

Charmhigh Automatic Chip Mounter

(CHM-T36VA CHM-T48VA CHM-T48VB)

User Manual



Catalogue

1.SACURITY MATTERS	1
2.MAIN PARAMETERS.....	2
2.1.CHM-T36VA.....	2
2.2.CHM-T48VA.....	3
2.3.CHM-T48VB.....	3
3.MACHINE PROFILE	5
3.1.CHM-T36VA.....	5
3.2.CHM-T48VA.....	6
3.3.CHM-T48VB.....	7
4.INSTALLTION MACHINE.....	9
5.START	9
6.RUN	10
6.1. EDIT WORK FILE	10
6.1.1.Component edit.....	11
6.1.2.Material Stack edit.....	14
6.1.3.Batch	18
6.1.4.IC Tray edit.....	20
6.1.5.PCB Calibration	22
6.2.LOAD WORK FILE.....	24
7.TEST.....	27
8.SET	29
8.1.SYSTEM SET.....	30
8.2.VACUUM DETECTION SET	32
8.3.BACKUP/RESTORE	34
9.FILE	36
9.1.GENERATE CSV FILE	36
9.1.1.By Altium Designer.....	错误! 未定义书签。
9.1.2.By Protel.....	错误! 未定义书签。
9.2.FILE CONVERT	38
9.2.1.Material Stack	39
9.2.2.Components list	40
9.2.3.Batch.....	41
10.LOG	43
11.SYSTEM LOG	45

12.QUICK START	45
13.MAINTENANCE	50
14.WARRANTY	51
15.CONTACT US	52

1.SACURITY MATTERS

- (1) Keep the machine away from humidity and dust, otherwise may cause the machine **work abnormal or damaged**.
- (2) **Keep the machine away from flammable and explosive goods.**
- (3) Do not place the machine in the platform of instability or tilted, otherwise the vibration of the machine when working may lead to lower precision, even personal injury caused by overturned.
- (4) **Don't place the components to the area where the infants can contact.**
- (5) **Don't dismounting the machine, otherwise will lower the precision or damage the machine.**
- (6) Ensure the power supply meet machine **requirements**.
- (7) Ensure the power supply socket with good grounding.
- (8) **Don't touch the parts when the machine is working, otherwise it will damage the machine or injured.**
- (9) All the power line only can be used for the machine, otherwise it may cause fire due to the low power.
- (10) **Please read the user manual carefully when using the machine, if you have any question please contact us.**

2.MAIN PARAMETERS

2.1.CHM-T36VA

model	CHMT36VA
X,Y Z axis stroke	400mm(X)*460mm(Y)*15mm(Z)
PCB area	355*355mm
Component support	0402~5050, SOP, QFN and etc
Material support	8mm, 12mm, 16mm, 24mm
mount speed	do not use the visual: 4000 cph (max) use visual: 2500 cph Note: cph is chip per hour
SMT precision	±0.025mm
Nozzle	2 heads with juki nozzle
Material system	29pcs material stack 14pcs IC stack Support custom IC tray
Visual system	Up camera automatic adjust(max 22mm*22mm) Down camera PCB automatic MARK adjust
Controlling system	XY axis with motor for driving Z axis with reset detection All motors with S flexibility lower or faster speed Pull needle auto reset
Vacuum detection	With 2 big no noise vacuum air pump, no need external air pump Air pressure: -92KPa
Leak detection	Vacuum detection, visual detection
Need external PC	YES
Compatible operation system	windows 7, windows10
Compatible software	Altium Designer
Power	AC 220V 50HZ/AC 110V 60HZ
Dimension	960mm(L)*705mm(W)*335mm(H)
Power	250W
Net weight	55Kg

2.2.CHM-T48VA

model	CHMT48VA
X,Y Z axis stroke	400mm(X)*460mm(Y)*15mm(Z)
PCB area	355*355mm
Component support	0402~5050, SOP, QFN and etc
Material support	8mm, 12mm, 16mm, 24mm
mount speed	do not use the visual: 6000 cph (max) use visual: 4000 cph Note: cph is chip per hour
SMT precision	±0.025mm
Nozzle	2
Material system	29pcs material stack 14pcs IC stack Support custom IC tray
Visual system	Up camera automatic adjust(max 22mm*22mm) Down camera PCB automatic MARK adjust
Controlling system	XY axis with motor for driving Z axis with reset detection All motors with S flexibility lower or faster speed Pull needle auto reset
Vacuum detection	With 2 big no noise vacuum air pump, no need external air pump Air pressure: -92KPa
Leak detection	Vacuum detection, visual detection
Controlling PC	With good quality industrial PC 7 inch LCD touch screen Embedded Linux system
Compatible software	Altium Designer
Power	AC 220V 50HZ/AC 110V 60HZ
Dimension	960mm(L)*705mm(W)*335mm(H)
Power	250W
Net weight	55Kg

2.3.CHM-T48VB

model	CHMT48VB
X,Y Z axis stroke	510mm(X)*460mm(Y)*15mm(Z)
PCB area	345*355mm
Component support	0402~5050, SOP, QFN and etc
Material support	8mm, 12mm, 16mm, 24mm
mount speed	do not use the visual: 6000 cph (max) use visual: 4000 cph Note: cph is chip per hour
SMT precision	±0.025mm
Nozzle	2
Material system	58pcs material stack 14pcs IC stack Support custom IC tray
Visual system	Up camera automatic adjust(max 22mm*22mm) Down camera PCB automatic MARK adjust
Controlling system	XY axis with motor for driving Z axis with reset detection All motors with S flexibility lower or faster speed Pull needle auto reset
Vacuum detection	With 2 big no noise vacuum air pump, no need external air pump Air pressure: -92KPa
Leak detection	Vacuum detection, visual detection
Controlling PC	With good quality industrial PC 7 inch LCD touch screen Embedded Linux system
Compatible software	Altium Designer
Power	AC 220V 50HZ/AC 110V 60HZ
Dimension	1320mm(L)*705mm(W)*335mm(H)
Power	250W
Net weight	89Kg

3.MACHINE PROFILE

3.1.CHM-T36VA

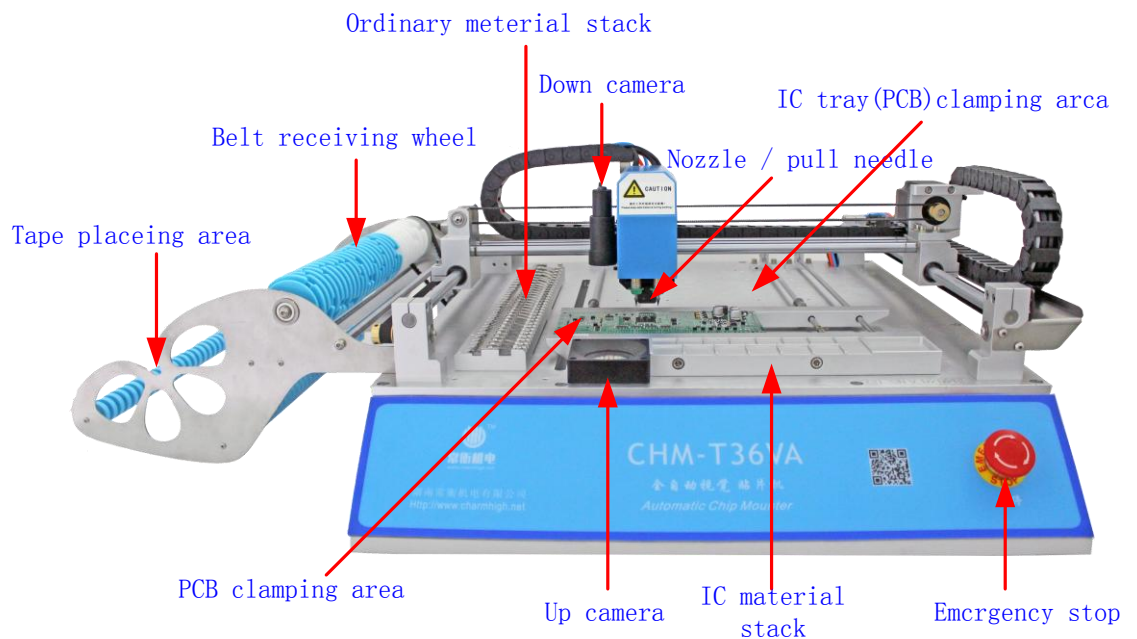


Figure.3-1

- (1) PCB clamping area: fixing the PCB, let PCB close to left, top spring should be compacted.
- (2) Up camera: Used for calibrating the components position, angle, so as to improve placement accuracy.
- (3) IC material stack: used for place the big IC.
- (4) Emergency stop switch: Emergency stop after press down, machine normal work when clockwise rotation and bounce.
- (5) IC tray area: Used for fixing IC tray.
- (6) Nozzle & Pull needle: Nozzle used for absorbing materials and mount on PCB, pull needle used for pull the material go ahead.
- (7) Down camera: Used for observing and location, and PCB MARK auto adjust.
- (8) Ordinary material stack : Place tape packaging materials.
- (9) Belt receiving wheel : Used for collecting film.
- (10) Tape placing area : Used for placing tape.

3.2.CHM-T48VA

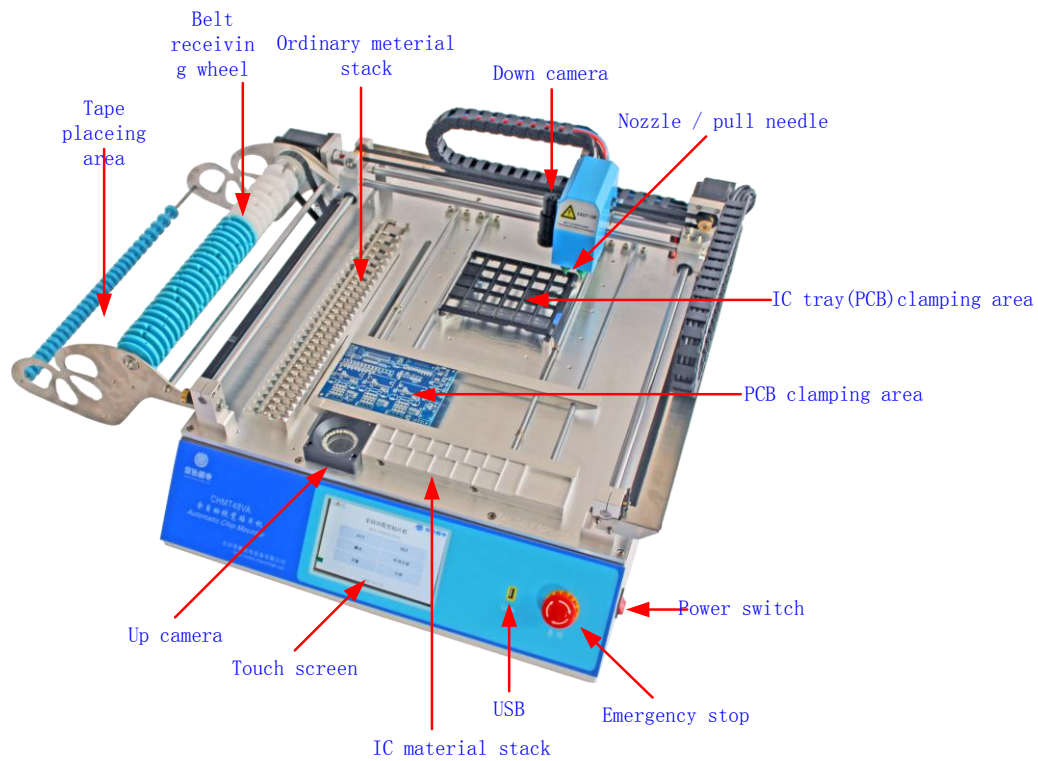


Figure.3-2

- (1) Up camera: Used for calibrating the components position, angle, so as to improve placement accuracy.
- (2) LCD touch screen: Used for operating the machine.
- (3) IC material stack: used for place the big IC.
- (4) USB port: Used for connect the USB storage device.
- (5) Emergency stop switch: Emergency stop after press down, machine normal work when clockwise rotation and bounce.
- (6) Power button: Used for opening or off the machine.
- (7) PCB clamping area: fixing the PCB, let PCB close to left, top spring should be compacted.
- (8) IC tray area: Used for fixing IC tray.
- (9) Nozzle & Pull needle: Nozzle used for absorbing materials and mount on PCB, pull needle used for pull the material go ahead.

- (10) Down camera: Used for observing and location, and PCB MARK auto adjust.
- (11) Ordinary material stack : Place tape packaging materials.
- (12) Belt receiving wheel : Used for collecting film.
- (13) Tape placing area : Used for placing tape.

3.3.CHM-T48VB

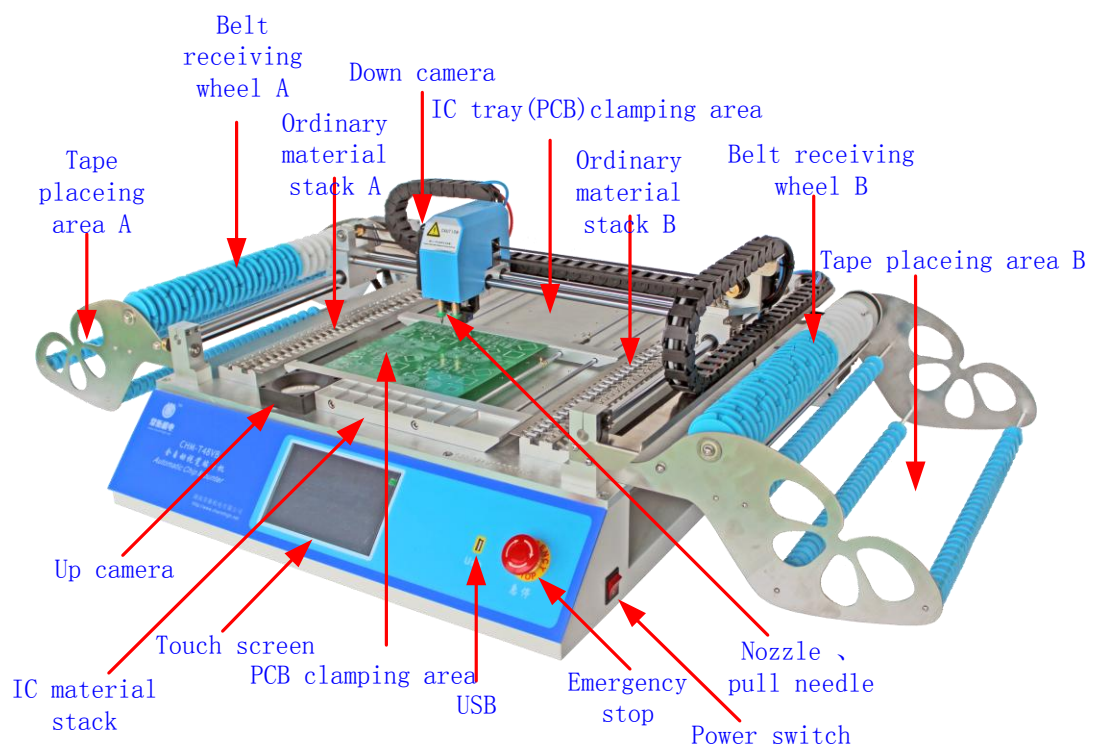


Figure.3-3

- (1) Up camera: Used for calibrating the components position, angle, so as to improve placement accuracy.
- (2) IC material stack: used for place the big IC.
- (3) LCD touch screen: Used for operating the machine.
- (4) PCB clamping area: fixing the PCB, let PCB close to left, top spring should be compacted.
- (5) USB port: Used for connect the USB storage device.
- (6) Emergency stop switch: Emergency stop after press down, machine normal work

when clockwise rotation and bounce.

