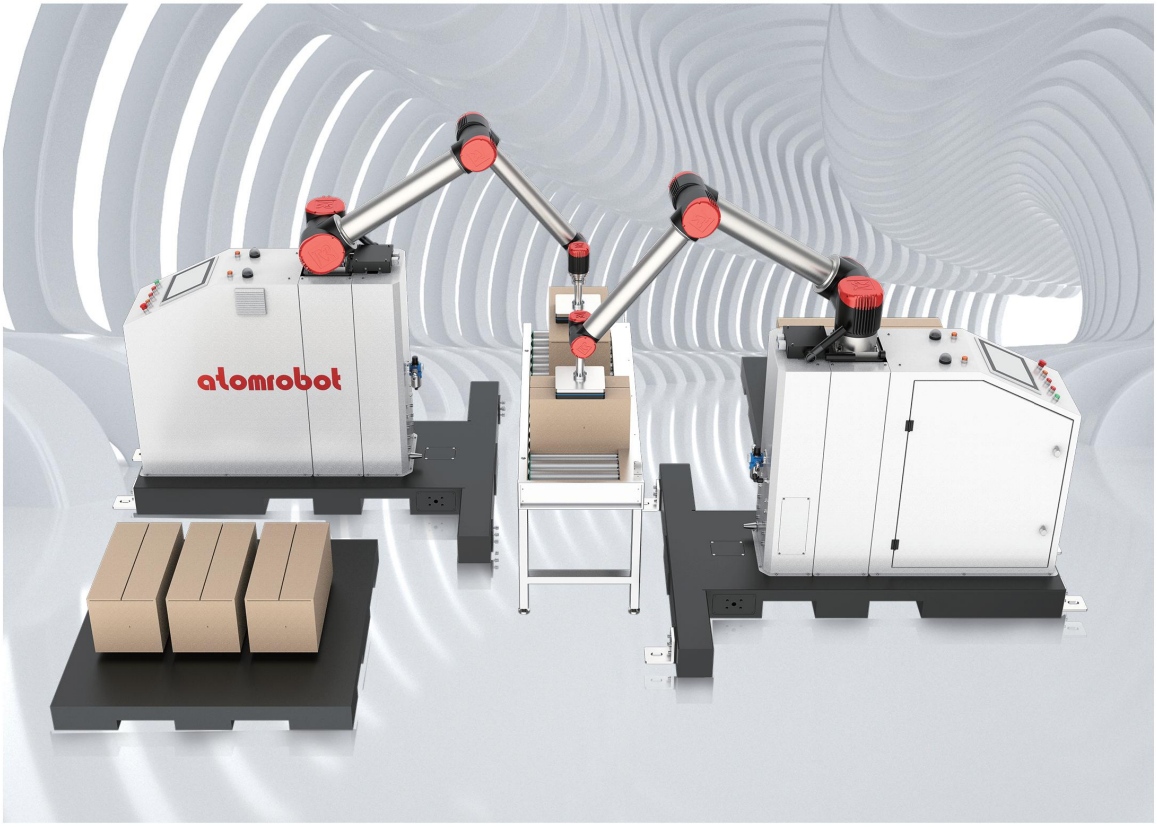
atomrobot

# User Manual for Collaborative Stacking Workstation




SIMPLE OPERATION

WIDELY USED

ECONOMICALLY PRACTICAL

FLEXIBLE DEPLOYMENT

FLEXIBLE PRODUCTION

SAFE AND STABLE

FREE HANDS WITH TECHNOLOGY

**Contents**

# Chapter1 Basic operating instructions

All parameters can be modified only in the stopped state. You cannot modify parameters in the suspended or running state.

## 1.1 Tool Settings

After the robot returns to zero, the length of the tool facing the console is parallel to the X-axis direction, and the vertical is the width of the tool. Figure 1-1 shows the length, width and height of the tool. The weight of the tool, the height of the center of gravity of the tool, and the rotary inertia of the tool about(around? or of ?) the Z-axis are related to the collision detection. Set the parameters based on the actual data.

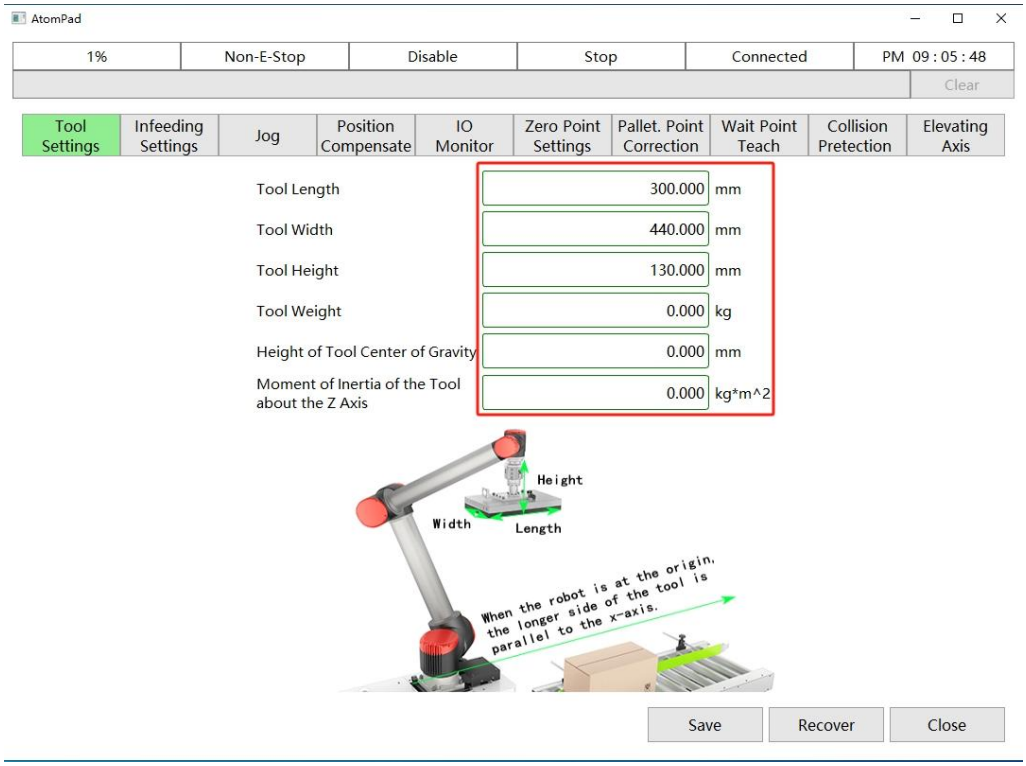



Figure 1.1 tool settings1-

## 1.2 Infeeding Settings

### 1.2.1 Palletizer type

Choose single channel or dual channel according to the needs of the site, choose single channel of infeeding on behalf of only one infeed conveyor , choose dual channel of infeeding on behalf of left and right two infeed conveyor .

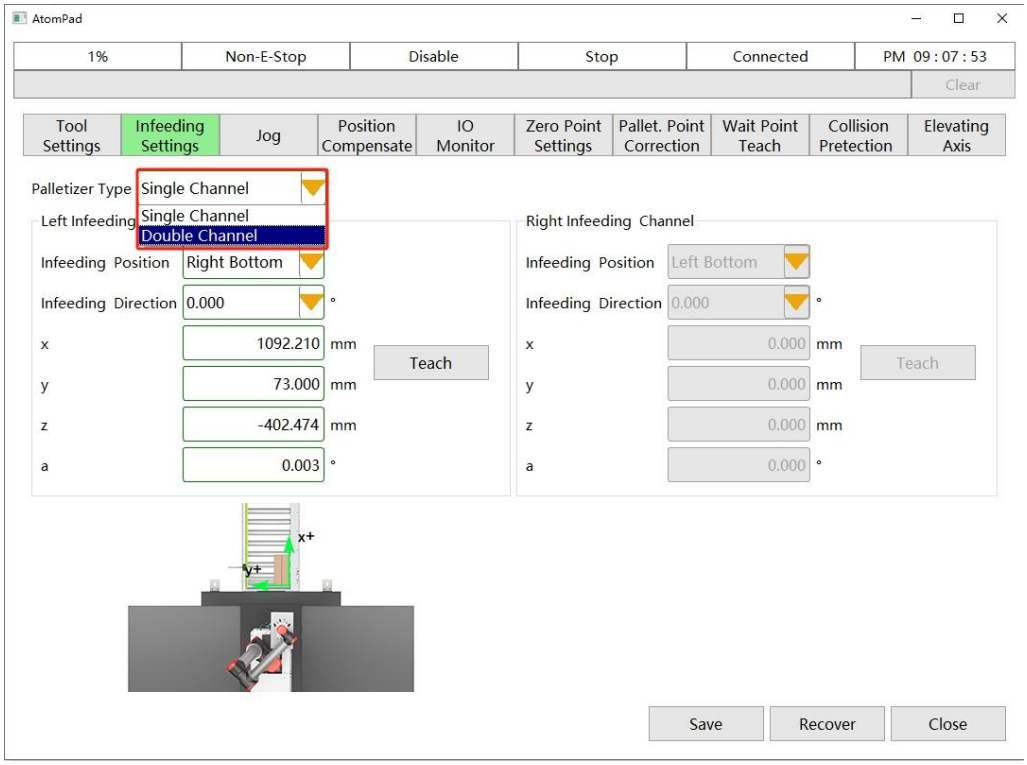



Figure 1.2 palletizer type1-

## 1.2.2 Infeeding channel position

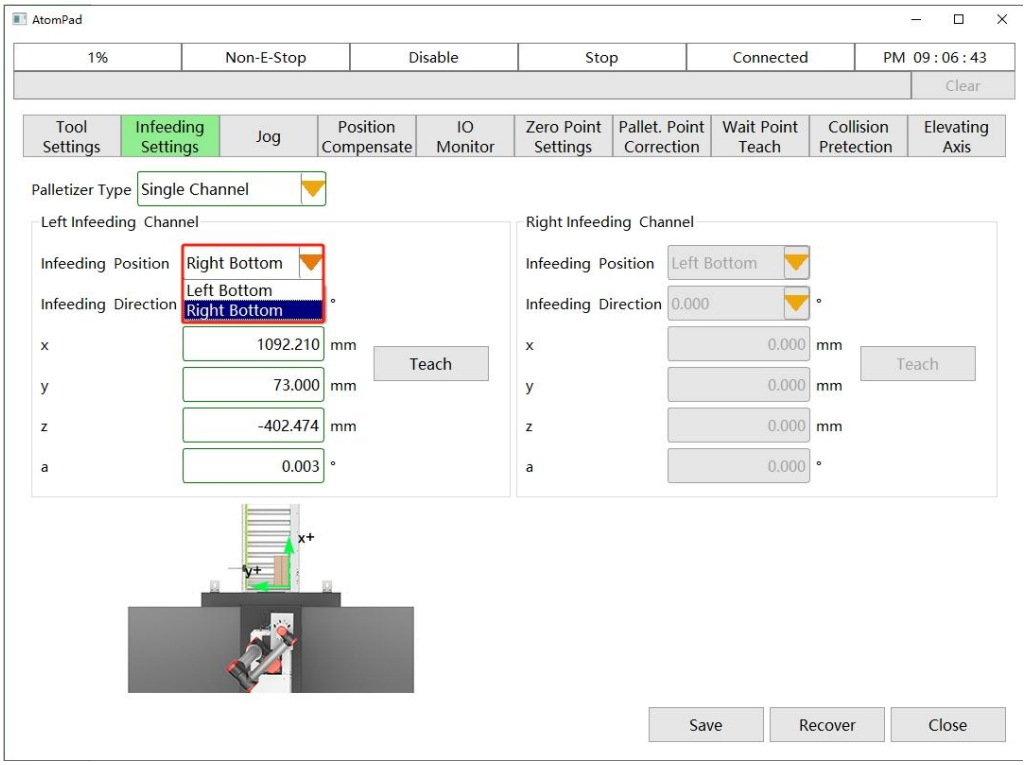



Figure 1.3 position of infeeding channel1

## 1.2.3 Direction of infeeding channel

Infeeding channel direction: The robot is in the zero state, and the posture of the tool is 0° of the tool. If the 0° of the tool is exactly the same as the infeeding channel box, the direction of the infeeding channel is 0°. If the 0° of the tool is exactly 90° from the infeeding channel box, select 90° from the infeeding channel direction.

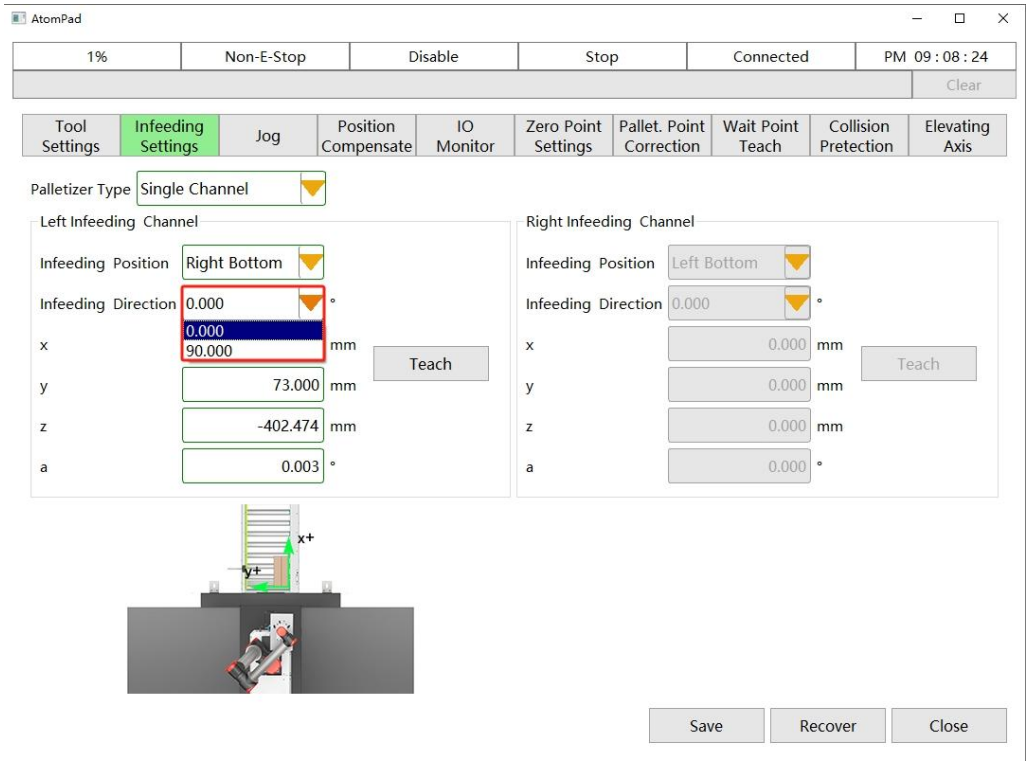



Figure 1.4 infeeding channel direction1-

## 1.2.4 Position instruction

When the palletizer type is selected as a single channel : only need to show the left side to the channel; When the palletizer type chooses two channel: the left channel corresponds to the left infeeding channel, and the right channelcorresponds to the right infeeding channel. **(Note: The replacement tool needs to be re-taught.)**

**Method 1 of 2: Show the surface of the box**

(1) For the first time, the direction of the channel is 0°. The first method needs to subtract the height of the box. For example, the z value of the teaching is -1000, the height of the box is 200, and the final z value is -1200. According to the position of the channel and the direction of the channel to teach, if you choose the lower left corner, the direction of the infeeding material is 0°, the lower left corner of the tool of the mobile robot 0° coincides with the lower left corner of the box, click the church to write the value to the next x, y, z, a, after the success of the teaching z value minus the height of a box, click save. Then do not change the position and direction of the infeeding channel , change the type of the box, and do not need to teach again.

(2) For the first time, the direction of the channel is 90°. The first method needs to subtract the height of the box: for example, the z value of the teaching is -1000, the height of the box is 200, and the final z value is -1200. According to the position of the channel and the direction of the channel to teach, if you choose the lower right corner, the direction of the material to choose 90°, the lower

right corner of the mobile robot tool 0° coincides with the lower right corner of the box, click the church to write the value to the next x, y, z, a, after the success of the teaching z minus the height of a box, click save. Then do not change the position and direction of the infeeding channel, change the type of the box, and do not need to teach again.

**Method 2 of 2: Teach the surface of the conveyor belt**

The first teaching direction is 0°, the second method does not need to subtract the height of the box: teach according to the position of the channel and the direction of the channel , if you choose the lower left corner, the direction of the infeeding material is 0°, the lower left corner of the mobile robot tool coincides with the lower left corner of the conveyor belt, click the church to write the value to the next x, y, z, a, after the teaching success, click save. Then do not change the position and direction of the infeeding channel , change the type of the box, and do not need to teach again.

The first teaching direction is 90°, the second method does not need to subtract the height of the box: teach according to the position of the infeeding channel and the direction of the infeeding channel , if you choose the lower right corner, the direction of the infeeding material is 90°, the lower right corner of the mobile robot tool 0° coincides with the lower right corner of the conveyor belt, click the indicator to write the value into the next x, y, z, a, after the teaching is successful, click save. Then do not change the position and direction of the infeeding channel , change the type of the box, and do not need to teach again.

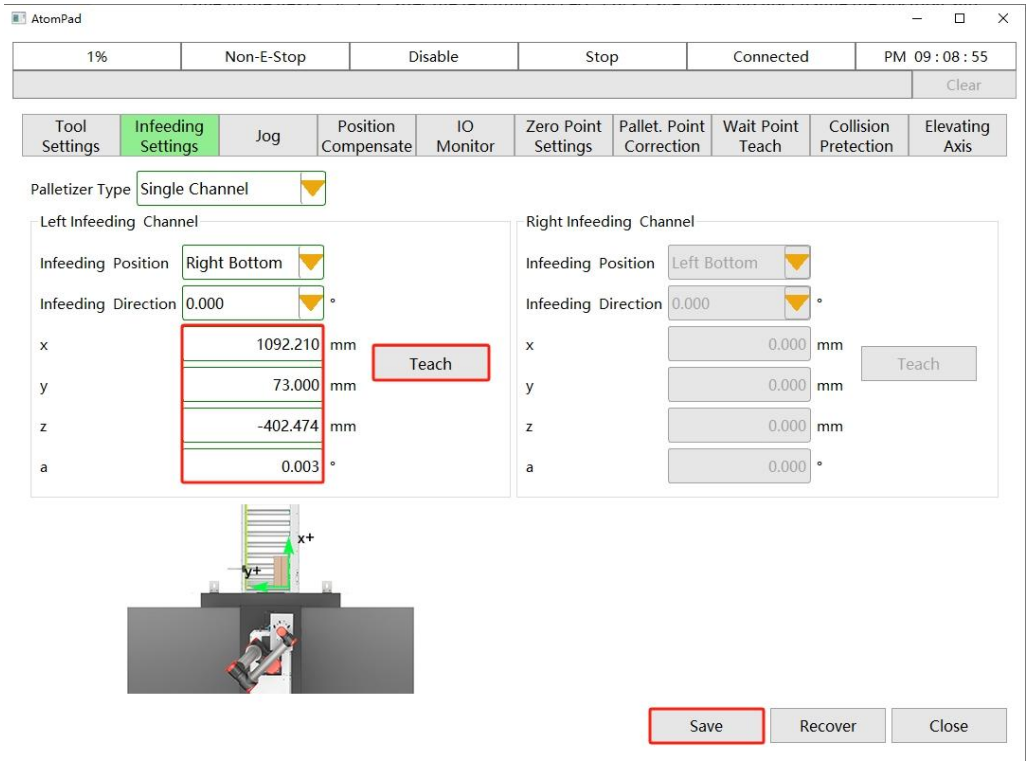



Figure 1.5 grab point position to show the teaching1-

## 1.3 Robot Jog

Main Page Click palletizer setting enter password m to switch to the click Page, click Enable when the status bar is enabled to click, V+, V- to adjust the speed. The clicking mode can be divided into: node movement, base coordinate system movement, axis movement. After the clicking is finished, click Enable again to disable the enable, and the status bar displays disable. (Axis jog movement/node movement is generally used to set the zero point of the mobile robot, and base coordinate system point movement is generally used to move the robot to show the teaching point position.)

