QM61 PICK AND PLACE MACHINE



/EASY /RELIABLE /SAFTY /PEACE OF MIND

Yueqing QiHe Electrical Technology Co.,Ltd

_____ www.qhsmt.com _____

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1. Preface

Thank you for your purchase and use of a full-automatic vision chip mounter (hereinafter referred to as equipment) produced by Yueqing Qihe Electronics Technology Co., Ltd.. The operating principle of the equipment is acquired from a component supply device (for example material rack), and the equipment is mounted on a circuit board after the coordinate position is calibrated through a vision system.

1.1. Safe Use

The equipment includes a feeding zone, a working zone and a control zone. If related equipment operates incorrectly, personnel and equipment are possibly damaged. Basic skills of operators shall include editing of software and maintenance of basic system hardware and additional devices such as material racks.



·Before use of equipment, an user must read the manual and can operate it after fully understanding contents of the manual.

•After reading the manual, please properly keep it with you to see about doubtful points at any time.

·Irrelevant personnel are prohibited to operate the equipment.

·In order to ensure safe operation and maintenance of the equipment, the operators must understand potential risk occurrence zones of the equipment.

·If the operators reform the equipment without prior agreement of the company or repair it without following methods of the application manual, equipment safety is possible to be damaged seriously.

•The equipment can be absolutely not reformed and repaired by the methods without being admitted by the company.

1.2. Related Guarantee

When the equipment comes about the abnormal phenomena, contents of guarantee are as follows:

Contents of guarantee When the equipment comes about faults due to component materials for constituting the equipment or production, it shall be maintained and repaired for free.

Guarantee period From the delivery date, the whole equipment shall be guaranteed for one year, the suction nozzle shall be guaranteed for one month and the belt shall be guaranteed for

three months.

Items except for guarantee The following conditions aren't guaranteed:

When the storage equipment is damaged, loss of data stored in the equipment cannot be guaranteed; thus the data shall be backed up usually.

Error system actions caused by operating programs irrelevant to equipment application or data loss caused by virus infection.

Aging with time change, or abnormal phenomenon caused by natural wear during equipment use (for example depreciation of oil paint, electroplated layers and consumables).

Change of weak sensibility without affecting equipment quality and performances (for example controller actions and sounds, motor rotation sounds and air pump sounds).

Abnormal phenomenon caused by application environment conditions (for example water, powder and impurities, and dust and oil stains on machinery equipment).

Natural disasters for example earthquake, typhoon, flood, fire and lightning, or accidents.

Imperfect or error maintenance service of equipment.

2. Equipment Introduction

In the fourth generation of QM41, the company's research team is determined to be faster and more accurate, and the product is QM61.

The design highlights of this model are:

1. Six head eight visual design. Six upper vision with each suction nozzle, a high-definition vision detection higher precision chip, a lower visual detection circuit board placement.

2. The structure of slide block and screw rod is adopted, the performance is more stable, and the operation is smoother.

3. Using servo motor, the machine never loses step.

4. The speed increased by 1.2 times on the original basis.

5. dded assembly line segment function, the machine can be in the process of placing, circuit board in advance, mounting efficiency is higher.

3. Equipment Description

3.1. Hardware Properties

The boundary dimension of this equipment is 1350*1365*1330mm. It mainly consists of a work head, top and bottom visual systems, a work table, feeders, etc. Power supply AC220V or AC110V, Power should be 400W.

3.2. Software Features

The software is independently developed by our company, with independent intellectual property rights, have Chinese and English interface, and easy operation.

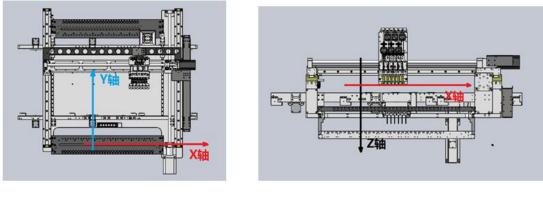
3.3. Specification and Installation of Suction Nozzles

This equipment adopts double-end design, and suction heads are equipped with different types of suction nozzles. There are No. 502, No. 503, No.504 No. 505, and No. 506 suction nozzles available. Under normal condition, No. 502 suction nozzle is the smallest, while the No. 506suction nozzle is the biggest (see video tutorial for installation of suction nozzles for detailed information). Components corresponding to every suction nozzle are shown below.

Suction Nozzle Model No.	Legend	Suitable Encapsulation
Suction Nozzle No. 502	EIGAH	Recommended Encapsulation: 0402
Suction Nozzle No. 503	EIGAH	Recommended Encapsulation: 0603
Suction Nozzle No. 504	RICINH	Recommended Encapsulation: 0805, 1206, 1210, 2512, 3528
Suction Nozzle No.505	A STOLAH	Recommended Encapsulation: 3528, 5050, SOP-8
Suction Nozzle No. 506	GIONH	Recommended Encapsulation: TQFP48、SSOP20, TQFP64、 SSOP28,etc.

