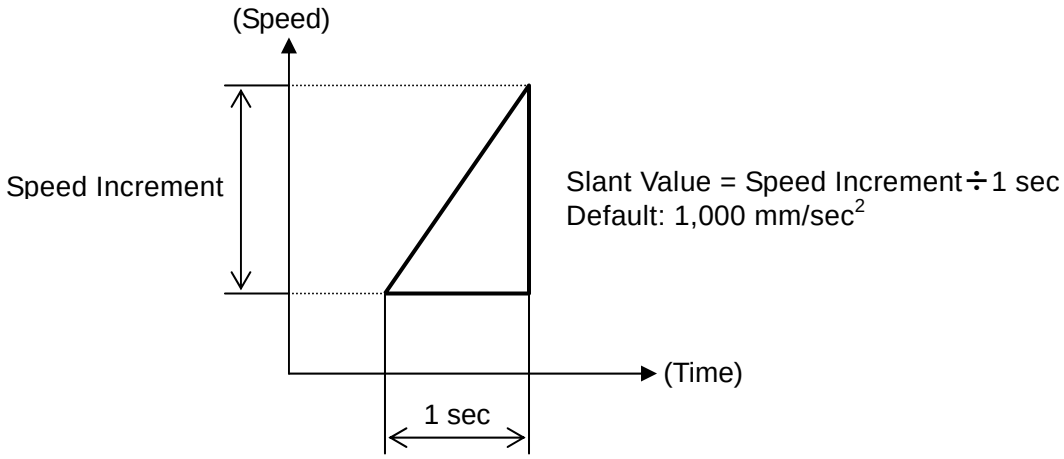
The following six samplings are provided:

1. Peak: Maximum speed inside the assigned distance range
2. Bottom: Minimum speed inside the assigned distance range
3. Differential: Speed just before a sharp change of speed inside the assigned distance range
4. Peak to Peak: Difference between the maximum and minimum speeds
5. Top: The first peak speed in the assigned distance range
6. Valley: The first bottom speed after the first peak speed in the assigned distance range





- A sharp change is defined as when the speed variation per second is more than 1,000 mm/sec. (Sampling time 2 msec)

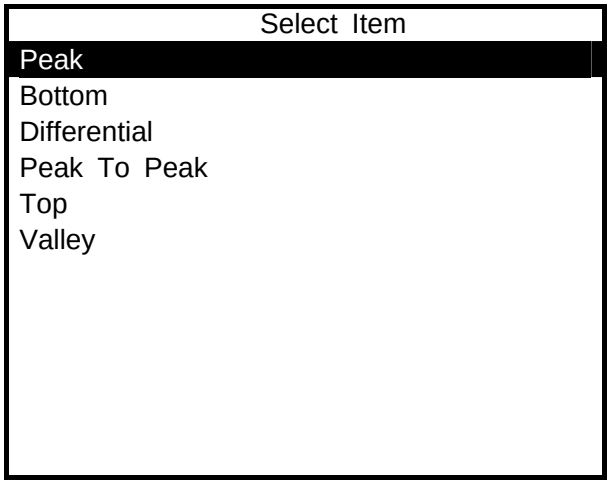


Enter the following parameters for the Sampling Speed - Distance Range mode.

1. Sensor Beginning Position: Position where sampling starts
2. Sensor End Position: Position where sampling ends
3. Lower Limit: Lower sensor limit for the sampled speed
4. Upper Limit: Upper sensor limit for the sampled speed

How to Set

- Select [Sampling Speed - Distance Range.]
- Select an item from the following six options.
- Set the Sensor Beginning Position, Sensor End Position, Lower Limit, and Upper Limit using the numeric and decimal keys.



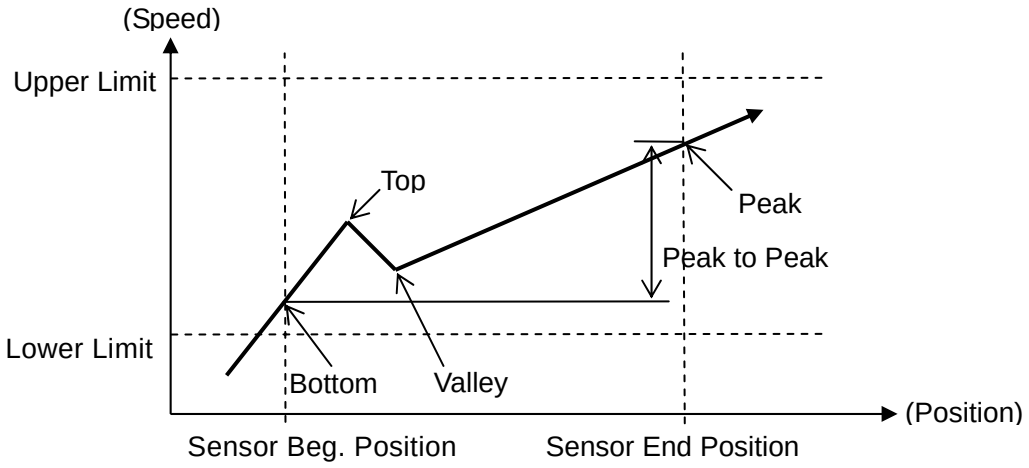
5-2-11 Sampling (Speed) - Position Range

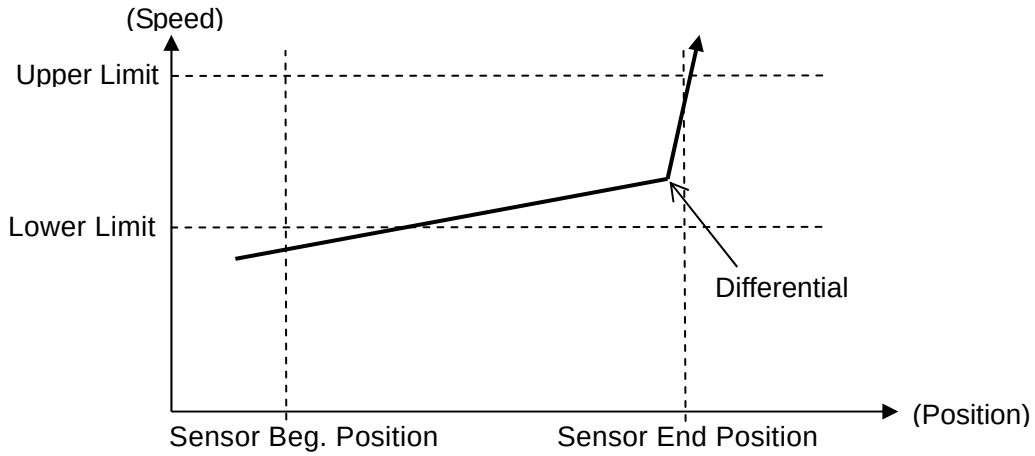
The Electro Press samples the speed in the position range and checks whether the sampled speed is within the desired range.

Select Item
Sensor Pos'n - At Start
Sensor Load - Position Range
Sensor Load - Distance Range
Sampling (Load) - Position Range
Sampling (Load) - Distance Range
Sensor Speed - In Time Range
Sensor Speed - Position Range
Sensor Speed - Distance Range
Sampling (Speed) - In Time Range
Sampling (Speed) - Position Range
Sampling (Speed) - Distance Range
Sensor Distance - At End

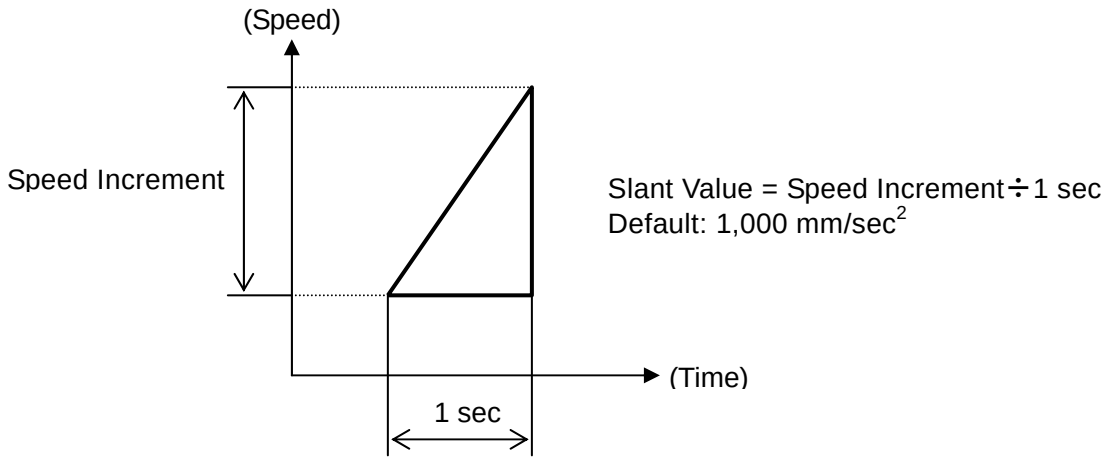
The following six samplings are provided:

1. Peak: Maximum speed inside the assigned position range
2. Bottom: Minimum speed inside the assigned position range
3. Differential: Speed just before a sharp change of speed inside the assigned position range
4. Peak to Peak: Difference between the maximum and minimum speeds
5. Top: The first peak speed in the assigned position range
6. Valley: The first bottom speed after the first peak speed in the assigned position range





- A sharp change is defined as when the speed variation per second is more than 1,000 mm/sec (sampling time 2 msec.)

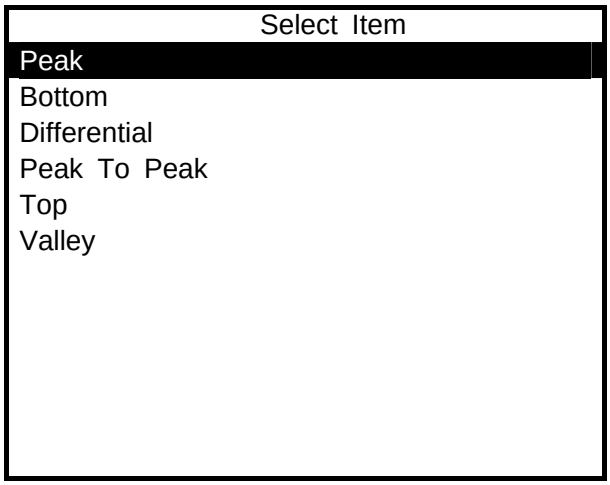


Enter the following parameters for the Sampling Speed - Position Range mode.

1. Sensor Beginning Position: Position where sampling starts
2. Sensor End Position: Position where sampling ends
3. Lower Limit: Lower sensor limit for the sampled speed
4. Upper Limit: Upper sensor limit for the sampled speed

How to Set

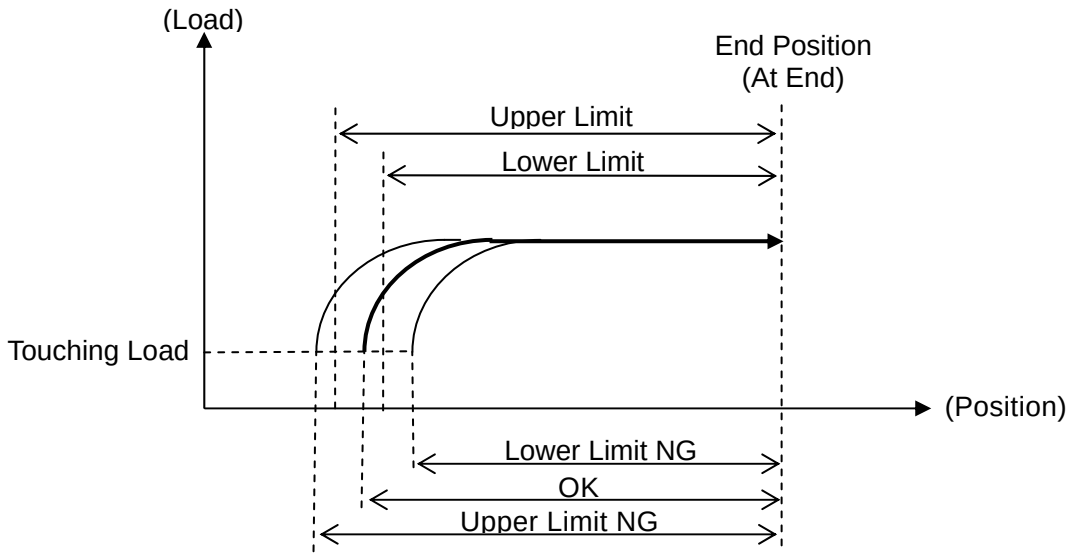
- Select [Sampling Speed - Position Range.]
- Select an item from the following six options.
- Set the Sensor Beginning Position, Sensor End Position, Lower Limit and Upper Limit using the numeric and decimal keys.



5-2-12 Sensor Distance - At End

The Electro Press checks whether the distance between the At Start (position where it detected the touching load) and the position where the ram stopped after shifting at the preset load is within the upper and lower limits.
This function is used when the position the ram is stopped at by an external signal (IN15) differs from the end position registered during teaching.

Select Item	1/2
Sensor Pos'n - At Start	
Sensor Load - Position Range	
Sensor Load - Distance Range	
Sampling (Load) - Position Range	
Sampling (Load) - Distance Range	
Sensor Speed - In Time Range	
Sensor Speed - Position Range	
Sensor Speed - Distance Range	
Sampling (Speed) - In Time Range	
Sampling (Speed) - Position Range	
Sampling (Speed) - Distance Range	
Sensor Distance - At End	



Set the following parameters for the Sensor Distance - At End mode.