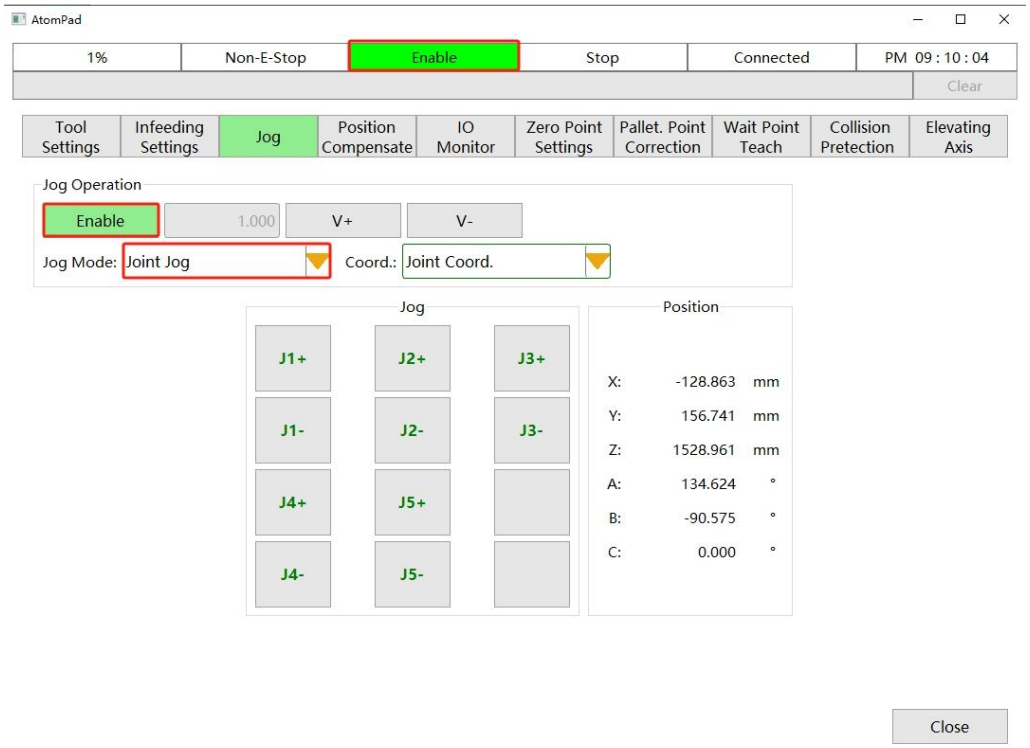



Figure 1.6 jog move

## 1.4 Position Compensation

### 1.4.1 Grab placement parameters

Grab delay time: how long the tool touches the box before lifting.

Grab point height compensation: set a safe height before grabbing to ensure that the tool touches the surface of the box vertically.

Grab the rear point height compensation: after successful grab need to lift a safe height. In order to avoid the edge of the infeeding channel to prevent collision with the edge of the infeeding channel .

Placement delay time: how long is the lift delay after reaching the placement point.

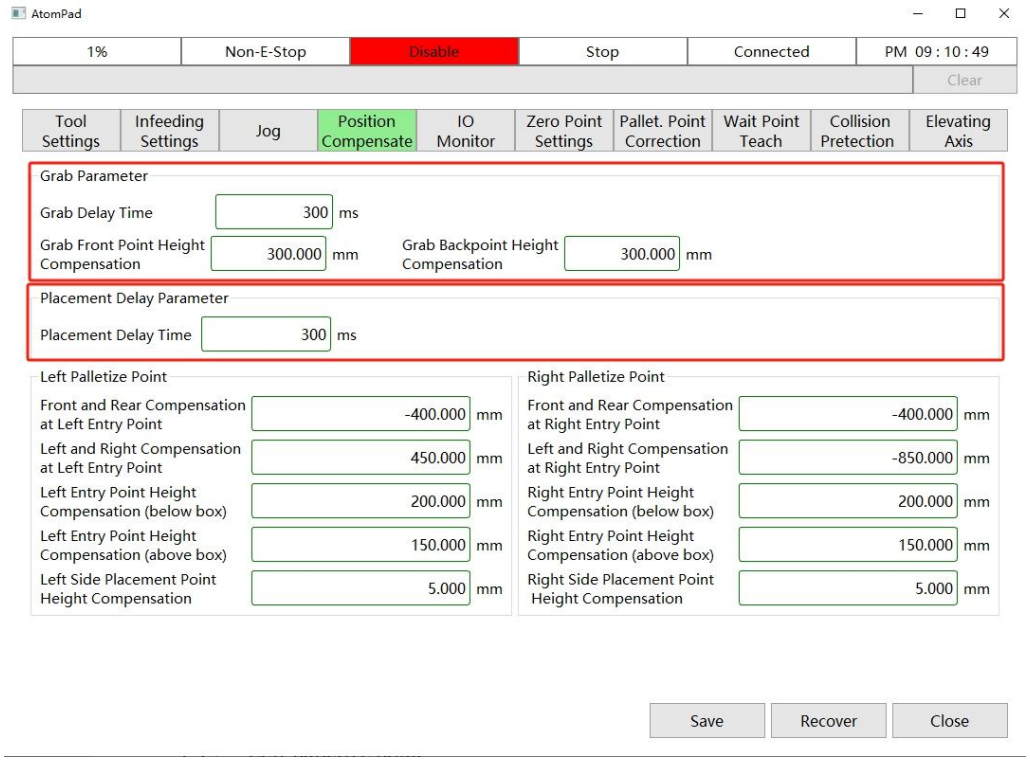



Figure 1.7 grab place parameters1-

## 1.4.2 Left palletize point

Note: If there is interference when the robot moves from the grasping point to the placing point, it needs to offset on the basis of the grasping point. The setting method is as follows.

Front and rear compensation at right entry point: The left entrance is offset before and after according to the grasping point of the left channel. The value is positive according to the grasping point, and the value is negative according to the grasping point.

Left entrance point compensation: the left entrance is offset according to the grasping point of the left channel. The value is positive offset to the left according to the grab point, and the value is negative offset to the right according to the grab point.

Left entry point height compensation (below the box) : the current palletizing height is lower than the height of the grab point, and the compensation height will be compensated according to the high point after the left grab to confirm the height of the entry point.

Left entry point height compensation (above the box) : the current palletizing height is higher than the height of the grab point, the compensation height will be compensated according to the height of the point before the palletizing, with the increase of the number of layers the height of the entry point will also increase.

Left placing point height compensation: fine-tune the overall placing height of the left palletizing to prevent the stacking plate.

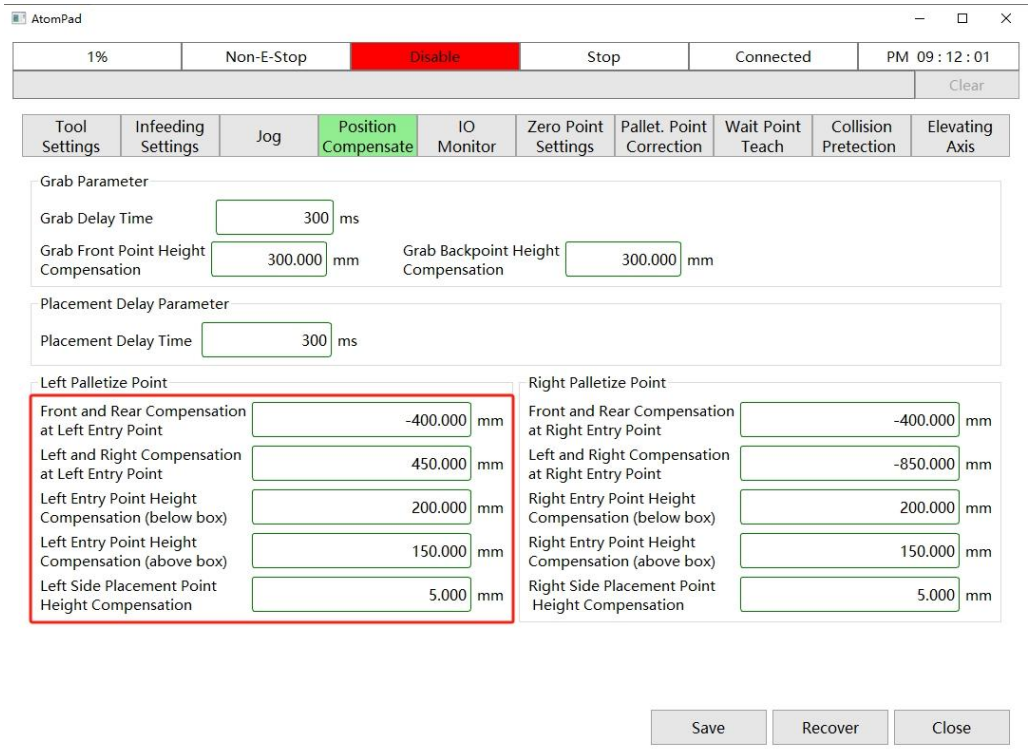



Figure 1.8 left side placement point parameters1-

## 1.4.3 Right palletize point

Note: If there is interference when the robot moves from the grasping point to the placing point, it needs to offset on the basis of the grasping point. The setting method is as follows.

Front and rear compensation at right entry point:

(1) If you choose a single channel: the right entry point is offset before and after according to the grasping point of the left channel, the value is offset forward according to the grasping point, and the value is negative according to the grasping point.

(2) If dual channel selected: the right entry point is offset forward and forward according to the grasping point of the right channel, the value is offset forward according to the grasping point, and the value is negative according to the grasping point.

Right entry point around compensation:

(1) If single channelis selected: The right entry is offset left and right according to the grab point of the left channel. The value is positive offset to the left according to the grab point, and the value is negative offset to the right according to the grab point.

(2) If dual channel selected: the right entry is offset left and right according to the grab point from the right channel. The value is positive offset to the left according to the grab point, and the value is negative offset to the right according to the grab point.

Right entry point height compensation (below the box) : the current palletizing height is lower than the height of the grab point, the compensation height will be compensated according to the high point after the grab to confirm the height of the entry point.

Right entry point height compensation (above the box) : the current palletizing height is higher than the height of the grab point, the compensation height will be compensated according to the height of the point before the palletizing, with the increase of the number of layers the height of the entry point will also increase.

Right place point height compensation: fine-tune the placing height of the whole right palletizing to prevent the stacking plate.

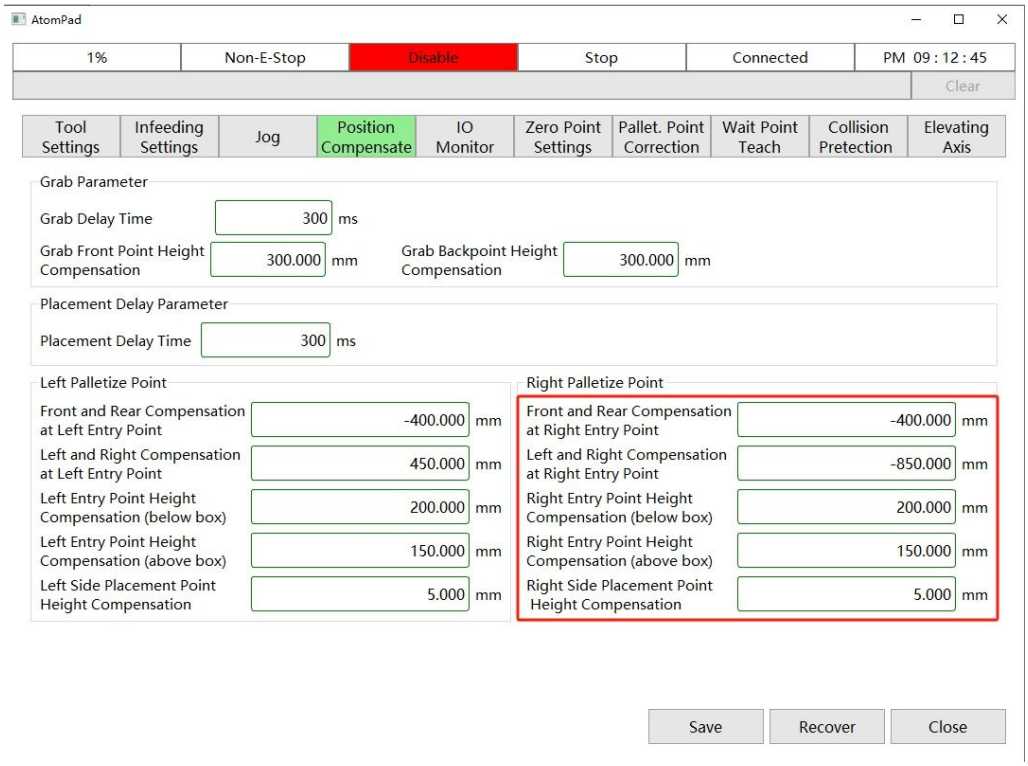



Figure 1.9 right side placing point parameters1-

## 1.5 IO Monitor

The I/O Monitor Page displays all I/O modules.

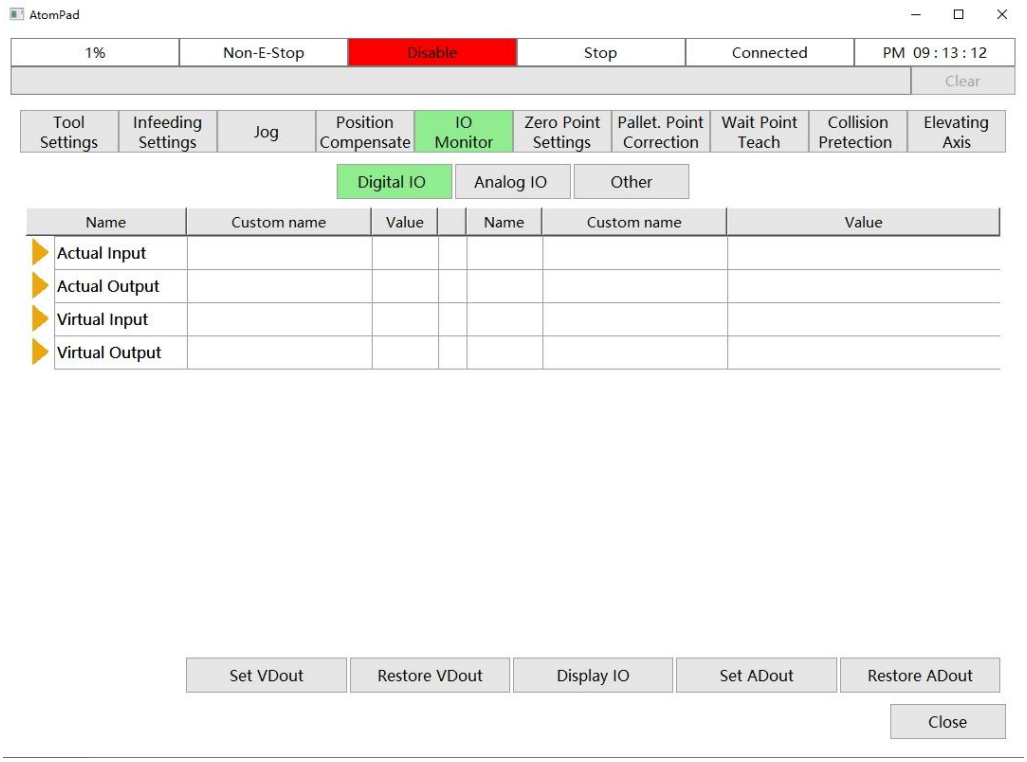



Figure 1.10 I/O monitor1

## 1.6 Zero Point Settings

### 1.6.1 Function description

Includes robot axis set zero, external axis set zero, encoder clear and axis position set

**Set zero for a single axis**: if you click the button "D1", set the current position of robot axis D1 to D1 zero.

**Set all to zero:** click the "Set all to zero" button to set the current position of all robot axis to zero.

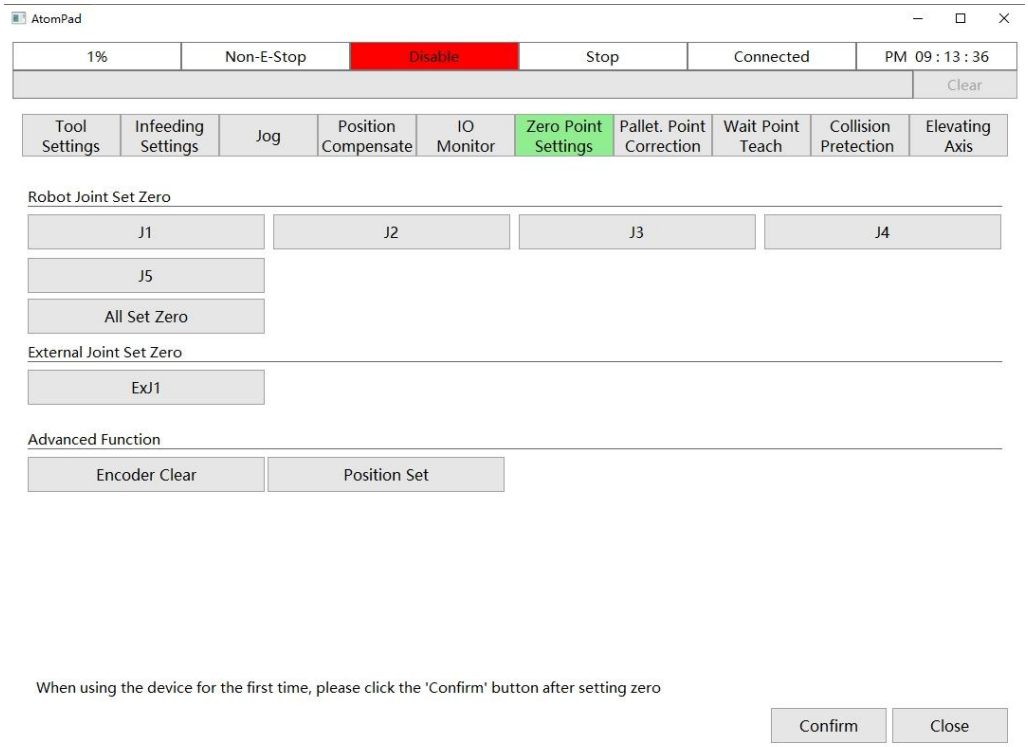



Figure 1.11 zero point setting 1-

## 1.6.2 Steps for zero point setting

1.Adjust the robot to the mechanical zero point. During the adjustment, ensure that the two zeros of each axis are aligned. The following diagram of the mechanical zero point position is a schematic diagram facing the direction of the operating platform.

Figure 1.12 mechanical zero point position diagram1

2.Click the All Set Zero button after adjusting to mechanical zero point.