- (7) Power button: Used for opening or off the machine.
- (8) Nozzle & Pull needle: Nozzle used for absorbing materials and mount on PCB, pull needle used for pull the material go ahead.
- (9) Tape placing area A/B : Used for placing tape.
- (10) Belt receiving wheel A/B : Used for collecting film.
- (11) Ordinary material stack : Place tape packaging materials.
- (12) IC tray area: Used for fixing IC tray.
- (13) Down camera: Used for observing and location, and PCB MARK auto adjust.

4.Installtion machine

For the CHMT36VA model, before using, need to be installed the USB to the serial port driver on the user's computer, connect the USB to the serial line and USB camera line, for details please refer to our U disk video tutorial. For the 48 series of models, you can use power on and use it directly.

5.START

Power on, For 48 series machine, machine self- check and operation system start, below is home page. you can normal use it now.(Type 36 models need to manually open the PC software on the computer side first, then the same with 48 series machine)

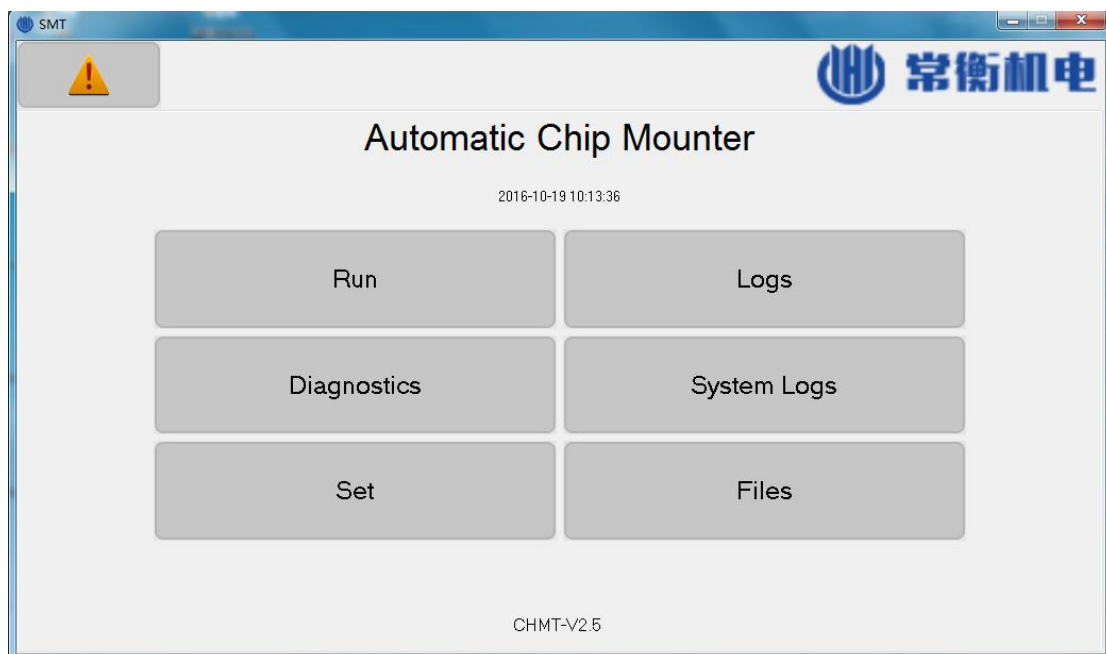


Figure.5-1

- (1) Alarm: check alarm content and the cause of alarm.
- (2) Run: Used to manage and run the working file.
- (3) Test: Used to test the machine's function.
- (4) Set: For setting the parameters of the machine.
- (5) Log: Used to view statistics;
- (6) System record: For checking all the records of the system.
- (7) Files: Used to manage files and generating work.

6.Run

The machine needs to select a work file to run, from the main page, click on the run button to enter the page as below, through this page you can manage work file.

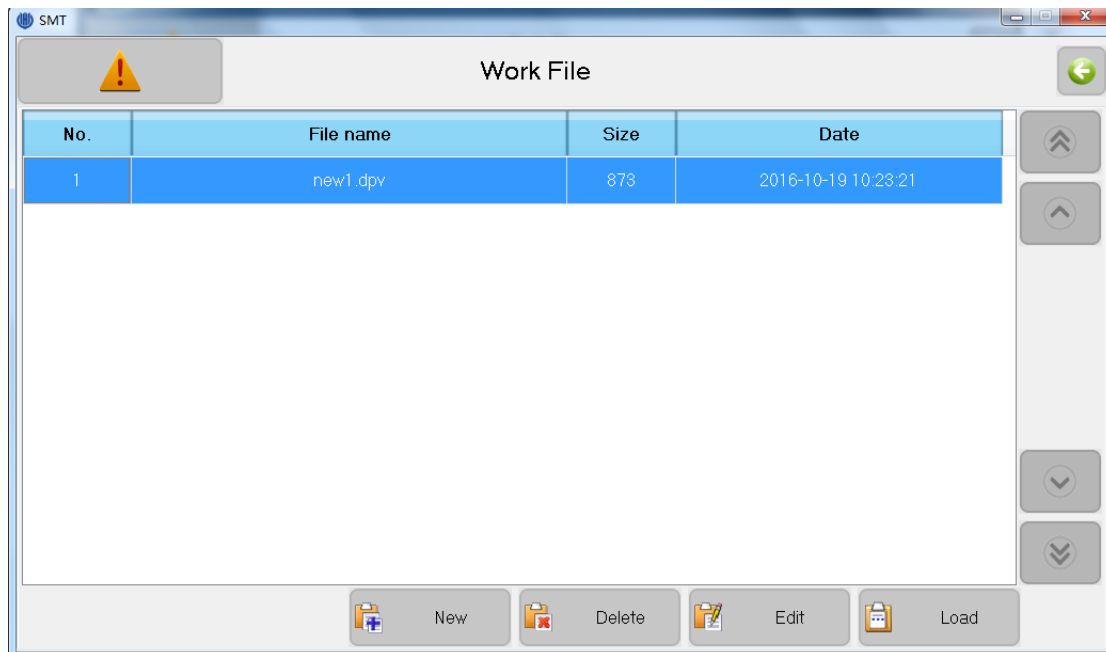


Figure.6-1

- (1) Work file list: The middle of the page displays a list of existing work files in the system, click to select the work file, the upward double arrow on the right used for paging up, upward single arrow used for selecting previous line, downward arrow vice versa.
- (2) New: Create a new work file;
- (3) Delete: Delete the selected work file;
- (4) Edit: Edit the selected work file;
- (5) Load: Load the selected work file to run;
- (6) Back: Click left arrow button on the upper right corner of the page to return to the previous page, other pages similarly.

6.1. Edit Work File

The work file editing screen shown as below, can edit component, material stack, batch, IC tray and PCB calibration respectively.

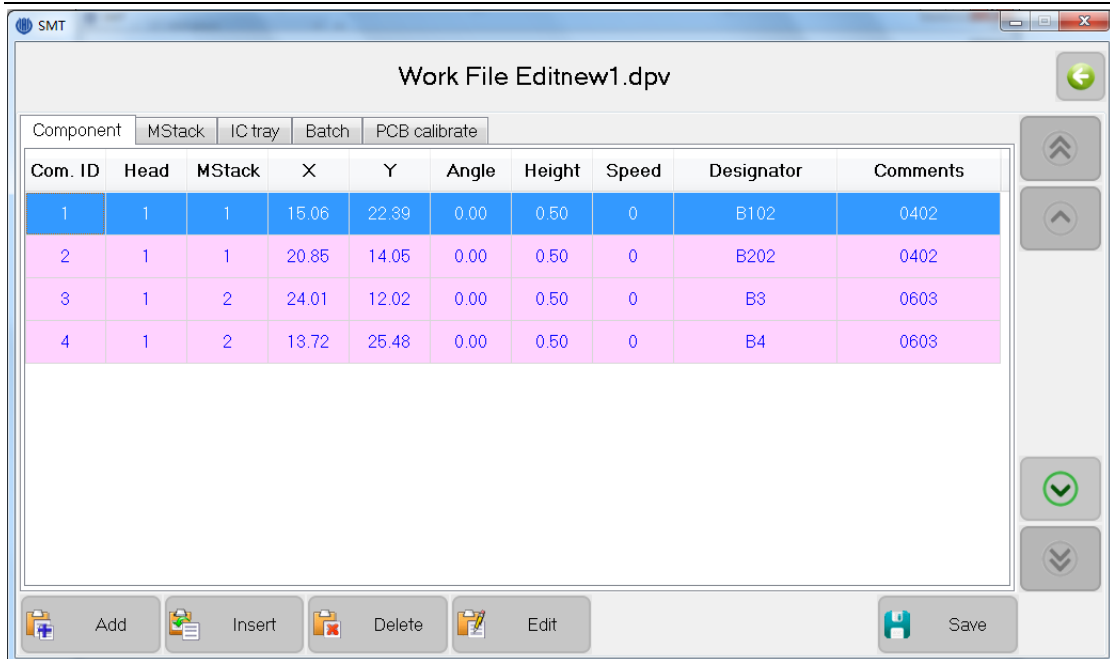


Figure.6-2

6.1.1.Component edit

The screen as shown above, used for managing components on PCB.

- (1) Component list: Show all components contained in the selected work file.
- (2) Add: Add a component on the end of the sheet.
- (3) Insert: Insert a new component before current component.
- (4) Delete: Delete the selected component.
- (5) Edit: edit the selected component, see below for details.
- (6) Save: after amend the component list you need to save, if not save in time, the save button will twinkle ,then press the button and save ,the twinkle end.

6.1.1.1.Edit Component

The pop up screen as shown below, the top left of the screen displays the current component's line number (start from 0),the arrows on both sides, used for selecting a component before or after, also can click the middle button pop up keyboard to input device line number directly.

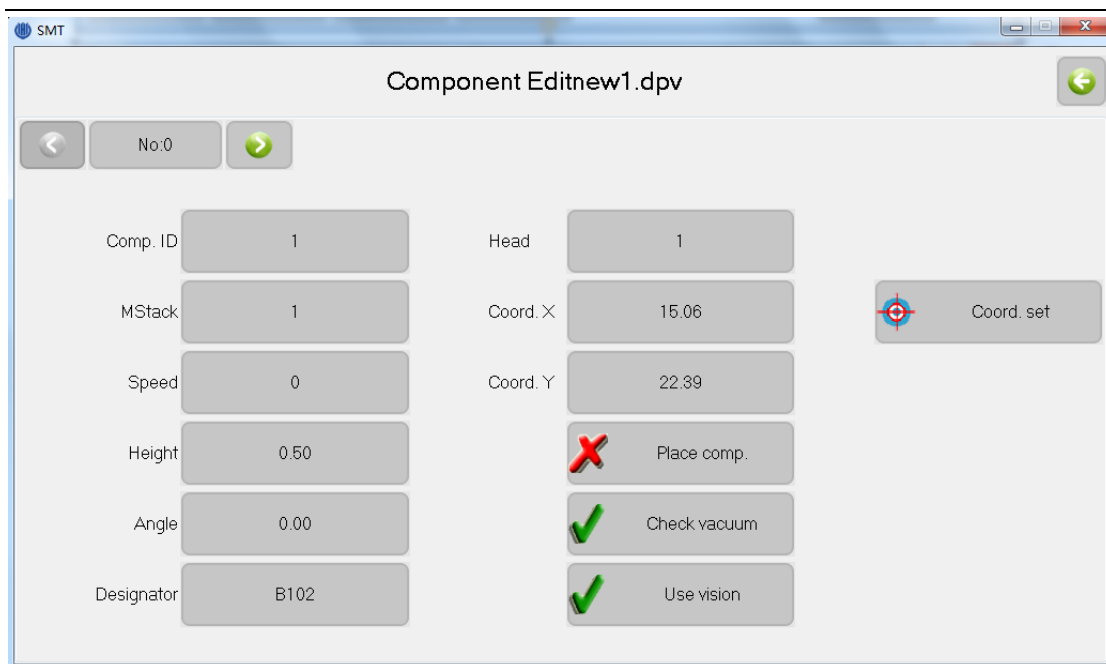


Figure.6-3

- (1)Component ID: set the component ID, there should not be the same ID in one work file.
- (2)Material stack: The appointed material stack for component, when appointed a new stack, the work file will be added a new stack.
- (3)Speed: Set the mounting speed, 0 is for machine's system speed, for mounting IC, you can lower down the speed a little, it will be more accuracy, if lower the speed to 50%, the machine work speed can't be lower than 30%.
- (4)Height: it is used for component height setting. The value is small for height means the nozzle is more go down. (Note: machine general height is 0.5mm, the general PCB thickness is 1.6mm, you can adjust the height according to the thickness of your PCB)
- (5)Angle: Setting for rotate angle of component, anticlockwise is plus, clockwise is minus.
- (6)Identification: component identification, such as R1,R2,C1,U1 etc.
- (7) Comments: component information, such as 0402, 0805 etc.
- (8)Machine head: nozzle for this component.
- (9)Coordinate X: usually work file generated from software no need to change the setting.
- (10)Coordinate Y: usually work file generated from software no need to change the setting.
- (11)Skip component: selected means not place this component, after skip, it will be grey.
- (12)Vacuum detect: selected means forbid throwing materials due to lack of vacuum. Note: if no component, this function also valid, if not absorbing the material, it will absorb again, if still get the material, it will absorb 2 times, if still get it, the machine will be alarm and stopping, when mounting the cylindrical glass component, please open this function.

(13)Enable vision: selected means open vision positioning, when mounting IC open this function can increases its precision.

(14)**Coordinate Set**: used for component coordinate X and Y by nozzle or upside camera, details please refer to below.

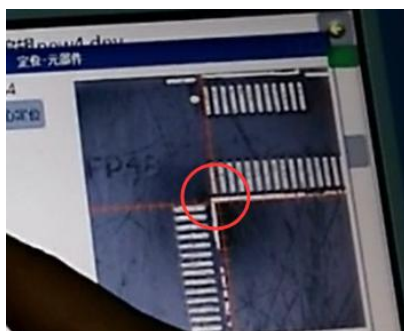
6.1.1.2.Coordinate Setting

Screen shown as below, please note when the machine need location it will be pop up this page.



Figure.6-4

- (1) **Coordinate**: the window left upside display the coordinate after movement comparing with previous coordinate.
- (2) **Machine head/Vision**: exchange nozzle positioning and vision positioning, we suggest use vision positioning, nozzle position not that accurate.



Left-up corner



right-down corner

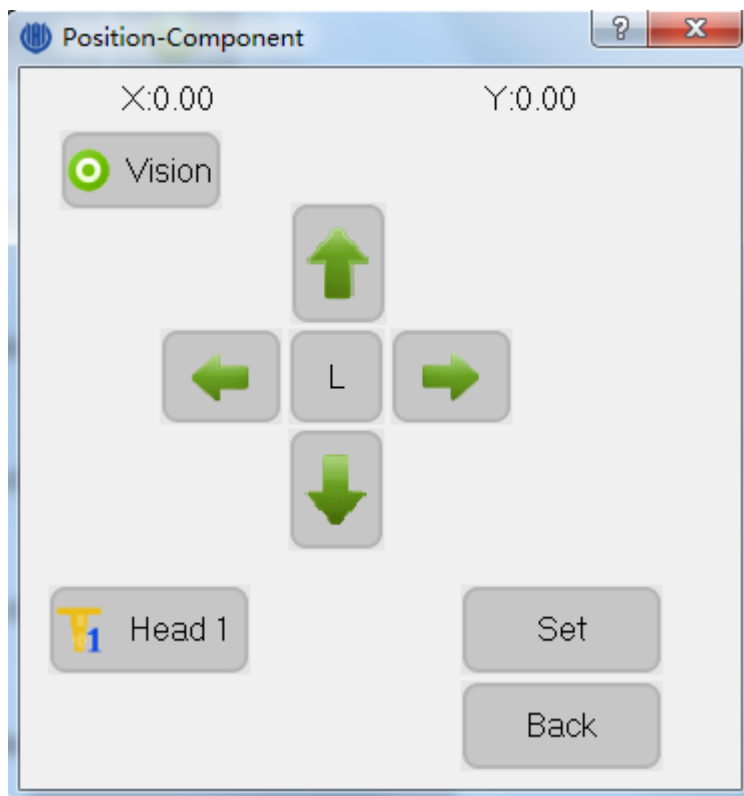


Figure.6-5

(3)Move: In the left side of the window four arrows control the mount head moving in four directions respectively, movement speed can be changed by H/L button, L indicates low speed, H indicates high speed;

(4)Enlarge: zoom up the image;

(5)Find Target: Locating component position automatically, principle explained as follows, the algorithm searches from the image center to around, the first searched close graph is deemed to be the target which is marked with a red rectangle. Note, the border of the target must be clear and closed, silk printing is found generally; capture target is just an auxiliary function, silk printing position is not always the right position of component since the deviation of process technology, user should set coordinate according to the position of footprint;

(6)Auto. center: Move nozzle to the center of target if target was captured;

(7)MHead n(n is MHead number): When use nozzle to positioning, click this button then specified nozzle press down, for the convenience of observation;

(8)Apply: Click to apply changes.