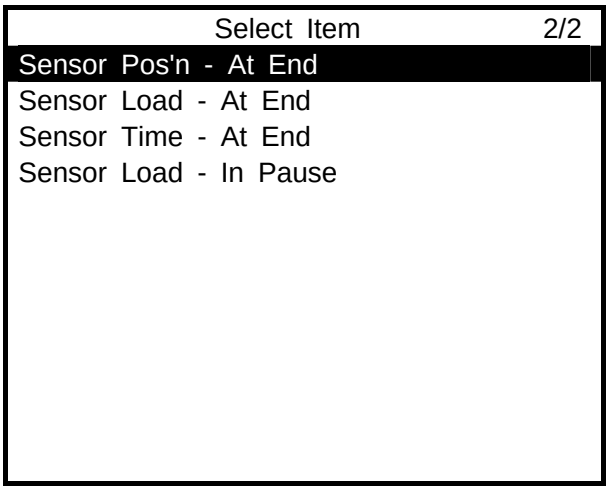
1. Lower Limit: Lower limit of sensor distance
2. Upper Limit: Upper limit of sensor distance

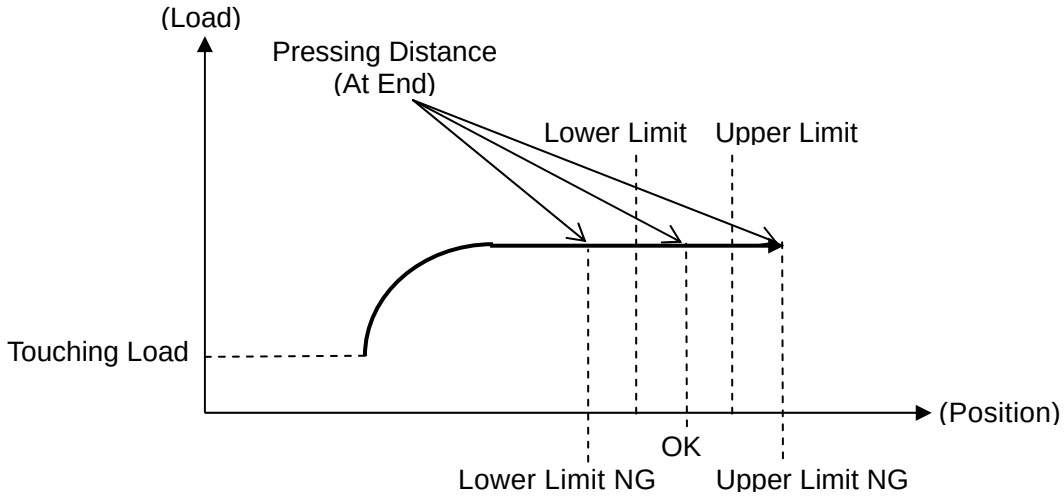
How to Set

- Select [Sensor Desistance - At End.]
- Set the Lower Limit and Upper Limit using the numeric and decimal keys.

5-2-13 Sensor Position - At End

The Electro Press checks that the position where the ram stopped after shifting the pressing distance is within the upper and lower limits.





Set the following parameters for the Sensor Position - At End mode.

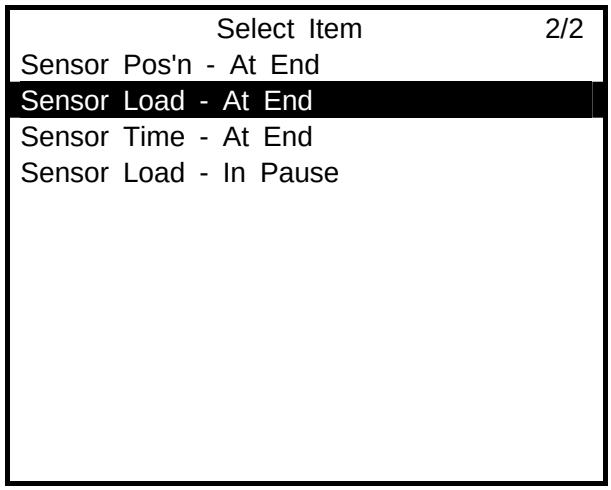
1. Lower Limit: Lower limit of sensor position
2. Upper Limit: Upper limit of sensor position

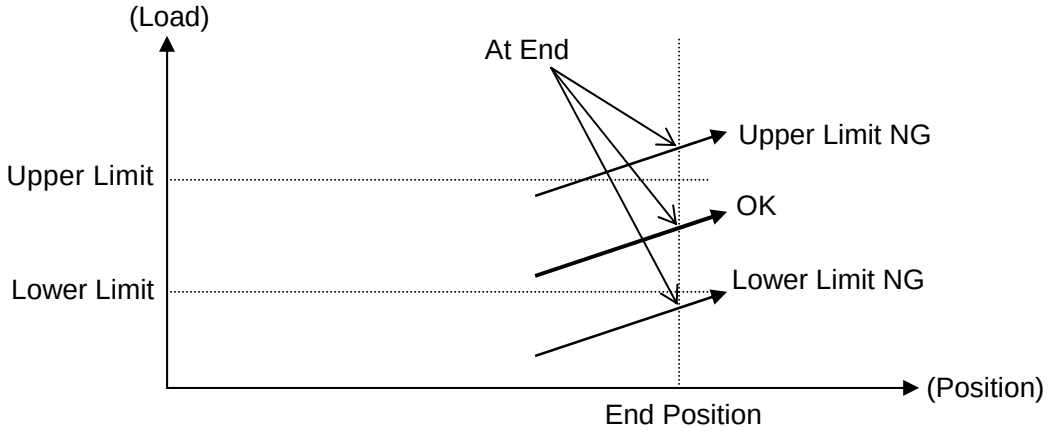
How to Set

- Select [Sensor Pos'n - At End.]
- Set the Lower Limit and Upper Limit using the numeric and decimal keys.

5-2-14 Sensor Load - At End

The Electro Press checks whether the end load at the preset end position where the ram stopped is within the upper and lower limits.





Set the following parameters for the Sensor Load - At End mode.

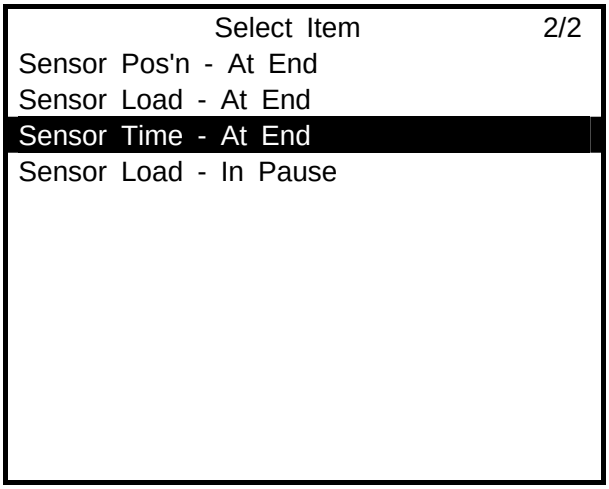
1. Lower Limit: Lower limit for sensor load
2. Upper Limit: Upper limit for sensor load

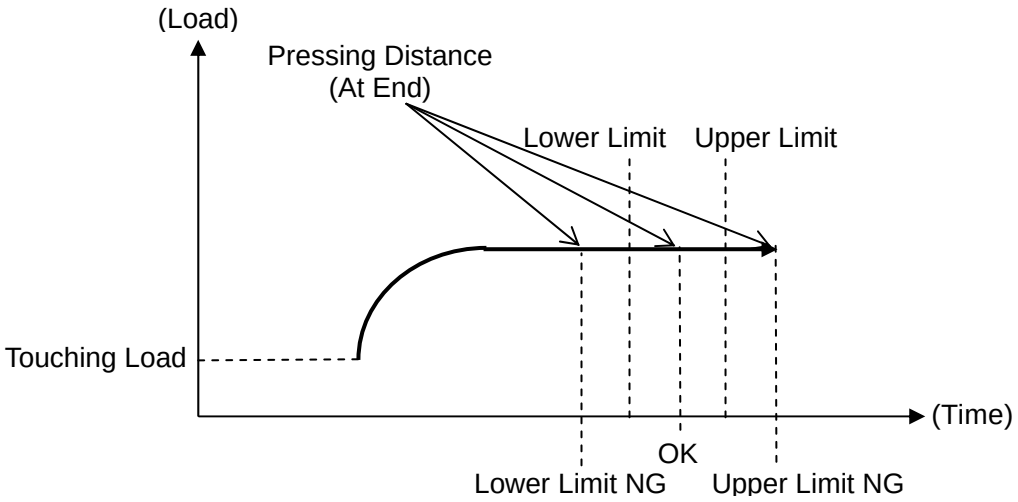
How to set

- Select [Sensor Load - At End.]
- Set the Lower Limit and Upper Limit using the numeric and decimal keys.

5-2-15 Sensor Time - At End

The Electro Press checks that pressing time at the position where the ram stopped after shifting the pressing distance is within the upper and lower limits.





Set the following parameters for the Sensor Time - At End mode.

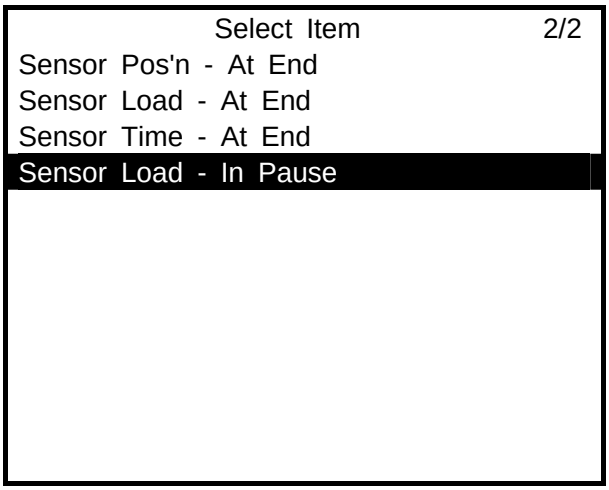
1. Lower Limit: Lower limit of the sensor time
2. Upper Limit: Upper limit of the sensor time

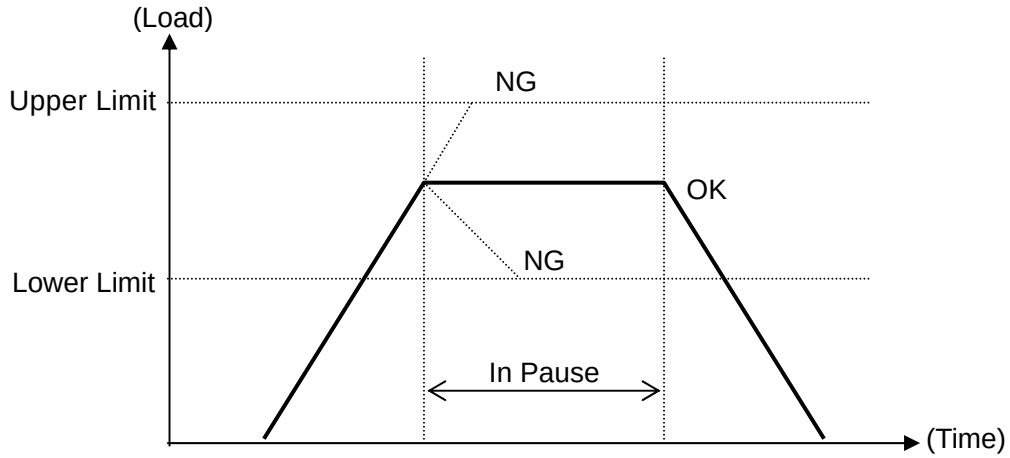
How to Set

- Select [Sensor Time - At End.]
- Set the upper and lower limits using the numeric and decimal keys.

5-2-16 Sensor Load - In Pause

The Electro Press checks whether the load while the ram is in pause is within the upper and lower limits.





Set the following parameters for the Sensor Load - Holding mode.

1. Lower Limit: Lower limit of sensor load
2. Upper Limit: Upper limit of sensor load

How to Set

- Select [Sensor Load – Holding.]
- Set the lower and upper limits using the numeric and decimal keys.

5-2-17 Notes for Sensor Setting

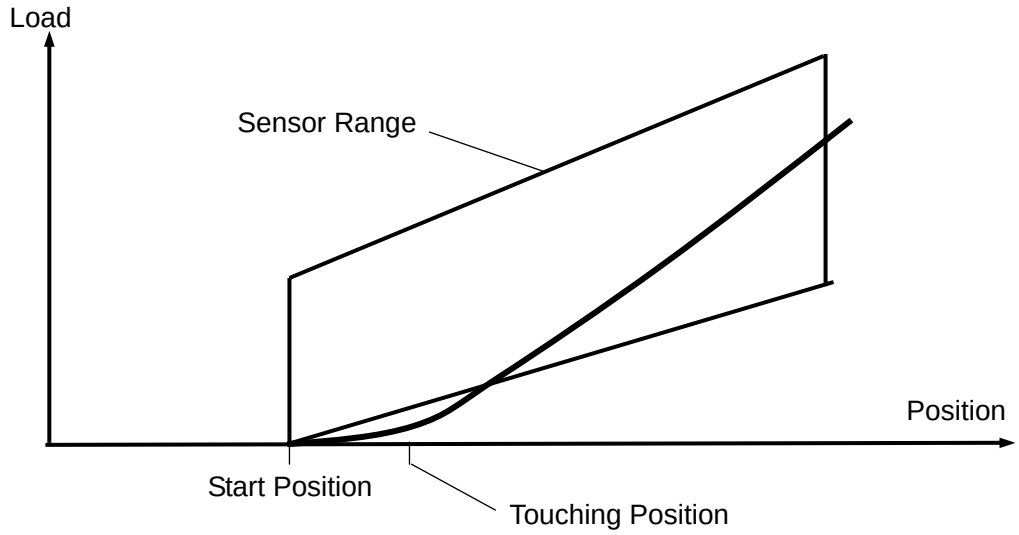
When setting sensor mode, please be careful of the following points.

● Sensor Load Upper Limit can only be set up to the Maximum Load.
The sensor load upper limit value can not be set any higher than the maximum load value. Please note that, for this reason, if sensor load judgement is performed around the maximum load, depending on deviation a value which exceeds the maximum load value may be regarded as NG.

Model	Pressing Capacity [N]	Sensor Load Upper Limit [N]
JP-104, JPH-104, JPU-104	1000	1000
JP-204, JPH-204, JPU-204	2000	2000
JP-504, JPH-504, JPU-504	5000	5000
JP-1004, JPH-1004, JPU-1004	10000	10000
JP-1504, JPH-1504, JPU-1504	15000	15000
JP-3004, JPH-3004, JPU-3004	30000	30000
JP-5004, JPH-5004, JPU-5004	50000	50000
JPU-8004	80000	80000

● NG when the sensor range frame is set before the workpiece touching position
If the start position is set as a sensor beginning position in “Sensor Load - Position Range”, note that sensor judgements will often be NG.

If the start position is set to a position just before the ram touches workpiece, the workpiece touching position will be after the start position. Load is 0 [N] at the start position and starts being applied from the workpiece touching position. However, because the load sensor range is rectangular, the workpiece touching position is out of range and the sensor judgement is NG. (See the figure below.)



To prevent this, the sensor beginning position should be set after the workpiece touching position or the sensor range should be set as a distance range (from workpiece touching position.)

● Judgement when a setting value is (almost) the same as a measured value

Values displayed on the LCD are slightly different from internal values used for sensor judgement. This gap occurs because the display value is converted from the internal value and rounded off to the digits that are displayed.

Even if display values are the same, the internal values are different as shown below.