3.After clicking the position setting button, select J3 for joint name, -90° for joint position, and click the setting button, as shown below:

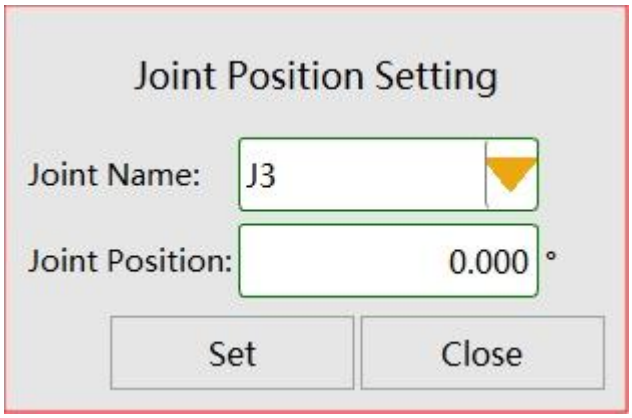



Figure 1.13 J3 zero point setting1-

4.Adjust the four axis to align with the object zero and click the J4 Set Zero button.

5.The working zero of the robot as shown in the picture below means that the zero setting is complete:

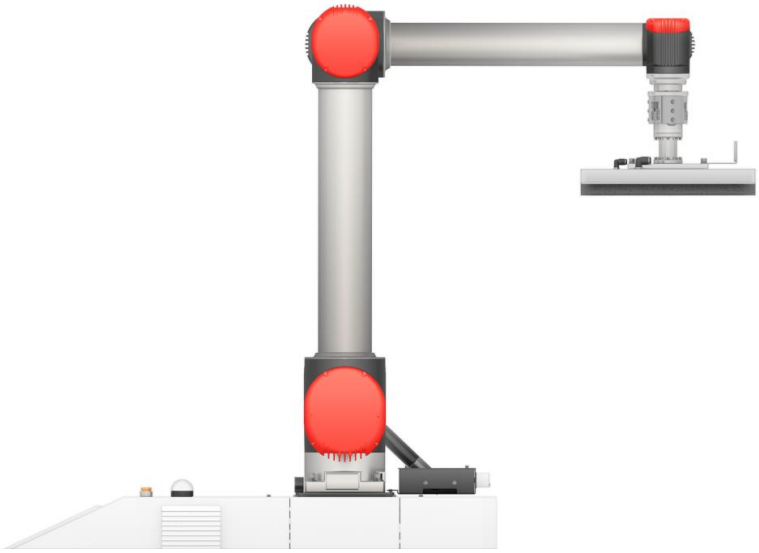


Figure 1.14 position diagram of robot working zero point1-

## 1.7 Palletizer point correction

The first use needs to teach the left palletizing point and the right palletizing point, with the robot end in the zero state, the zero state is the world coordinate system a value of 0. When teaching on the left side, the two sides of the lower end of the tool are close to the upper edge of the left base. When teaching on the right, use the two sides of the lower end of the tool against the upper edge of

the right base. The teaching point is the position of the corner point on the upper edge of the base of the left and right palletizing in the picture.

If the overall palletizing offset is found, the x, y, z and a values of the palletizing point can be fine-tuned to adjust the entire palletizing position. When the x value increases, the entire palletizing will shift forward, on the contrary, when the x value decreases, the entire palletizing will shift back. When the y value increases, the entire palletizing will be shifted to the left, and when the y value decreases, the entire palletizing will be shifted back. When the z value increases, the entire palletizing will be shifted upward, and when the z value decreases, the entire palletizing will be shifted downward. When the value of a increases, the whole palletizing will rotate counterclockwise, on the contrary, the whole palletizing will rotate clockwise when the value of a decreases. After fine adjustment, click Save to take effect.

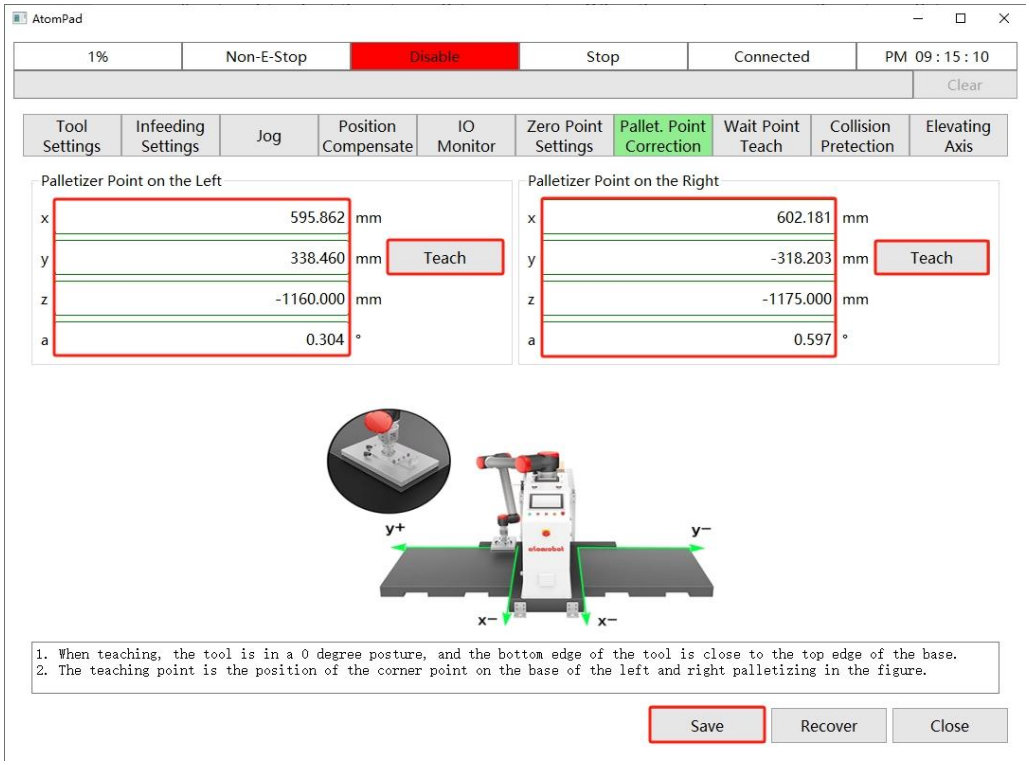



Figure 1.15 palletizer point correction1-

## 1.8 Wait point teach

Main Page Click palletizer setting enter password m to switch to the waiting point teaching Page, move to a certain safe height above the grasping conveyor channel, set a reasonable waiting point, and click Save. Complete the setting of the waiting point. **(Note: You need to reteach the holding point after changing the tool.)**

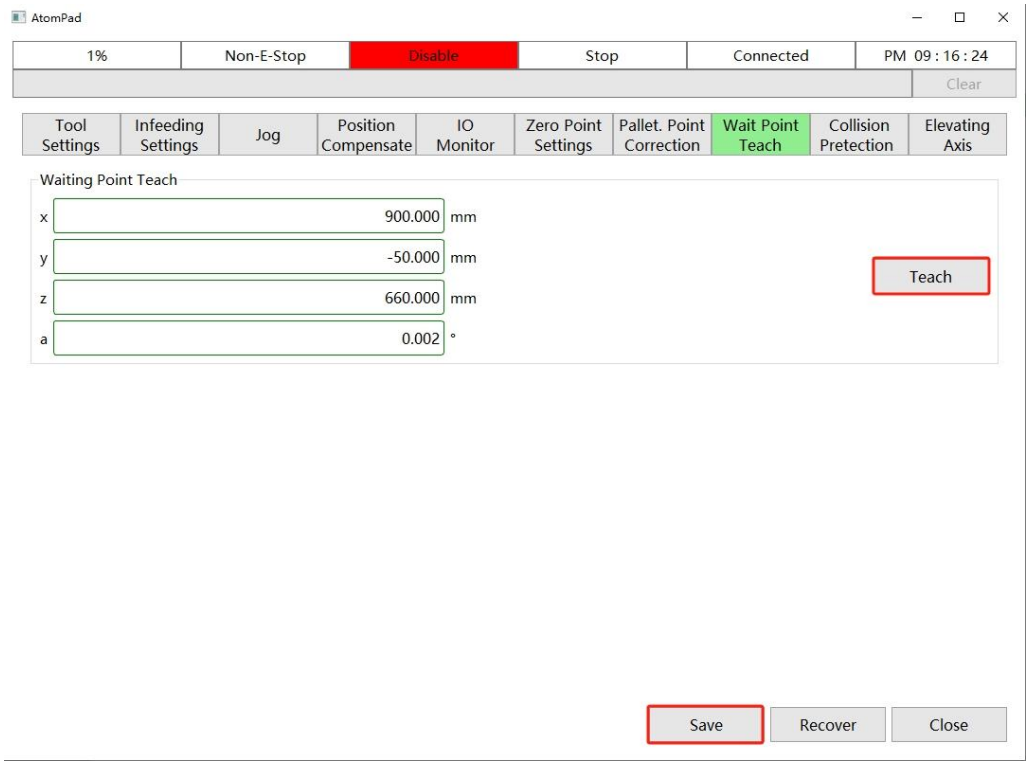



Figure 1.16 wait point teach1

## 1.9 Collision Pretection

On the Page of collision detection parameter setting, collision detection status: click the box at the back, √ appears, indicating that the collision detection function is enabled. Click the box again to disable the collision detection function after it is enabled.

Operation after alarm: (1) Emergency stop: emergency stop after collision. (2) Stop: Stop the procedure after the collision. (3) Pause: Pause the program after a collision. (4) Alarm: alarm after collision, do not stop the movement.

Advanced: Set collision parameters.

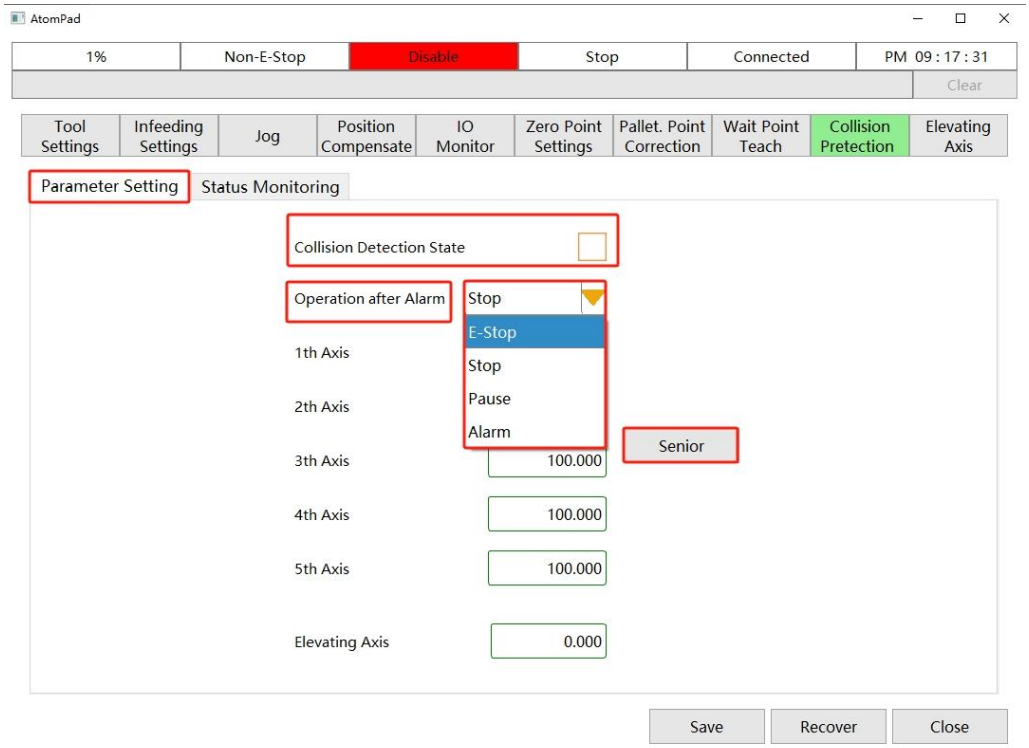



Figure 1.17 collision pretection 1-

**Note: Non-professionals are forbidden to modify the parameters related to collision detection, or they will suffer the consequences.**

### 1.9.1 Elevating Axis

If using a device with a elevating axis, you need to enable and set the lifting height. Do not set the zero of the elevating axis without special circumstances. Height setting: the factory will set a good range of 0~500, prohibited to change.

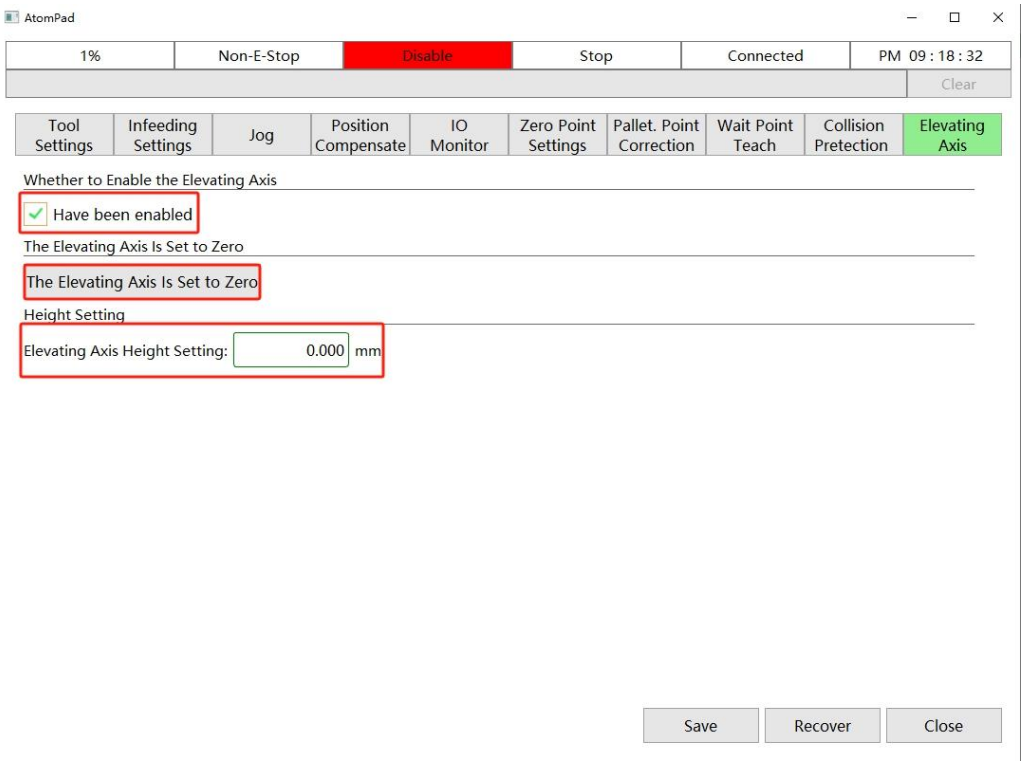



Figure 1.18 elevating axis1

## 1.10 Console buttons

Power button: the robot is powered up;

Cut-off button: the robot power off, before power off need to stop the robot and enable;

Lock release: manually release the lock of the robot shaft, and pay attention to prevent the robot from falling and being hurt.


Figure 1.19 operation button1

Start button: Start the robot;

Stop button: stop the robot, reset all operations after starting, palletizing clean up and start again;

Pause button: pause the robot and continue the current operation after starting;

Reset button: used to clear errors;

E-Stop button: to stop an emergency.


Figure 1.20 operation button1

Left palletizer button: When no pallet detection signal is configured, it is necessary to manually confirm that the left palletizer is in place and press the left stack button. The left light turns green and the left palletizer is started at the same time. Configure the pallet detection signal, detect the left pallet in place signal and press the left pallet button, the left light turns green at the same time to start the left palletizing.

Right palletizer button: When no pallet detection signal is configured, it is necessary to manually confirm that the right stack is in place and press the right stack button, and the right light turns green at the same time to start the right palletizing; When the tray detection signal is configured, the right palletizing tray is detected and the right palletizer button is pressed, and the right light turns green at the same time to start the right palletizer.

Status light: (1) Yellow light: ready state. (2) Green light: It is allowed to stack in this stack. (3) The green light flashes: the stack is being stacked. (4) Red light: the palletizing is complete.


Figure 1.21 operation button1

## 1.11 Switch of recipe

Click on the recipe selection to bring up the drop-down list, select the recipe you want to use, click OK, using the recipe status bar will display the selected recipe.

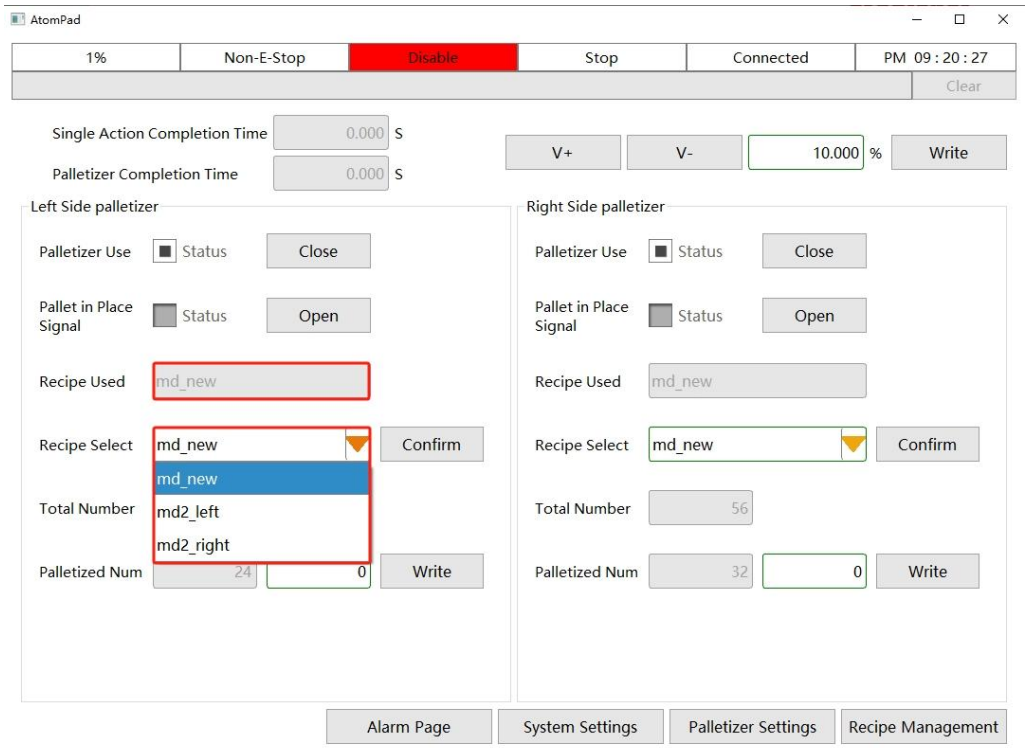



Figure 1.22 recipe switch1

## 1.12 Left palletizer and right palletizer

If the pallet has only the left side or only the right side, you can choose to mask one. Block a pallet by clicking Close. The box behind the palletizing use indicates whether the current palletizing is open for use.