6.1.2. Material Stack edit

Screen show as below, in this page can manage different kinds of component's place

position.

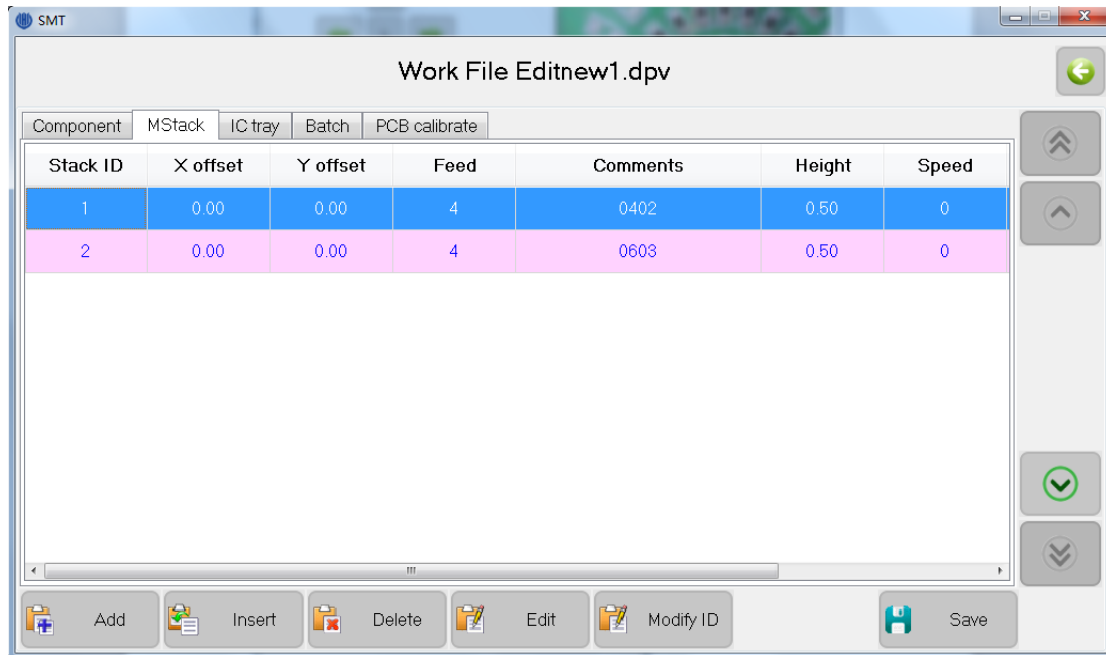


Figure.6-6

- (1) M Stack list: display all the stacks.
- (2) Add: add a new stack at the end of stack list, for 36VA, 48VA model: the ordinary material stack left side is from 1~29 ; The front bulk IC tray from 60~73 stack; Custom IC tray from 80~99 stack; Vibration feeder from 74-79. For 48VB: left side from 1-29; right side 71-84; The front bulk IC tray from 71~84; Custom IC tray from 91~99; Vibration feeder from 85-90.
- (3) Insert: insert a new stack
- (4) Delete: delete the selected stack, note: delete this stack, the components will be delete as well.
- (5) Edit: edit selected stack, image as below:

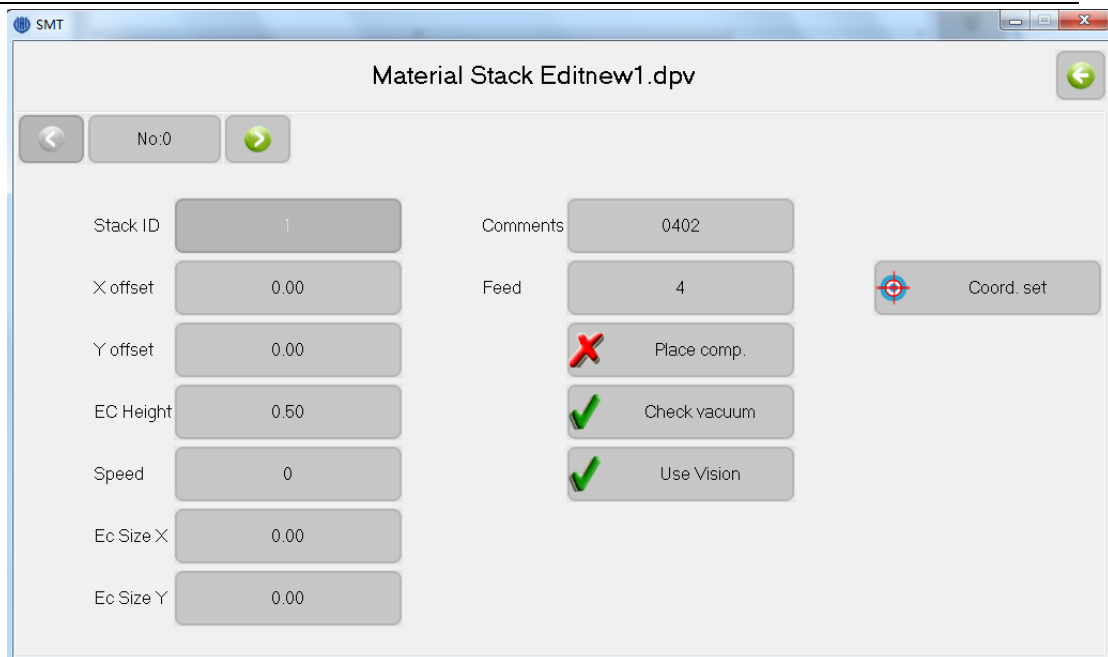


Figure.6-7

- a) Stack ID: Set current material stack ID, value can't repeat, all of components' ID that use this material stack in the component list will be changed too.
- b) Feed: The center distance between two successive components in the tape, unit is millimeter.
- c) Ec size X\Y: The size of components in this stack, unit is millimeter.
- d) Height: Functionally just like corresponding item in component edit, all of relevant component will be changed.
- e) Speed: Functionally just like corresponding item in component edit, all of relevant component will be changed.
- f) Comments: Set material stack comments.
- g) Skip comp.: Functionally just like corresponding item in component edit, all of relevant component will be changed.
- h) Vacuum detect: Functionally just like corresponding item in component edit, all of relevant component will be changed.
- i) Enable vision: Functionally just like corresponding item in component edit, all of relevant component will be changed.
- j) Coord. set: Functionally just like corresponding item in component edit, see figure below, there will appear a pull needle button in the top right corner of the window when set coordinate by nozzle, click it then machine will pull tape one time, in order to make the component in a certain place, then calibrating the feed place of material by camera or nozzle, see figure below, adjusting the tape let the

red circle touches the blue line, the place of green rectangle is just the suggested feed place.

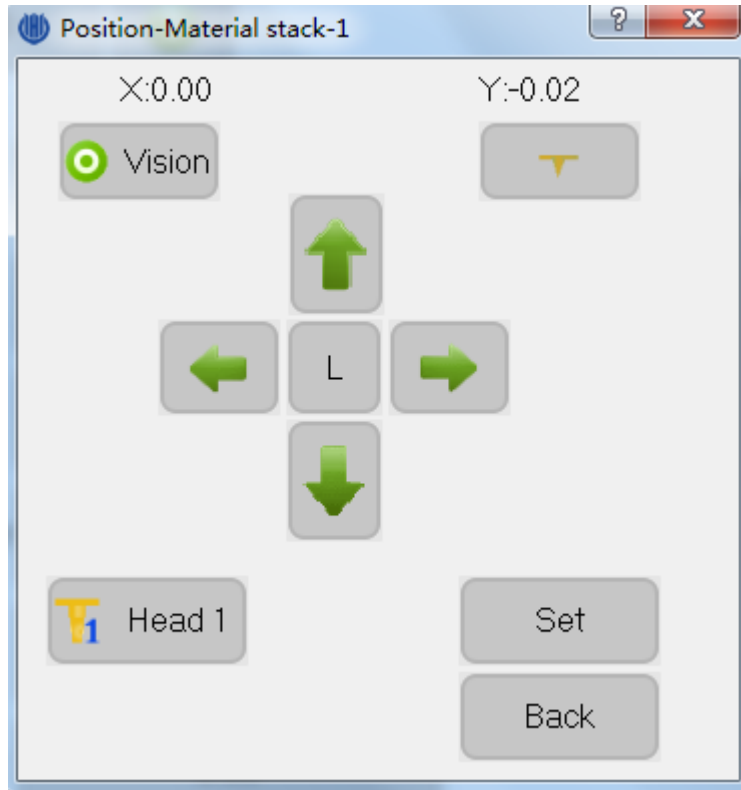


Figure.6-8

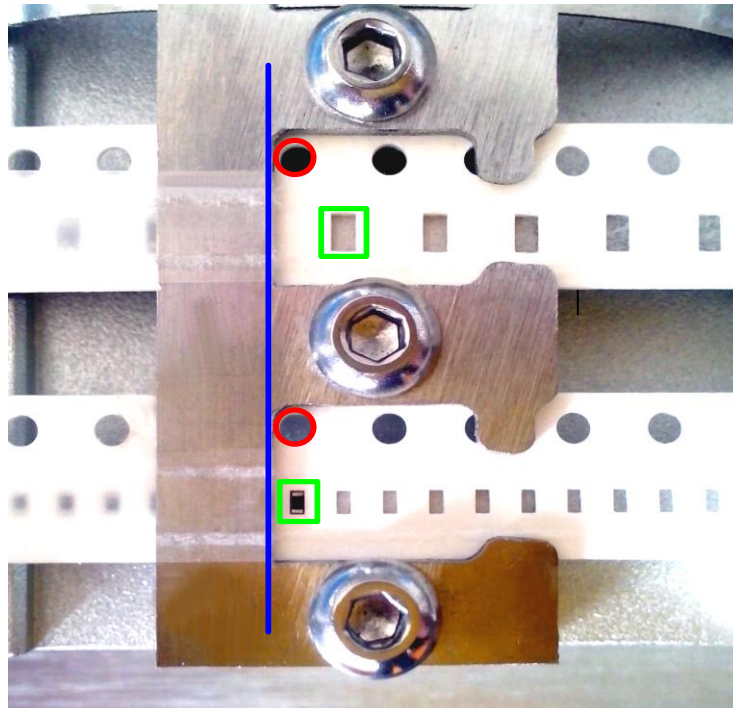


Figure.6-9

6.1.3.Batch

Batch is that splicing a number of same PCBs to mount together, but just need one component list, it can be multiple same PCBs which have not been cut apart after manufacture, also can be some same PCBs spliced by user.

Note, PCBs' edge must parallel each other(same rotation angle)when place PCBs to the PCB clamp area.

Batch has two location types, the one is by coordinate, i.e. locating each PCBs' origin which set by user, the other one is by array, i.e. PCBs' coordinate is calculated by machine automatically while user set PCB's line and column count. array mode screen as show below.

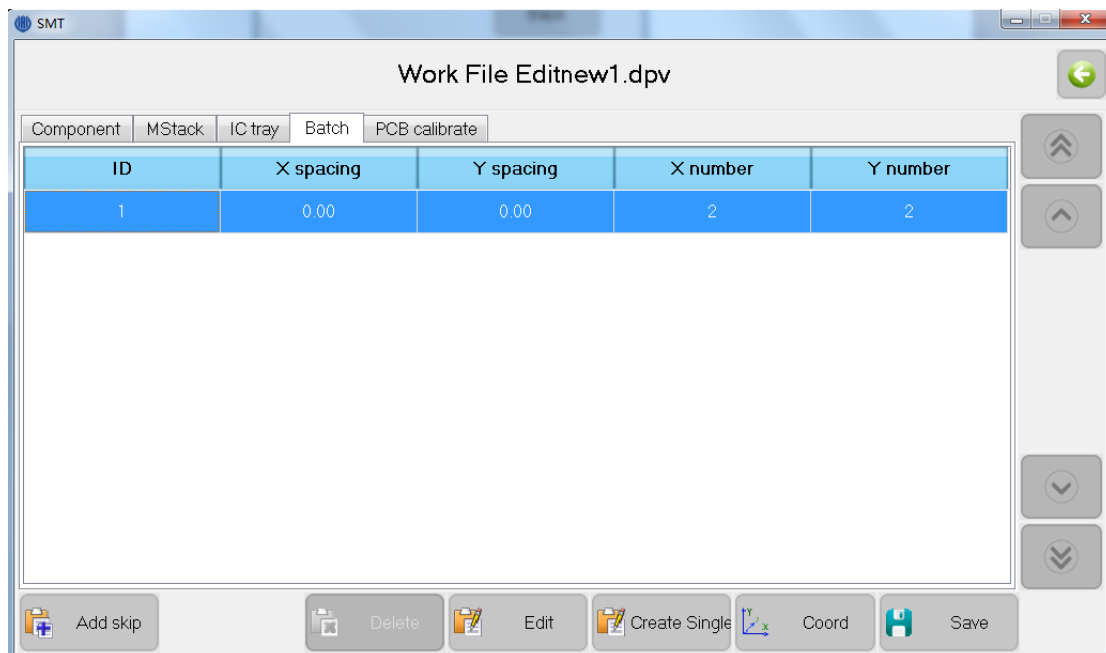


Figure.6-10

Batch list have one record at least, click "Add skip" button to add a skip record, i.e. do not mount added PCB when machine running, click "Edit" button popup window as show below.

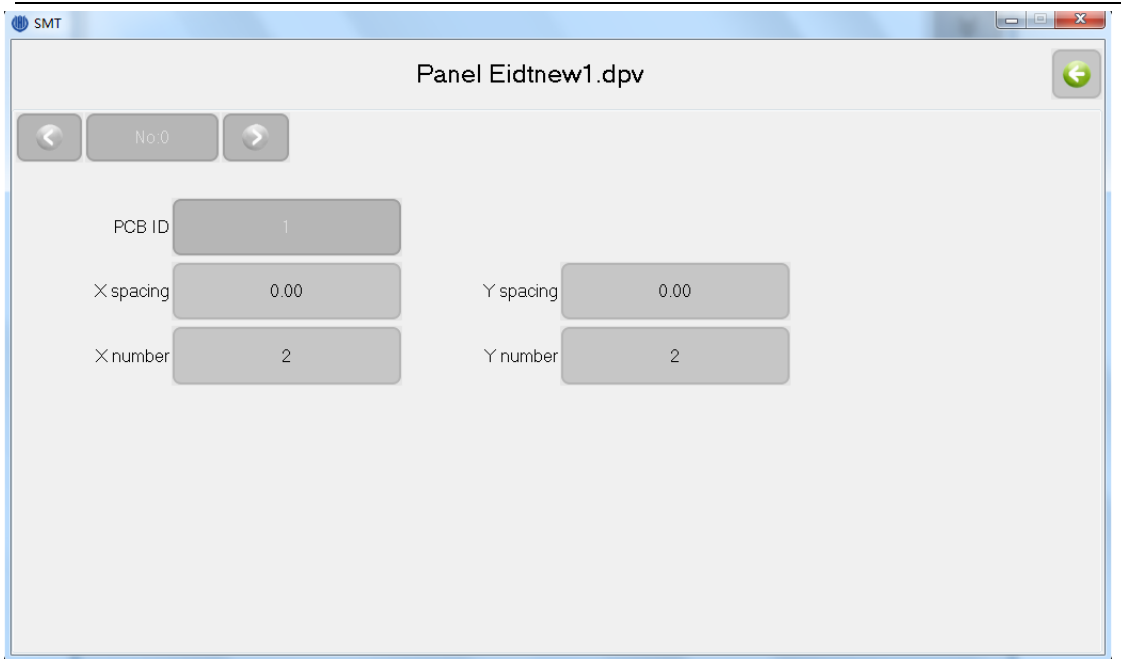


Figure.6-11

- (1) PCB ID: Can't modify while use array mode.
- (2) X\Y spacing: Two neighboring PCBs' X\Y coordinate spacing of origin.
- (3) X\Y number: Number of PCB in X\Y direction.