Internal Value [N]	Display Value [N]	Display Value [Kg]	Display Value [lb]
524.0	524	53.4	117.8
524.1	524	53.4	117.8
524.2	524	53.5	117.8
524.3	524	53.5	117.9
524.4	524	53.5	117.9
524.5	525	53.5	117.9
524.6	525	53.5	117.9
524.7	525	53.5	118.0
524.8	525	53.5	118.0
524.9	525	53.5	118.0
525.0	525	53.5	118.0
525.1	525	53.5	118.0

For example, if a setting value is 53.5 [Kg] and the sensor value is also 53.5 [Kg], there are cases where the the jugement will be OK and cases where it will be NG. This is because the internal values are different even though the displayed values are the same.

If the sensor upper limit value is 525.0 [N] and the sensor value is 524.6 [N], it will be judged OK.

If the sensor upper limit value is 525.0 [N] and the sensor value is 525.1 [N], it will be judged NG.

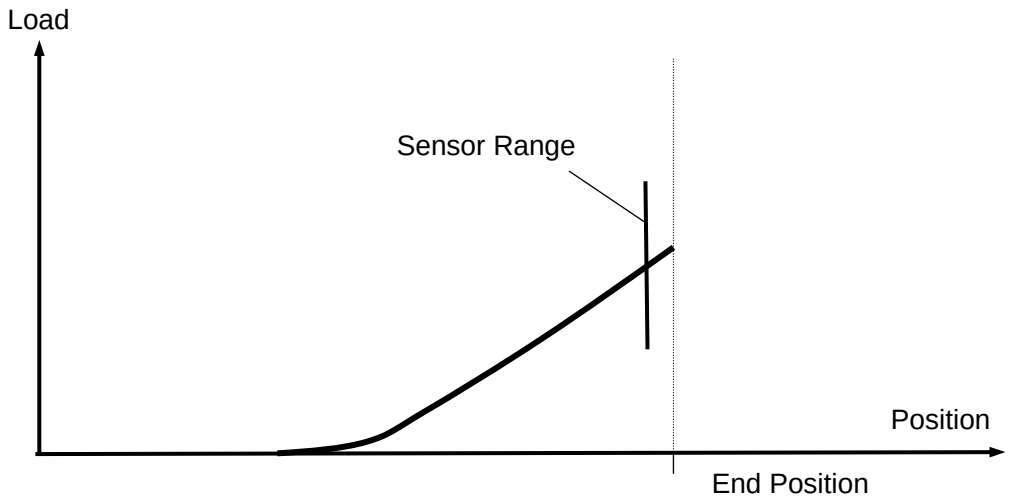
Both cases are displayed as 53.5 [Kg.]

If internal values are the same when they are compared, it will be judged OK.

As stated above, please note that a judgement may be OK or NG even if the setting value is (almost) the same as a measured value as shown above.

● Judgement when end position is set as a sensor judgement position

If a sensor beginning position and sensor end position are the same and they are set near the end position in “Sensor Load – Position Range”, judgement may be out of the sensor range.



If the sensor beginning position and end position are set to the same position, the sensor range becomes a line. If the curve goes between the upper and lower limits of the sensor range, it is judged OK. If it goes out of the sensor range, it is judged NG.

If the sensor position is close to (for example, 0.002 mm before) the end position, it may be out of the sensor range although the curve must cross the sensor range before the end position.

The reason is that:

Sensor judgement is executed not continuously but in regular intervals (1 msec interval.) If the ram moves from the sensor beginning position to end position during this interval, pressing finishes without being judged and it will be recognized as out of range.

Set the sensor mode to “Sensor Load – At End ” to judge load at end position.

● When the same sensor condition is assigned

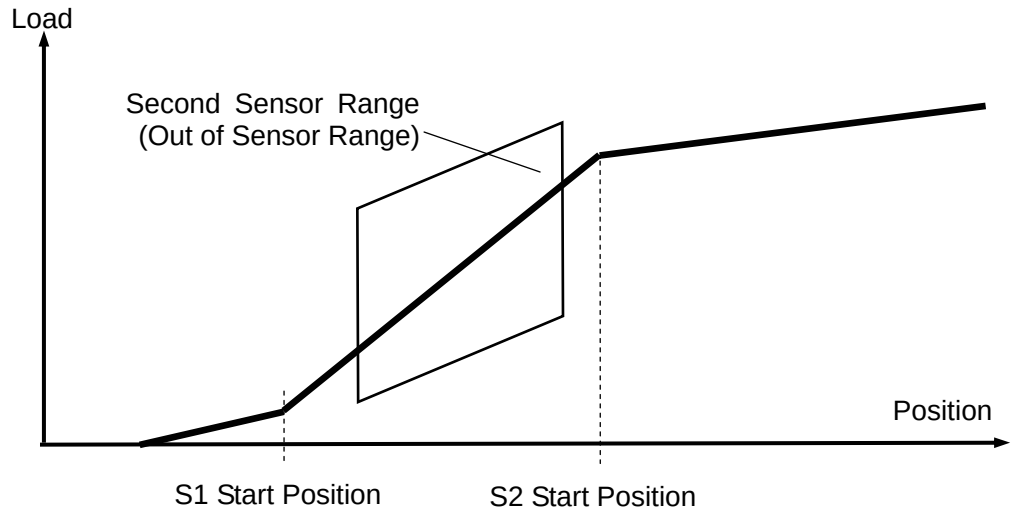
If the judgement is NG when the same sensor condition is assigned to J1 and J2, J1 Error is displayed on the operation result screen. (“J2 Error” will not be displayed.)

This is because sensor judgements are executed in the order J1, J2, etc.

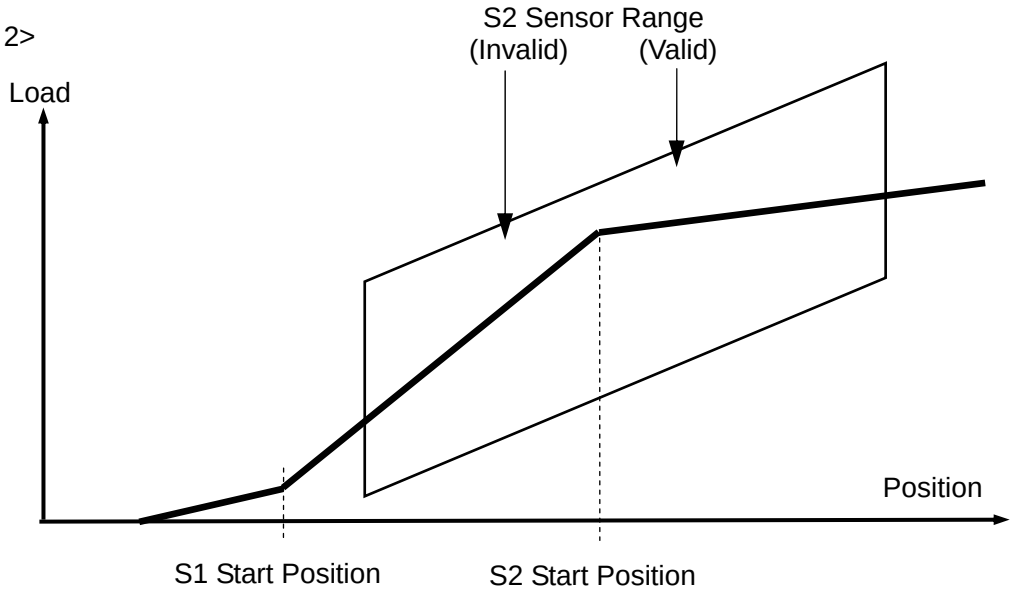
● Sensor Setting for 2-Section Pressing

Register a sensor setting for each pressing section. If the sensor setting does not intersect the pressing section, it is judged to be out of sensor range.
The same applies to a 2-section pressing. If the second sensor range does not intersect the second pressing section, it will be judged invalid even if it has intersected through the first pressing section. (See Figure 1.)
If the sensor setting range overlaps the first section and the second section, the sensor range that falls in the first section will be invalid. In this case, if the first pressing section does not pass throught the sensor range, it will not be judged as NG. (See Figure 2.)

<Figure 1>



<Figure 2>



6. OPERATION

After teaching, enter the run mode to operate the Electro Press.

How to Switch to Run Mode

- Turn the select key switch to [RUN.]

- Before operation, check that the I/O-S circuit (Interlock) and emergency stop switch work properly.
  Without this check you may not be able to stop the machine quickly and safely.
  The Electro Press will stop running if the interlock comes ON or you press the emergency stop switch.

<How to release the emergency stop switch>
Turn the pressed in emergency stop switch in a clockwise direction to release the emergency stop.

Press both start switches on the switch box at the same time, and the ram shifts according to the values that were set during teaching. If you release one of the switches, the ram stops and returns to the work home position. Keep pressing the switches until the ram starts ascending.
After the ram has returned to the work home position and the start switches are released, the screen displays the work results.

The following work results are possible.

Work Result 1
1. Counter: Finished (OK) works + unfinished (NG) works
2. Sensor Result: Sensor and system error results
3. End Position: Position where ram stopped
4. End Load: Load at position where ram stopped
5. Work Time: Time required for one work cycle
6. Sum Counter: Number of works performed since shipment
   (Reset is unavailable. The test run will not be included in the number.)
7. OK Counter: Number of jobs finished successfully
8. Fault Counter: Number of jobs not finished successfully
9. Error Rate: Error rate (%) = {Fault Counter / (OK Counter + Fault Counter)} x 100
10. Preparation Time: Time expended from the end of the last operation to the next cycle

Work Result 2
1. Work Time Rate: Work time rate (%) = {Working Time / (Preparation Time + Working Time)} x 100
2. Touching Position: Position where the load cell detected touching load
   (The ram starts pressing from the position.)
3. Touching Load: Load at which the ram changes from probing to pressing
4. Approach Time: Time required for approach
5. Sensor Value: End value in the sensor range/sensor sampling value
   If there are plural sensors, each value is displayed on the screen in order. If the data covers several pages, press the [DISP] key to display the next page.

Work Result 3
External I/O Sampling Value: Displayed sampled value via external I/O (IN16)

How to Change the Display

- Perform the operation using the start switches. After the operation is complete and the start switches are released, the work result is displayed on the screen.

  There will be some work results that return a fault due to an error triggered by a sensor result, or by an error other than a sensor error. The reason for the error is displayed as sensor results of operation.

No. 1	Standing by
WP-Type 459S25	
Press Both Start Switches	
Counter	154
Result	OK
End Pos.	30.25 mm
End Load	1050 N
Shot Time	5.23 sec
SUM Counter	2568
OK Counter	150
Fault Counter	4
Error rate	2.6 %
Setup Time	15.24 sec

The following are the possible sensor result errors.

OK

Sensor Result	OK

Sensor Upper Error

S1J1 Upper Error	NG

Sensor Lower Error

S1J1 Lower Error	NG

Pressure Over	NG

This error occurs when the load exceeded the preset maximum pressure in the Constant Speed - Set Stop Position mode or during approach.

Maximum Pressure: JP/JPH/JPU-104: 1000 N
JP/JPH/JPU-204: 2000 N
JP/JPH/JPU-504: 5000 N
JP/JPH/JPU-1004: 10000 N
JP/JPH/JPU-3004: 30000 N
JP/JPH/JPU-5004: 50000 N
JPU-8004: 80000 N

Position Over	NG

This error occurs when the ram exceeded the maximum lower position.

Limit Pos'n Over	NG

This error occurs when the ram exceeded the preset "Limit Position" during pressing.

Time Over	NG

This error occurs when the time exceeded the preset maximum pressing time in the Constant Load - Set Position Stop mode.

Stop in Middle	NG

This error occurs when the two start switches are released in the middle of operation.
If the operation is started using the external I/O, the External Signal Stop error occurs instead of the Stop in Middle error.

Approach Pressure Over	NG

This error occurs when the pressure exceeded the preset “Max. Pressure AP” during approach.

Probe Limit Pos’n Over	NG

This error occurs when the ram exceeded the preset probe limit position during probing.

Ext. Stop Signal	NG

This error occurs when the ram was stopped by an external stop signal (IN2) or when the IN1 start signal was interrupted.

- Press the [DISP] key to display Work Result 2 (including sensor values.)

  If the data covers several pages, press the [DISP] key to display the next page.

  If the screen covers several pages, press the [DISP] key on the last page to display Work Result 3.

No. 1	Standing by
WP-Type 459S25	
Press Both Start Switches	
Time Rate	25.5 %
Touch Pos'n	1.25 mm
Touch Load	50 N
Approach Time	1.23 sec
S1J1 End Value	1260 N
S1J2 Peak	2560 N

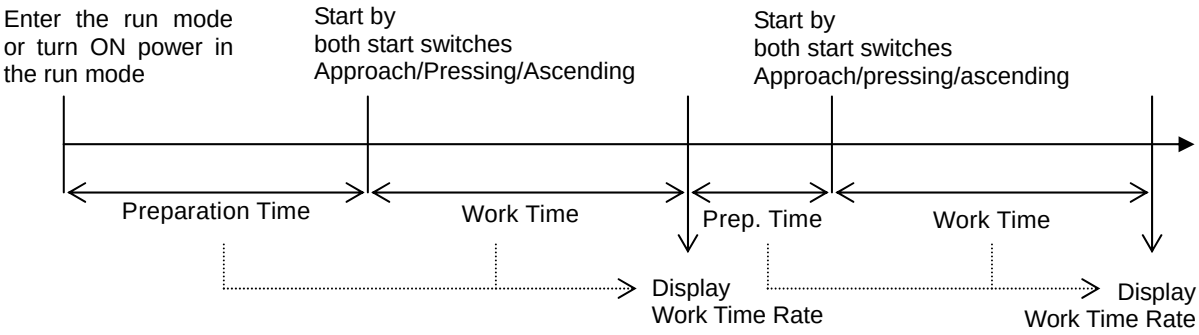
- Press the [DISP] key to display Work Result 3 (External I/O Sampling Value.)

  If the data covers several pages, press the [DISP] key to display the next page.

  If the screen covers several pages, press the [DISP] key on the last page to display Work Result 1.

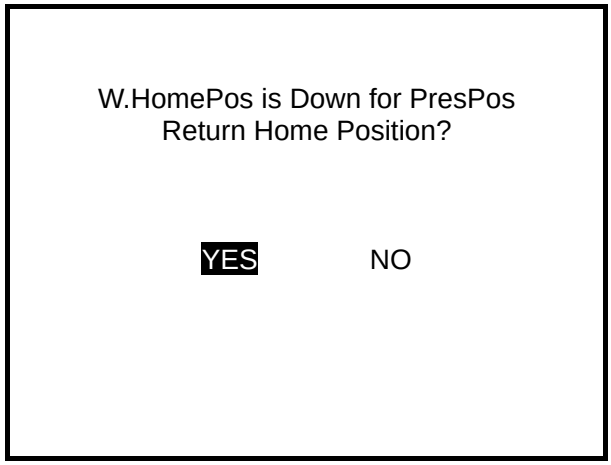
No. 1	Standing by
WP-Type 459S25	
Press Both Start Switches	
Ext IO Input Result #1	
Position	55.256 mm
Load	1525 N
Time	0.43 sec
Speed	4.8 mm/s
Ext IO Input Result #2	
Position	56.5 mm
Load	2535 N
Time	0.58 sec
Speed	4.8 mm/s

The following chart shows the relationship between the preparation time, work time and work time rate.