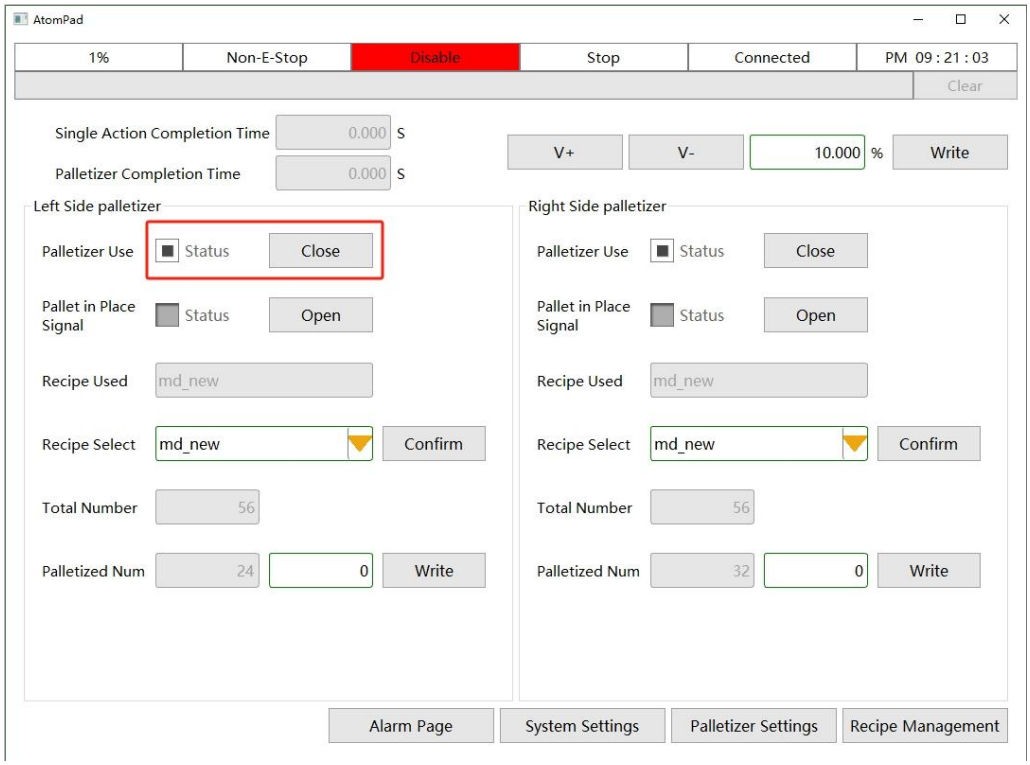



Figure 1.23 palletizer disabled1

## 1.13 Left and right pallets detected in place

If the hardware supports the tray detection function, enable the tray detection function. After opening, if the pallet is not in place, press the left or right pallet button on the operating counter by mistake, the status light will not turn green and cannot be palletized. After the pallet is in place, press the left or right pallet button on the counter, and the status light will turn green, indicating that palletizing can be done. It plays the role of palletizing when the left/right palletizing button on the operation counter is not in place by mistake. Click the open button on the operation interface to turn on the tray detection function. When the open status light on the operation interface indicates that the tray detection function has been turned on, the open button on the operation interface will become the close button. Click the close button on the operation interface to turn off the tray detection function. When the open status light is off, it means that the tray detection function is turned off.

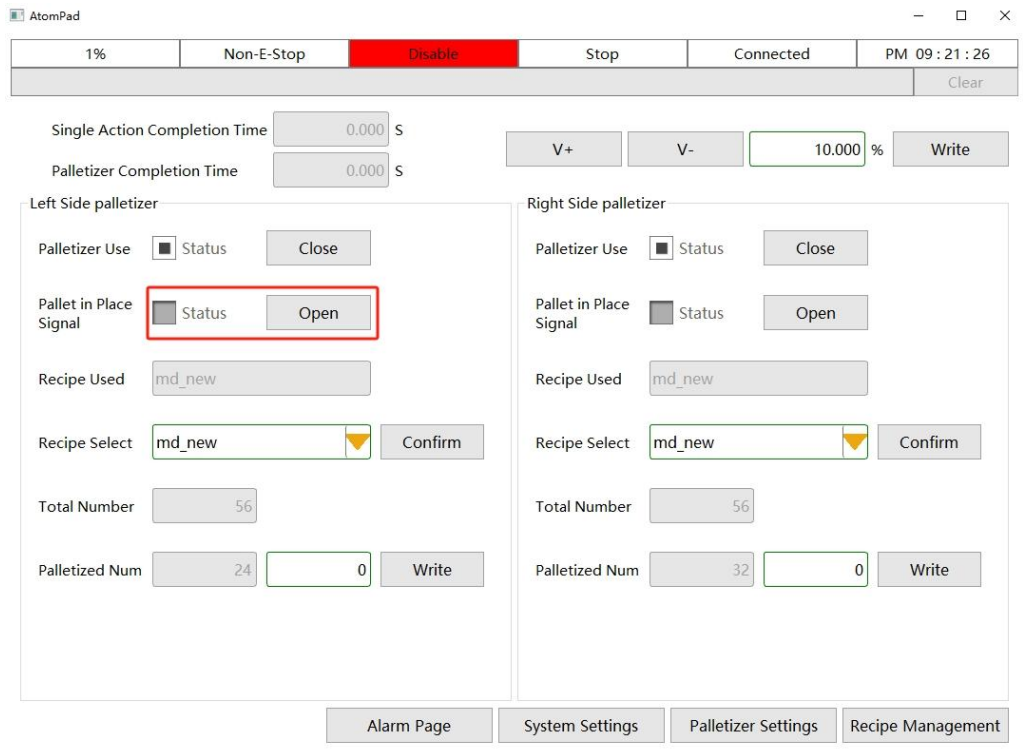



Figure 1.24 check the position signal1

## 1.14 Things to pay attention to after changing the tool

After changing the tool, you need to re-teach the grab point in the infeeding channel setting and re-teach the waiting point. It will not affect the recipe .

# Chapter2 New recipe operation flow

## 2.1 New palletizer with template method

Click to create a new palletizing window will appear "New palletizing" enter the palletizing name, select to create a new template and click OK to enter the edit recipe interface.

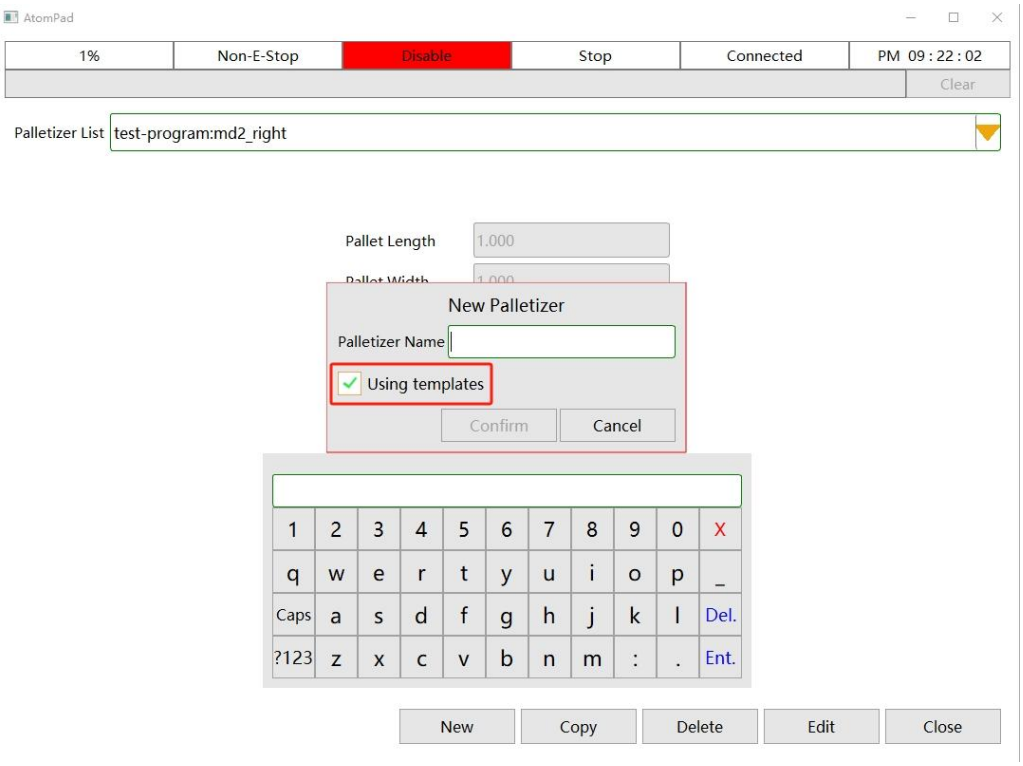



Figure 2.1 new recipe using template-

## 2.2 Recipe setting interface

Click OK to enter the recipe setting interface, complete the box size setting, pallet size setting, select template, pallet type adjustment, complete the use of template to create new palletizing

### 2.2.1 Box size

Set length in x direction, length in y direction, length in z direction and weight of the object according to the marks on the figure. The weight of the object affects the collision detection. Click Next after the setting is successful.

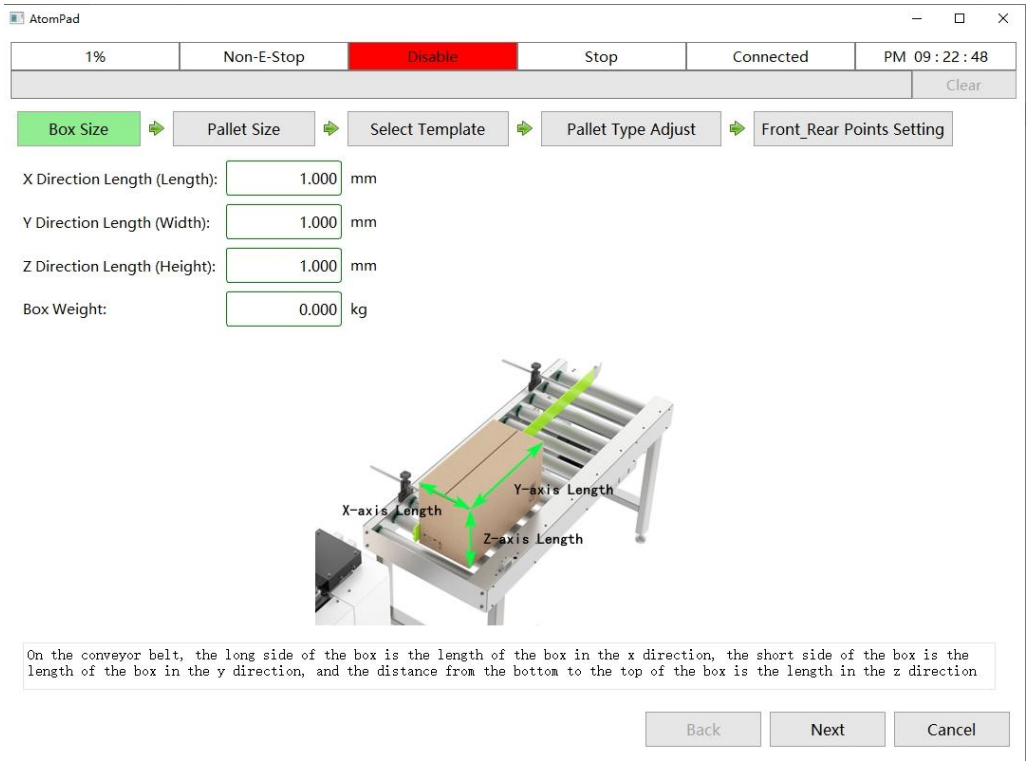



Figure 2.2 box size-

### 2.2.2 Palletizer tray size

Set the length of the pallet, the width of the pallet and the height of the pallet according to the logo on the drawing. Click Next after the successful setting.

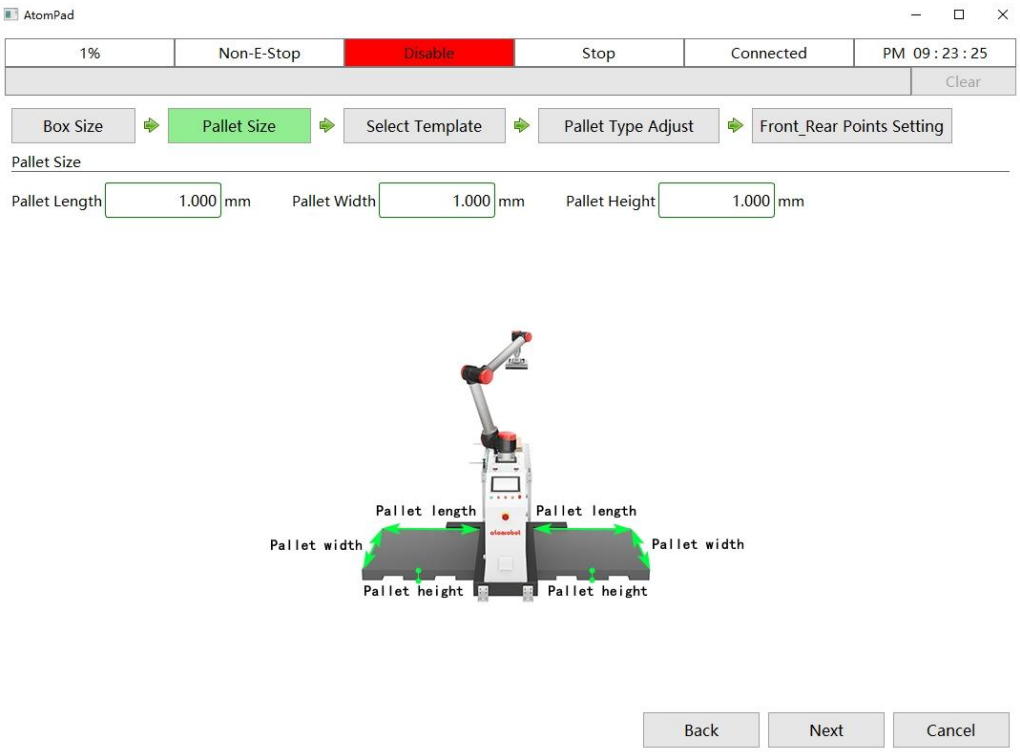



Figure 2.3 size of pallet

### 2.2.3 Select template

Provide 11 types of base stack type, according to the need to select the required stack type click next.

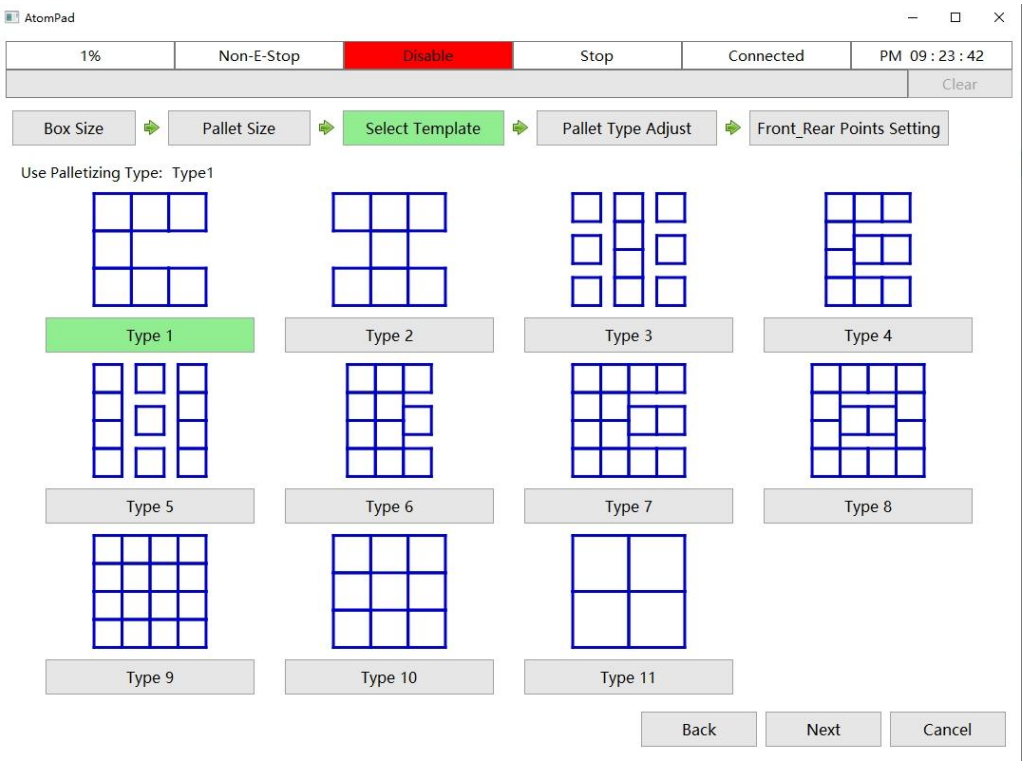



Figure 2.4 select template-

### 2.2.4 Pallet shape adjustment

If the parity layer is not the same check whether to start the parity layer, set the number of layers of palletizing in the number of layers column, and set the interval between the boxes in the spacing column. Restore: Restore the previous palletizing shape; Mirror: stack type left and right mirror image; Rotation: the stack type rotates by -90°. Adjust the stack shape according to the mirror rotation button. After the adjustment, click Save to create two recipes, one for the left side and one for the right side. The left recipe is suffixed left and the right recipe suffixes right.


Figure 2.5 pallet type adjustment-

# Chapter3 Single Channel infeeding operation process

## 3.1 Infeeding setting and position compensation

Palletizer type choice: Single channel . Set the left side of the channel : according to the position of the box in the infeeding channel select the lower left corner or the lower right corner, according to the direction of the channel select 0° or 90°. Teach the grab point according to the position instruction in 1.2.4.

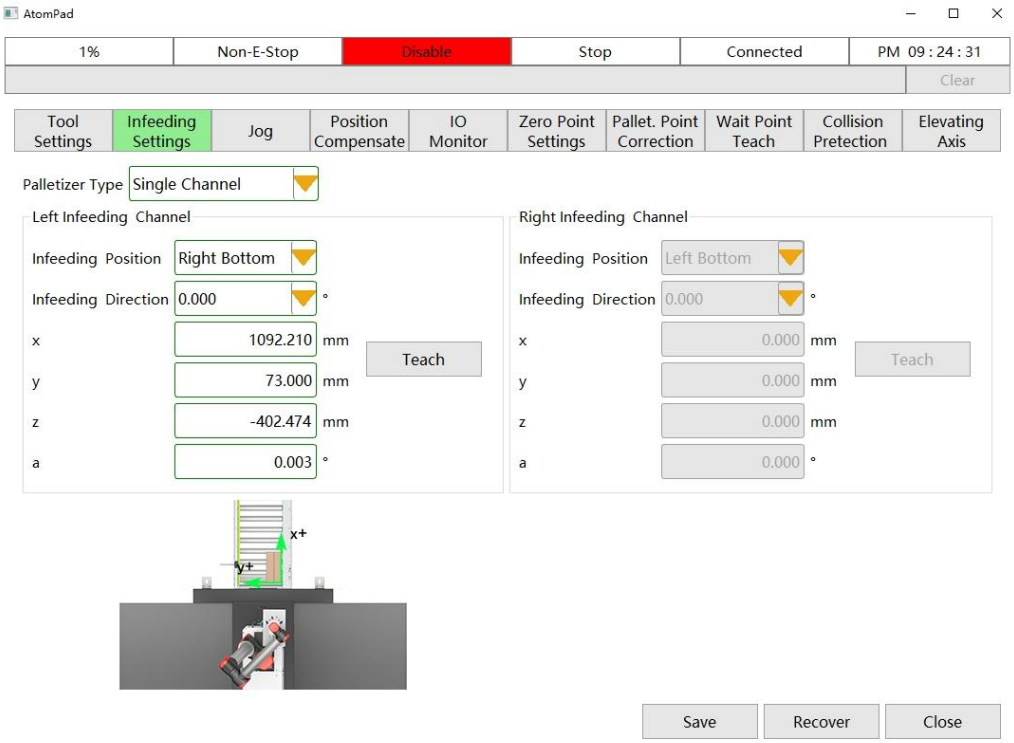



Figure 3.1 infeeding channel setting 1

Position compensation: Set the position compensation according to 1.4. Ensure safety, set a reasonable point to prevent collision.