Coordinate mode screen as show below.

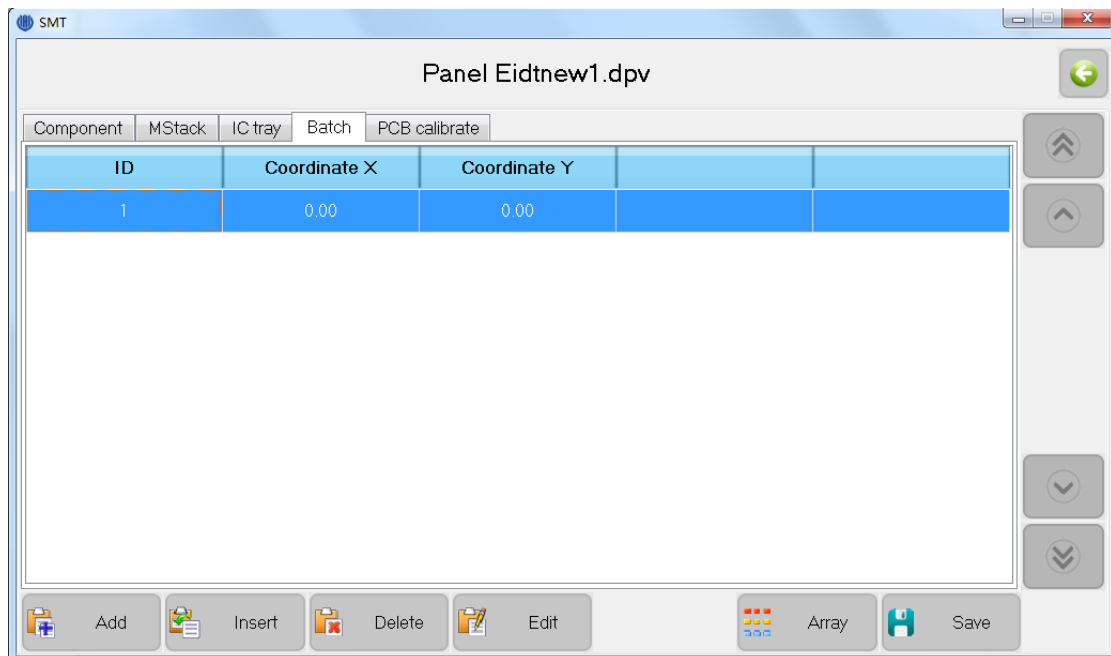




Figure.6-12

Note, while there have only one record in batch list that indicates batch is disabled, and the data is invalid. Each record preserve a origin point of PCB while there have several records, click “Edit” to modify the coordinate or set it via location directly.

6.1.4.IC Tray edit

IC tray is a special material stack, i.e. the same kind ICs are hold in IC tray clamp area as a array, machine pickup material to mount in sequence from left to right and down to up. Window as show below.

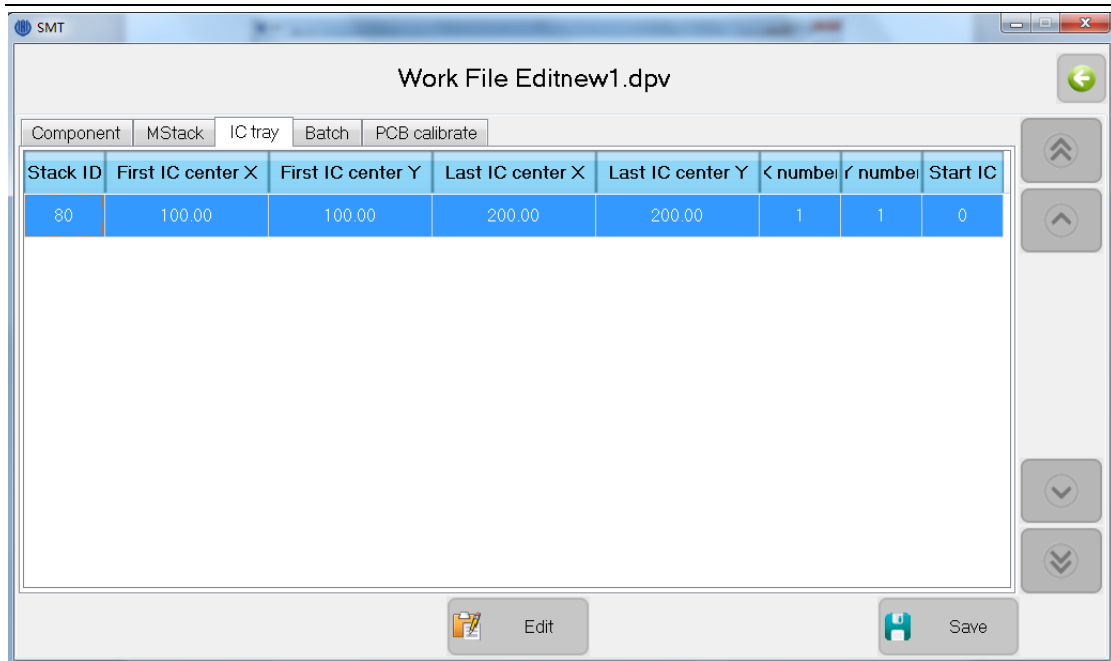


Figure.6-13

Material stack will be added to IC tray list automatically if material stack number is from 80 to 99 in material stack list, click "Edit" to pop up window as show below.

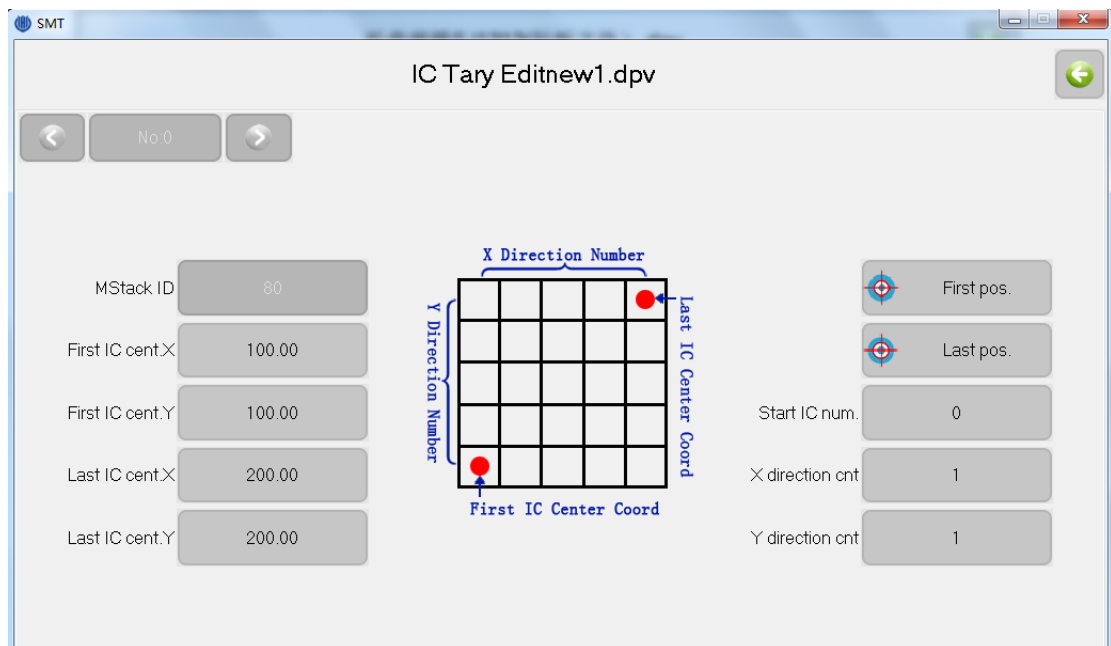


Figure.6-14

- (1) First IC cent. XY: IC center coordinate in the left bottom of IC array, it can input manually or determine by location;
- (2) Last IC cent. XY: IC center coordinate in the top right of IC array, it can input manually or determine by location;
- (3) XY direction cnt: i.e. IC count in XY direction;

- (4) Start IC num.: ICs are numbered(start from 0) from left to right and down to top, if the start IC number is set, IC which number smaller than start IC number will be skipped.

Note, IC tray can not be put on the top of fix pillar, or pull needle may run into IC tray and be damaged due to height exceeding, the figure below shows the right.



Figure.6-15

6.1.5.PCB Calibration

In order to eliminate PCB position and angle of deviation, it is necessary to calibrate PCB before mount, screen as show below.

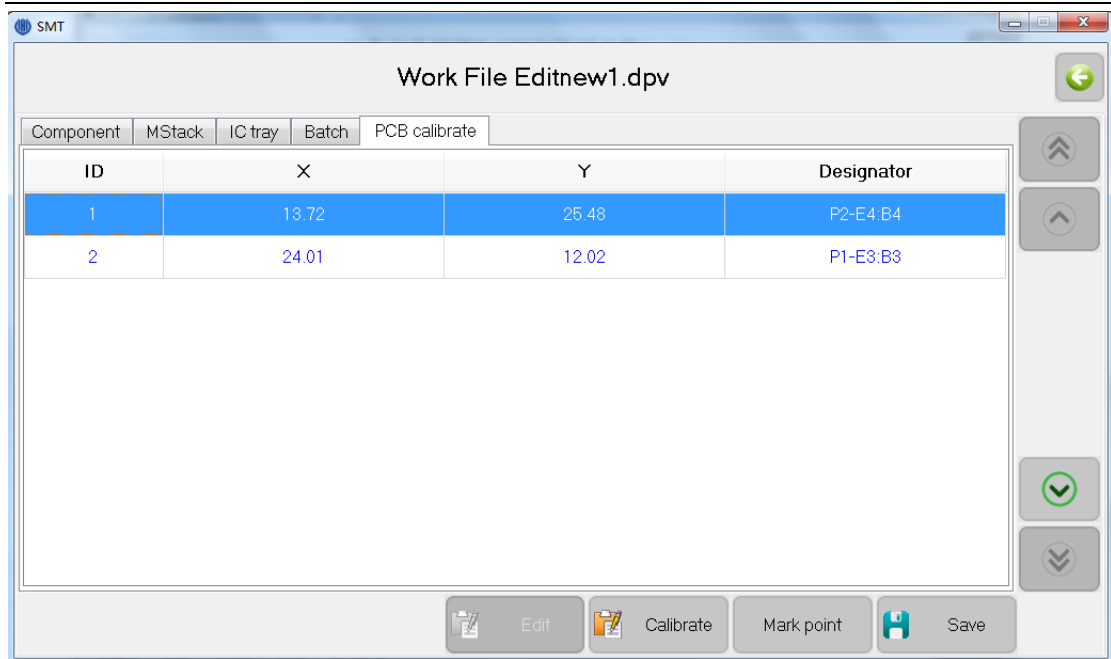


Figure.6-16

Depending on choice to calibration point, there are two PCB calibration type.

- EC: Machine select two component from PCB to calibrate automatically, its PCB coordinate is known, and do not need to input by user, the designation in the list of figure as show above, the number after character “P” indicates batch PCB ID, number after character “E” indicates component ID, and string after “:” is the designation of component;
- MARK: User select two specific point(MARK point) from PCB, input its PCB coordinate to calibrate manually, point in is recommended.

Note, if use array mode of batch, the choice of calibration point should be top left corner and bottom right corner of the whole PCB which consist of several same PCB.Window as show below, click in sequence to locate actual position of calibration points.

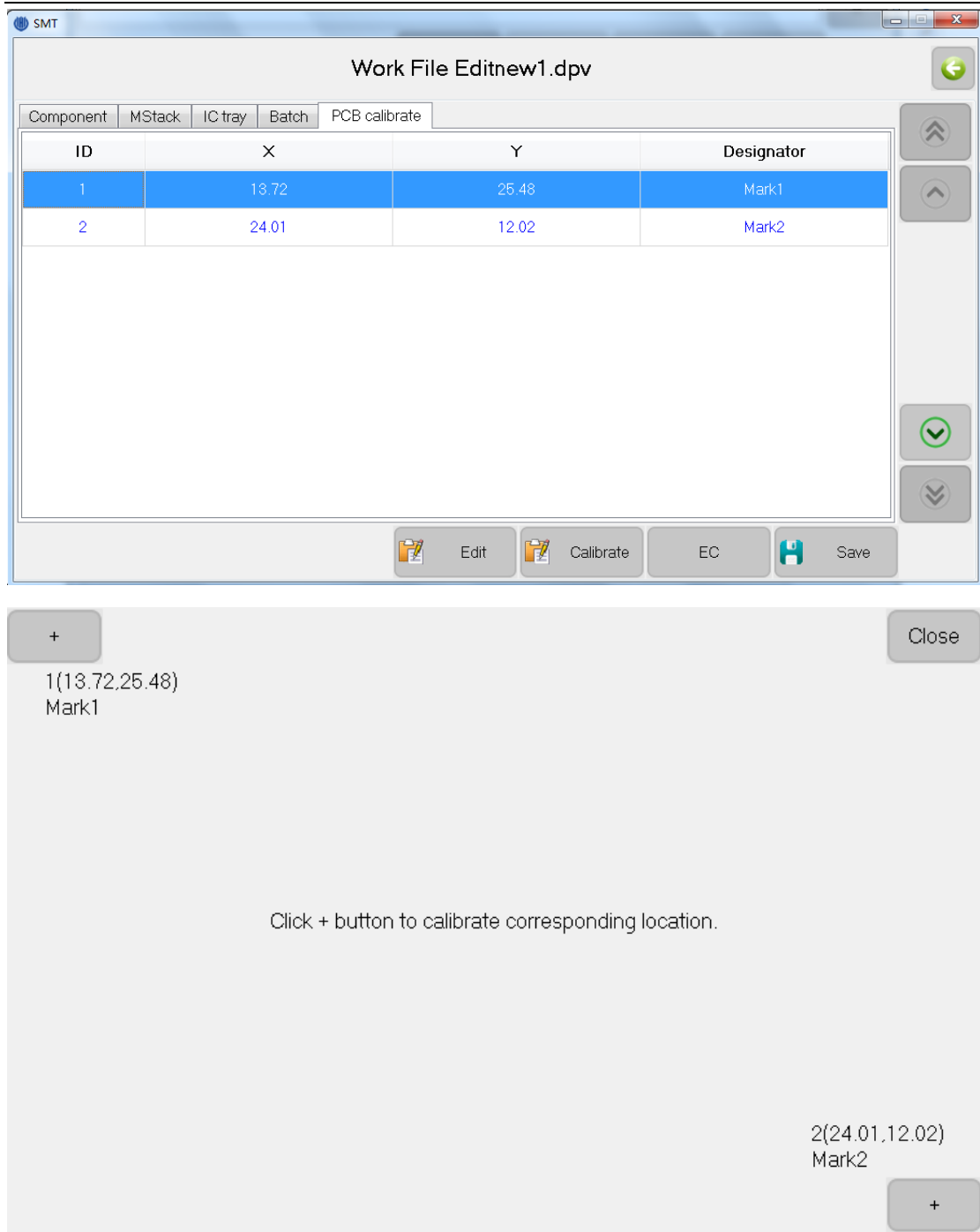


Figure.6-17

6.2.Load Work File

Screen as show below.