3.4. Description of Coordinate System

Picture 1-1 and Picture 1-2 show the coordinate system of this equipment. The moving range of X and Y axis is 570*720mm, while the moving range of Z axis is 32mm.



Picture 1-1

Picture 1-2

3.5. PCB Standards

This equipment applies to PCB size is 400mm*600mm at most, available for jointed board operation.

3.6. Control Panel

3.6.1. Control Panel Introduction



3.6.2. Control Panel Operation

1.Lighting machinery-- lighting

2.computer power-- open the computer

3. Single step button, subdividing the pick and place steps, easy to adjust.

4.Start/stop button, starting or stopping running.

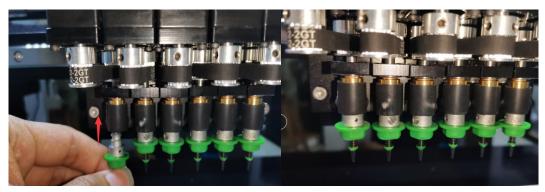
When load a new file, press the button once, the program will start running automatically. In the process of running, press this button, pop-up a dialog box (whether to stop YES/NO). If you are sure to stop, press this button again. If you choose "NO", press "Pause/ Continue" button on the panel. You can operate the program on the computer as well. (If you want to stop the program, press the button twice). When restarting a mounting program, press the button once and there will appear a dialog. You can choose according to the actual situation. If you want to continue the last action, press this button again. If you want to remount all, press "Pause/ Continue" button on the right. You can operate the program on the computer as well.

5.Pause/ Continue button. During the process of mounting, this button is used to pause and continue the mounting program.

6.Scram Stop button. In an emergency moment, press the button to cut the power supply. If continue working, twist this button.

4. Preparation Before Equipment Use

4.1. Install the nozzle



Prepare a suction nozzle, then push up and complete the installation.

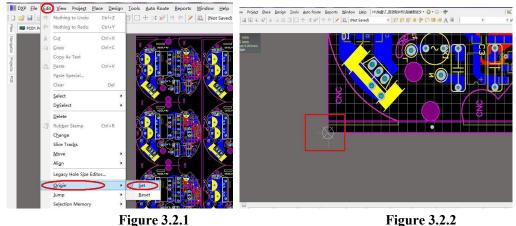
When you need to replace the suction nozzle, hold the motor with your hand and then pull down to complete the dis-assembly.

4.2. Export coordinate file(CSV file)

At present, we support coordinate files derived by protel, Altium Designer (DXP), pads, Candes, and proteus and adopt the format of .CSV; because protel and Altium Designer (DXP) are generally used, we only explain their deriving ways.

4.2.1. origin orientation

Because the coordinates of the circuit board required for mounting the chips must be consistent to the ones of the equipment, the circuit board is required for origin orientation. Protel 99 SE and Altium Designer (DXP) have the same orientation way, thus we explain the origin orientation of DXP, as the reference of Protel 99 SE. As shown in Figure 3.2.1, selecting Origin in the following menu of Edit and clicking set; selecting the left bottom of the circuit board as the origin (as shown in Figure 3.2.2) and then deriving the coordinates.



4.2.2. Derivation of Altium Designer (DXP) Coordinates

Step 1: origin orientation.

Step 2: as shown in Figure 3.2.3, firstly left clicking File, selecting Assembly Outputs and Generates pick and place files, popping up Picture 2.12, selecting the format of .CSV and the unit of metric system, and finally deriving the coordinates by left clicking OK. The file has the name suffix of .csv and is placed in the same directory together with the PCB file.



Figure3.2.3

Figure 3.2.4

4.2.3. Coordinate Files Derived from Protel99

Step 1: opening Protel99 software with double click, loading the files of the circuit board required for mounting the chips, and executing origin orientation.

Step 2: as shown in Figure 3.2.5, firstly selecting CAM Manager with left click, deriving the coordinates according to steps of Figure 3.2.8, and finding the file according to Figure 3.2.6 and Figure 3.2.7; the file has the name suffix of .csv.