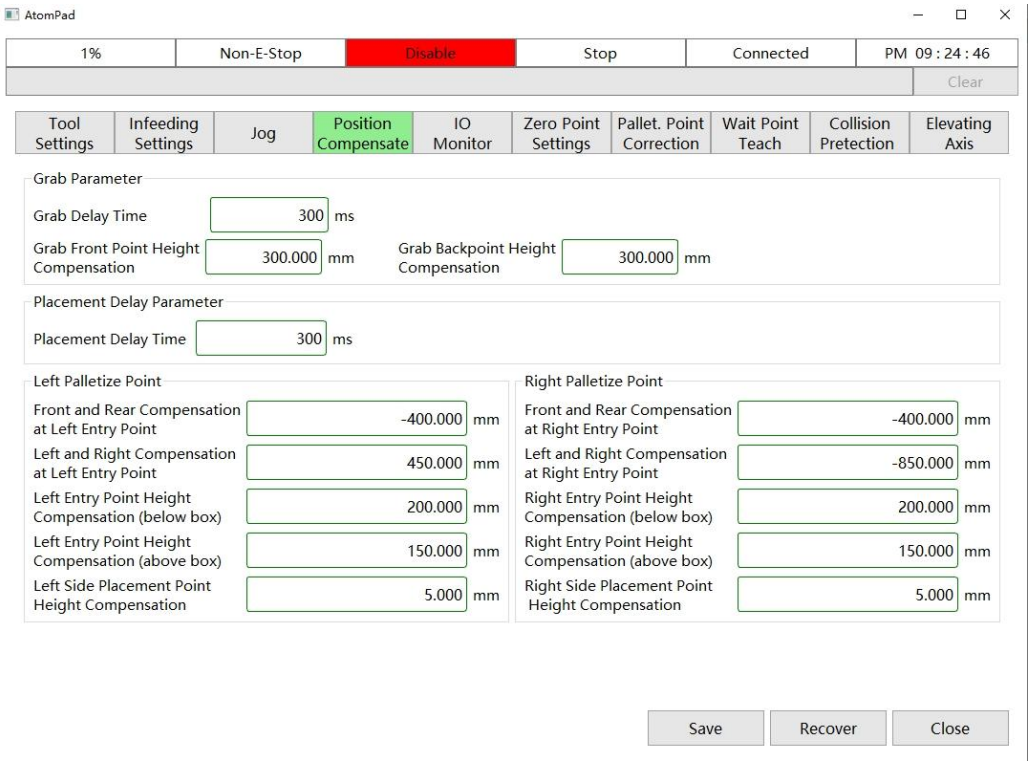



Figure 3.2 position compensation-

## 3.2 Recipe Management

Enter password m to enter the recipe management Page and set the pallet type

### 3.2.1 Palletizer list Page

Click Recipe management and enter password m to enter the Page of the recipe list. You can choose to create, copy and delete the recipe , or edit the existing palletizer recipe (after clicking edit, if prompted to select the editing mode, you can cancel the use of template editing. After editing in non-template form and saving, it may not be possible to edit in template form).

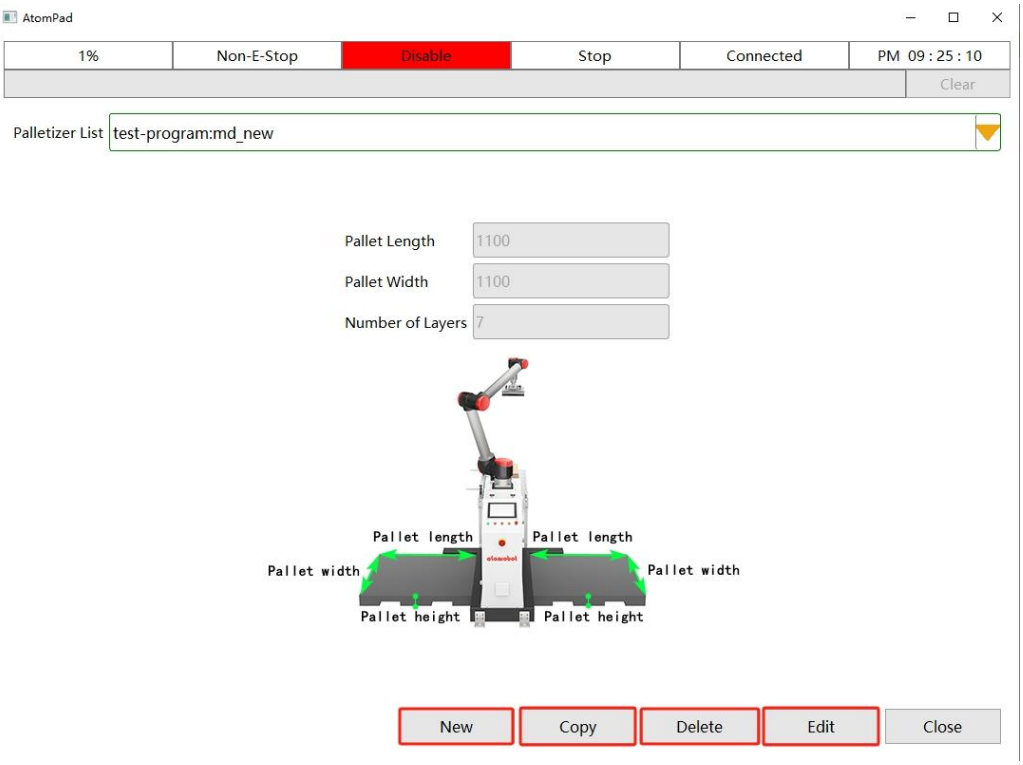



Figure 3.3 palletizer list

### 3.2.2 Pallet size

Set the length of the pallet, the width of the code tray and the height of the pallet according to the logo on the drawing. Click Next after the successful setting.

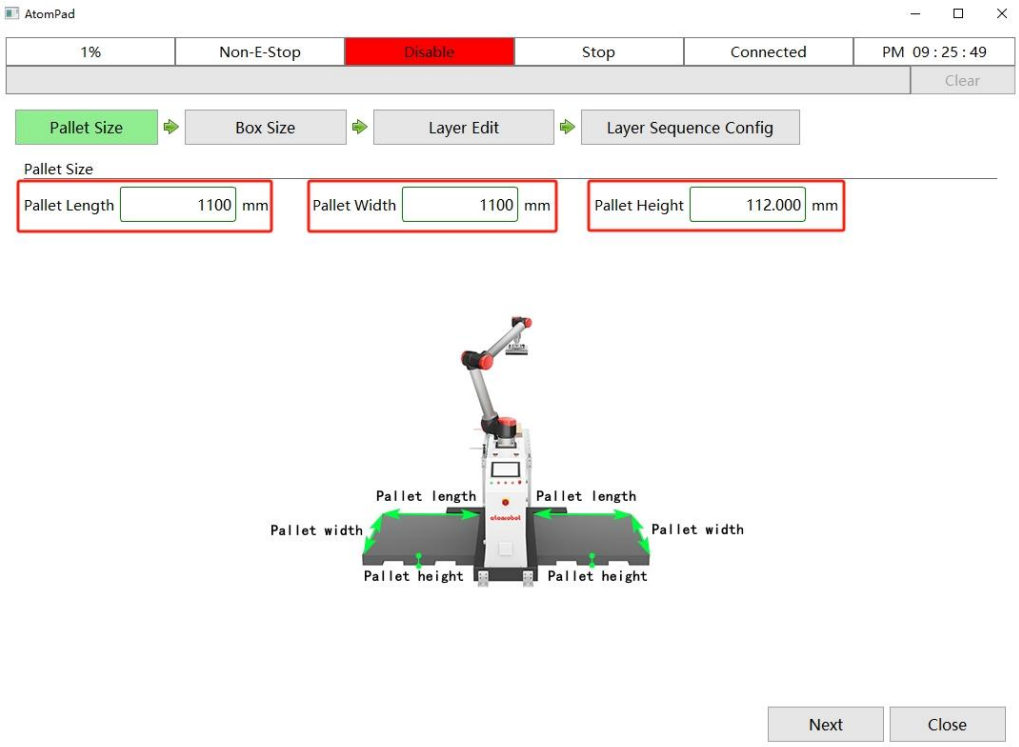



Figure 3.4 size of the pallet

### 3.2.3 Box size

Set length in x direction, length in y direction, length in z direction and weight of the object according to the marks on the figure. The weight of the object affects the collision detection. Click Next after the setting is successful.

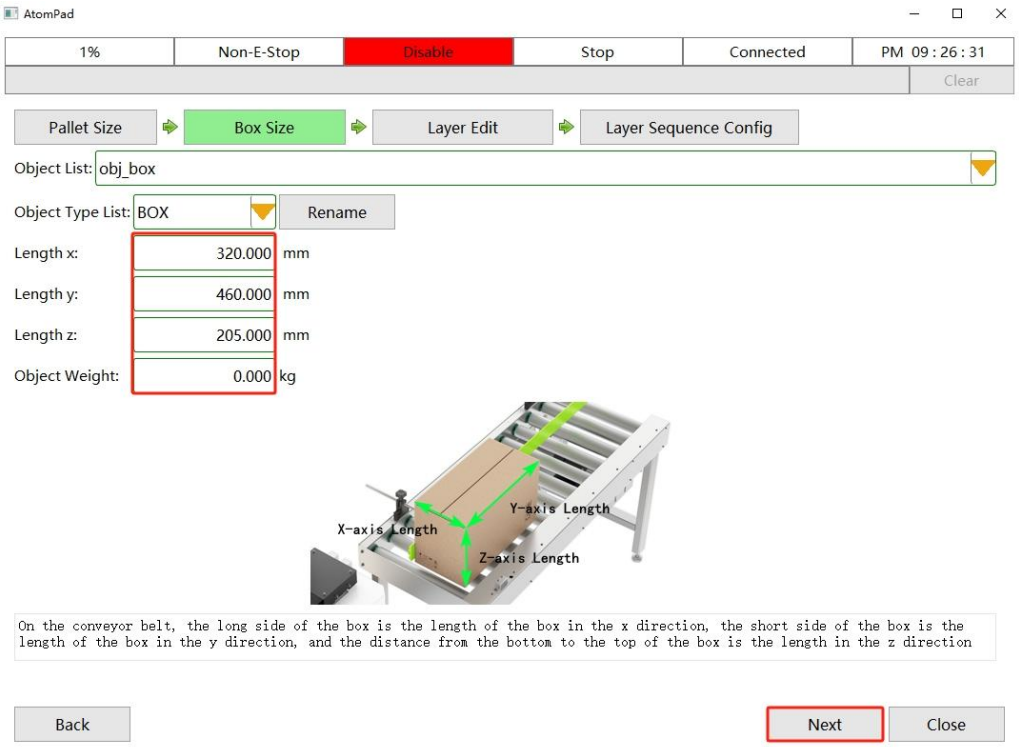



Figure 3.5 box size-

### 3.2.4 Layer edit

Can be quickly configured according to the quick layout of the layer type, after the configuration is successful, adjust a single object according to the required stack type, select the box for rotation operation, you can change the horizontal or vertical placement of the box. Drag operation, select the box Select drag, drag the box to a suitable position, and then click the arrow to fine-tune the position. Select Center when you have finished adjusting the position. The crib will be centered on the crib tray.

Switch: The serial number represents the order of the stacks. Select two boxes and click to swap their serial number will change. The stacking order will also change.

Center: After clicking Select All, click Center All boxes will be distributed in the middle of the stack.

Left Align: Select a few boxes and click Left Align. The boxes will be left aligned.

Right Alignment: Select a few boxes and click right alignment. The boxes will be right aligned.

Align on top: Select a few boxes and click Align on top. The boxes will be aligned on top.

Bottom Align: Select a few boxes and click Bottom align, the boxes will be aligned next to each other.

Horizontal alignment: Select several boxes and click Horizontal Alignment, which will align according to the x of the center of gravity of the box.

Vertical alignment: Select a few boxes and click vertical alignment, which will align according to the y of the box center of gravity.

Horizontal distribution: The boxes are evenly distributed. When 3 or more boxes are selected, the positions of the leftmost and rightmost (or topmost and bottommost) boxes remain unchanged, and the positions of other boxes are adjusted adaptively to make the distance between the selected boxes equal.

Vertical distribution: The boxes are evenly distributed. When 3 or more boxes are selected, the positions of the leftmost and rightmost (or topmost and bottommost) boxes are unchanged, and the positions of other boxes are adjusted adaptively to make the distance between the selected boxes equal.

Horizontal flip: The graph is flipped left and right.

Vertical flip: The figure flips up and down.

Front point after point: The front point after point is properly configured to prevent scratching the box that has been placed.

New layer: set the second type of stack, the first type and the second type of stack often mirror the relationship. Just choose to copy the current layer when creating a new layer, and then choose horizontal flip or vertical flip.

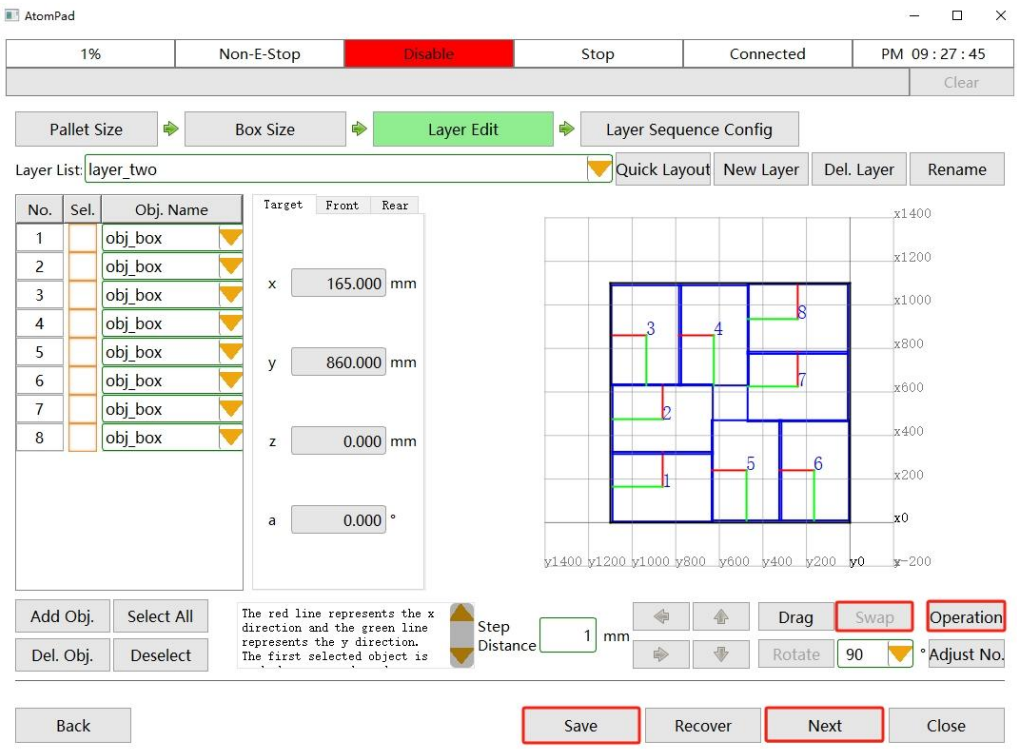


Figure 3.6 layer edit

### 3.2.5 Sequence config

Click Add Layer and set the number of layers you want to add and the box height. Complete the configuration of the layer sequence.

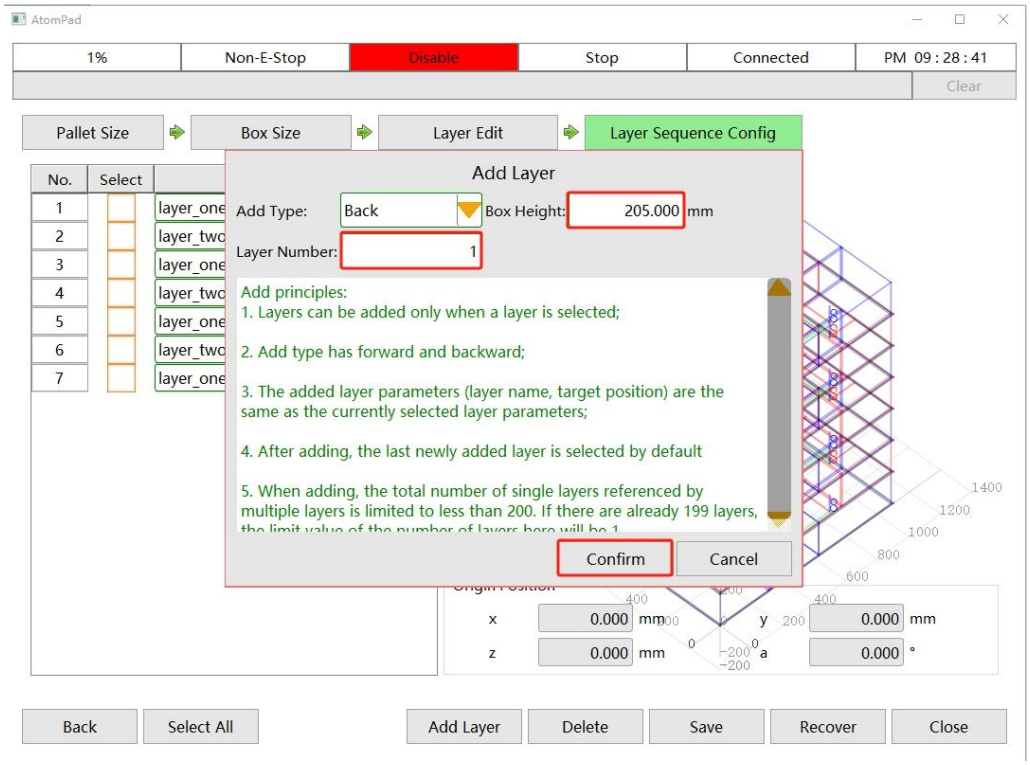



Figure 3.7 sequence config

Edit the layer, select the drop-down list, the two types of layer set in 2.2.4 will appear, select the layer to switch and click Save.