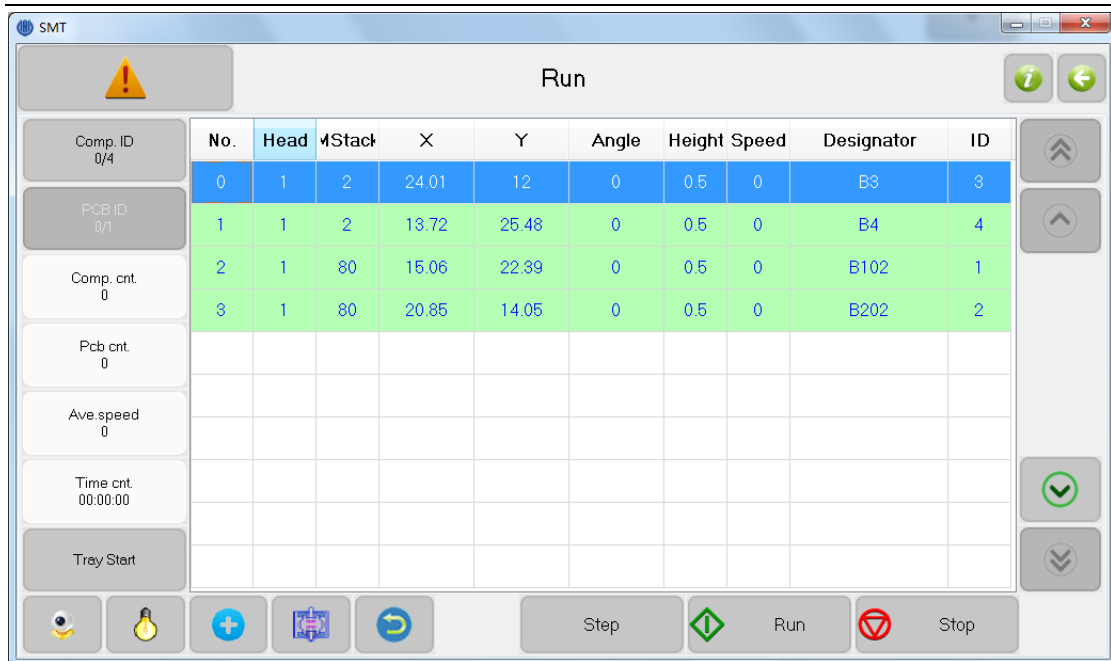


Figure.6-18

- (1) Comp. ID: Showing current component number/total number, click to set current component number, such as start from the 3rd or 5th.
- (2) PCB ID: Show current PCB number/total PCB number, click to set current PCB number which mount, set as above.
- (3) Comp. cnt.: Show total mounted component count this run time.
- (4) Pcb cnt.: Show total mounted PCB count.
- (5) Ave. speed: Show average mount speed, unit is chip per hour.
- (6) Time cnt.: run time of this time.
- (7) Tray start IC: Click to set the start IC's ID of IC tray; (below 'Time cnt.' Not viewing where hasn't tray information in file).
- (8) Up camera: The first button in the left bottom of screen, click to show image of up camera.
- (9) Work light: The second button in the left bottom of screen, click to switch work light.
- (10) PCB calibration: The third button in the left bottom of screen, click to calibrate PCB directly.
- (11) Mount head homing: The fifth button in the left bottom of screen, click to move mount head to the farthest location to origin.
- (12) Vacuum detection: The fourth button in the left bottom of screen, click to open or close vacuum detection, note, if close vacuum detection here, machine will not detect lack of material, also will not discard material due to vacuum insufficient.

- (13) Step: I.e. mount as step by step, in order to test.
- (14) Run: Run normally continuously.
- (15) Stop: Stop mount.

7.Test

Used for testing modules of SMT machine respectively, window as show below.

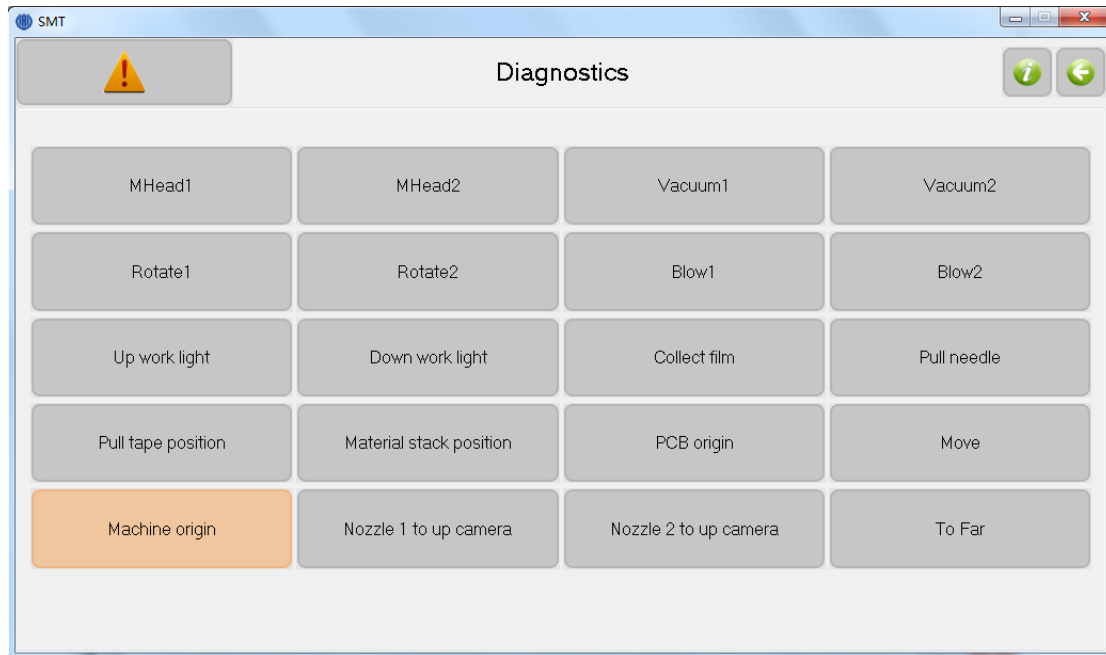


Figure.7-1

- (1) Mhead 1\2: Button down then nozzle press down, button up then nozzle up;
- (2) Vacuum 1\2: Click button to switch nozzle in suction;
- (3) Rotate 1\2: Button down then nozzle anticlockwise rotate 180°, button up then return back;
- (4) Blow 1\2: Click button to switch nozzle in blow;
- (5) Up work light: Click to open or close up camera work light;
- (6) Down work light: Click to open or close down camera work light;
- (7) Collect film: Click to collect film one time;
- (8) Pull needle: Button down then pull needle down, button up then pull needle up;
- (9) Pull tape position: Move pull needle to specified position of tape;
- (10) Material stack position: Move nozzle to specified position of material stack;
- (11) PCB origin: Move nozzle to PCB origin;
- (12) Move: Move mount head to certain position;
- (13) Machine origin: Click then mount head return to origin;
- (14) Nozzle 1\2 to up camera: Move nozzle 1\2 to position of up camera.
- (15) To Far: Move nozzle part to right top.

Note: Change of parameters in this window will not be saved, since it just used for testing if machine is working normally.

8.Set

Used for setting system parameters, screen as show below.

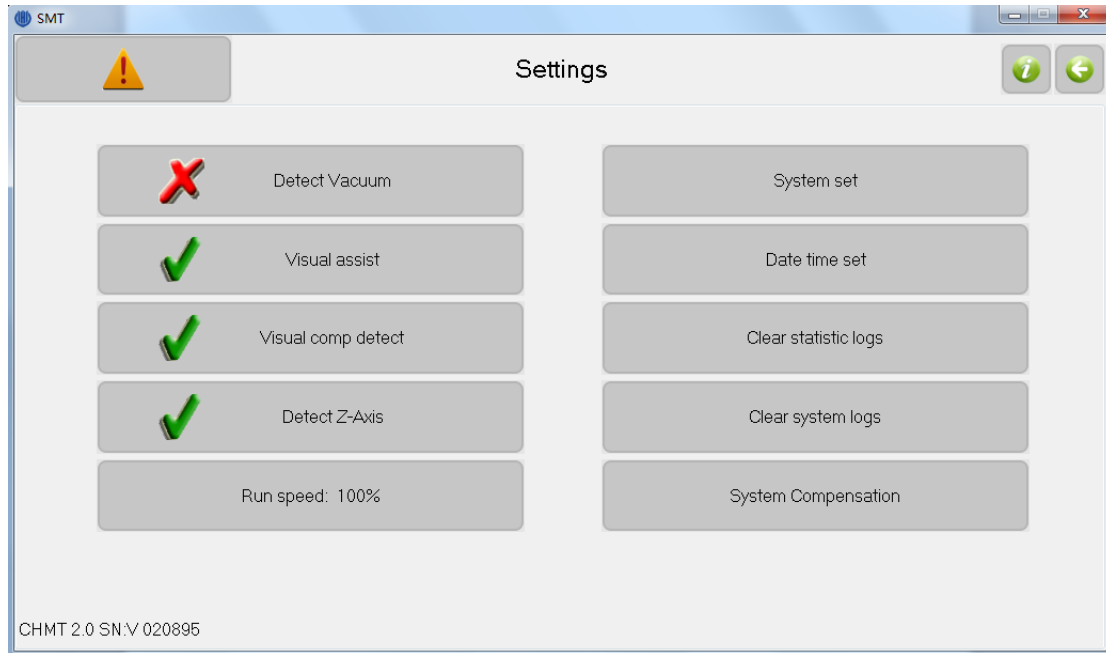


Figure.8 -1

- (1) Vacuum detection: Click to open or close vacuum detection, note, if close vacuum detection here, machine will not detect lack of material, also will not discard material due to vacuum insufficient.
- (2) Vision assist: Click to open or close vision auxiliary, if closed then all of component are mounted without calibration by vision.
- (3) Visual lack detect: Click to open or close visual lack detect, if open, When the material is attached to the detection of the lack of material will be re drawn, many times to detect the lack of material, alarm and stops (if the visual detection error, can be closed this function).
- (4) Z Axis detect: Click to open or close Z axis detect, if open, The Z axis is found to be lost when the stick is attached, then the Z axis is automatically returned to the origin. This feature can be avoided due to the high level of the device is not set up to cause the Z axis, damage to the device parts;
- (5) Run Speed: Setting entire running speed of machine.
- (6) System set: Setting advanced parameters, it's need code to enter.
- (7) Time set: Setting system time.

- (8) Clear statistic log: Click to empty all of statistic logs.
- (9) Clear system log: Click to empty all of system logs.
- (10) Sys comp set: Set up when the device's overall offset compensation, angle compensation.

8.1.System Parameters Set

Screen as show below.

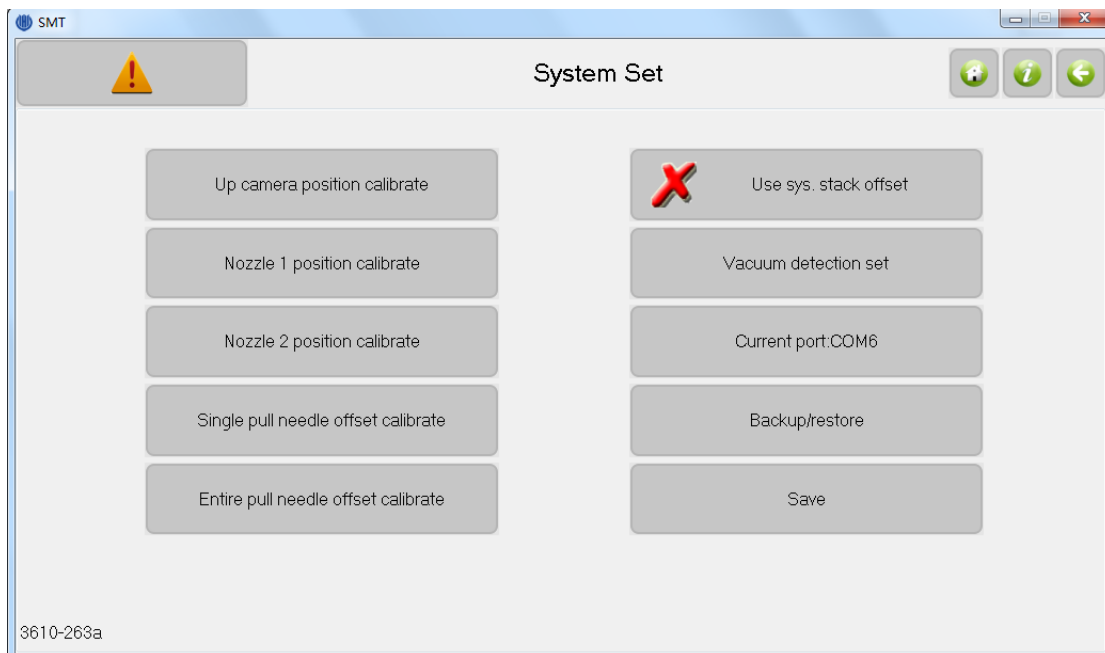


Figure.8-2

- (1) Up camera position calibration: Calibrating position of up camera, process is shown as below:
 - a) Click button then pop up window as show below.

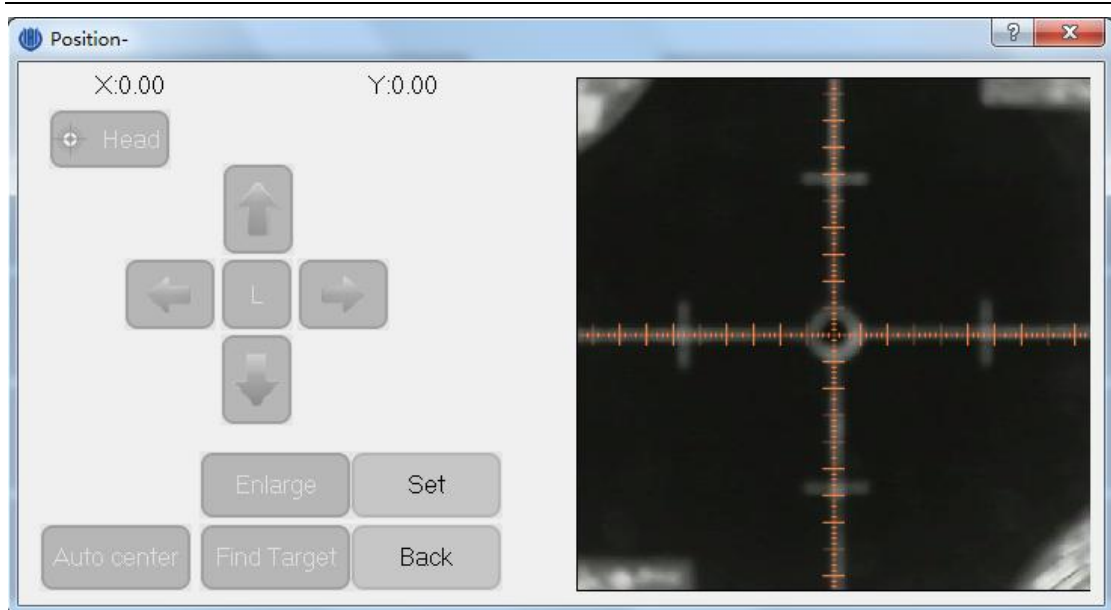


Figure.8 -3

- b) Put the calibration board on up camera, adjust position of calibration board to centering the cross on screen, keep calibration board do not move, click "Set" to next, pop up window as show below.