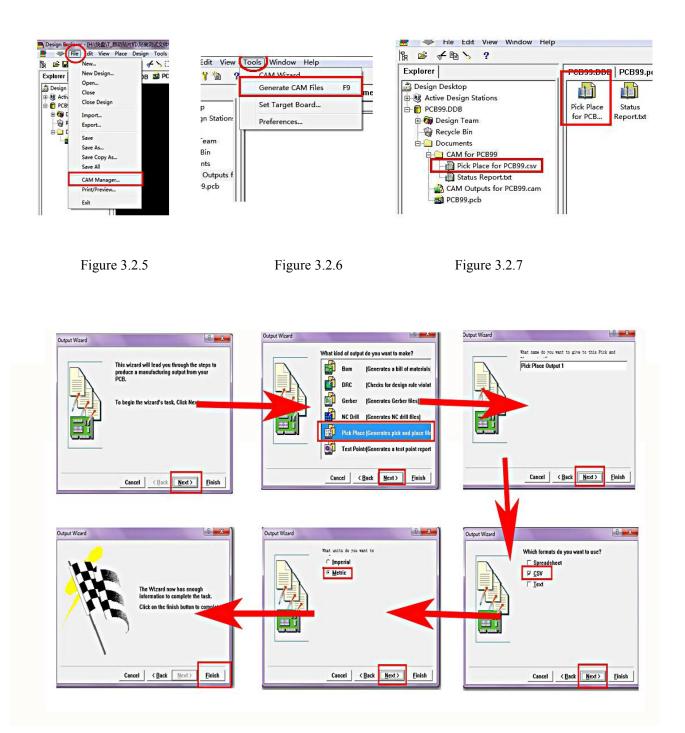


Figure 3.2.8

4.2.4. if there is no coordinate file.

1. Manually add a coordinate, then move the visual camera to the corresponding position and grab the coordinates.

QIHE Pick And Place	SN:6C-35-30-1	E-39-65 V1.00	FW:2018101	5										
CHE	Pick Place for top1.csv										9			
启和科技	Board	Compo	nent F	eeder	Assist	SubPCB	Config	S	elect 1 Line			8		
Edit	Name	Feeder	х	Y	Angle		Deta	iled		12	\sim		1	
	R37_1	None	29.95	8.80	135.0		080	R 3k			101	JL	and l	
Run	R7_1	None	24.34	14.41	315.0		040	2 1K		HQ.				
	R33_1	None	29.92	24.19	45.0		080	R 3k					2	
Sys	R29_1	None	14.56	24.19	135.0		080	iR 3k		- O.	1A	>		
Config	R25_1	None	14.61	8.88	225.0		080	R 3k				1		= /
	R38_1	None	26.56	6.63	292.5		080	iR 3k		EG		0	7	1=4
Manual	R36_1	None	32.33	12.44	337.5		080	iR 3k					4	
	R34_1	None	32.31	20.71	22.5		080	R 3k				6		
	R32_1	None	26.24	26.57	69.5		080	R 3k			2	\sim	1.14	
	R30_1	None	18.10	26.55	112.5		080	R 3k				1		
	R28_1	None	12.13	20.60	157.5		080	SR 3k		1	2	3 4	5 6	6 HD 🙎
	R26_1	None	12.13	12.37	202.5		080	R 3k		Move	Messag	e		
	R40_1	None	18.24	6.45	250.5		080	iR 3k				81		400.04
	U1_1	None	48.09	18.05	0.0		LQFP100_N	LQFP100	<u>N</u> =	X:		318.91	Y:	106.91
	U2_1	None	48.09	18.05	360.0		LQFP-48_N	LQFP48_	N					
	1	None	0.00	0.00	0.0		Ne	w1		LOV	w Spee	a 1		
Home All	Load	Save	Add	Delete	Select The Same	Comp Size	Array	Aimed	Capture			1	•	

2. Then edit the angle and description

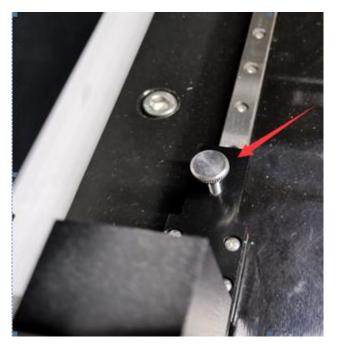
CHE				Pick Pla	ace for	top1.c	sv				B	1			· . III
启和科技	Board	Compo	nent	Feeder	Assist	SubPCB	Config	Se	elect 1 Lines			Ô	2		
Edit	Name	Feeder	х	Y	Angle		Deta	iled		4))	D	1	
	R37_1	None	29.95	8.80	135.0		0805	iR 3k			X	10			UUUHHHH
Run	R7_1	None	24.34	14.41	315.0		040	2 1K		FQ.			1		
	R33_1	None	29.92	24.19	45.0		0805	R 3k				1			
Sys	R29_1	None	14.56	24.19	135.0		0805	iR 3k		-0	J.F	5	_		
Config	R25_1	None	14.61	8.88	225.0		0805	R 3k		1		J	ATR.		
Manual	R38_1	None	26.56	6.63	292.5		080	iR 3k			V	N	10	7	/= <u>4</u>
	R36_1	None	32.33	12.44	337.5		0805	iR 3k			11	$\langle \wedge \rangle$			
	R34_1	None	32.31	20.71	22.5		0805	iR 3k			1	Vo			
	R32_1	None	26.24	26.57	69.5		0805	iR 3k				1			
	R30_1	None	18.10	26.55	112.5		0805	SR 3k							
	R28_1	None	12.13	20.60	157.5		0805	iR 3k		1	2	3	4	5	6 нд 🧕
	R26_1	None	12.13	12.37	202.5		0805	R 3k		Move	Mess	age			
	R40_1	None	18.24	6.45	250.5		0805	iR 3k							
	U1_1	None	48.09	18.05	0.0		LQFP100_N	LQFP100_	N =	X	:	318	.91	Y:	106.91
	U2_1	None	48.09	18.05	360.0		LQFP-48_N	LQFP48_N	1				/		
	1	None	318.91	106.91	0.0		080	SR 3k		LC	ow Sp	eed	1		
Home All	Load	Save	Add	Delete	Select The Same	Comp Size	Array	Aimed	Capture		4		~	ŀ	