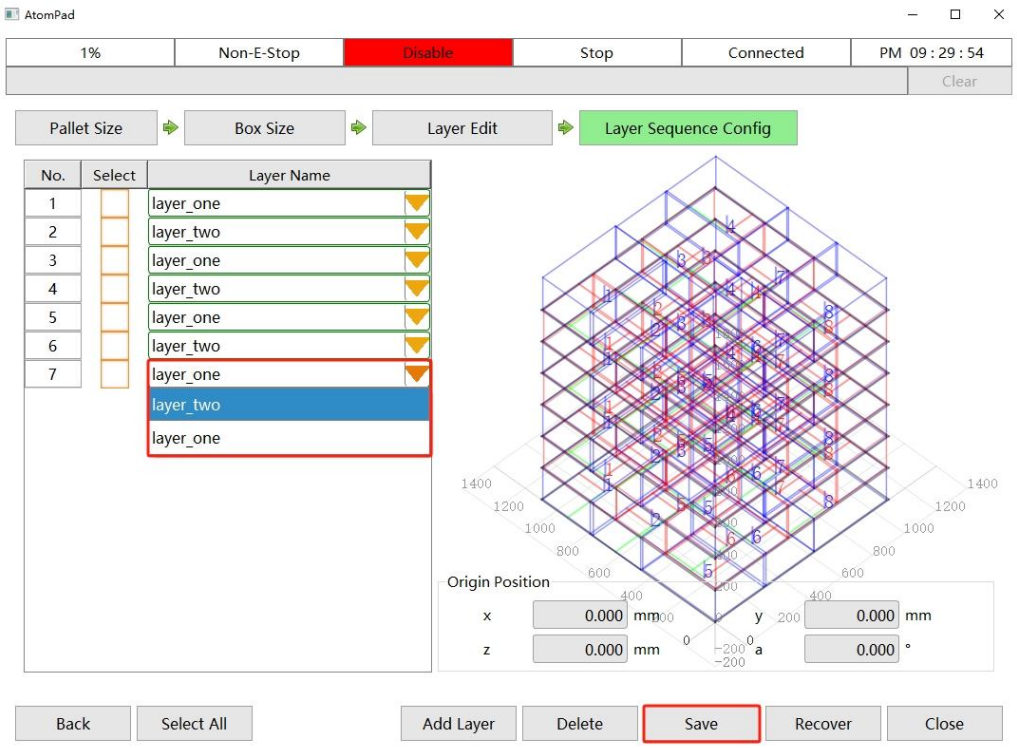



Figure 3.8 layer sequence config

## 3.3 Switch recipe

Click on the recipe selection and the drop-down list will appear. Select the recipe you just edited and click OK. When using the recipe, the selected recipe will be displayed to confirm whether it is the one you need.

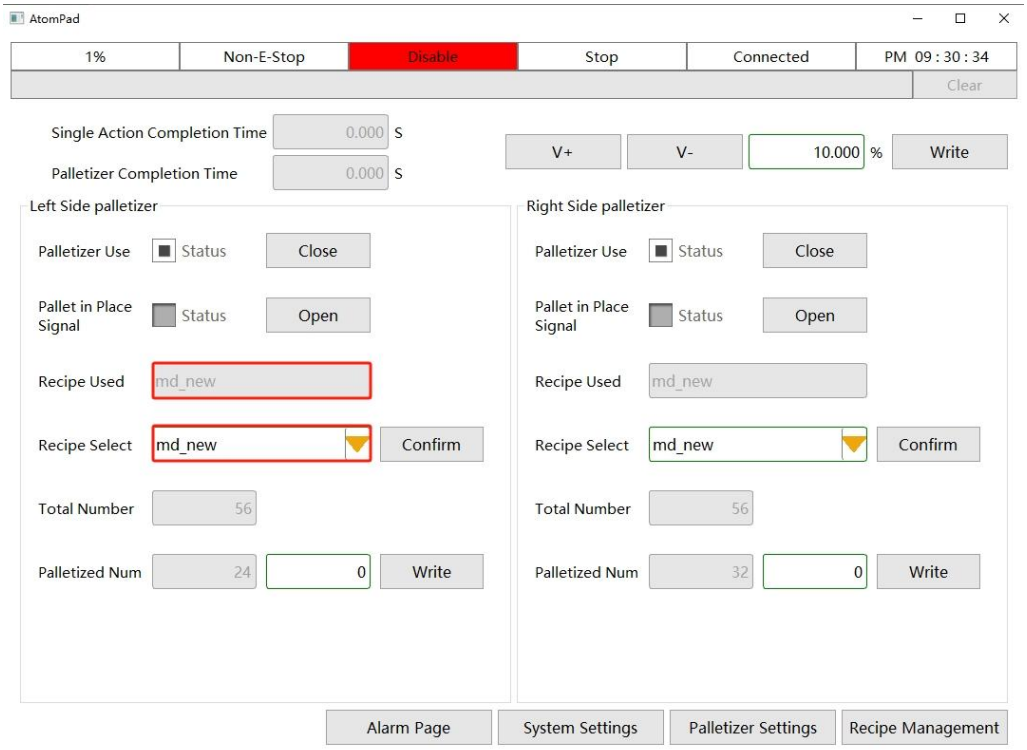



Figure 3.9 recipe switch

## 3.4 Test Run

First the speed is reduced first, click the start button, if the left stack tray is in place press the left palletizer button, the light turns green indicating that placement is allowed, and the light flashes indicating that placement is in progress. If the right stack tray is in place press the right palletizer button, the light turns green indicating that placement is allowed, and the light flashes indicating that placement is in progress. After the box is in place, start to grab, slowly confirm the setting can be accelerated to allow.

# Chapter4 Dual channel infeeding using the same box operation process

## 4.1 Infeeding channel setting and position compensation

Palletizer type choice: Dual channel . Set the left side of the channel : according to the position of the box in the infeeding channel select the lower left corner or the lower right corner, according to the direction of the channel select 0° or 90°. Set the right infeeding channel : select the lower left or lower right corner according to the position of the box in the infeeding channel , select 0° or 90° according to the direction of the infeeding channel , and teach the grab point according to the position instruction in 1.2.4.

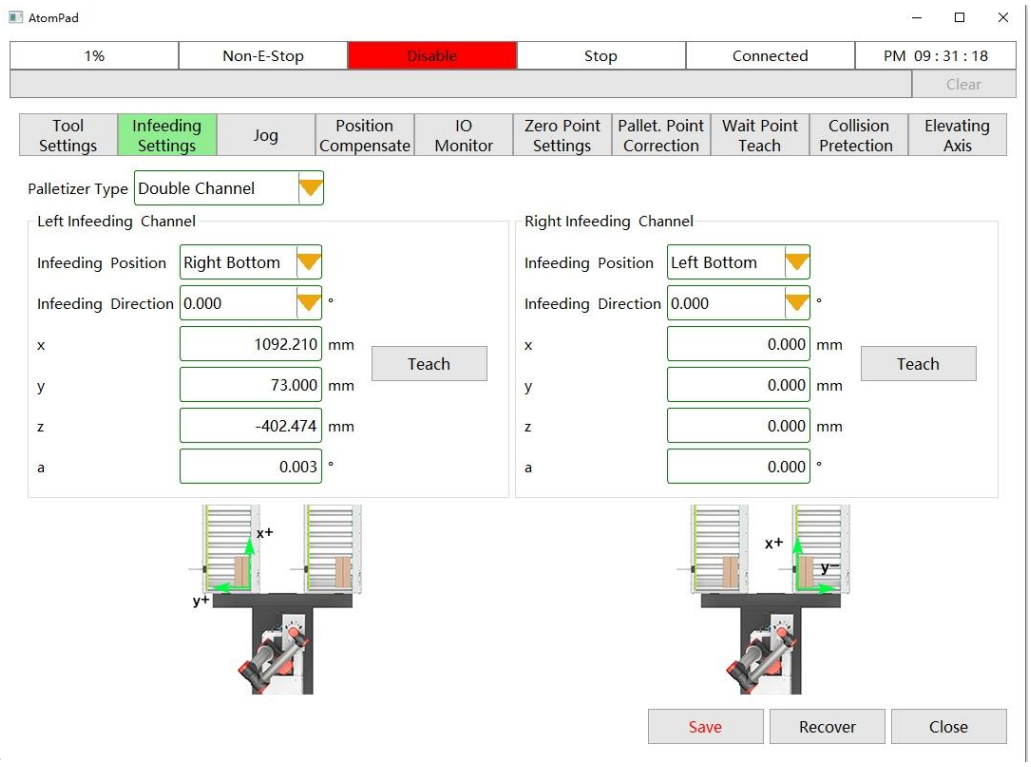



Figure 4.1 infeeding channel setting1

Position compensation: Set the position compensation according to 1.4. Ensure safety, set a reasonable point to prevent collision.

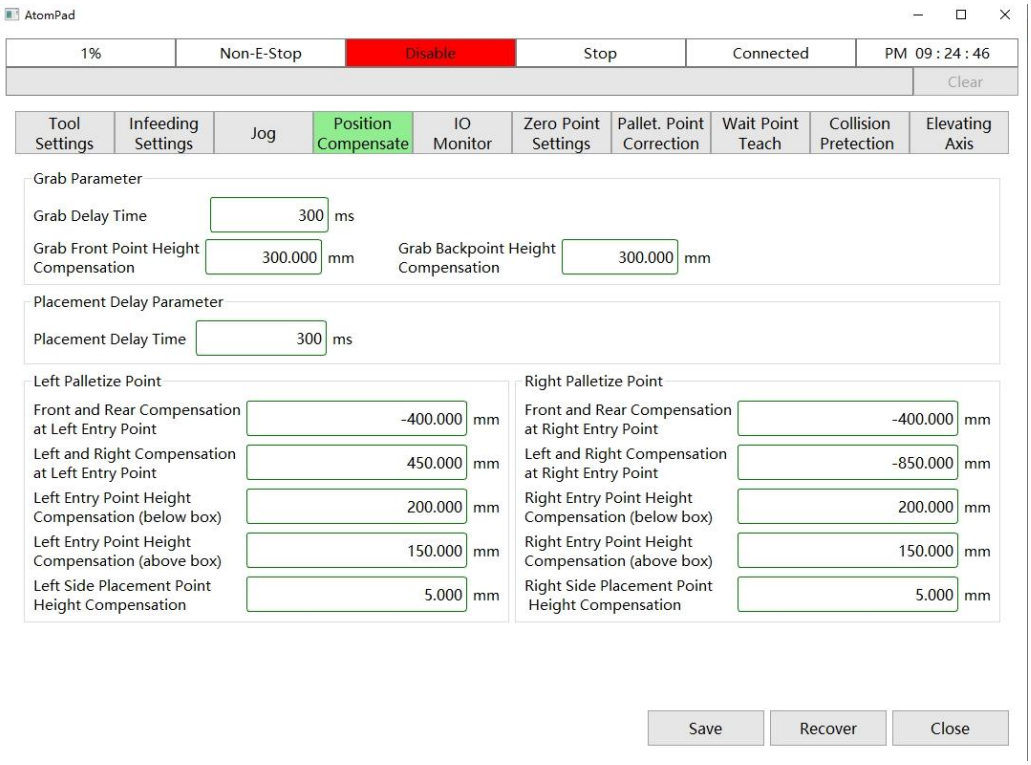



Figure 4.2 position compensation-

## 4.2 Recipe Management

Enter the password to enter the recipe management interface, and set the pallet.

### 4.2.1 Palletizer list interface

Click recipe management and enter password m to enter the recipe list interface. You can choose to create a new palletizer recipe , copy the recipe , delete the recipe , or edit the existing palletizing arrangement (if you are prompted to confirm the editing mode after clicking edit, cancel the template form and enter the layer sequence editing interface).

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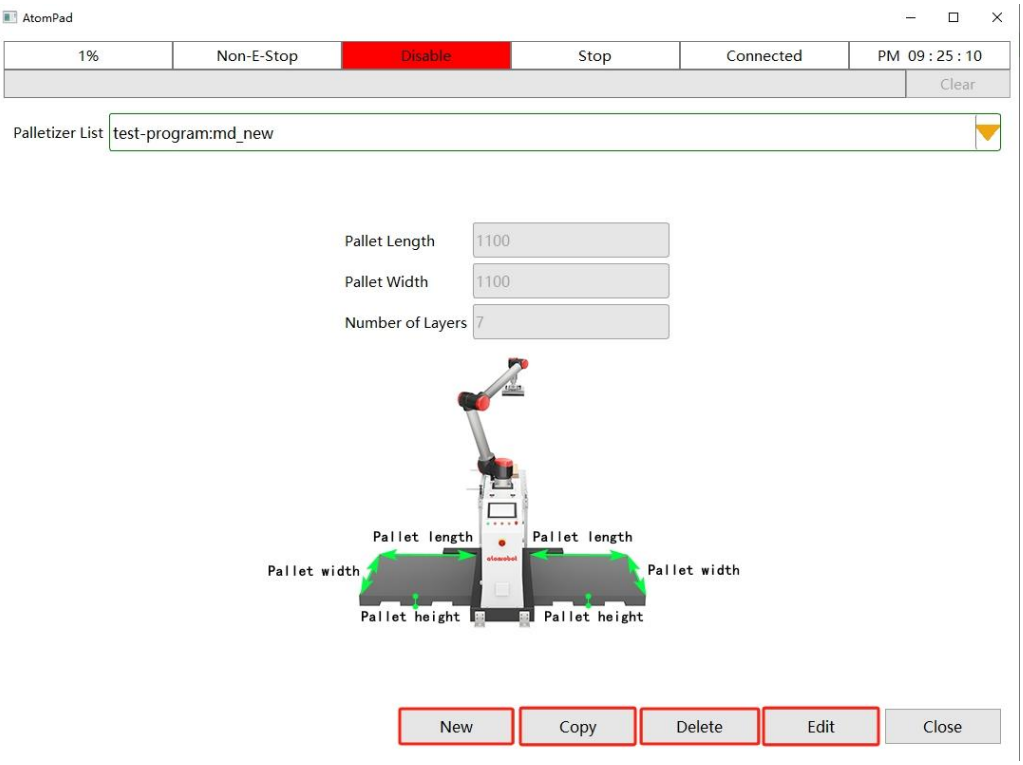


Figure 4.3 palletizer list-

## 4.2.2 Pallet size

Set the length of the code disk, the width of the code disk, and the height of the code disk according to the mark on the figure. Click Next after the setting is successful.

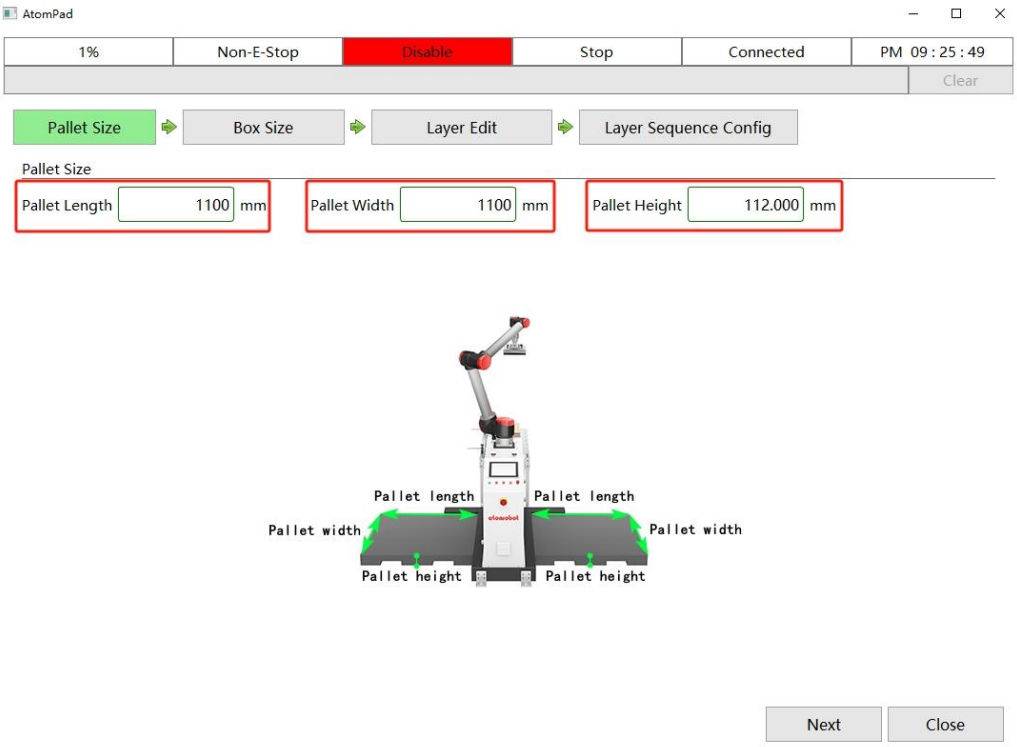


Figure 4.4 size of pallet

### 4.2.3 Box size

Set length in x direction, length in y direction, length in z direction and weight of the object according to the marks on the figure. The weight of the object affects the collision detection. Click Next after the setting is successful.

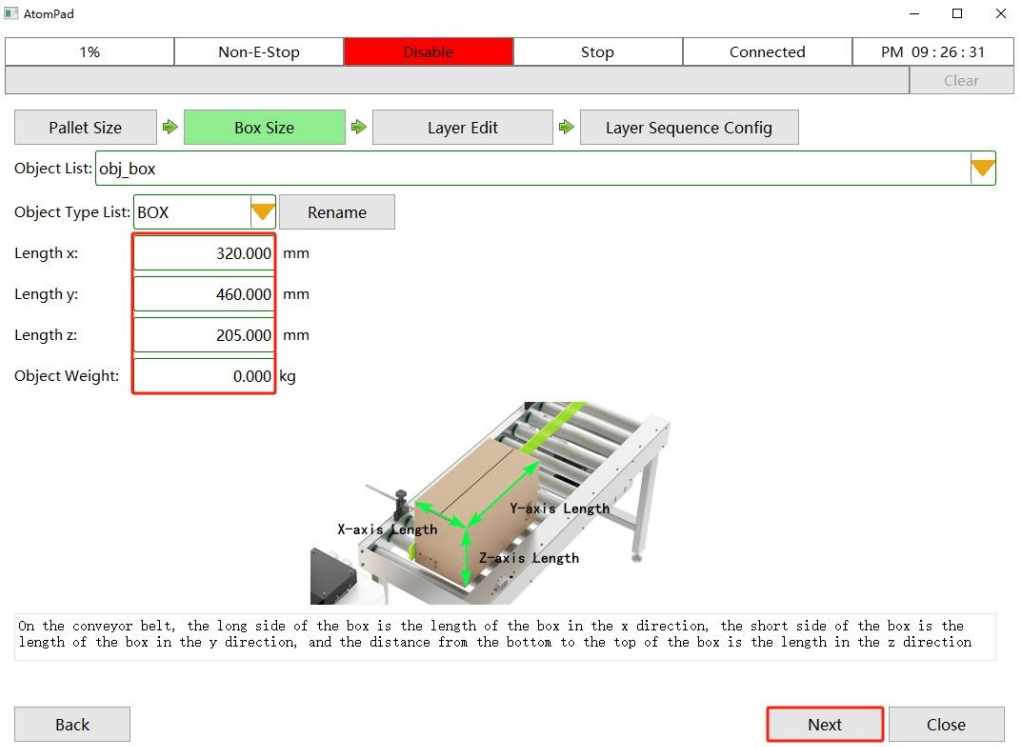


Figure 4.5 box size-

### 4.2.4 Layer edit

You can quickly configure the layer according to the quick layout, and adjust a single object according to the required stack type after the configuration is successful. Select the box for rotation operation, and change the horizontal or vertical placement of the box. Drag operation, select the box Select drag, drag the box to a suitable position, select fine adjustment according to the arrow. Select Center when the position adjustment is complete. The crib will be centered on the crib tray.

Swap: Select two boxes and click Swap their serial numbers will change. The palletizing order will also change. The serial number represents the stacking order.

Center: After clicking Select All, click Center All boxes will be distributed in the middle of the stack.

Left Align: Select a few boxes and click Left Align. The boxes will be left aligned.

Right Alignment: Select a few boxes and click right alignment. The boxes will be right aligned.

Align on top: Select a few boxes and click Align on top. The boxes will be aligned on top.