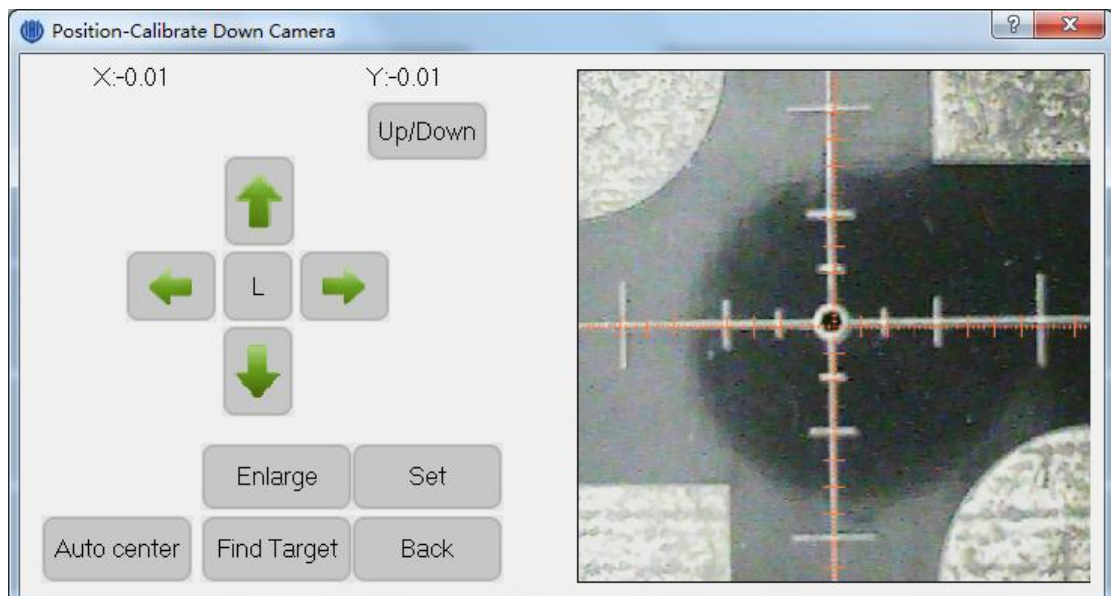


Figure.8 -4

- c) Move position of down camera to centering the cross on screen, click "Set" to finish.
- (2) Nozzle 1\2 position calibration: Click button to pop up window, move nozzle to the center of screen to calibrating, note, ensure that up camera position is calibrated before do this calibration;
- (3) Single pull needle offset calibration: Click button and input material stack ID,

adjust position of pull needle in popup window, see figure below, adjusting the tape let the red circle touches the blue line, the place of green circle is just the suggested pull needle position;

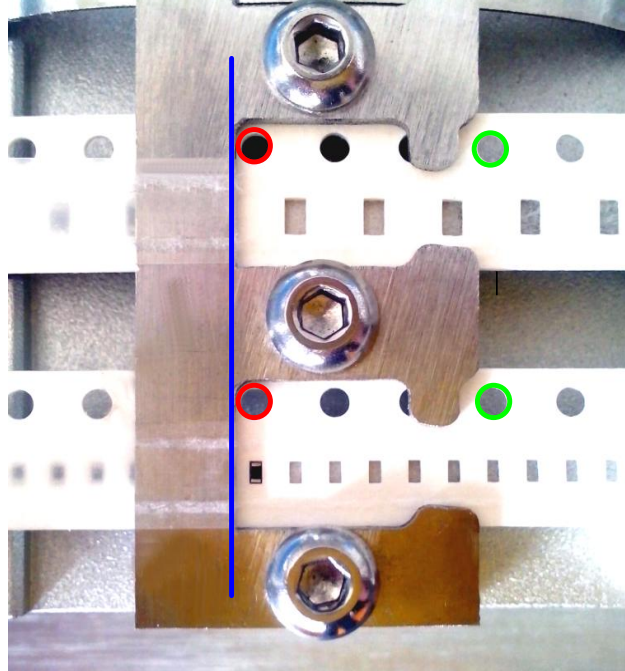


Figure.8 -5

- (4) Entire pull needle offset calibration: Adjusting process is similar to above, but the result will affect position of pull needle for all of material stack, therefore it's appropriate for the situation that pull needle with entire deviation;
- (5) Use sys. stack offset: Click to open or close use system material stack offset, if use system offset then all of offset information in work file will kept in system, otherwise offset information in work file kept in itself.
- (6) Vacuum detection set: Used for viewing and setting parameters of vacuum pump;
- (7) TS Calibrate: Used for touch screen calibrate,system will restart after calibration.
- (8) Backup/ Restore: Backup and restore all of parameters in system set;
- (9) Save: Click to save updates of system set, note, if system parameters were modified without saving, then parameters that before modification will be restored when machine restart.

8.2.Vacuum Detection Set

Screen as show below.

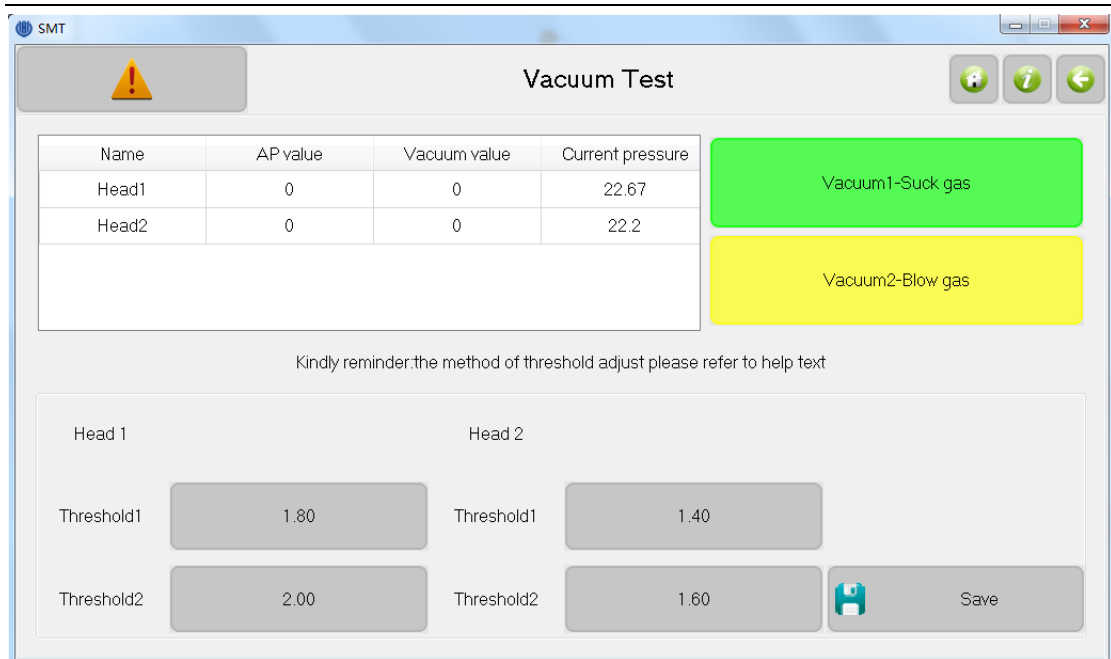


Figure.8 -6

- (1) Nozzle 1\2-suck: get the nozzle 1\2 to suck, test it can work well or not.
- (2) Nozzle 1\2-blow: get the nozzle 1\2 to blow, test it can work well or not.
- (3) Air pressure status list: Note, ordinary pressure and vacuum value in list are valid only after sucking material at least one time when running, or it will display invariable 0; ordinary pressure is the pressure detected before sucking material; vacuum value is the absolute value of that pressure after sucking minus ordinary pressure, bigger value indicates better effect, effect is judged by partition the range of this value;
- (4) MHead 1\2 threshold 1: I.e. lower limit of vacuum value, no material is determined if vacuum value is below this value when running, and machine will retry, otherwise indicates material is sucked;
- (5) Nozzle 1\2 threshold 2: I.e. upper limit of vacuum value, bad material is determined if vacuum value is below this value when running, and material will be thrown away, otherwise indicates good suction and material will be mounted;

Note, threshold 1 must smaller than threshold 2, threshold 2 must smaller than detected vacuum value when suction OK, threshold 1 must greater than detected vacuum value when no material. Recommended values: threshold 1 must less than detected vacuum value when suck empty material; threshold 1 less 0.2 than threshold 2, threshold 2 less 0.3 than detected vacuum value when suck normal material.

Prompt, machine will continue paste when machine don't suck any material and the detected vacuum value is more than threshold 2.

(6) Save: Save changes.

8.3.Backup/Restore

Screen as show below.

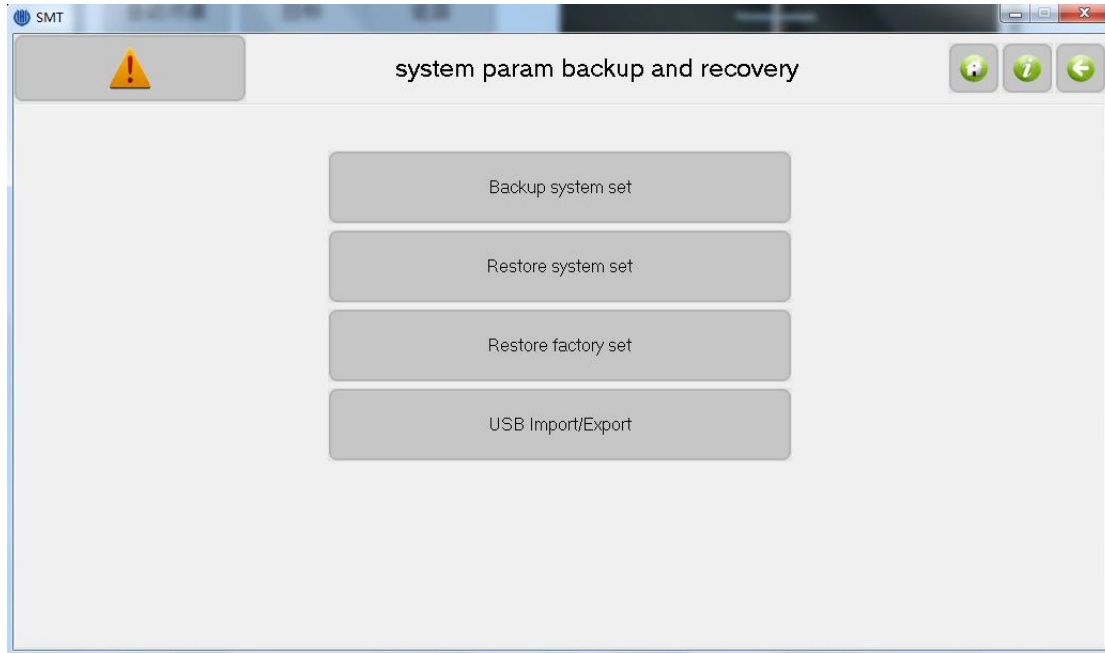


Figure.8 -7

- (1) Backup system set: Backup all of system parameters;
- (2) Restore system set: Restore all of system parameters, when finished the machine will be reopen.
- (3) Restore to factory set: Restore all of system parameters to factory;
- (4) USB Load In/Load Out: Screen as show below, button is enabled while USB storage device is connected, note, import parameters will not change system settings directly, only when do execution of restore system set.



Figure.8 -8

9.File

Used for managing work files and production files which generated by PCB software, screen as show below.



Figure.9-1

- (1) File Convert: In order to use CSV files generated by PCB software to work, a tool that convert CSV file to work file is required, see the usage of convert tool below;
- (2) File view: Browse all of CSV file and work file in system;
- (3) File Load In\Load Out: Load In\Load Out CSV file or work file, button valid when USB storage device is connected.

9.1.Generate CSV File

- (1) Open existing PCB file, note, same component must have same designator, otherwise one component may occupies more than one material stack, since convert tool identifies different material stack by designator of component.
- (2) Set PCB origin, figure as below, note, for top layer setting origin in left bottom corner of PCB, for bottom layer setting origin in bottom right corner of PCB and check mirror image option when converting.

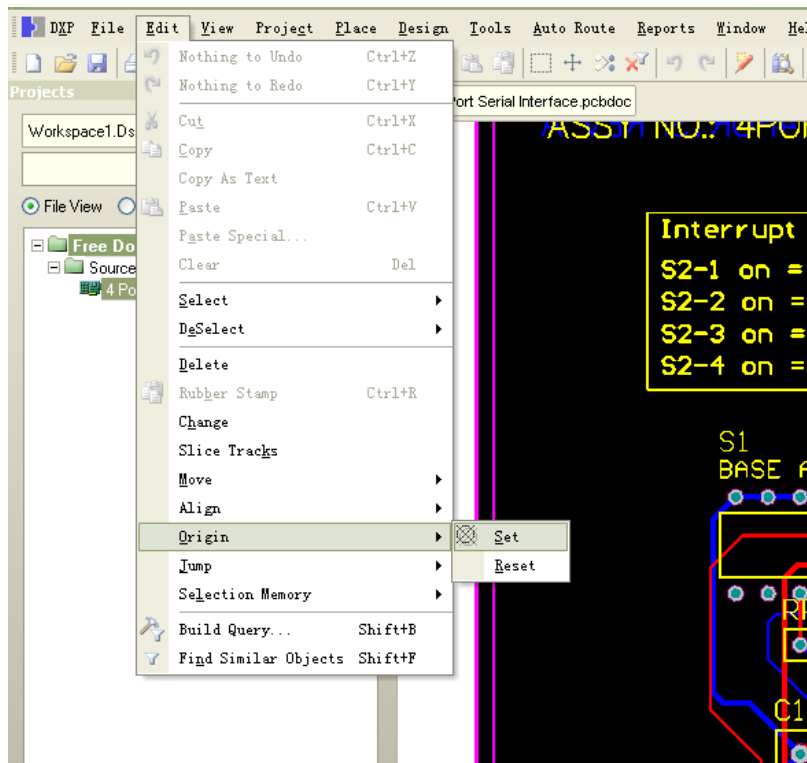


Figure.9-2

- (3) Figure as below, select “File”-“Assembly Output”-“Generates pick and place for files” in menu bar.

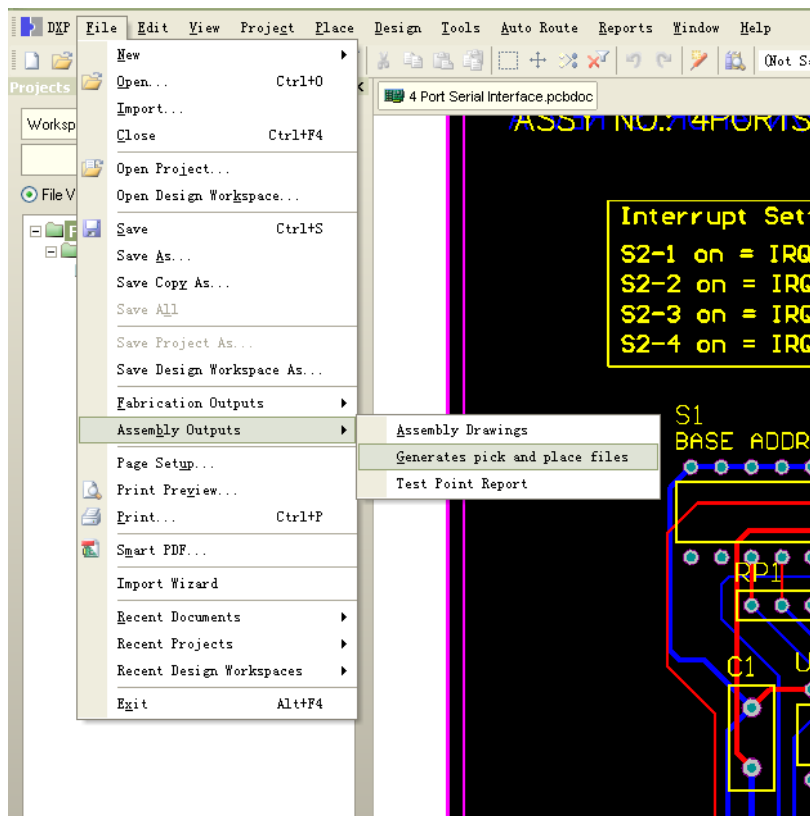


Figure.9-3

- (4) Figure as below, select “CSV” and “Metric” in popup dialog box, click “OK” to finish, generated CSV file can be found in same directory of PCB file.