Note: the exported coordinate file should not be modified with EXCEL, otherwise the software will not be recognized.

4.3. PCB installation operation.



Place the PCB on top of the platform and then clamp it.



4.4. Mark point set

4.4.1. The PCB drawings have mark points:

1. Select the corner point of the circuit board as mark point (if there is no standard mark point, we can use the soldering pan instead)Double click mark position and record the coordinates. (mark1: 7.306, 6.051 mark2: 37.316, 29.426)

	• TO	P	
焊盘	2 ×	焊盘	? ×
Top Laye (Bottom Laye) (Top Paste / Bottom Paste / Location × 7.255mm Y 6.051mm 塗装 0.000 Holk Information 1.6 ① 0mm ② Bourn ⑤ 50aur ⑤ State 『 Multi-Layer 中 气気量 順 Load 劉減止 ● 御金 ●	2 Top Solder, (Ballom Solde), Mult-Layer/ 尺寸和形状 ● 薄単 ● 页 命 我 ● 全堆紙 - 文尺寸 水尺寸 形状 Raduar (2) 1.524mm 1524mm Roard ● 502 - 現場全得意電空火 - 助理盤扩展 ● 滑程服则未定扩展值 - 指定扩展值 - 指定扩展值 - 指定扩展值 - 指定扩展值 - 指定扩展值 - 指定扩展值 - 近距 - 近距 - 近距 - 近距 - 近距 - 近距 - 近距 - 近距 - 近回 - 近 - 近回 - 近 - 近 - 近回 - 近回 - 近 - 近回 - 近回 - 近回 - 近回 - 近 - 近 - 近 - 近 - 近 - 近 - 近 - 近	X 27 310em Y 23 425cm 登转 0.000 Hole Information 引 役 節団 ⑤ Bour ⑤ Soure ⑤ Stot 麗性 有税利 2	2 2 Solder, (Bottom Solder), Multi-Layer/ R7 1081次 ④ 高年 (金) 長年 43 (① 全境後 ○ 大尺寸 Y-尺寸 形於 Rodus (2) 1524em 1524em Round • 502 (頃后全得盘层空火). 助得服扩配 ④ 稍振似则未能扩照值 ④ 指定扩照值 ① 152mm ④ 稍振似则未能扩照值 ④ 指定扩照值 ① 152mm ④ 有肌同人生扩照值 ① 152mm ④ 有肌同人生扩照值 ① 152mm ④ 有肌同人生扩展值 ① 152mm ④ 有肌同人生扩展值 ① 152mm ④ 有肌同人生扩展值 ① 152mm ④ 有肌同人生黄生成全起 ③ 在肌同上感到生成全起
	确认 取消		确认 取消

2. Input the PCB coordinates in the drawing coordinates, and then use the visual camera to find the corresponding mark coordinates and grab.

QIHE Pick And Place	SN:6C-35-30-1E-39-65 V1.00 FW-20181016	
ÇHE	Pick Place for top1.csv	
启和科技	Board Component Feeder Assist SubPCB Config	
Edit	Mark	
Run	Source Pos: 7.36 6.09 37.29 29.49 Measure	
Sys Config	Target Pos: 293.18 30.36 323.14 53.82	
Manual	Template Size: 3.00 mm	
	Shape: Get Get	
	Match Degree: 5 · · · Vision Range: 70	1 2 3 4 5 6 HD 2 Move Message
	Conveyor Flow In Flow Out	X: 293.18 Y: 30.36
Home All	Load Save Add Delete Select Comp Array Aimed Capture	• • •

4.4.2. The PCB drawings not have mark points:

We can take the coordinates of two welding plate as mark points for positioning.