Bottom Align: Select a few boxes and click Bottom align, the boxes will be aligned next to each other.

Horizontal alignment: Select a few boxes click horizontal alignment, will be aligned according to the box center of gravity point x.

Vertical alignment: Select a few boxes and click vertical alignment, which will align according to the y of the box center of gravity.

Horizontal distribution: The boxes are evenly distributed. When 3 or more boxes are selected, the positions of the leftmost and rightmost (or topmost and bottommost) boxes remain unchanged, and the positions of other boxes are adjusted adaptively to make the distance between the selected boxes equal.

Vertical distribution: The boxes are evenly distributed. When 3 or more boxes are selected, the positions of the leftmost and rightmost (or topmost and bottommost) boxes remain unchanged, and the positions of other boxes are adjusted adaptively so that the distance between the selected boxes is equal.

Horizontal flip: The graph is flipped left and right.

Vertical flip: The figure flips up and down.

Front point after point: The front point after point is properly configured to prevent scratching the box that has been placed.

New layer: set the second type of stack, the first type and the second type of stack often mirror the relationship. Just choose to copy the current layer when creating a new layer, and then choose horizontal flip or vertical flip.

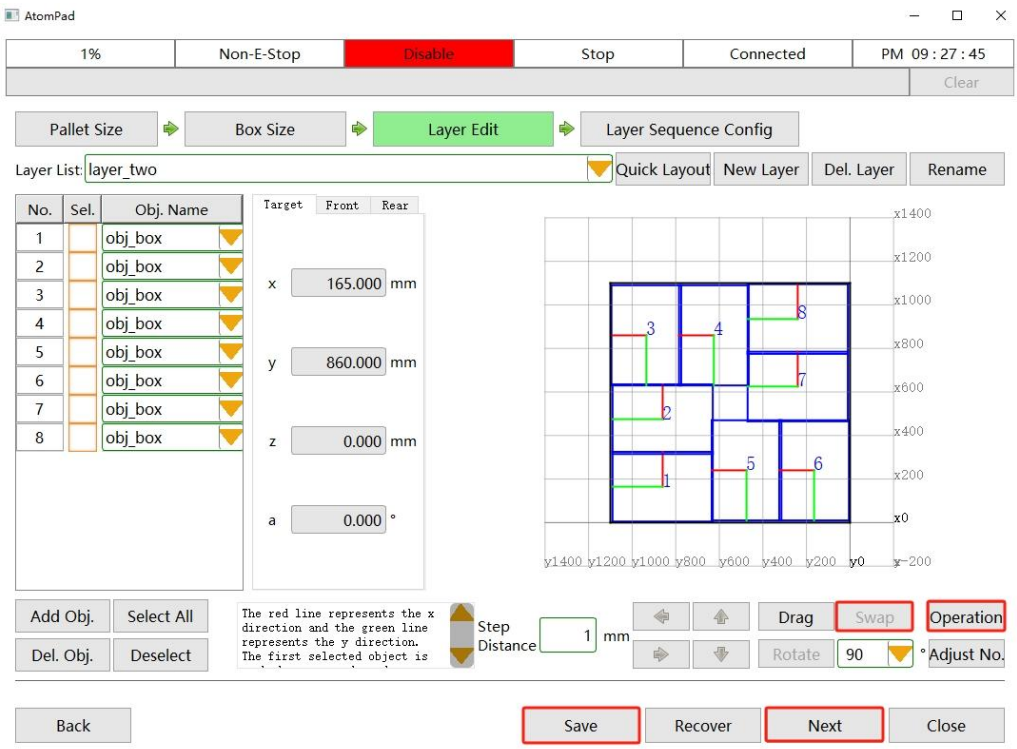

Figure 4.6 layer type edit

### 4.2.5 Layer sequence edit

Click Add Layer and set the number of layers you want to add and the box height. Complete the configuration of the layer sequence.

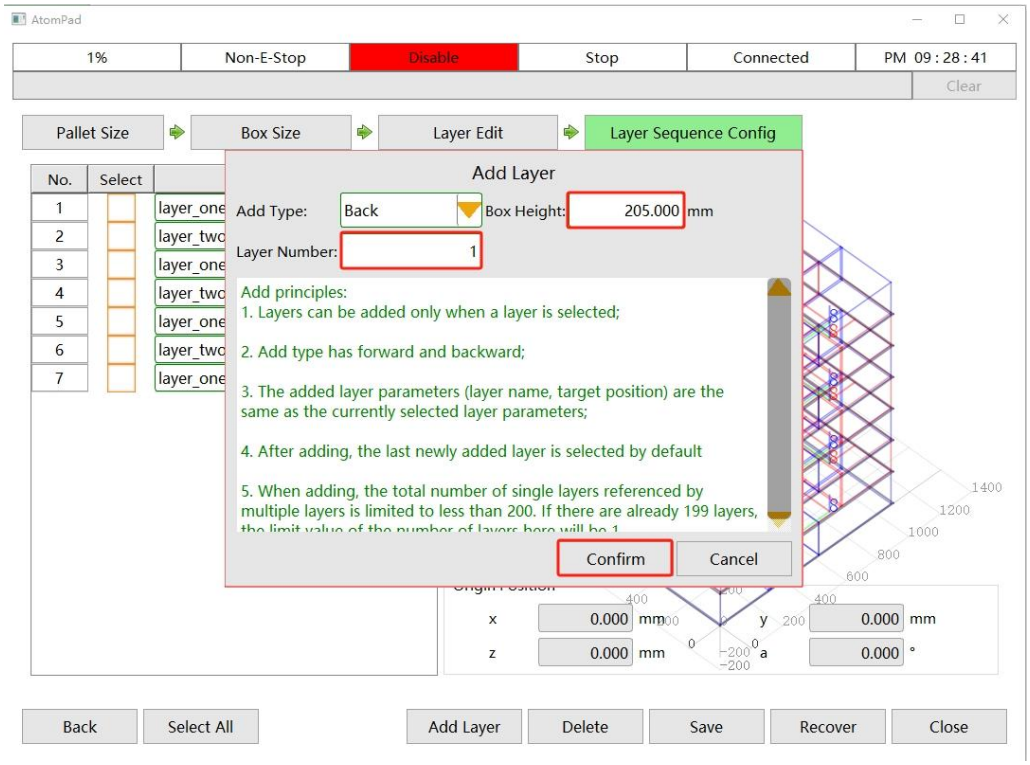


Figure 4.7 layer sequence edit

Edit layers, select the drop-down list, the two layers set in the figure will appear, select the layer to switch and click Save.

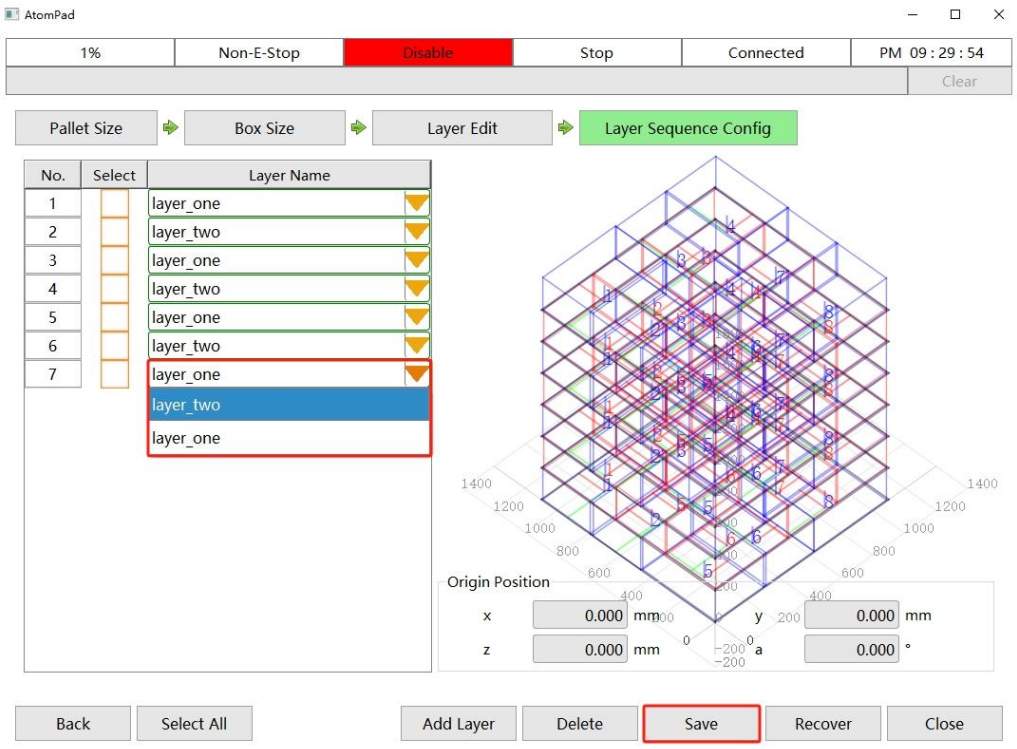


Figure 4.8 layer sequence edit

## 4.3 Switch recipe

Click on the recipe selection and the drop-down list will appear. Select the recipe you just edited and click Confirm. When using the recipe , the selected recipe will be displayed to confirm whether it is the one you need.

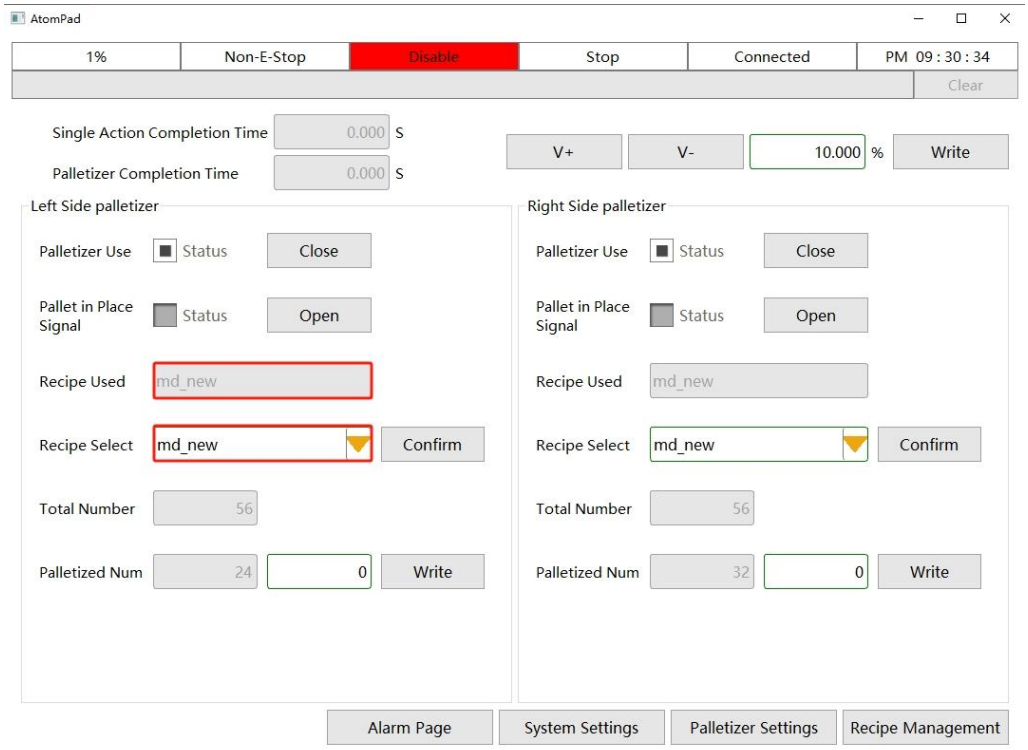


Figure 4.9 recipe switch

## 4.4 Test run

Reduce the speed at first, and click the start button. If the left palletizer is ready, press the left stack button, the light turns green indicating that placement is allowed, and the light flashes indicating that placement is in progress. If the right palletizer is is ready, press the right palletizer button, the light turns green indicating that placement is allowed, and the light flashes indicating that placement is in progress. After the box is in place, robot starting to grab, slowly at the beginning, confirm everything is in good and the setting can be accelerated.

# Chapter5 Dual channels of infeeding using different box operation process

## 5.1 Infeeding channel setting and position compensation

Palletizer type choice: Dual channel . Set the left side of the channel : according to the position of the box in the infeeding channel select the lower left corner or the lower right corner, according to the direction of the channel select 0° or 90°. Set the right infeeding channel : select the lower left or lower right corner according to the position of the box in the infeeding channel , select 0° or 90° according to the direction of the infeeding channel , and teach the grab point according to the position instruction in 1.2.4.

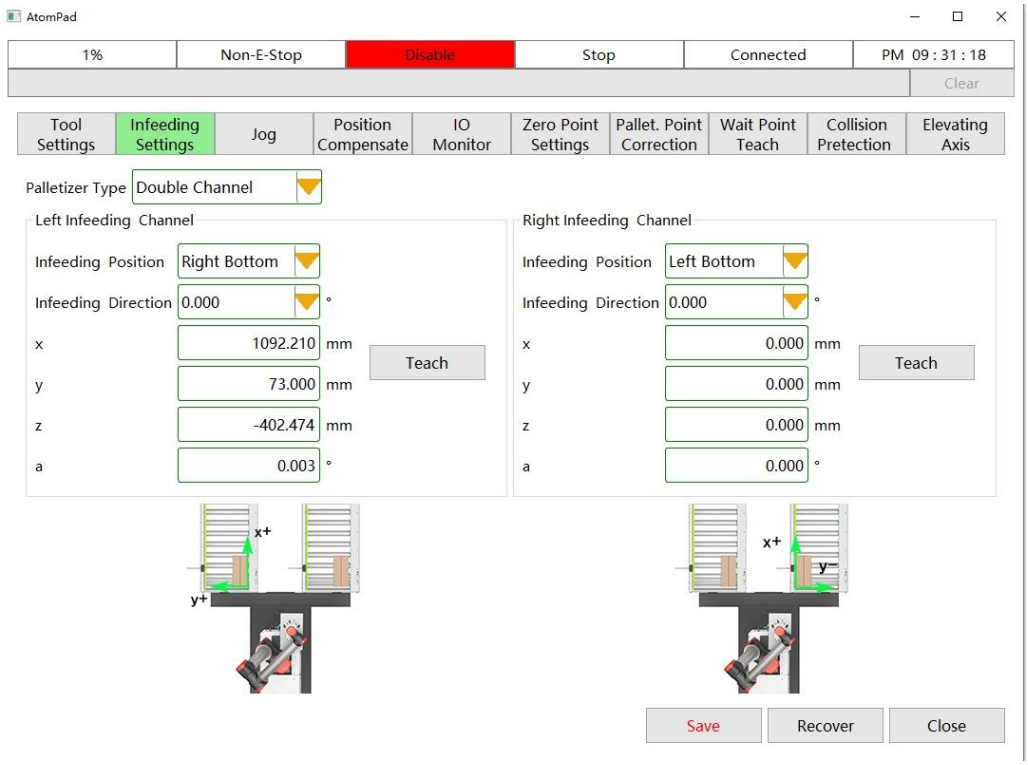


Figure 5.1 infeeding channel setting1

Position compensation: Set the position compensation according to 1.4. Ensure safety, set a reasonable point to prevent collision.

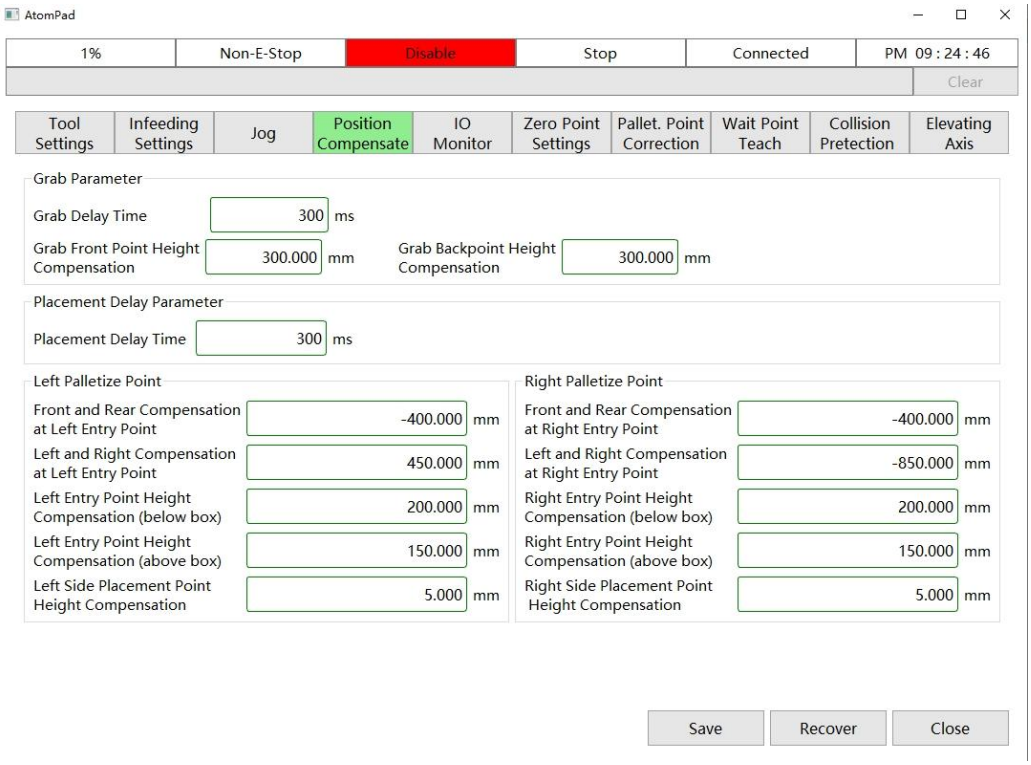


Figure 5.2 position compensation-

## 5.2 Recipe Management

Enter the password to enter the recipe management interface, set the palletizer, need to edit two kinds of recipe , one according to the size of the left channel box to edit, one to the size of the right channel box to edit.

### 5.2.1 Palletizer list interface

Click recipe management and enter password m to enter the recipe list interface, you can choose to create a new palletizer recipe , you can also edit the existing palletizer recipe (click edit, if prompted to select editing mode, you can cancel the use of template editing, edit in non-template form after saving, may cause no longer use of template editing).