[Special Program]

If a program in which the settings for the work home position are lower than the End position has been selected, the confirmation screen to the right will appear when switching to run mode or program selection.
The machine will go into standby status when [YES] or [NO] is selected.
If the [ESC] key is pressed, the confirmation screen will appear again and you can re-select [YES] or [NO.]



If [YES] is selected and an operation is started, the ram descends to the work home position after pressing. This is regarded as the one-shot end.
If [NO] is selected and an operation is started, the ram does not descend to the work home position after pressing. The end position is regarded as the one-shot end.

- This confirmation screen will not be displayed on the unit type Electro Press. This is a feature of the stand-alone and head types only. With the unit type, the ram descends to the work home position after pressing, and this is regarded as the one-shot end.

7. MENU

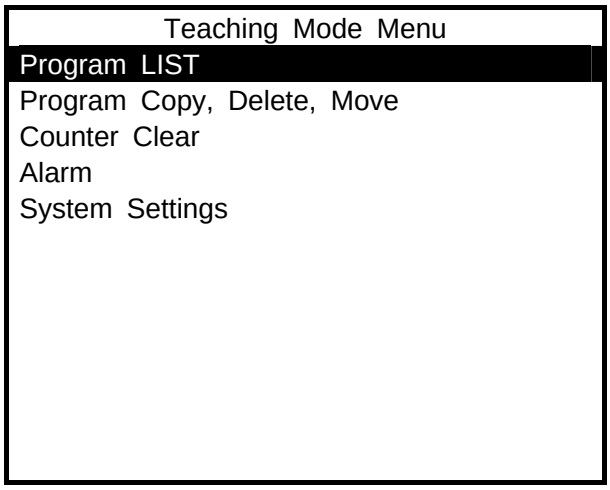
7-1 Menu in Teaching Mode

With a wide range of choices available in the menu, you can use the many different settings to operate the Electro Press.

● Turn the select key switch to [TEACH.]

Operation on the Menu Screen

● Press the [MENU] key in teaching mode.



● Highlight the desired item and press the [ENTR] key.

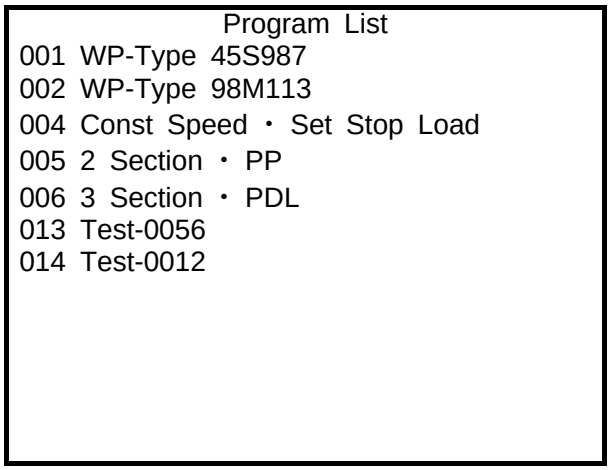
- Press the [CURSOR ↓] key to shift the highlight downward.
- Press [CURSOR ↑] key to shift the highlight upward.
- Press the [ESC] key to return to the previous screen.
- Press the [SHIFT] + [ESC] keys to return to the setting screen.

7-1-1 Program List

Select [Program List], and the program name corresponding to the program number will be displayed.

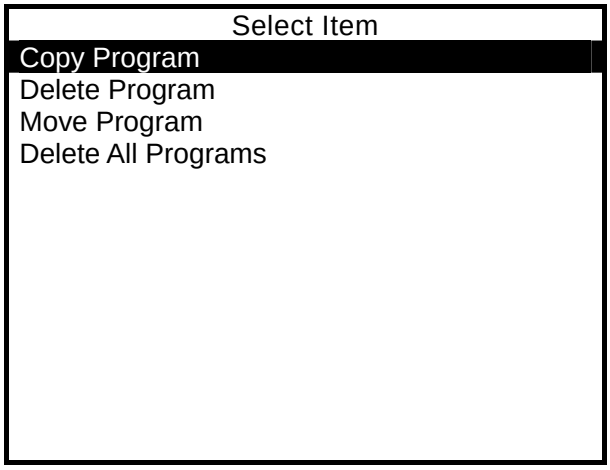
Program numbers which any data is not registered to will not be displayed.

Press [SHIFT] + [CURSOR ↓] keys to display the next page, [SHIFT] + [CURSOR ↑] keys to return to the previous page.



7-1-2 Program Copy, Delete, Move

Select [Program Copy, Delete, Move] to display the following menu.



● Copy Program

To copy a program, select [Copy Program] and enter the source program number that you want to copy. The message on screen then asks you to enter the destination program number. Enter the desired number, and the program copy will start. If there is any data under the destination program number, a confirmation message will be displayed.

● Delete Program

To delete a program, select [Delete Program.] The screen will ask you to enter the program number that you want to delete. Enter the desired number. After displaying the confirmation message, the program delete will start and the display will return to the menu screen. If you select [Delete Program] while a program is running, the program will be deleted. In this case, the screen will return to the new program number entry screen. If you enter a registered program number, the screen will return to the screen displayed before the [MENU] key is pressed. If you enter a new program number, the new program entry screen will appear.

● Move Program

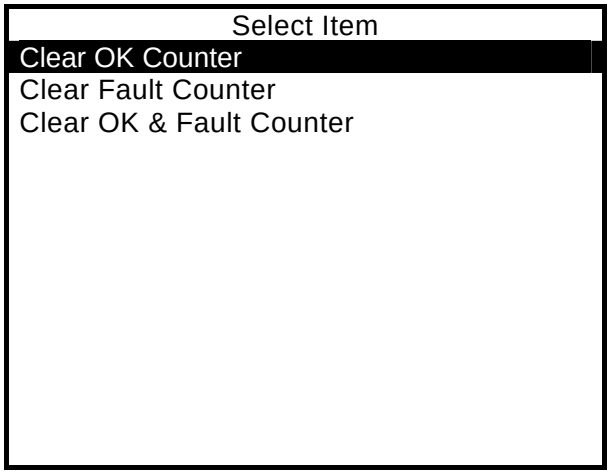
To move a program, select [Move Program.] The screen will ask you to enter the source program number. Enter the desired source program number, and the destination program number entry screen will appear. After entering the destination program number, the program move will start. Press the [MENU] key to return to the previous screen. The Move Program differs from the Copy Program. The former clears the entire source program. Make sure to check if there is any data under the destination program number before you move the program.

Note:

If you enter a program number that is currently running as the source program number, the program will be cleared. The screen will return to the program number entry screen (the screen displayed before the [MENU] key is pressed.) If you enter a new program number, the new program entry screen will appear.

7-1-3 Clear Counter

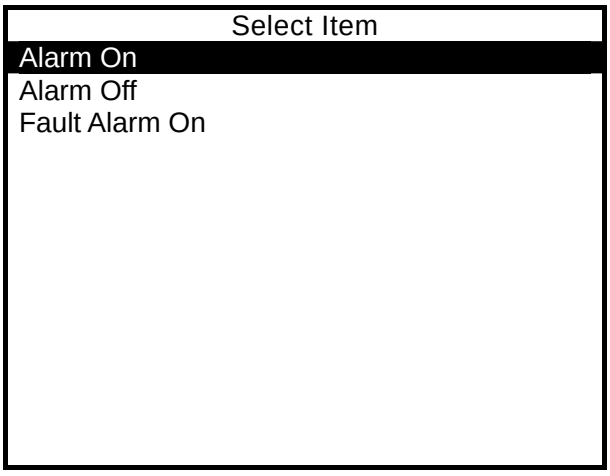
Select [Clear Counter.] The screen will ask you to select which counter (OK Counter, Fault Counter, and OK & Fault Counters) is to be cleared. Select the desired counter to reset it to zero. The screen will return to the screen displayed before the [MENU] key is pressed.



Note:
There are three different counters; OK Counter, Fault Counter, and Sum Counter. The sum counter cannot be cleared.

7-1-4 Alarm

Select [Alarm] to display the ON/OFF selection screen.



The Electro Press is equipped with three types of buzzer; the main buzzer, teaching pendant buzzer, and fault alarm buzzer (available for stand-alone and head types only.)

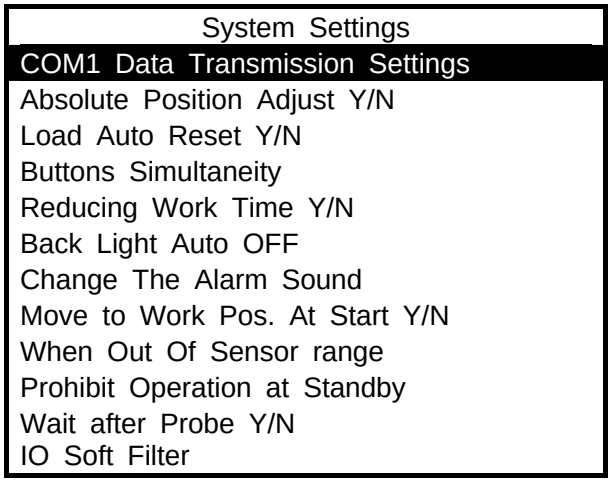
1. Alarm On (Default):
If an error is detected after job completion, the main buzzer sounds.

2. Alarm Off:
No buzzer sounds.

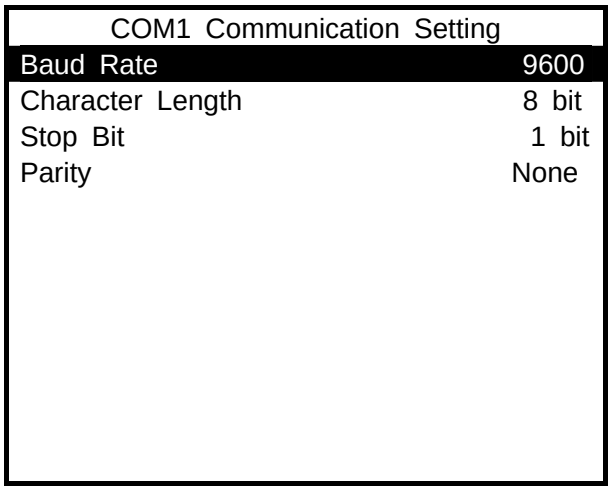
3. Fault Alarm On (for the Stand-alone and head type only):
The main buzzer and another buzzer (larger decibel) on the front panel sound together.

7-1-5 System Settings

Select [System Settings] to display the screen to right.



● COM1 Communication Setting
Select COM1 Communication Setting to display the selection screen to right.

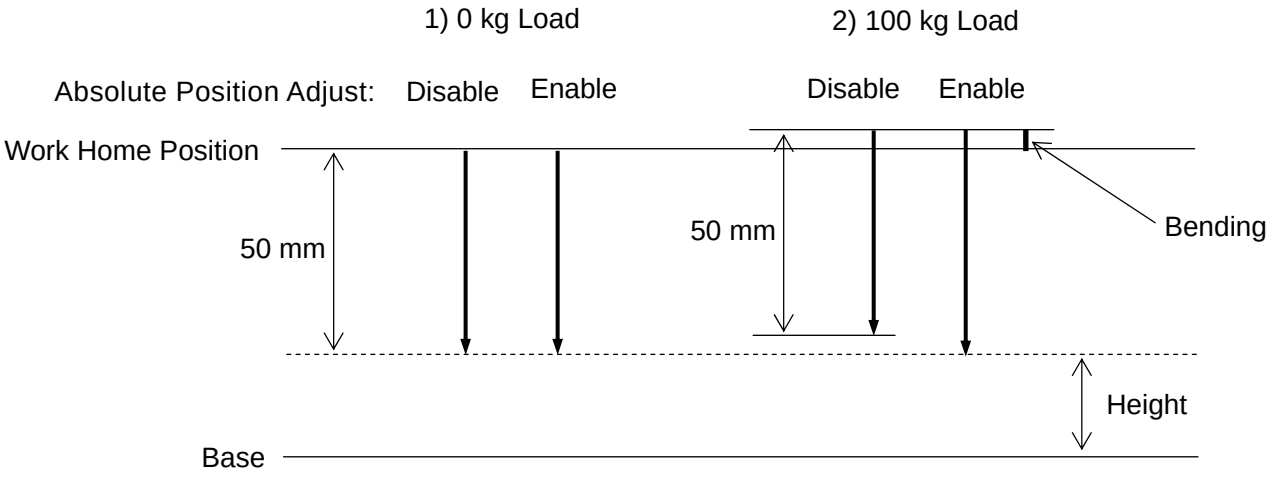


1. Baud Rate: Select from 9600, 19200 or 38400 bit/s.
2. Character Length: Select either 8 or 7 bits.
3. Stop Bit: Select either 1 or 2 bits.
4. Parity: Select from None (no parity), Even parity and Odd parity.

When you use our PC software (capable of running Windows NT4.0/2000/XP), we recommend you to use the underlined settings.

● Absolute Position Adjust Y/N

Disable (Default): Recognizes the distance from the work home position as the absolute position. (Bending is ignored.)
Enable: Recognizes the height from the base as the absolute position. (Bending is calculated.)



In the above 4 examples, the absolute position is “50.”

Example 2) “Disable”: If load is applied, “bending” occurs. Therefore, the ram does not reach the absolute position “50” with 0 kg load.

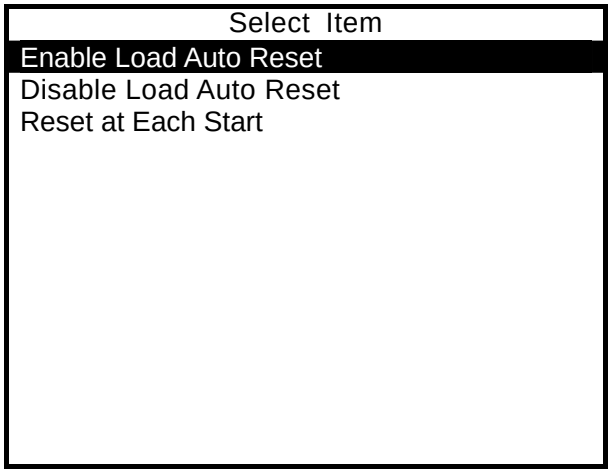
Example 2) “Enable”: The absolute position “50” with 0 kg load is recognized as the height from the base. “Bending” is calculated and added to the distance. In this case, descending distance of the ram becomes longer for the bending.