QIHE Pick And Place	SN:6C-35-30-1E-39-65 V	1.00 FW-20181016								- 0 -×
ÇHE	Pick Place for top1_Top11.qhd						1			6
启和科技	Board Con	ponent Feede	er Assist	SubPCB	Config	Select 2 Lines				
Edit	Name Feede	r X	Y Angle	e	Detailed					
	R18_1 None	28.37	19.01 22.	5	0603 2k		1 (20	No.
Run	R20_1 None	28.38	14.01 337	.5	0603 2k		1 20			219
-	R39_1 None	22.22	5.64 270		0805R 3k					니며및
Sys	R31_1 None	22.24	27.38 90.		0805R 3k		1 1		75	7/0
Config	R27_1 None	11.35 33.16			0805R 3k		1 1	-	PPIL	
Manual	R35_1 None R37_1 None		8.80 135		0805R 3k			V: L	-	
	R7_1 None		14.41 315		0402 1K				-	× 211
	R33_1 None		24.19 45.		0805R 3k	8			$\langle \rangle$	13
	R29_1 None		24.19 135		0805R 3k					107 1
	R25_1 None		8.88 225		0805R 3k		1 2	3 4	5 6	HD 🙎
	R38_1 None	26.56	6.63 292	.5	0805R 3k		Move Me	essage		
	R36_1 None		12.44 337		0805R 3k		X:	297.17	Y:	40.85
	R34_1 None		20.71 22.		0805R 3k		<u>^.</u>	297.17	τ.	40.05
	R32_1 None		26.57 69.		0805R 3k		Low S	Speed 4		
	R30_1 None	18.10	26.55 112	.5	0805R 3k					
Home All	Load Save	Add	Delete Clear Selecter	d Comp Size	Array Ai	med Capture				-
Egg與技 Edit Run Sys Config Manual	Board Cor Mark Source Po Target Po Template Siz Shap Match Degre	s: 11.35 s: 297.17 e: 3.00 mm	Mark1 16.54 40.85	J_TOPI SubPCB 33.16 319.02 Vision Ran	Config Mark2 16.54 140.85 Test Get	Measure	1 2			HD
	Conveyor	Flow	In	Flow			Move Me X: Low S	297.17 peed	Y:	40.85
Home All	Load Save	Add	Delete Select The Sam		Array Air	med Capture			Show hide	den icons

4.4.3. The PCB drawing has no mark point, but the PCB production has added the process edge to you and wants to use the mark point of the craft.

?HE	Pick Place for top1_Top11.qhd	
启和科技	Board Component Feeder Assist SubPCB Config	
Edit	Mark	
Run Sys	Source Pos: 11.35 16.54 33.16 16.54 Measure	
Config	Target Pos: 297.17 40.85 319.01 40.85	
Manual	Template Size: 3.00 mm	
	Shape: Get	
	Match Degree: 5 Vision Range: 70	1 2 3 4 5 6 HD 2 Move Message
	Conveyor Flow In Flow Out	X: 297.17 Y: 40.85
Home All	Load Save Add Delete Select Comp Array Aimed Capture	• • •

click measure to editor

1. Select a coordinate on the drawing, then move the camera to the top and grab it.

QIHE Pick And Place	SN-6C-35-30-1E-39-65 V1.00 FW/20181016	- C - X-
CHE 启和科技	Pick Place for top1_Top11.qhd	·
Edit	Origin Point Of Coordinate: 33.16 16.54	
Run	Actual Pos Of Original Point : 319.01 40.85 Capture Aimed Angle: 0.00	
Sys	Calculate The Angle	
Config	Teach 2 Points In Horizontal Or Vertical Directions	
Manual	Point 1: 0.00 0.00 Capture Aimed Get	
	Point 2: 0.00 0.00 Capture Aimed	
	Actual Pos Of Mark1: 0.00 0.00 Capture Aimed 1 2	3 4 5 6 HD 2
	Actual Pos Of Mark2: 0.00 0.00 Capture Aimed Move Me	ssage
	X:	319.01 Y: 40.85
	OK Cancel Hig Spe	
Home All	Load Save Add Delete Select Comp Array Aimed Capture	

2. Angle measurement, select two horizontal or vertical points, grab, calculate is ok.

QIHE Pick And Place	SN:6C-35-30-1E-39-65 V1.00 FW:20181016	
QHE	Pick Place for top1_Top11.qhd	
启和科技 Edit Run	Origin Point Of Coordinate: 33.16 16.54 Actual Pos Of Original Point : 319.01 40.85 Capture Aimed	
Sys	Angle: 0.05	
Config	Teach 2 Points In Horizontal Or Vertical Directions	
Manual	Point 1: 319.61 41.46 Capture Aimed Point 2: 297.87 41.44 Capture Aimed	
	Actual Pos Of Mark1: 0.00 0.00 Capture Aimed	2 3 4 5 6 HD 9
	Actual Pos Of Mark2: 0.00 0.00 Capture Aimed Move	
	OK Cancel	:: 297.87 Y: 41.44
Home All	Load Save Add Delete Select Comp Size Array Aimed Capture	◆ ↓ →

3. Select the two diagonal mark points above the process point, grab and determine, and the exact calculation can be done.