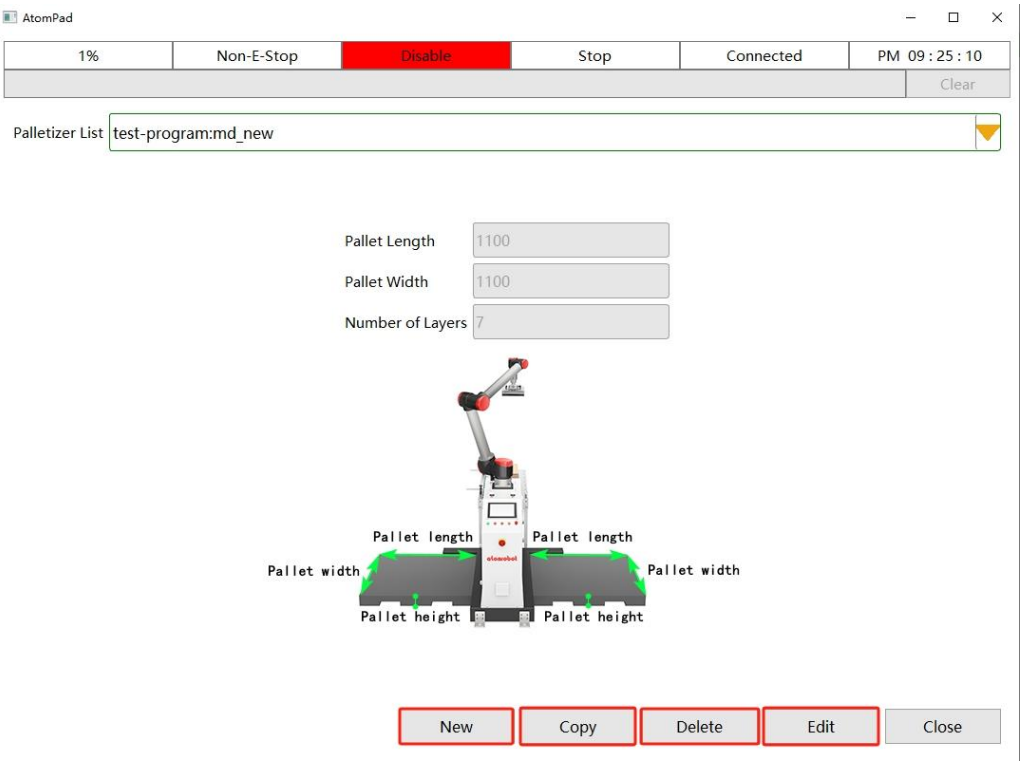


Figure 5.3 palletizer list

## 5.2.2 Pallet size

Set the length of the code tray, the width of the code tray and the height of the code tray according to the logo on the drawing. Click Next after the successful setting.

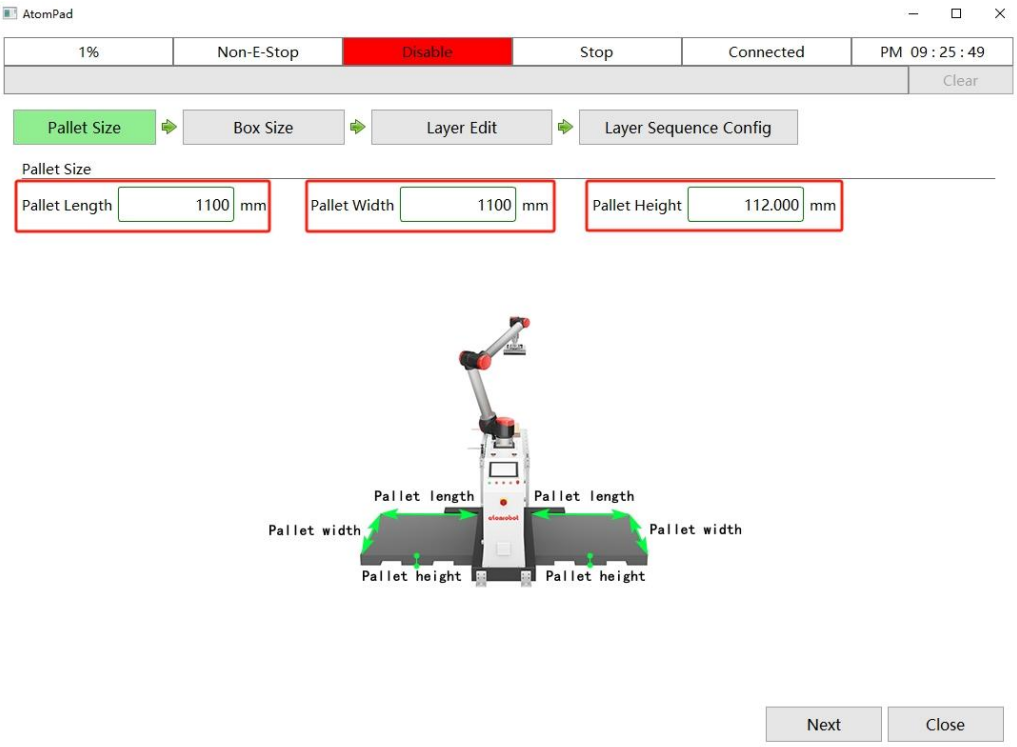


Figure 5.4 size of the pallet

### 5.2.3 Box size

Set length in x direction, length in y direction, length in z direction and weight of the object according to the marks on the figure. The weight of the object affects the collision detection. Click Next after the setting is successful

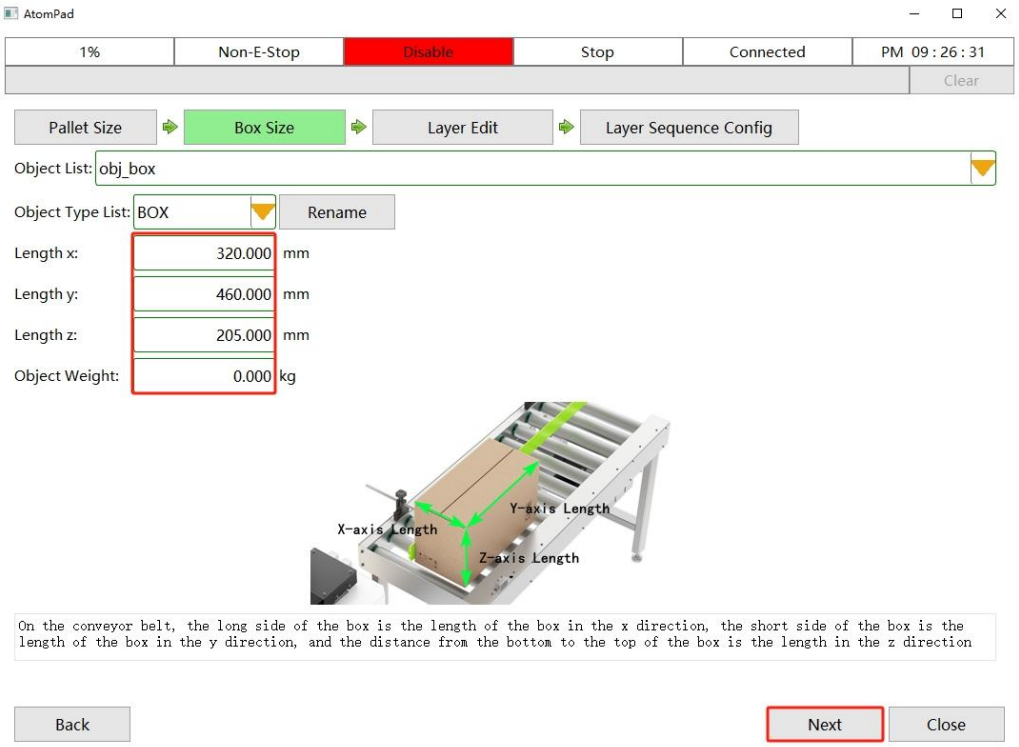


Figure 5.5 box size-

### 5.2.4 Layer edit

You can quickly configure the layer according to the quick layout, and adjust a single object according to the required stack type after the configuration is successful. Select the box for rotation operation, and change the horizontal or vertical placement of the box. Drag operation, select the box Select drag, drag the box to a suitable position, and then click the arrow to select fine adjustment. Select Center when the position adjustment is complete. The crib will be centered on the crib tray.

Swap: Select two boxes and click Swap their serial numbers will change. The palletizing order will also change. The serial number represents the stacking order.

Align Center: After clicking Select All, click Center All boxes will be distributed in the middle of the stack.

Align Left: Select a few boxes and click Left Align. The boxes will be left aligned.

ALign Right: Select a few boxes and click right alignment. The boxes will be right aligned.

Align Top: Select a few boxes and click Align on top. The boxes will be aligned on top.

Align Bottom: Select a few boxes and click Bottom align, the boxes will be aligned next to each other.

Align Horizontal: Select a few boxes click horizontal alignment, will be aligned according to the box center of gravity point x.

Align Vertical: Select a few boxes and click vertical alignment, which will align according to the y of the box center of gravity.

Distribute Horizontally: The boxes are evenly distributed. When 3 or more boxes are selected, the positions of the leftmost and rightmost (or topmost and bottommost) boxes remain unchanged, and the positions of other boxes are adjusted adaptively to make the distance between the selected boxes equal.

Distribute Vertically: The boxes are evenly distributed. When 3 or more boxes are selected, the positions of the leftmost and rightmost (or topmost and bottommost) boxes are unchanged, and the positions of other boxes are adjusted adaptively to make the distance between the selected boxes equal.

Flip Horizontal: The graph is flipped left and right.

Flip Vertical: The figure flips up and down.

Front point after point: The front point after point is properly configured to prevent scratching the box that has been placed.

New layer: Set the second type of stack, the first type of stack and the second type of stack often mirror relationship. Just choose to copy the current layer when creating a new layer, and then choose horizontal flip or vertical flip.

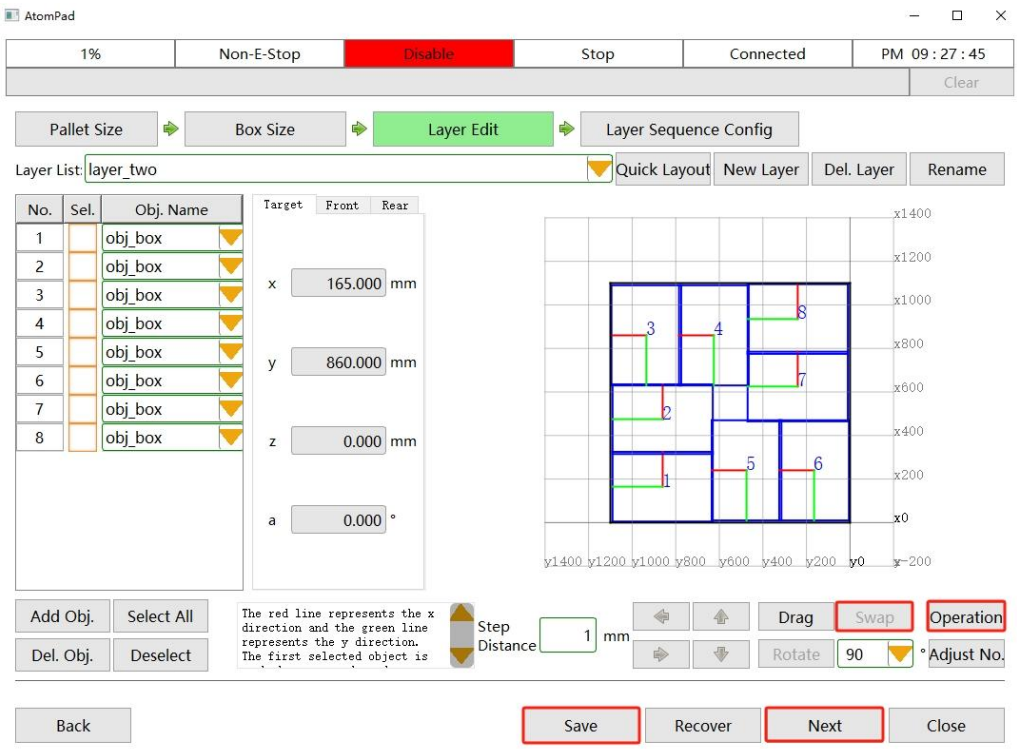

Figure 5.6 layer type edit

## 5.2.5 Layer sequence edit

Click Add Layer and set the number of layers you want to add and the box height. Complete the configuration of the layer sequence.

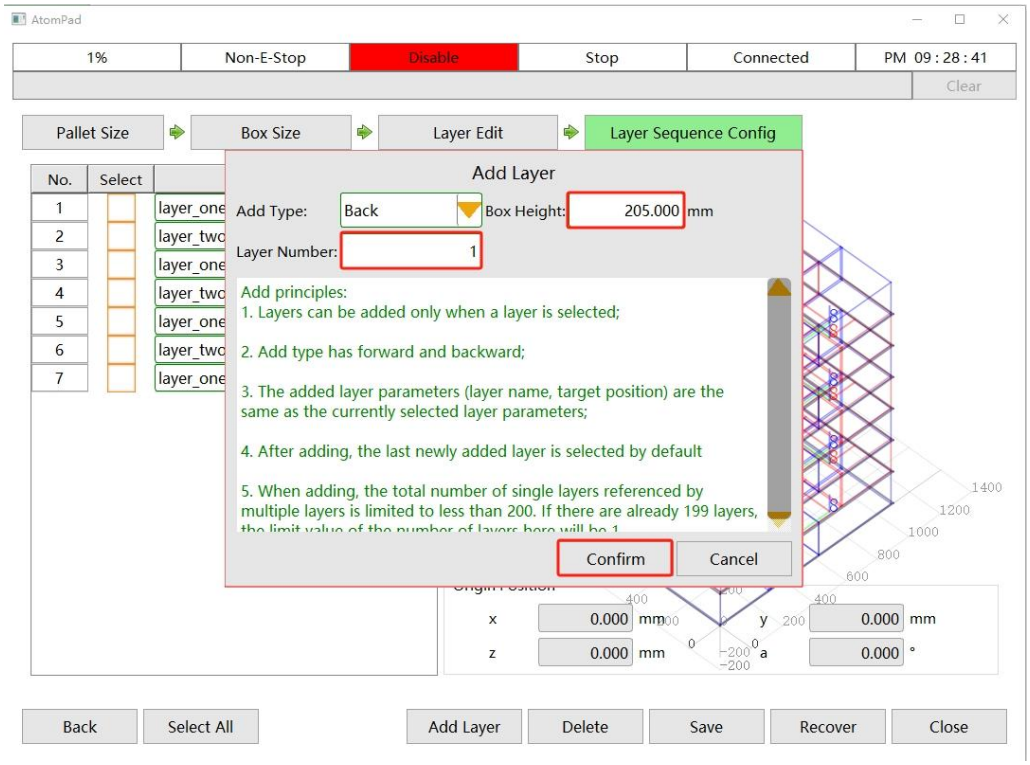


Figure 5.7 layer sequence edit

Edit the layers, select the drop-down list, the two layers set in the figure will appear, select the layer to switch and click Save.

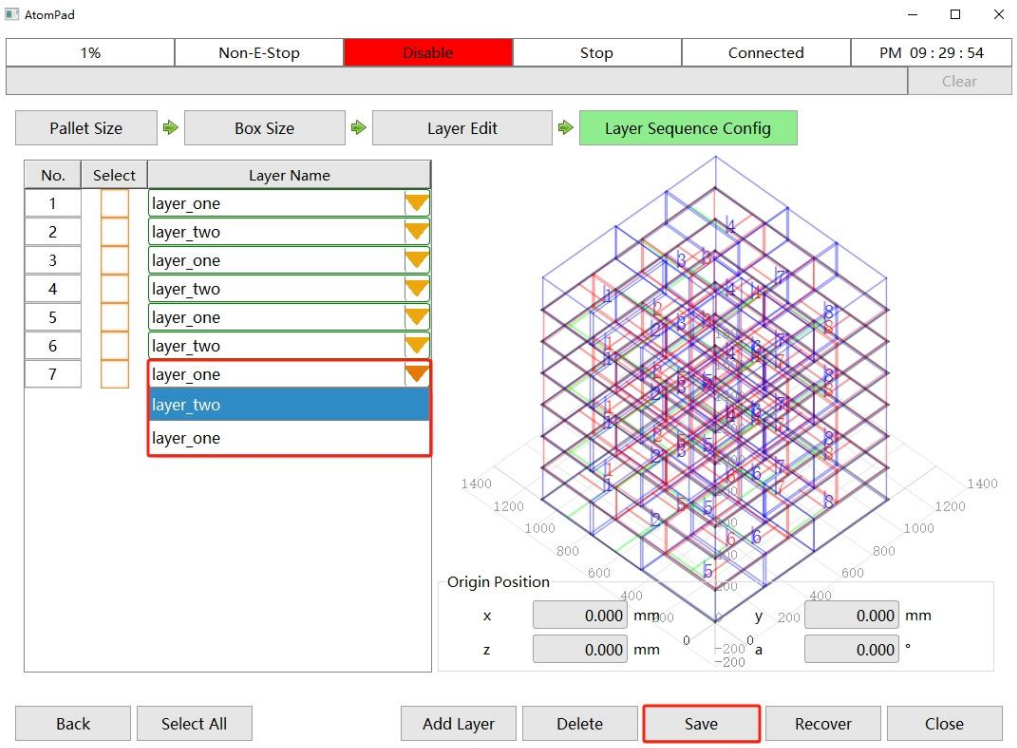


Figure 5.8 layer sequence edit

## 5.3 Switch recipe

Click the recipe selection will appear the drop-down list, select the recipe just edited and click confirm, the left palletizer will use the left corresponding type of recipe , the right palletizer will use the right corresponding type of recipe , according to the use of recipe to confirm whether it is correct.

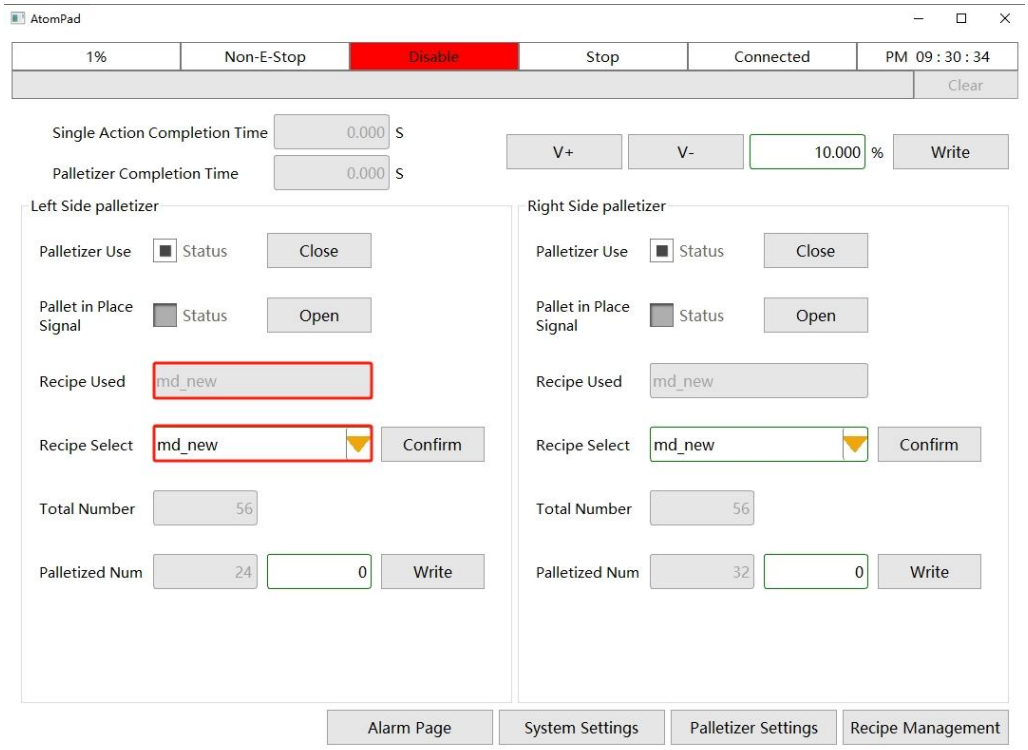


Figure 5.9 switch recipe

## 5.4 Test run

Reduce the speed at first, and click the start button. If the left palletizer is ready, press the left stack button, the light turns green indicating that placement is allowed, and the light flashes indicating that placement is in progress. If the right palletizer is is ready, press the right palletizer button, the light turns green indicating that placement is allowed, and the light flashes indicating that placement is in progress. After the box is in place, robot starting to grab, slowly at the beginning, confirm everything is in good and the setting can be accelerated.

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