● If “Absolute Position Adjust Y/N” is set to “Valid”, it is necessary to measure bending by “Position Adjustment” under “Adjustment” in the maintenance mode menu. (For the stand-alone type, two points, 0% and 80% of the maximum setting load, have been registered before shipment.)
For “Position Adjustment”, refer to the Operation Manumal <Maintenance.>

● Load Auto Reset Y/N

Select [Load Auto Reset Y/N] to display the screen to right.

This function automatically sets the load value to 0 [N] when the ram returns to the home position after the power is turned on or each time after executing the program. It can also be set to disable.

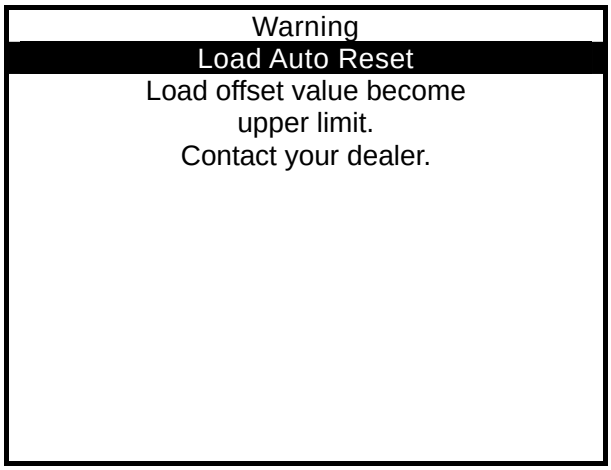


Enable Load Auto Reset: Resets the load value just after the power is turned ON and the ram returns to the home position.
Reset at Each Start: Resets the load value at each start.
Disable Load Auto Reset: Not resets the load value automatically.

Note:

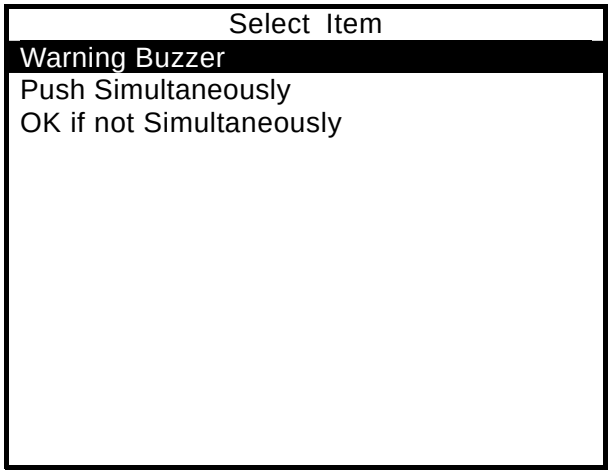
The following warning message will be displayed for two seconds if the offset amount exceeds 20% of the standard amount for the model when “Enable Load Auto Reset” has been set. After two seconds, the warning message will disappear and the Electro Press will return to the normal operation. However, this message will appear each time the power is turned on.

e.g.) 20% of the standard load amount
JP-504 (5000 [N]): 1000 [N]



● Buttons Simultaneity

Select [Buttons Simultaneity] to display the screen to right.



1. Warning Buzzer (default setting)
If you press one start switch only, the buzzer sounds in two seconds. If you press the other start switch (both start switches are pressed now), the Electro Press restarts operation. To stop the buzzer, release both of the start switches.

2. Push Simultaneously
If you press one start switch only, the buzzer sounds in 0.5 seconds. In this condition, the Electro Press does not start even if you press the other switch. To stop the buzzer, release both of the start switches.

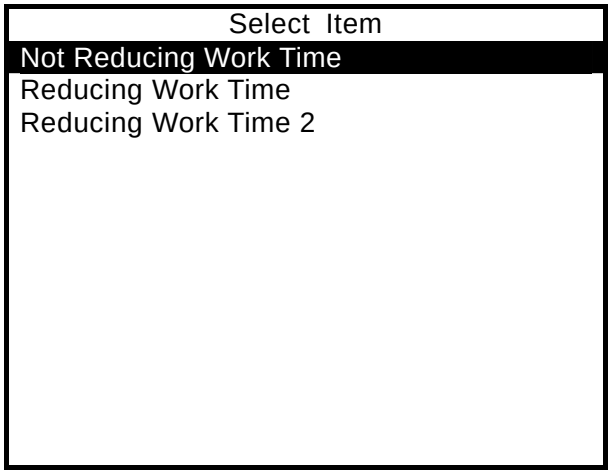
3. OK if not Simultaneously
The buzzer does not sound even If you press one start switch only. If you press the other start switch in this condition (both start switches are pressed now), the Electro Press restarts operation.

● Reducing Work Time

Select [Reducing Work Time] to display the screen to right.

You can reduce the work time by selecting [Reducing Work Time] or [Reducing Work Time 2.]

Under these settings, the screen does not display the operation result. However, if the sensor result is “NG” (error), the buzzer sounds and operation continues.



1. Reducing Work Time: shortens the work time by approximately 90 msec.
2. Reducing Work Time 2: shortens the work time by approximately 130msec.

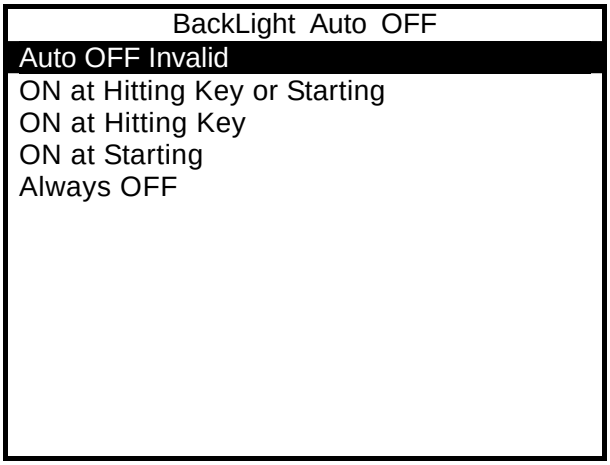
Note:
In case of “Reducing Work Time” or “Reducing Work Time 2”, you also can check the operation result by pressing the [DISP] key.

● Backlight Auto OFF

This is the function to turn off the backlight automatically while it is not in use.

Select [Backlight Auto OFF], and the selection screen to right will be displayed.

If [ON] is selected, the setting screen for the time until the backlight is turned OFF (1-999 sec) will be displayed.



1. Auto OFF Invalid (default):
   The backlight is not turned OFF.

2. ON at Hitting Key or Starting:
   The backlight is turned OFF if neither a key is pressed nor operation starts for the preset time. If a key is pressed or operation starts, the backlight is turned ON.

3. ON at Hitting Key:
   If no key is pressed within the preset time, the backlight is turned OFF regardless of the start of operation.

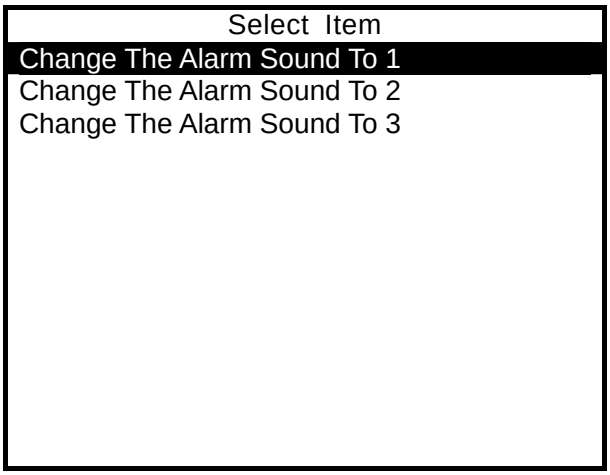
4. On at Starting:
   If operation does not start within the preset time, the backlight is turned OFF regardless of the key pressing.

5. Always OFF:
   After the preset time, the backlight is always turned OFF. Use this function if you want to keep the backlight OFF during running. However, the backlight is turned ON when the mode is changed to teaching.

Note:
The life of the LCD depends upon the life of the backlight. By using the Backlight Auto OFF function, it is possible to extend the life of the LCD.

● Change The Alarm Sound

Select [Change The Alarm Sound], and the selection screen to right will be displayed.



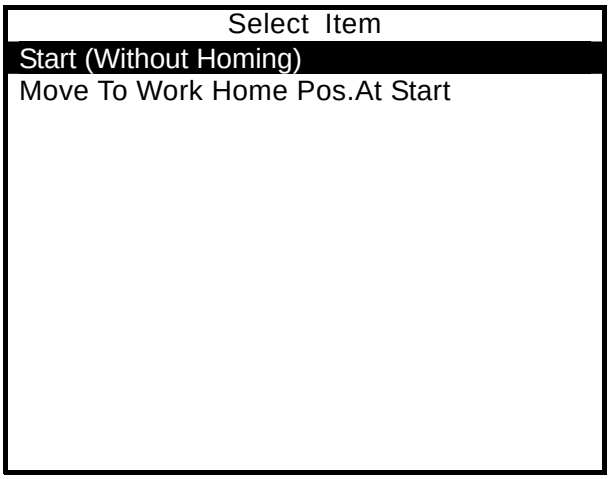
The types of alarm sound are combinations of ON (sound) and OFF (no sound) and can be changed by combining ON and OFF alternatively.
The sounding time changes according to the alarm settings.

Setting	ON time (sec)	OFF time (sec)
Change The Alarm Sound To 1	0.5	0.1
Change The Alarm Sound To 2	1.0	0.1
Change The Alarm Sound To 3	0.1	0.1

Note:
When you are working with several Electro Presses in a line, it will be easier to identify which unit has failed by using different alarm sounds.

● Move to Work Pos. at Start Y/N

Select [Move to Work Pos. at Start Y/N], and the selection screen to right will be displayed.



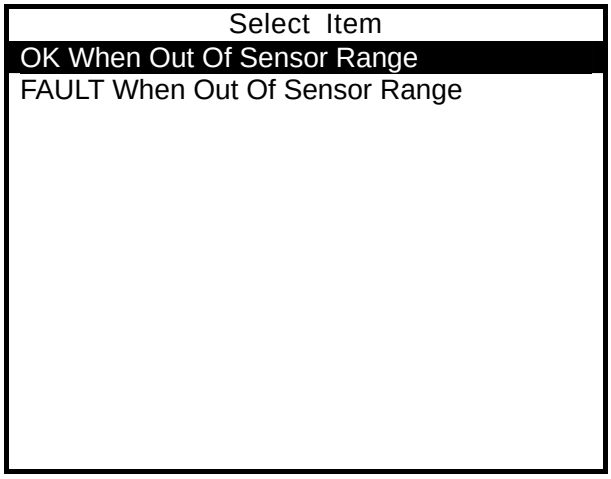
1. Start (Without Homing) (default)
   The Electro Press starts one cycle of pressing operation from any point.

2. Move To Work Pos. At Start
   In the following cases, the ram shifts by the start signal to the work home position at approach speed and enters standby mode. By the second start signal, the ram starts one cycle of pressing operation.

   - When you turn on the power and press the home position return switch for mechanical initialization
   - When you press the home position return switch for mechanical initialization after stopping by the emergency stop signal
   - When you press the home position return switch for mechanical initialization while the ram is at the standby position
   - The first start after changing from teaching mode
   - The first start after the program number change

● When Out Of Sensor Range

Select [When Out Of Sensor Range], and the selection screen to right will be displayed.



1. OK When Out Of Sensor Range (default)
   Sensor result is accepted (OK) even though it is out of range.

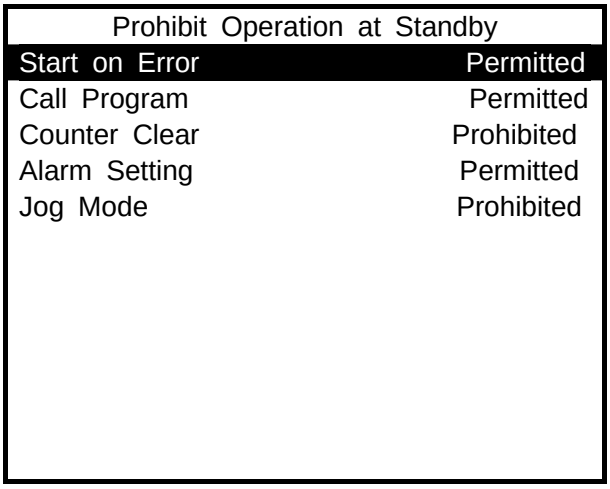
2. FAULT When Out Of Sensor Range
   The following actions will be taken when the sensor result is out of range.

   - The message [FAULT When Out Of Sensor Range] is displayed on the LCD.
   - An error buzzer sounds.
   - Occurrence of Sensor Fault (OUT05) signal turns ON.
   - Sensor Fault Upper/Lower (OUT06) signal turns OFF. (lower limit error)
   - Either Sensor Fault JB0 (OUT07) or Sensor Fault JB1 (OUT08) signal, which corresponds to the sensor settings number, is output.

● Prohibit Operation at Standby

Select [Prohibit Operation at Standby], and the selection screen to right will be displayed.

Operations which are set to “Prohibited” cannot be executed while standby.



“Start on Error” instructs a permission/prohibition of start operation while standing by after an error occurs.

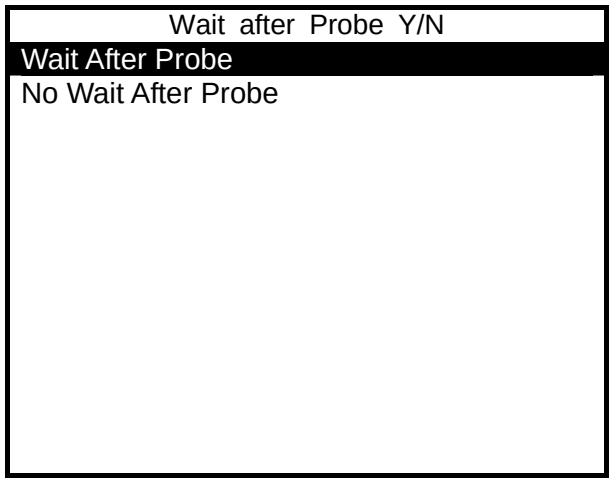
Enable Start (Default):
The Electro Press is able to restart operation even after an operation error.

Start Prohibited on Error:
The Electro Press is unable to restart after an operation error until the error is eliminated.
The prohibition can be released with one of the following procedures.