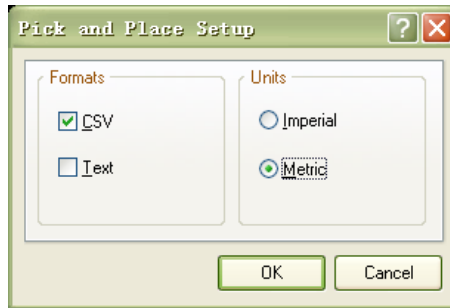


Figure.9-4

9.2.File Convert

Window as show below, all of CSV files in system are displayed in the list.

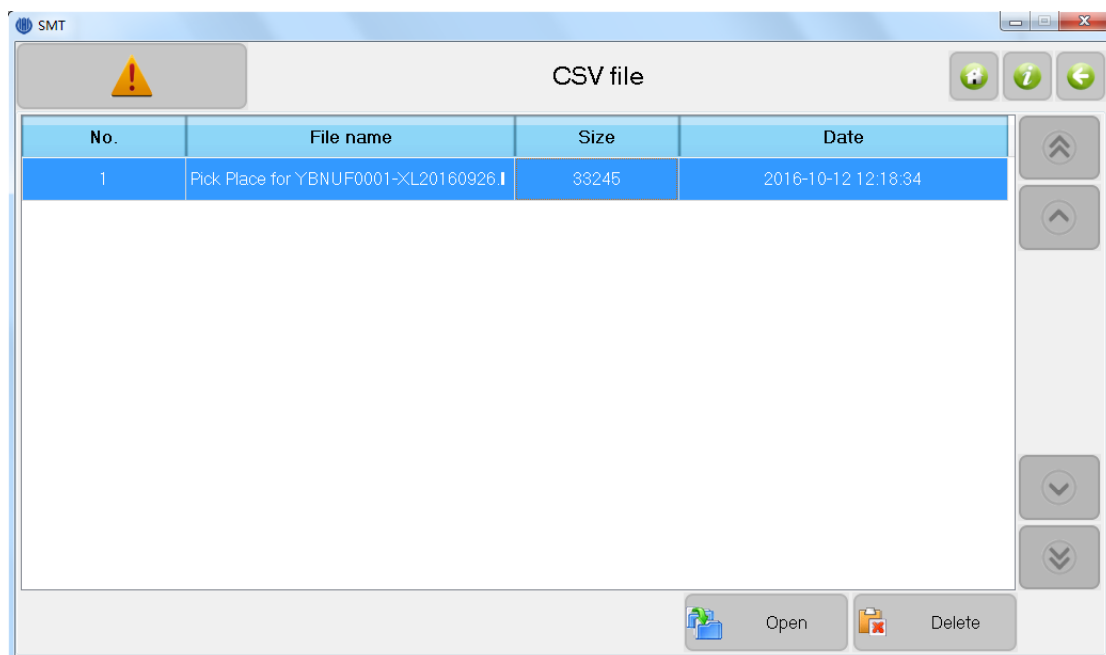


Figure.9-5

- 1、 Open: Open current selected CSV file, Enter file convert page.
- 2、 Delete: Delete current selected CSV file.

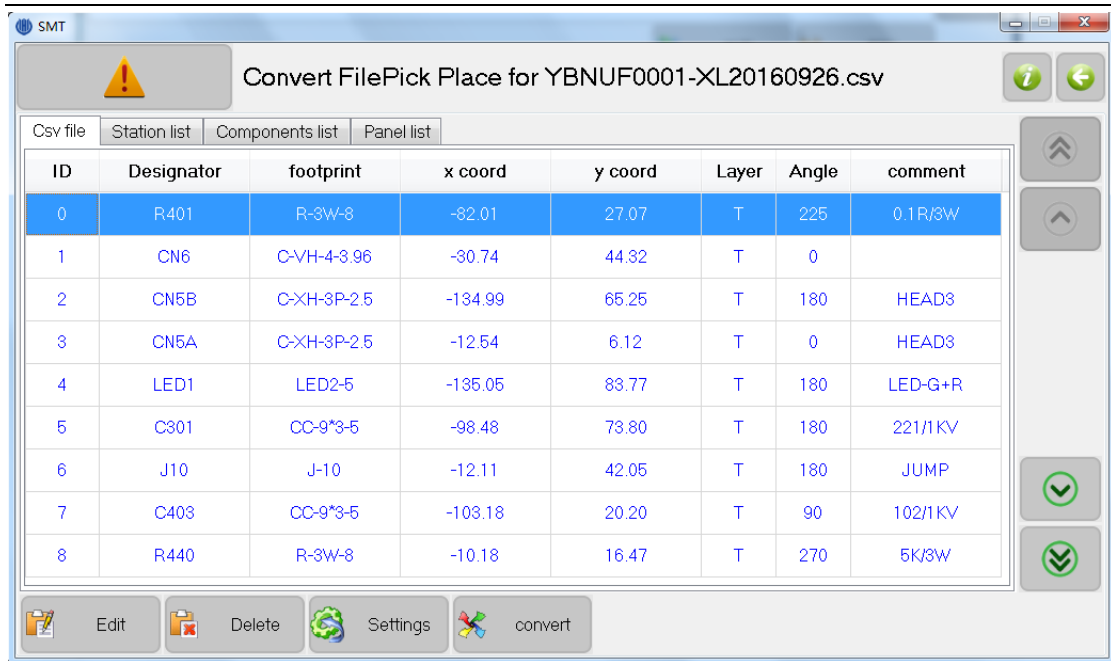


Figure.9-6

- (1) Edit: Edit information of selected csv item.
- (2) Delete: Delete information of selected csv item.
- (3) Convert set: Set the conditions for the conversion, select the top of the device, the underlying device (whether the mirror).
- (4) Convert: Convert CSV file to work file, details see blow.

9.2.1. Material Stack list

Window as show below.

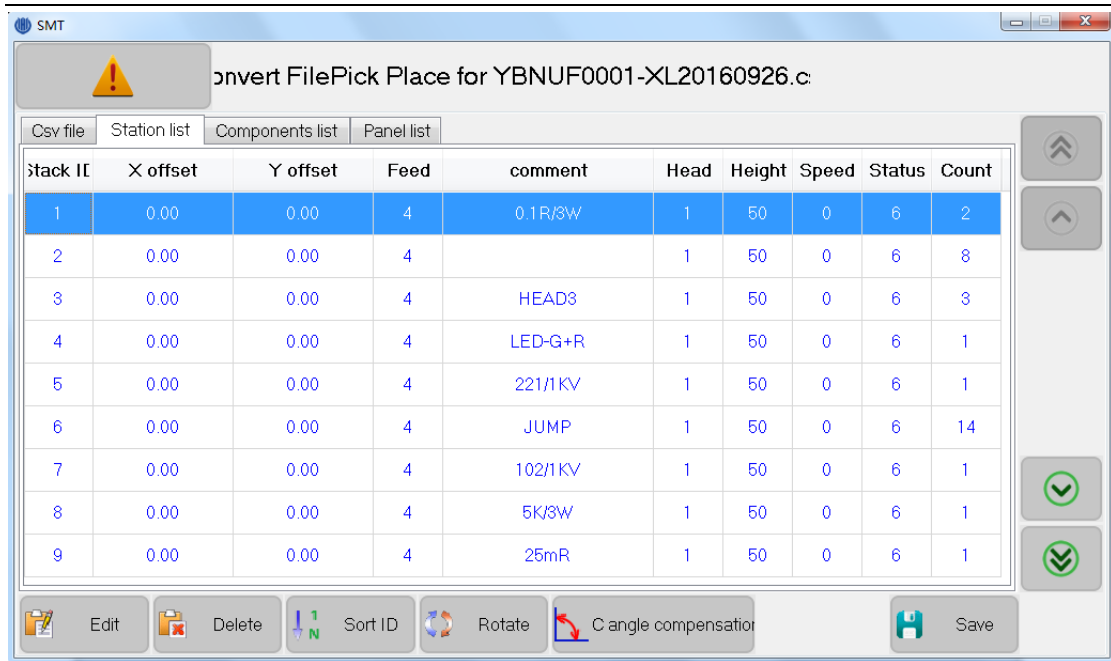


Figure.9-7

- (1) Stack list: Show all of material stack in work file.
- (2) Edit: Edit selected material stack, note, all of relevant components will be changed.
- (3) Delete: Delete selected material stack, note, all of relevant components will be deleted.
- (4) Resort ID: The material stack ID starting from 1 in ascending order;
- (5) Reverse angle: Invert selected material stack, i.e. rotate 180 degree, note, all of relevant components will be changed.
- (6) IC Angle compensate: Compensate IC, rotate 90 degree. Some component need angle compensate, e.g. SOPB, QFN, etc.
- (7) Save: Save converted work file.

9.2.2.Components list

Window as show below.

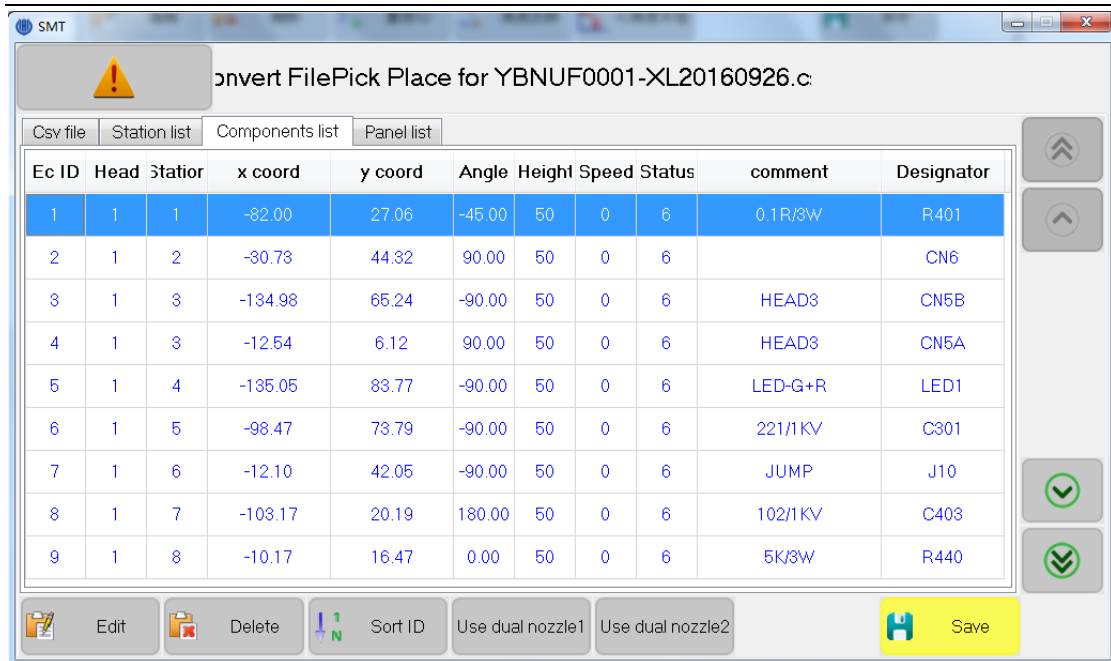


Figure.9-8

- (1) Components list: Show all of component in work file;
- (2) Edit: Edit selected component;
- (3) Delete: Delete selected component;
- (4) Resort ID: The device number starting from 1 in ascending order;
- (5) Use dual nozzle1: Check indicates that take two component in one time by using two nozzle(same material stack), but component list must be sorted by material stack;
- (6) Use dual nozzle2: Check indicates that take two component in one time by using two nozzle(difference material stack);
- (7) Save: Save converted work file.

9.2.3.Batch

Window as show below.

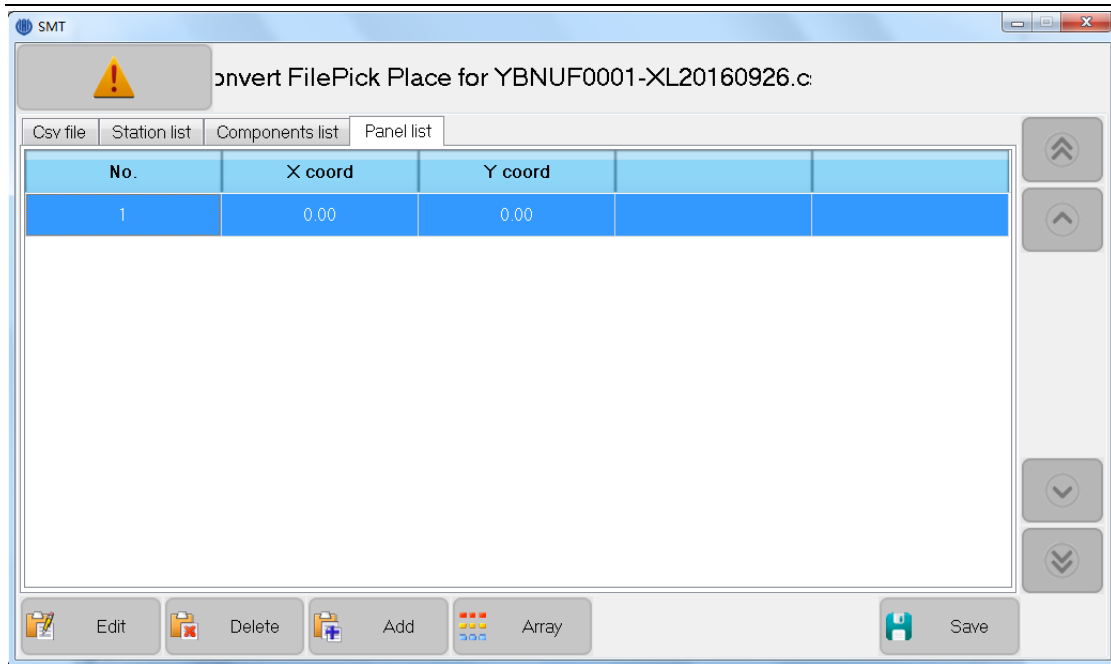
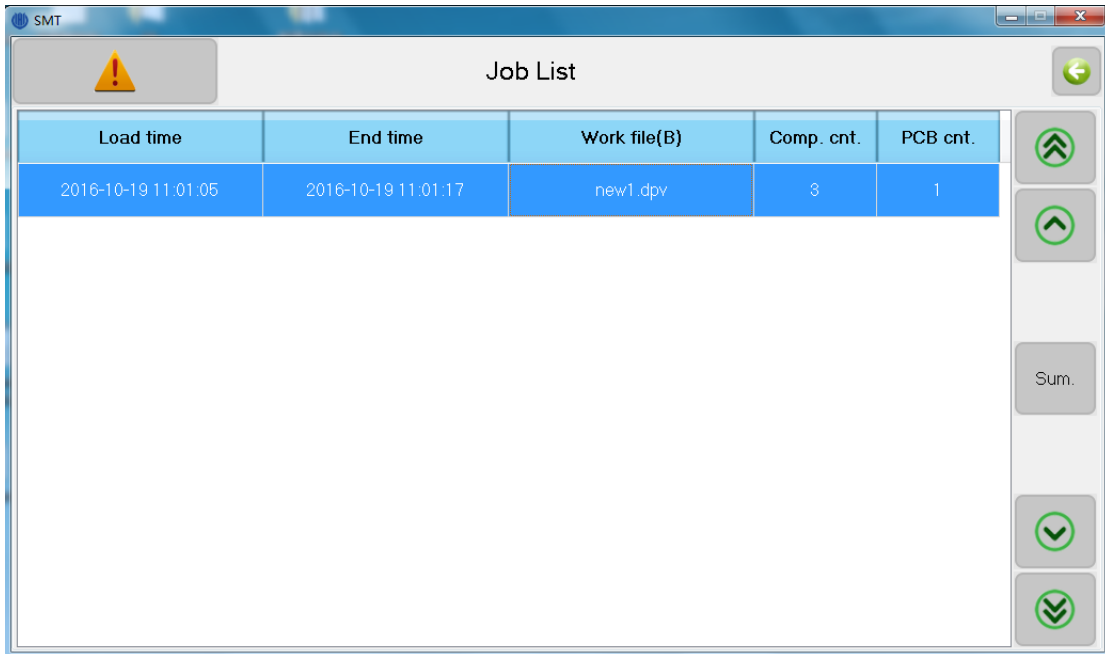


Figure.9-9

- (1) Edit: Edit coordinate information, or edit X\Y interval and count of PCB.
- (2) Delete: Delete selected coordinate.
- (3) Add: Add a new origin coordinate of PCB;
- (4) Array\Coordinate: Switching that manage batch by array or by coordinate.
- (5) Save: Save converted work file.