QIHE Pick And Place	SN-6C-35-30-1E-39-65 V1.00 FW:20181016	
ÇHE	Pick Place for top1_Top11.qhd	
启和科技	Board Component Feeder Assist SubPCB Config	The second
Edit	Mark Ø Mark1 Ø Mark2	
Run	Source Pos: 7.33 6.06 37.38 29.42 Measure	
Sys Config	Target Pos: 293.19 30.35 323.22 53.73	
Manual	Template Size: 3.00 mm	
	Shape: Get Get Get	
	Match Degree: 5 · Vision Range: 70	1 2 3 4 5 6 HD 2 Move Message
	Conveyor	X: 293.19 Y: 30.35
	Flow In Flow Out	Low Speed
Home All	Load Save Add Delete Select Comp The Same Size Array Aimed Capture	◆ ↓ →

4.5. operation steps

- 1. Install suction nozzle according to the size of components.
- 2. Open the software, locate the origin and load the file coordinates.

QIHE Pick And Place	SN:6C-35-30-1E-39-65 V1.00 FW:20181016	- ° ×
。 肩和科技	Board Component Feeder Assist SubPCB Config	
Edit	Board Component Feeder Assist SubPCB Config Mark	
Luit	GoHome	
Run	Source Pos: 0.00 LIMIT+ LIMIT- Go Home State	
Sys Config	Target Pos: 0.00 X : Done !	
Manual	Template Size: 3.00 m Y: Done !	
	Home1 Shape: Z : • • • • • Done !	
	Match Degree: 8 ' Start Stop Cancel	1 2 3 4 5 6 HD 2 ove Message
	Conveyor	X: -50.00 Y: 600.00
	Flow In Flow Out	High Speed
Home All	Load Save Add Delete Select The Same Comp Size Array Aimed Capture	+ + +
Edit Run Sys Config Manual	SteC 33:30-15:39:45 V1.00 PW.20181016	
	Mate	1 2 3 4 5 6 HD 2 Move Message
	Conveyor Flow In Flow Out	X: -50.00 Y: 600.00 High Speed
Home All	Load Save Add Delete Select Comp Size Array Aimed Capture	

3. Set mark point coordinates and delay parameters (typically 20-100 ms)

Reference point identification parameters can be selected according to their own situation.

QIHE Pick And Place	SN:6C-35-30-1E-39-65 V1.00 FW:20181016	_ 0 <u>_ x</u> _
QHE	Pick Place for top1.csv	
启和科技	Board Component Feeder Assist SubPCB Config	
Edit	Mark	
Run	Mark1 Mark2	
	Source Pos: 7.36 6.09 37.29 29.49 Measure	
Sys Config	Target Pos: 293.18 30.36 323.14 53.82	
Manual	Template Size: 3.00 mm	
	Shape: Get Get	1 2 3 4 5 6 HD Q
	Match Degree: 5 Vision Range: 70	Move Message
	Conveyor	X: 293.18 Y: 30.36
	Flow In Flow Out	Low Speed
Home All	Load Save Add Delete Select The Same Comp Size Array Aimed Capture	
	SN6C-35-30-1E-39-65 V1.00 FW-20181016	
CHE 启和科技	Pick Place for top1_Top11.qhd	EL.
	Board Component Feeder Assist SubPCB Config	
Edit	Mark	
Run	Pattern: 🧭 MVision Manual None	
	Pause After MVision	
Sys		
Config	Delay Nozzle1 Nozzle2 Nozzle3 Nozzle4 Nozzle5 Nozzle6	
Manual	Pick Delay: 20 20 20 20 20 20 20 ms	
	Place Delay: 40 40 40 40 40 40 ms	
	Other	1 2 3 4 5 6 HD Q
	PCB Thickness: Component Auto Sort:	Move Message
	0.60	X: 293.19 Y: 30.35
	Save Feeder Data:	
		Low Speed
Home All	Load Save Add Delete Select Comp Array Aimed Capture	◆ ↓ →

4. Select the position of the device and position the camera. If the position is not correct, we need to check it. The PCB file or the mark point is set incorrectly.