- Turn the I/O reset (IN13: Reset) signal ON.
- Change the mode to teaching using the select key switch.
  If the select key switch is removed, anyone who does not have the key will not be able to restart operation.

● Wait after Probe Y/N

Select [Wait after Probe Y/N], and the selection screen to right will be displayed.



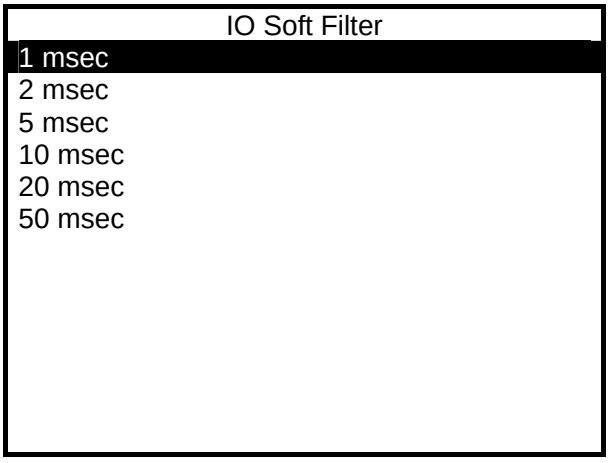
"Wait After Probe": Default
If a detected load exceeds the touching load, the command pulse stops. The electro press waits until the positioning finish signal of the servodriver comes ON and then stops probe operation. (A position where the ram stops probe operation is regarded as a base point of distance mode.)

"No Wait After Probe"
If the probe operation is complete, the ram executes the next pressing operation without waiting until the positioning finish signal of the servodriver comes ON. The position where touching load is detected is regarded as a base point of distance mode.)

● IO Soft Filter

Set delay time for IO Soft Filter to delay the responce of I/O inputs to prevent malfunction caused by short noise.
This is not suitable for emergency stop using the IO signal or position/load sampling because the response speed is delayed.

For example, if it is set to "50 msec", the machine does not recognize that an IO signal is ON until the signal has been ON for 50 msec and does not recognize that an IO signal is OFF until the signal has been OFF for 50 msec. In this case, even if the End Signal is ON for 30 msec, the machine will not stop. (Normally when the End Signal comes ON, the operation stops.)



7-2 Menu in Run Mode

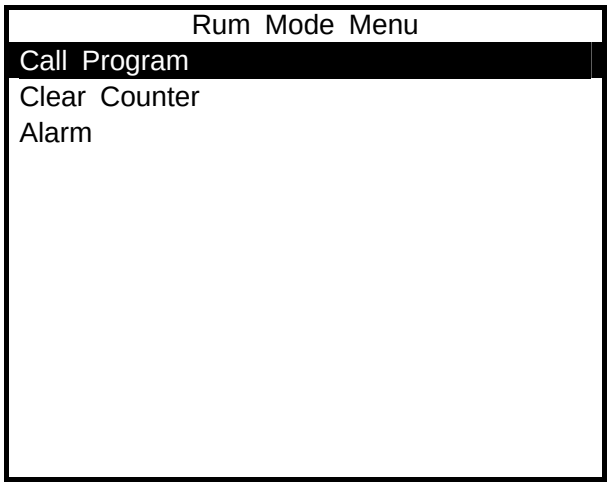
In the run mode, you can select from many settings to operate the Electro Press.

How to Enter Run Mode

- Turn the select key switch to [RUN.]

Menu Operation

- Press the [MENU] key in run mode.
- Press the [DISP] key on the monitor box several times. The screen will change from the operation result display to the run mode menu.



Common Operation

- Highlight the desired item and press the [ENTR] key.

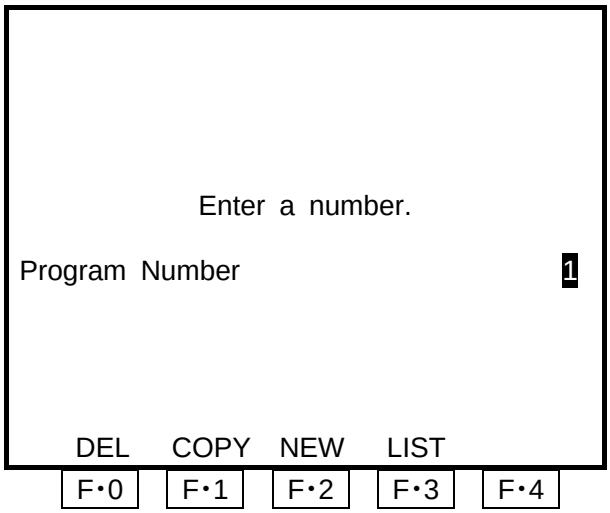
・ Press the [CURSOR ↓] key to shift the highlight downward.

・ Press the [CURSOR ↑] key to shift the highlight upward.

- To close the menu, press the [ESC] key or [SHIFT] + [ESC] keys. When you are using the monitor box, press the [DISP] key.

7-2-1 Call Program

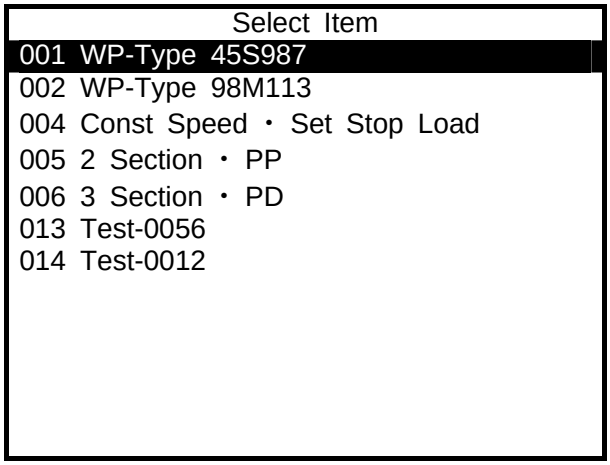
Select [Call Program] to display the screen to right.
Enter the desired program number.



Press the [F·3] key to display the program number and program name.

Program numbers without teaching data will not be displayed.

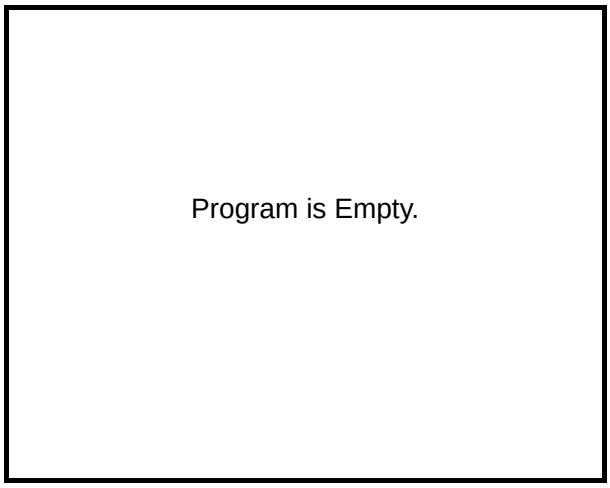
- Highlight the desired program and press the [ENTR] key.



Note:

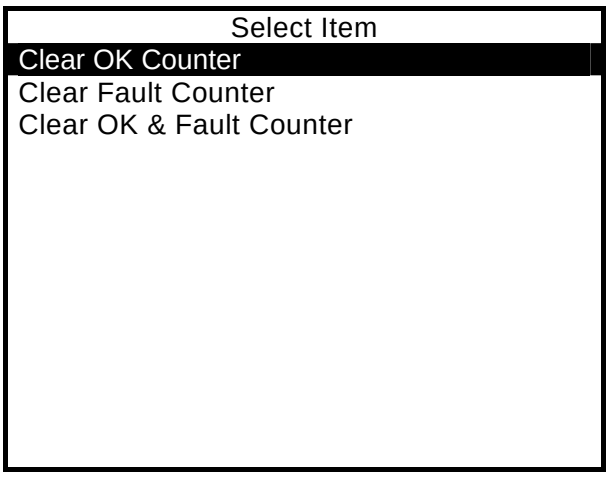
If a program number without teaching data is selected, the alarm will sound and the screen will display the message to right.

Press the [PROG. NO] key and enter a program number, or press the DIR ([F·2]) key and select a program from the list. When using the monitor box, press the [MENU] key and select [Call Program.]



7-2-2 Clear Counter

Select [Clear Counter], and the screen will ask you to select from [Clear OK Counter], [Clear Fault Counter] and [Clear OK & Fault Counter.]
Select the desired counter to reset it to zero, and the screen will return to the screen displayed before the [MENU] key is pressed.

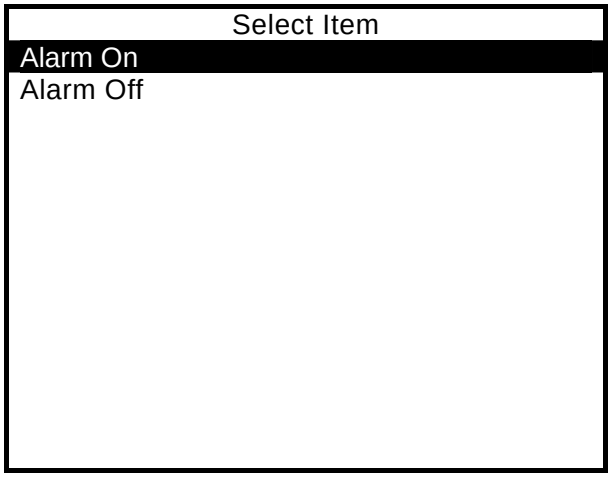


Note:
There are three different counters; OK Counter, Fault Counter, and Sum Counter. The sum counter cannot be cleared.

7-2-3 Alarm

Select [Alarm] to display the selection screen to right.

If you select [Alarm On], the alarm will sound when the error at end occurs.
If you select [Alarm Off], the alarm will not sound.
After setting, the screen will return to the screen displayed before the [MENU] key is pressed.



8. PC COMMUNICATION

It is possible to connect the electro press to a PC to transmit operation results to a PC.

- To use this function, it is necessary to install the PC software “JP Sampler” (optional.)

● Hardware Requirements
Personal computer capable of running Windows® NT4.0/2000/XP.

Note:
Windows, Excel and Word are trademarks of Microsoft Corp., U.S.A.

● The Electro Press can receive commands from a PC when the Electro Press is:
1. switched on and waiting for the home position return signal.
2. on standby.
3. in the base condition (teaching mode.)

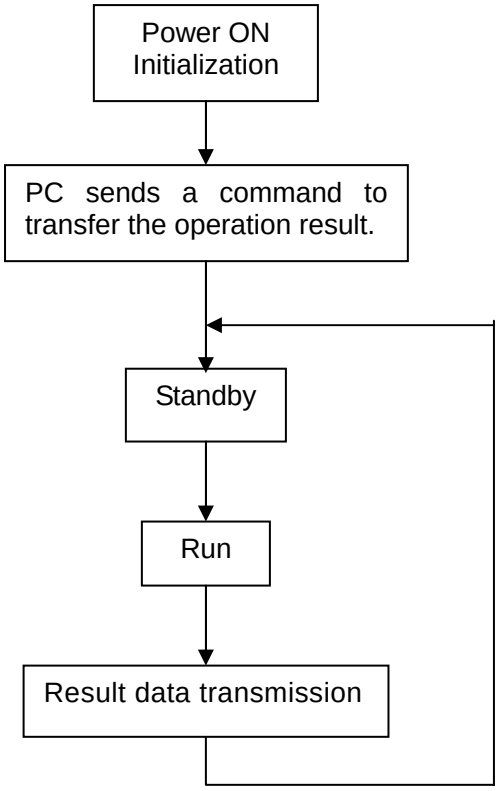
The Electro Press sends the operation results (position, load.) The data is sent to the PC from the Electro Press as the operation proceeds.

Data transmission errors are checked, and if any error is detected, the Electro Press resends the data.
The data is divided into 128 byte or 1K-byte blocks and each block is sent to the PC. If the PC could not receive the data correctly, the Electro Press checks the result and resends the same block before it sends the next block. The transmitted data includes binary files (result data) and is basically transmitted in accordance with XMODEM protocol.

R (Result Data Transfer) command is available for PCs.

● Sending Operation Results to PC

The operation results will be sent from the Electro Press to a PC if you instruct, before operation, the PC to send an R (result data transfer) command to the Electro Press. This instruction is remembered until the Electro Press is switched off or other command is sent from the PC.



The Electro Press does not start the next operation until it completes the data transmission. If this transmission takes time, operation will be delayed.

There are two kinds of result data.

1. Quality data
2. Time Series data

Which data the Electro Press transmits depends on what commands it receives from the PC.

● Transmission of Quality Data

Quality data can be transmitted repeatedly. The Electro Press sends the result of each shot to the PC, and the PC compiles the data using its application software. The Electro Press is not capable of storing and accumulating data.

At the start, or when the program number is changed, the Electro Press sends the following data for the program being executed.

1. Program number
2. Pressing mode
3. Sensor mode (if included)

The PC outputs the following header for the control information:

Program No. 12
S1: Const Speed - Set Stop Pos'n
J1: Sensor Load - Holding

The following specific result data will be transmitted:

1. OK Counter
2. Fault Counter
3. Sensor Result
4. End Position
5. End Load
6. Working Time
7. Prep. Time
8. Touching Pos'n
9. Touching Load
10. Sensor Value (the number of sensor value)
11. External Signal Input Sampling Value (the number of sampling)

The PC outputs the following file:

Counter	Sensor Result	End Position [mm]	End Load [N]	Work Time [sec]	Error Rate [%]	Prep. Time [sec]	Touching Position [mm]	Touching Load [N]	S1 J1 [N]
161	OK	82.345	2500	5.2	1.875	105.2	50.125	58	2500
162	OK	82.348	2505	5.2	1.852	10.8	20.104	50	2505
163	NG S1.J1	80.200	3210	4.6	2.454	15.2	50.158	50	3210
164	OK	93.256	2510	5.1	2.439	128.2	50.142	54	2510
165	ERR1	80.200	5010	5.3	3.030	15.2	50.113	62	5010

Use the values calculated with the following formulas:

Counter = OK Counter + Fault Counter

Error Rate = Fault Counter / (OK Counter + Fault Counter) x 100 [%]

If there are plural sensor conditions, the plural sensor values will be transmitted. If the range covers one point (At End), the value at the point will be the sensor value. If the range covers plural points, the value of the end point will be the sensor value. If sampling (such as Peak) is designated, the sensor value will be the designated sample value. One sensor reading will result in one sensor value.

If the program number has changed, a header part is retrieved again.

The character strings in the file will be enclosed in quotation marks (excluding numbers) and punctuated by commas.