10.Log

Window as show below.



Load time	End time	Work file(B)	Comp. cnt.	PCB cnt.
2016-10-19 11:01:05	2016-10-19 11:01:17	new1_dpv	3	1

Figure.10-1

- (1) Log list: Each line records information of one running time of mounting PCB in total and all the components.
- (2) Record: Show mount count of each material stack in table.

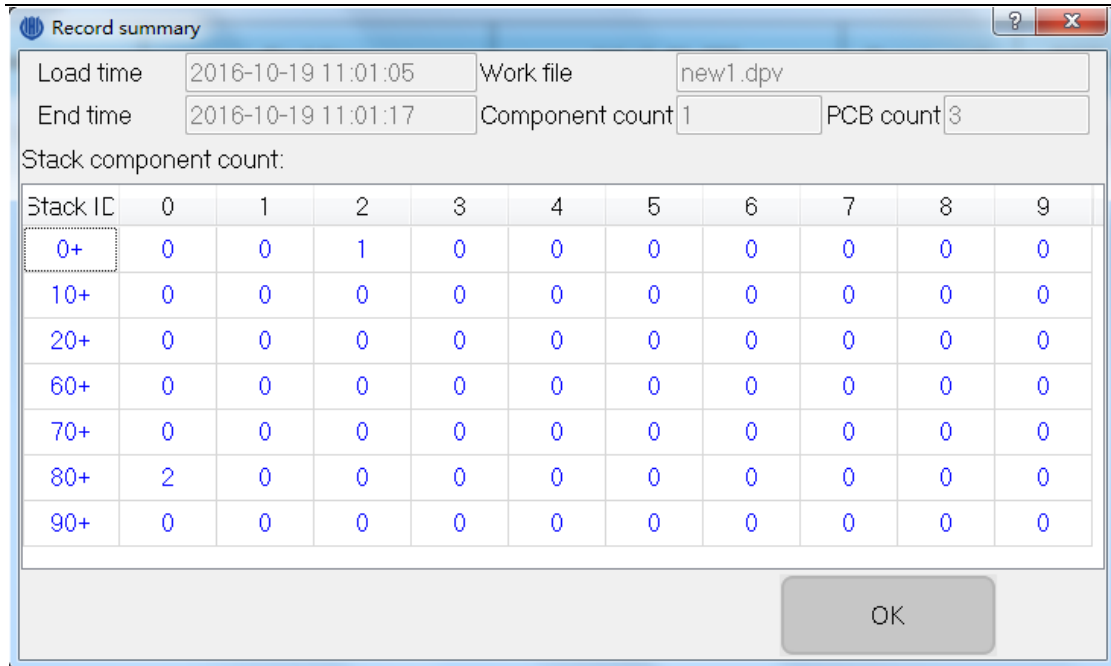


Figure.10-2

11. System Log

System log used to view all kinds of records generated by the system, Window as show below.

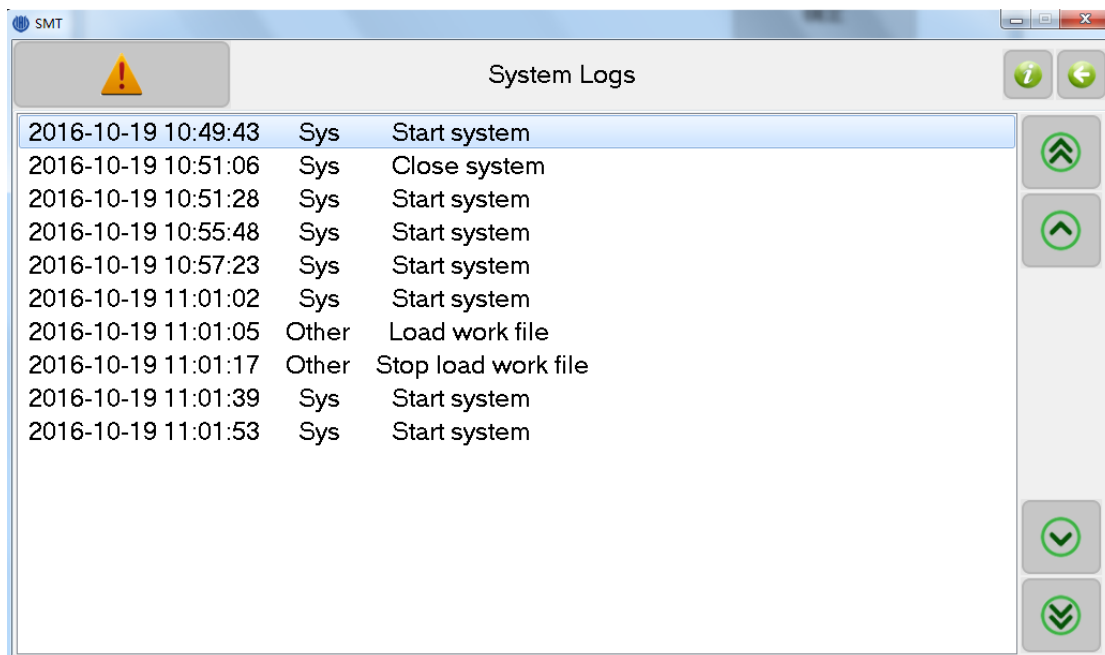


Figure.11-1

12. Quick Start

- (1) **Create work file:** By two ways
 - a) Export CSV file by PCB software, and then convert it to work file, refer to section "File".
 - b) Build work file manually, refer to section "Run"- "Edit Work File".
- (2) **Edit work file:** Modify work file according to your needs, refer to section "Run"- "Edit Work File".
- (3) **Place material:** Place material in corresponding material stack according to work file, note some points below when placing.
 - a) See figure below, material disk is fixed by three points, and the tape goes across under bearing.

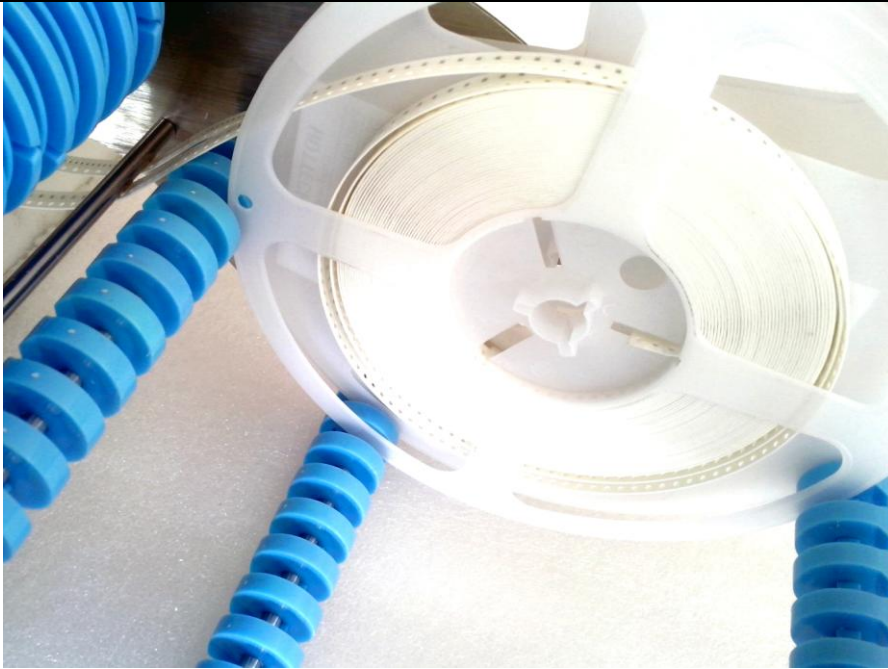


Figure.12-1

- b) See figure below, the tape goes across material stack and lead to underside of machine, note that align the round hole of tape to the edge of batten when placing, refer to section “Run”.



Figure.12-2

- c) See figure below, the film on tape goes across under bearing, and wound on belt receiving wheel.

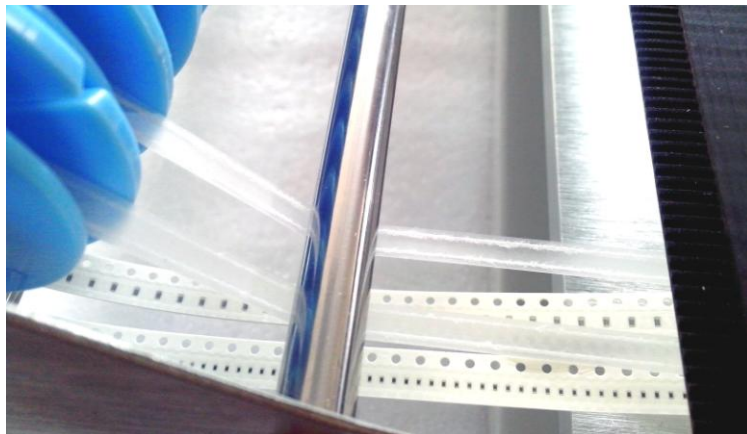


Figure.12-3

- d) The height of IC tray should not be exceeded, refer to section “Run”.
- (4) **Place PCB:** Place PCB with solder paste to PCB clamp area.
- (5) **Install nozzle:** Different model of nozzles are introduced below.
 - a) 502 is suitable for mounting footprint of 0402.
 - b) 503 is suitable for mounting footprint of 0603.
 - c) 504 is suitable for mounting footprint of 0805,1206,SOT23, etc.
 - d) 505 is suitable for mounting footprint of SOP8,SOP14, etc.
 - e) 506 is suitable for mounting footprint of QFN,TQFP, etc.



Figure.12-4

- (6) **Edit material stack:** Calibrate position of material stack, refer to section “Run”-“Material Stack” for details.

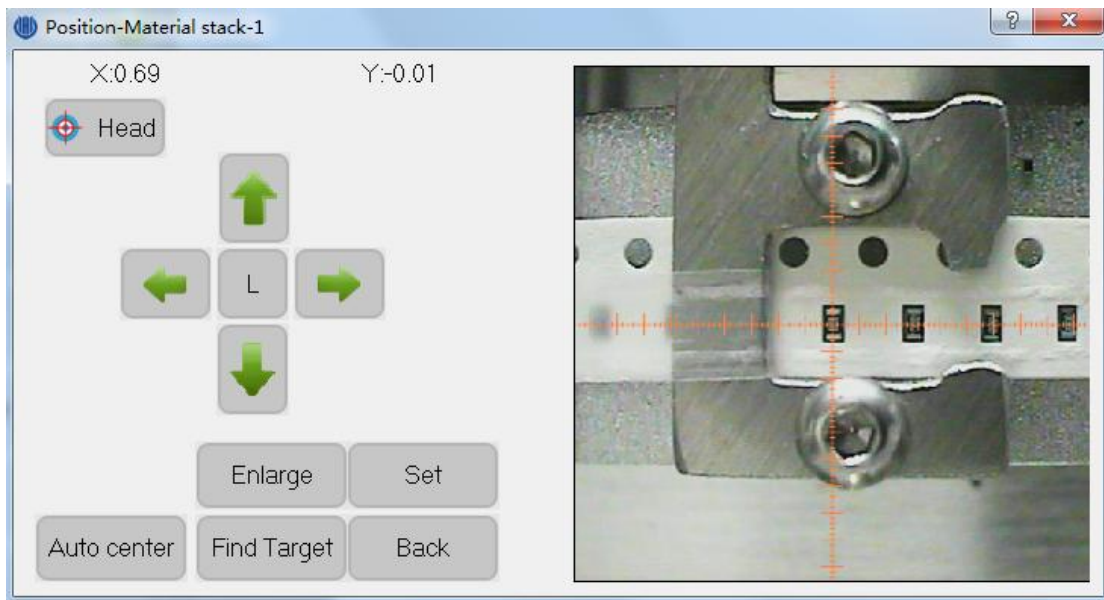


Figure.12-5

- (7) **PCB Calibration:** E.g. calibrating PCB by components, see figure below, refer to

section “Run”-“Edit Work File”-“PCB Calibration” for details.

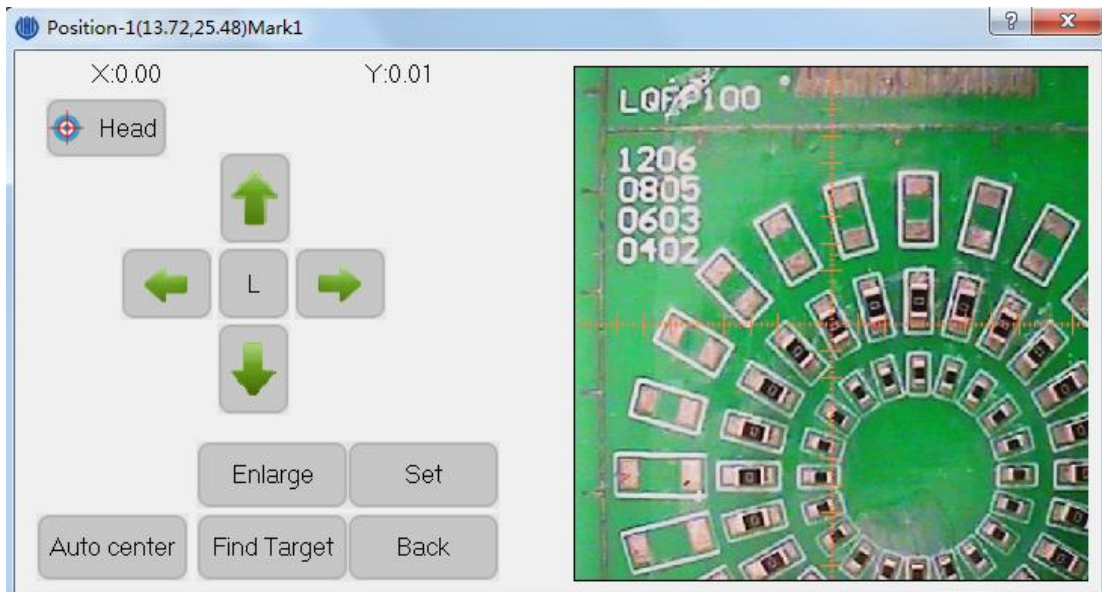


Figure.12-6



Figure.12-7

- (8) Running step by step: Running step by step in running window, check if the pull needle can work well, if not, it should be set it well in the system. each module is working normal, if not, adjusting relevant parts according to this manual until all of trouble are cleared.
- (9) Running continuously: Notice if machine is alarming and material feeding is normal when running, if there are any abnormal occurred then pause running immediately until all of trouble are cleared.

13.Maintenance

- Clearing machine after using, close software before switch off power;
- According to condition of using, smear some grease to bearings regularly to make sure it work smoothly.
- Cover machine if unused for a long time to avoid the dust.

14.Warranty

- Warranty range: SMT machine itself.
- Warranty period: 12 months.
- If there are problems in using, please contact us promptly, and do not repair by yourself to avoid damage to machine, or will lose your warranty.
- If accessories are breakdown, we will send a new one to you after receiving the break one.
- During warranty period, freight of send back to us is paid by user, freight of send to user is paid by us.
- Problems caused by below, we provide paid repair during warranty period.
 - Faulty operation, disassembly without permission.
 - Using beyond specification.
 - Crash or improper placing when using.
 - Using environment that do not fit for specification.
 - Wrong power supply.
 - Earthquake, fire, lightning or accident beyond control.

15.Contact Us

Telephone: 0086-0731-85504084

E-mail: charmhigh@163.com

Website: <http://www.charmhigh.com>