?HE			Pick	Place f	or top1	_Top1	1.qhd			<u>iii</u>	Ľ	1			N. 1
启和科技	Board	Compon	ent I	Feeder	Assist	SubPCB	Config	Sele	ect 1 Lines		$\overline{\mathbf{a}}$	\sim			
Edit	Name	Feeder	х	Y	Angle		Detailed		•	4	20) I	P	7	
	R21_1	None	26.95	11.88	315.0		0603 2k				ON-	10			=
Run	R17_1	None	26.95	21.12	45.0		0603 2k			140		2-			
	R18_1	None	28.37	19.01	22.5		0603 2k					1		1. A	
Sys	R20_1	None	28.38	14.01	337.5		0603 2k			2		55	· · · · · ·		
Config	R19_1	None	28.86	16.47	360.0		0603 2k				2/2	-11		1	
	R33_1	None	29.92	24.19	45.0		0805R 3k				-0	1	10	7	
lanual	R37_1	None	29.95	8.80	135.0		0805R 3k			10	FIL	$/ \wedge$		9	/
	R34_1	None	32.31	20.71	22.5		0805R 3k					Vo)			
	R36_1	None	32.33	12.44	337.5		0805R 3k		н			1	\mathcal{I}		
	R35 1	None	33.16	16.54	0.0		0805R 3k			100					6 HD
	U1_1	None	48.09	18.05	0.0		LQFP100_N LQF	P100_N	L.	1	2	3	4	5	6 HD
	U2_1	None	48.09	18.05	360.0		LQFP-48_N LQF	P48_N		Mov	e Mes	sage			
	R50_1	None	62.94	16.28	360.0		1206 6.8k				Long South				
	R51_1	None	66.89	25.36	315.0		1206 6.8k				X:	319	.01	Y:	40.8
	R49_1	None	67.01	7.33	45.0		1206 6.8k				Hig	h			
	Q1_1	None	68.93	16.42	270.0		SOT-23A S8) <mark>5</mark> 0			Spee		1	r	
ome All	Load	Save	Add	Delete	Select The Same	Comp Size	Array Ai	med	Capture		4			ŀ	-

5. Select the feeder number (after selection, need to calibrate the feeder position) The lower visual center is in the center of the component.

CHE		39-65 V1.00	0 FW:20181016				
			Pick	Place f	or top1	L_Top11.qhd	
启和科技	Board	Compo	onent Fe	eder	Assist	SubPCB Config	
Edit	Name	Feeder	х	Y	Angle	Detailed	
	R33_1	F25	29.92	24.19	45.0	0805R 3k	
Run	R37_1	F25	29.95	8.80	135.0	0805R 3k	
Cure .	R34_1	F25	32.31	20.71	22.5	0805R 3k	
Sys Config	R36_1	F25	32.33	12.44	337.5	0805R 3k	
comig	R35_1 U1_1	F25 I1	33.16 48.09	16.54 18.05	0.0	0805R 3k LQFP100_N LQFP100_N	
Manual	U2_1	12	48.09	18.05	360.0	LQFP-48_N LQFP48_N	
	R50_1	F25	62.94	16.28	360.0	1206 6.8k	
	R51_1	F25	66.89	25.36	315.0	1206 6.8k	
	R49_1	F25	67.01	7.33	45.0	1206 6.8k	
	Q1_1	F25	68.93	16.42	270.0	SOT-23A \$8050	1 2 3 4 5 6 HD
	Q2_1	F25	70.67	21.79	225.0	SOT-23A S8050	Move Message
	Q8_1	F25	70.68	11.05	315.0	SOT-23A S8050	X: 293.19 Y: 30.3
	R48_1	F25	73.09	16.39	180.0	0402 5.1k	X. 255.15 1. 50.5
	R47_1	F25 F25	73.92 73.95	14.35 18.52	225.0 135.0	0402 5.1k 0402 5.1k	Low Speed
	R41_1	F25	75.95	18.52	155.0	0402 5.1k	
Home All	Load	Save	Add	Delete	Select The Same	Comp Size Array Aimed Captur	
	SN:6C-35-30-1E-3	9-65 V1.00	FW:20181016				
		Dack D	ander IC A	rau Vibrat	Englar	Vision UD Vision Other Advance	
启和科技					e Feeder	Vision HD Vision Other Advance	
启和科技	Front Feeder		eeder IC A	rray Vibrat Y	e Feeder	Vision HD Vision Other Advance	
		er	x		Open		
启和科技	Feed	er 1 28	X 80.84	Y			
启和科技 Edit Run Sys	Feed F21	er 1 28 2 29	X 30.84	Y -103.52	Open		
启和科技 Edit Run Sys Config	Feed F21 F22	er 1 28 2 29 3 31	X 80.84 97.34 .3.84	Y -103.52 -103.52	Open Open		
启卸科技 Edit Run Sys Config	Feed F21 F22 F23	er L 28 2 29 3 31 4 33	X 30.84 97.34 3.84 32.34	Y -103.52 -103.52 -103.52	Open Open Open		
启卸科技 Edit Run Sys Config	Feed F21 F22 F23 F24	er 1 28 2 29 3 31 4 33 5 34	X 30.84 97.34 3.84 2.34 46.42	Y -103.52 -103.52 -103.52 -103.52	Open Open Open Open	Name	
启卸科技 Edit Run Sys Config	Feed F21 F22 F23 F24 F25	er 1 28 2 29 3 31 4 33 5 34 5 36	X 30.84 17.34 3.84 52.34 53.34	Y -103.52 -103.52 -103.52 -103.52 -102.99	Open Open Open Open	Name	
启卸科技 Edit Run Sys Config	Feed F21 F22 F23 F24 F26	er 1 28 2 29 3 31 4 33 5 34 5 36 7 37 3 39	X 10.84 17.34 3.84 16.42 19.84 19.84 19.84 10.6.34 10.84	Y -103.52 -103.52 -103.52 -103.52 -103.52 -103.52 -103.52 -103.52	Open Open Open Open Open	Name	
启和科技 Edit Run	Feed F21 F22 F23 F24 F24 F24 F26 F27	er L 28 2 29 3 31 4 33 5 34 5 36 7 37 3 39	X 10.84 17.34 3.84 16.42 19.84 19.84 19.84 10.6.34 10.84	Y -103.52 -103.52 -103.52 -103.52 -103.52 -103.52 -103.52	Open Open Open Open Open Open Open	Name	1 2 3 4 5 6 HD Move Message X: 346.42 Y: -1020
启和科技 Edit Run Sys Config	Feed F21 F22 F22 F24 F24 F26 F27 F27 F28	er 1 28 2 29 3 31 4 33 5 34 5 34 5 36 7 37 3 39 9 41	X 30.84 37.34 3.84 46.42 46.42 99.84 90.84 90.84 90.84 90.84 90.84	Y -103.52 -103.52 -103.52 -103.52 -103.52 -103.52 -103.52 -103.52	Open Open Open Open Open Open Open Open Open Open	Name	1 2 3 4 5 6 HD Move Message X: 346.42 Y: -1020