“Counter”,”Sensor Result”,”End Position”,”End Load”,”Work Time”,”Error Rate”,”Prep. Time”
,,”[mm]”,”[N]”,”[sec]”,”[%]”,”[sec]”
161,”OK”,82.345,2500,5.2,1.875,105.2
161,”OK”,82.348,2505,5.2,1.852,10.8
162,”NG S1J1 Upper Error”,80.200,3210,4.6,2.454,15.2
163,”OK”,93.256,2510,5.1,2.439,128.2
164,”NG Stop in Middle”,80.2,5010,5.3,3.03,15.2

This file can be loaded using Microsoft Excel spreadsheets.
(Windows and Excel are registered trademarks of Microsoft Corporation.)

F: file
I : read text
N: data

● Transmission of Time Series Data

If the Electro Press is requested by the PC to send time series data, the Electro Press records position and load data within the designated sampling time (by the msec.)
The Electro Press records data from the start position to the end position, but not while the ram is approaching or ascending to the work home position.
The Electro Press is able to record up to 8,000 pieces of data. For example, if the sampling time is set to 1msec, the transmission time will be 8 seconds and if the sampling time is set to 10msec, the transmission time will be 80 seconds.
The PC compiles the data and outputs the file as the follow example:

15:42:49 1/30/2005	
Program No.	12
OK Counter	409
Fault Counter	31
Sum Counter	74500
Begin Time	0
Sampling Time	10
Number of data	832

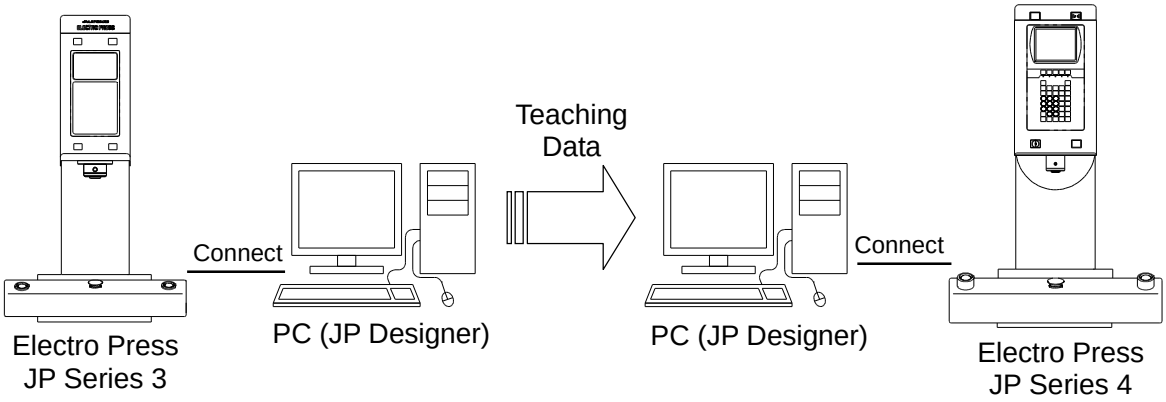
Position [mm]	Load [kg]
18.053	91
18.088	84
18.123	110
18.158	169
18.192	91
18.227	84
18.262	91
18.297	104
18.332	136
18.367	110
18.402	143
18.437	143
18.472	149
18.507	156
18.542	156
18.577	162
18.612	169
18.647	175
18.682	169
18.717	182
18.752	195
18.786	195
18.821	202
18.856	215
18.890	208
18.925	221
18.960	234
.....	...

9. CONVERTING DATA FROM JP SERIES 3 INTO JP SERIES 4

If you are using “JP series 3” teaching data as “JP series 4” teaching data, it is necessary to convert the data. To convert data, follow these 3 steps using “JP Designer Limited Edition.”

The last number of the model name indicates the series number.
e.g) JP-1003: Series 3, JP-1004: Series 4

1. Using “JP Designer Limited Edition”, load data onto the PC from the “JP Series 3.”
2. Save the retrieved data in a file.
3. Using “JP Designer Limited Edition”, send the data from your PC to the “JP Series 4.”

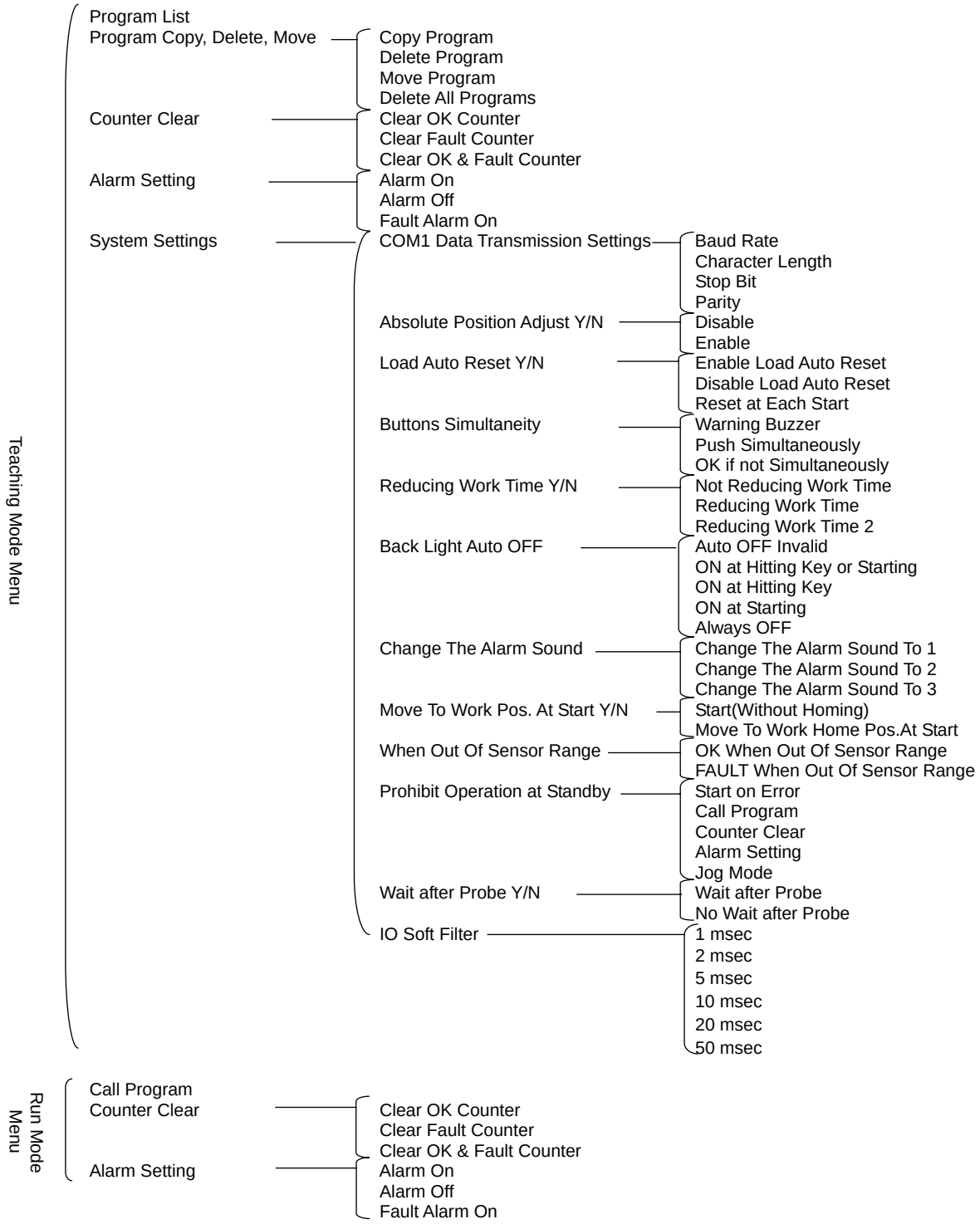


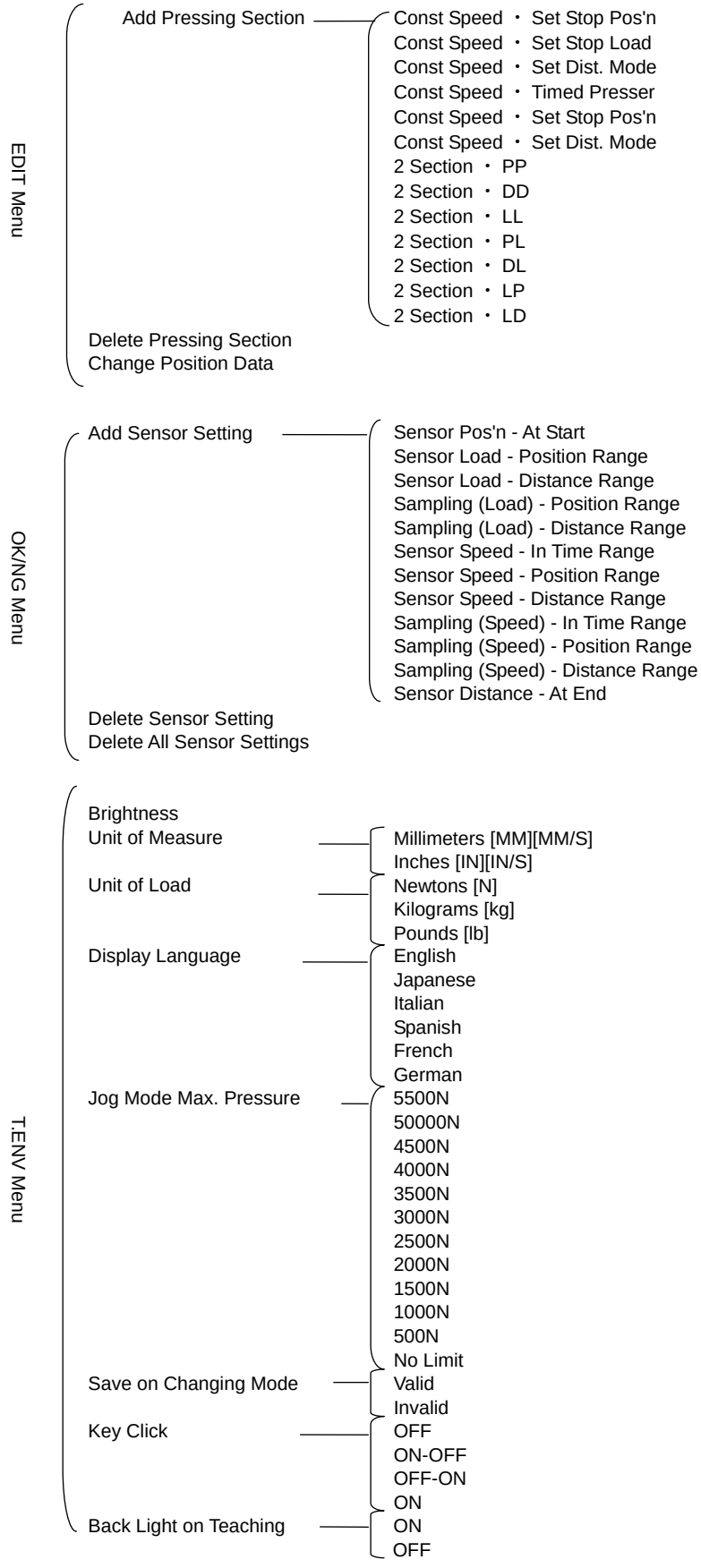
- As well as “JP Designer”, “JP Designer Limited Edition (included in Operation Manual CD-ROM)” can also be used to convert data.

- You can connect one PC to both the Electro Press JP series 3 and the Electro Press JP series 4 together. It is also possible to connect the PC only to the JP series 3 to receive teaching data, disconnect the JP series 3 and then connect the JP series 4 to send the teaching data.

Be sure to turn the power to the machine and PC OFF before connecting or disconnecting cables.

10. MENU LIST


Teaching Mode Menu
Program List
Program Copy, Delete, Move
Copy Program
Delete Program
Move Program
Delete All Programs
Counter Clear
Clear OK Counter
Clear Fault Counter
Clear OK & Fault Counter
Alarm Setting
Alarm On
Alarm Off
Fault Alarm On
System Settings
COM1 Data Transmission Settings
Baud Rate
Character Length
Stop Bit
Parity
Absolute Position Adjust Y/N
Disable
Enable
Load Auto Reset Y/N
Enable Load Auto Reset
Disable Load Auto Reset
Reset at Each Start
Buttons Simultaneity
Warning Buzzer
Push Simultaneously
OK if not Simultaneously
Reducing Work Time Y/N
Not Reducing Work Time
Reducing Work Time
Reducing Work Time 2
Back Light Auto OFF
Auto OFF Invalid
ON at Hitting Key or Starting
ON at Hitting Key
ON at Starting
Always OFF
Change The Alarm Sound
Change The Alarm Sound To 1
Change The Alarm Sound To 2
Change The Alarm Sound To 3
Move To Work Pos. At Start Y/N
Start(Without Homing)
Move To Work Home Pos.At Start
When Out Of Sensor Range
OK When Out Of Sensor Range
FAULT When Out Of Sensor Range
Prohibit Operation at Standby
Start on Error
Call Program
Counter Clear
Alarm Setting
Jog Mode
Wait after Probe Y/N
Wait after Probe
No Wait after Probe
IO Soft Filter
1 msec
2 msec
5 msec
10 msec
20 msec
50 msec
Run Mode Menu
Call Program
Counter Clear
Clear OK Counter
Clear Fault Counter
Clear OK & Fault Counter
Alarm Setting
Alarm On
Alarm Off
Fault Alarm On


EDIT Menu
Add Pressing Section
Const Speed ・ Set Stop Pos'n
Const Speed ・ Set Stop Load
Const Speed ・ Set Dist. Mode
Const Speed ・ Timed Presser
Const Speed ・ Set Stop Pos'n
Const Speed ・ Set Dist. Mode
2 Section ・ PP
2 Section ・ DD
2 Section ・ LL
2 Section ・ PL
2 Section ・ DL
2 Section ・ LP
2 Section ・ LD
Delete Pressing Section
Change Position Data
OK/NG Menu
Add Sensor Setting
Sensor Pos'n - At Start
Sensor Load - Position Range
Sensor Load - Distance Range
Sampling (Load) - Position Range
Sampling (Load) - Distance Range
Sensor Speed - In Time Range
Sensor Speed - Position Range
Sensor Speed - Distance Range
Sampling (Speed) - In Time Range
Sampling (Speed) - Position Range
Sampling (Speed) - Distance Range
Sensor Distance - At End
Delete Sensor Setting
Delete All Sensor Settings
T.ENV Menu
Brightness
Unit of Measure
Millimeters [MM][MM/S]
Inches [IN][IN/S]
Unit of Load
Newtons [N]
Kilograms [kg]
Pounds [lb]
Display Language
English
Japanese
Italian
Spanish
French
German
Jog Mode Max. Pressure
5500N
50000N
4500N
4000N
3500N
3000N
2500N
2000N
1500N
1000N
500N
No Limit
Save on Changing Mode
Valid
Invalid
Key Click
OFF
ON-OFF
OFF-ON
ON
Back Light on Teaching
ON
OFF

MONITOR Menu

- I/O Test
- Test Run

MODE Menu

- Adjustment
- Version Information
- Setting Information
- Diagnostic Mode
- Mechanical Adjustment Mode

11. PRESSING MODE TEACHING ITEM LIST

Item	Section	Const Speed			Const Load		
		Set Stop Pos'n	Set Stop Load	Set Dist.Mode	Time Presser	Set Stop Pos'n	Set Dist.Mode
Pressing Speed	S1	◎	◎	◎			
Pressing Load	S1				◎	◎	◎
Max. Speed	S1				◎	◎	◎
Max. Pressure	S1	◎		◎			
End Load	S1		◎				
Pressing Dist.	S1			◎			◎
Pressing Time	S1				◎		
Work Home Pos'n	S0	◎	◎	◎	◎	◎	◎
Start Position	S1	◎	◎	◎	◎	◎	◎
End Position	S1	◎				◎	
Holding Time	S1	◎	◎	◎	◎	◎	◎
Hold Time Limit	S1	○	○	○	○	○	○
Stop Ref.Pos'n	S1		○				
SlowDn Load Rate	S1		○				
Max. Press Time	S1					○	○
Approach Speed	S0	○	○	○	○	○	○
Max. Pressure AP	S0	○	○	○	○	○	○
Probe Speed	S0	○	○	○	○	○	○
Touching Load	S0	○	○	○	○	○	○
Probe Limit Pos.	S0	○	○	○	○	○	○
Approach Y/N	S0	○	○	○	○	○	○
Returning to Work Home Pos'n Y/N	S0	○	○	○	○	○	○
Return Speed	S0	○	○	○	○	○	○

◎: A value is entered in new data teaching.
○: No value is entered but it may be set.

Item	Section	2nd Section						
		P • P	D • D	L • L	P • L	D • L	L • P	L • D
Pressing Time	S1	◎	◎	◎	◎	◎	◎	◎
Max.Pressure	S1	◎	◎		◎	◎		
End Load	S1			◎			◎	◎
Pressing Dist.	S1		◎			◎		
Pressing Speed	S2	◎	◎	◎	◎	◎	◎	◎
Max. Pressure	S2	◎	◎				◎	
End Load	S2			◎	◎	◎		◎
Pressing Dist.	S2		◎					
Work Home Pos'n	S0	◎	◎	◎	◎	◎	◎	◎
Start Position	S1	◎	◎	◎	◎	◎	◎	◎
End Position	S1	◎			◎			
End Position	S2	◎					◎	
Holding Time	S2	◎	◎	◎	◎	◎	◎	◎
Hold Time Limit	S2	○	○	○	○	○	○	○
Holding Time	S1	○	○	○	○	○	○	○
Hold Time Limit	S1	○	○	○	○	○	○	○
Stop Ref.Pos'n	S1			○			○	○
SlowDn Load Rate	S1			○			○	○
Stop Ref.Pos'n	S2			○	○	○		
SlowDn Load Rate	S2			○	○	○		
Approach Speed	S0	○	○	○	○	○	○	○
Max. Pressure AP	S0	○	○	○	○	○	○	○
Probe Speed	S0	○	○	○	○	○	○	○
Probe Limit Pos.	S0	○	○	○	○	○	○	○
Touching Load	S0	○	○	○	○	○	○	○
Approach Y/N	S0	○	○	○	○	○	○	○
Returning to Work Home Pos'n Y/N	S0	○	○	○	○	○	○	○
Return Speed	S0	○	○	○	○	○	○	○

◎: A value is entered in new data teaching.

○: No value is entered but it may be set.

12. JP DESIGNER LIMITED EDITION

“JP Designer Limited Edition” software creates backup files of Electro Press teaching data.

<Installation/Uninstallation/Upgrade>

1. Open Windows® and check that it is working properly. Exit any applications that are open.
2. Insert the Operation Manual CD-ROM into the CD-ROM drive.
3. Open “SETUP.EXE” on the Operation Manual CD-ROM. The installer starts up automatically. Follow the onscreen instructions.
   If “JP Designer Limited Edition” has already been installed when starting the installer, uninstallation will be carried out.

- To upgrade “JP Designer Limited Edition”, start up the installer to uninstall the old version, start up the installer again and then install the new “JP Designer Limited Edition.”

<Communication Setting>

To transmit and receive data between the PC and the Electro Press, select a COM port (serial port) and set the communication parameters between the PC and the Electro Press so that they match.

You cannot confirm or set the communication parameters for the Electro Press via the PC. To confirm or set the Electro Press communication parameters, select “COM1 Communication Setting” under “System Settings” from the Electro Press menu.

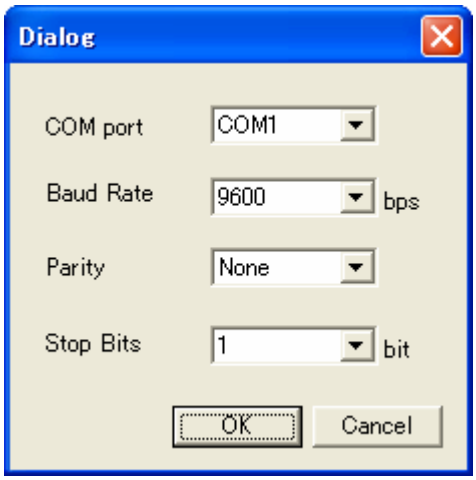
Start up “JP Designer Limited Edition” and click “COM Status” from the “Press” pull-down menu on the menu bar.

Set up or confirm the communication settings for the PC.

Select the same COM port number as that of the connector **on the PC** connected to the Electro Press.

Refer to your PC instruction manual for the PC COM Port number.

Set or confirm each parameter setting other than the [COM Port] number to mach the Electro Press.



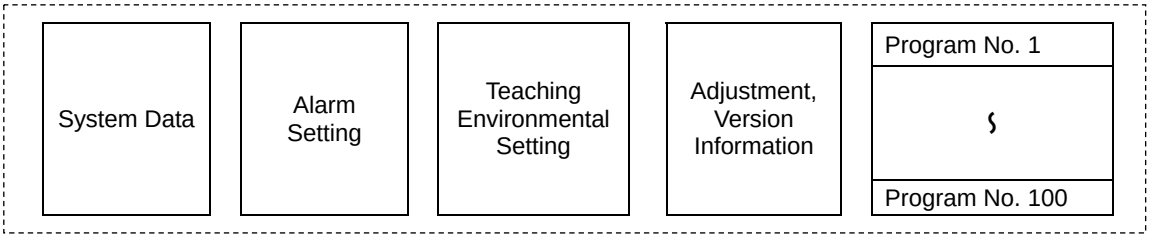
- This setting is valid only for communications with this application.

12-1 Teaching Data

This section explains the units of data used for this application.

The following illustration shows all the teaching data stored in the Electro Press. When using this application, all data is handled (e.g. File Open, Save, Send to Press or Read from Press) as one unit of teaching data.

The programs cannot be handled individually. When transferring data between JP Designer and the Electro Press all programs are treated as one unit of data.



- Items with a “X” mark cannot be changed from the PC.

Items	Electro Press Categories		PC Categories		Write into EP
	JP Series 3	JP Series 4	JP Series 3	JP Series 4	
Unit of Measure	System Setting	T.ENV	Adjustment, Version Information	–	×
Unit of Load	System Setting	T.ENV	Adjustment, Version Information	–	×
Display Language	System Setting	T.ENV	Adjustment, Version Information	–	×
Brightness Adjustment	System Setting	T.ENV	Adjustment, Version Information	–	×
Data Transmission Settings	System Setting	System Setting	–	–	×
Absolute Position Adjust Y/N	System Setting	System Setting	System Setting	System Setting	
Jog Mode Max. Pressure	System Setting	T.ENV	System Setting	T.ENV	
Change Operation Mode	System Setting	–	System Setting	–	
Reference No. Y/N	System Setting	–	System Setting	–	
Load Auto Reset Y/N	System Setting	System Setting	System Setting	System Setting	
Buttons Simultaneity	System Setting	System Setting	System Setting	System Setting	
Reducing Work Time Y/N	System Setting	System Setting	System Setting	System Setting	
Back Light Auto OFF	System Setting	System Setting	System Setting	System Setting	
Change The Alarm Sound	System Setting	System Setting	System Setting	System Setting	
Move To Work Pos. At Start Y/N	System Setting	System Setting	System Setting	System Setting	
When Out Of Sensor Range	System Setting	System Setting	System Setting	System Setting	
Prohibit Operation at Standby	System Setting	System Setting	System Setting	System Setting	
Wait after Probe Y/N	System Setting	System Setting	System Setting	System Setting	
IO Soft Filter	–	System Setting	–	System Setting	
Save on Changing Mode	–	T.ENV	–	T.ENV	×
Key Click	–	T.ENV	–	T.ENV	×
Back Light on Teaching	–	T.ENV	–	T.ENV	×
Alarm Setting	Alarm Setting	Alarm Setting	Adjustment, Version Information	Alarm Setting	×
Adjustable Value	Adjustment	Adjustment	Adjustment, Version Information	Adjustment, Version Information	×
OK Counter	Run Result	Run Result	Adjustment, Version Information	Adjustment, Version Information	×
Fault Counter	Run Result	Run Result	Adjustment, Version Information	Adjustment, Version Information	×
Sum Counter	Run Result	Run Result	Adjustment, Version Information	Adjustment, Version Information	×
Play Back Time	Version Information	Version Information	Adjustment, Version Information	Adjustment, Version Information	×
Running Time	Version Information	Version Information	Adjustment, Version Information	Adjustment, Version Information	×

12-2 How to Back up Teaching Data

1. Receiving Teaching Data
Start up PC software “JP Designer Limited Edition.”
Click “Press” on the menu bar and select “Receive Data” from the pull-down menu.
The PC will start retrieving data from the Electro Press.

- the Electro Press while sending/receiving data or reading information should be in one of the following status;
  - A list of the entered sensor mode settings is displayed in teaching mode.
  - The Electro Press stands by for start at a work home position in runmode or external run mode.

- The software “JP Designer Limited Edition” can receive teaching data but cannot display it on the screen. The screen appears blank.

2. Saving the File
After receiving teaching data, click [Save As] from the [File] pull-down menu on the menu bar.
Enter a file name, designate its storage location and click [Save.]

12-3 Sending the Backup File

1. Opening the backup file
Start up PC software “JP Designer Limited Edition.”
Click [Open File] from the [File] pull-down menu on the menu bar.
Select a backup file to send and click [Open.]

- The software “JP Designer Limited Edition” can open a backup file but cannot display it on the screen. The screen appears blank.

2. Sending the backup file
Click “Press” on the menua bar and click “Send Data” from the pull-down menu.
The PC starts sending teaching data to the Electro Press.

- the Electro Press while sending/receiving data or reading information should be in one of the following status;
  - A list of the entered sensor mode settings is displayed in teaching mode.
  - The Electro Press stands by for start at a work home position in runmode or external run mode.

APPENDIX. DATA SHEET

These teaching data sheets are provided for you to ender teaching data so that you can refer to it in case that your data is damaged. It can also be useful as an information sheet when making inquiry.

TEACHING DATA SHEET

		Const Speed • Set Stop Pos'n	Const Speed • Set Stop Load	Const Speed • Set Dist.Mode
Program No.				
S1	Pressing Speed			
	Max. Pressure			
	Start Position			
	End Position			
	End Load			
	Pressing Dist.			
	Holding Time/ Hold Time Limit			
	SlowDn Load Rate			
	Stop Ref.Pos'n			
S0	Work Home Pos'n			
	Approach Speed			
	Probe Speed			
	Touching Load			
	Returning to Work Home Pos'n	Enable/Disable /On Fault	Enable/Disable /On Fault	Enable/Disable /On Fault
	Approach	Enable/Disable	Enable/Disable	Enable/Disable
	End Pos. Output	OFF/ON	OFF/ON	OFF/ON
	End Load Output	OFF/ON	OFF/ON	OFF/ON

TEACHING DATA SHEET

		Const Load • Timed Presser	Const Load • Set Stop Pos'n	Const Load • Set Dist.Mode
Program No.				
S1	Pressing Load			
	Maximum Speed			
	Start Position			
	Pressing Time			
	Pressing Dist.			
	End Position			
	Max. Press Time			
	Holding Time/ Hold Time Limit			
S0	Work Home Pos'n			
	Approach Speed			
	Probe Speed			
	Touching Load			
	Returning to Work Home Pos'n	Enable/Disable /On Fault	Enable/Disable /On Fault	Enable/Disable /On Fault
	Approach	Enable/Disable	Enable/Disable	Enable/Disable
	End Pos. Output	OFF/ON	OFF/ON	OFF/ON
	End Load Output	OFF/ON	OFF/ON	OFF/ON

SENSOR DATA SHEET

	Program No.	Program No.	Program No.
Sensor Settings No. (J-)			
Sensor Type			
Sens.Beg.Pos'n			
Sens.End Pos'n			
Beg.Lower Limit			
Beg.Upper Limit			
End Lower Limit			
End Upper Limit			
After Sensor NG	Stop/Continue/Sampling	Stop/Continue/Sampling	Stop/Continue/Sampling
Sensor Value Output	OFF/ON	OFF/ON	OFF/ON

	Program No.	Program No.	Program No.
Sensor Settings No. (J-)			
Sensor Type			
Beg.Lower Limit			
Beg.Upper Limit			
After Sensor NG	Stop/Continue/Sampling	Stop/Continue/Sampling	Stop/Continue/Sampling
Sensor Value Output	OFF/ON	OFF/ON	OFF/ON

SAMPLING DATA SHEET

	Program No.	Program No.	Program No.
Sampling Type			
Sampling Beg.Pos'n			
Sampling End Pos'n			
Beg.Lower Limit			
Beg.Upper Limit			
End Lower Limit			
End Upper Limit			
Slant Value			
After Sensor NG	Stop/Continue/Sampling	Stop/Continue/Sampling	Stop/Continue/Sampling
Sensor Value Output	OFF/ON	OFF/ON	OFF/ON

SYSTEM DATA SHEET

Unit of Measure	mm / inch
Unit of Load	N / Kg / lb
Display Language	

JANOME Sewing Machine Co., Ltd.

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891804101 as of 09/2005

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