6. Select different types of suction nozzle to install different components. Some devices need to set high, speed and vision and pressure.

QIHE Pick And Place	SN:6C-35-30	D-1E-39-65	5 V1.00 I	FW:20181	016									and the second se	- 0 ×
QHE				Pic	k Pla	ce f	or to	p1_	Тор	11	L.qhd				E.
启和科技	Board	i c	ompone	ent	Feeder		Assist	S	ubPCB		Config				
Edit	Feeder	Noz1	Noz2	Noz3	Noz4	Noz5	Noz6	High	Spee	d	Angle	De	tailed		
	F25				0	2	13	0.50	100	•	0.00	080	05R 3k		5.16
Run	I1		V			1	1	0.50	100	•	0.00	LQFP100	N LQFP1		179
	12			V			E	0.50	100	•	0.00	LQFP-48	N LQFP4		
Sys															457
Config															100
														FALL	
Manual															
															2
														1 2 3 4 5 6	HD 👤
														1 2 3 4 5 6	
														Move Message	
														X: 295.32 Y:	107.56
														Low Speed	
	[1	Ĩ		T.		Ĭ.	Ť		Y		-	T		
Home All	Load	Si	ave	Add	D	elete	Selei The Sa		Comp Size		Array	Aimed	Capture		
							The so		5120						Real of

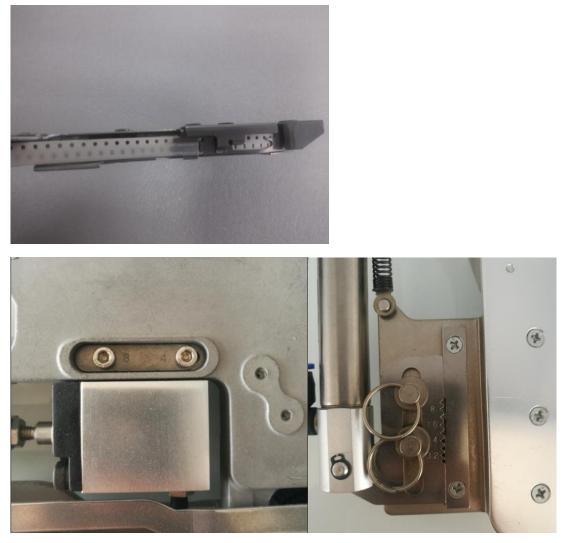
"HE			Pic	k Place	for top1	L_Top11	qhd			
启和科技	Board	Com	nponent	Feeder	Assist	SubPCB	Config	Select 3	Lines	
Edit	Feeder	Group	Vision	Range	Threshold	Check	Discard	None	W	
	F25	Ø	Quick	· 100	100	None -	325	250		June 100 100 100
Run	I1	E	HD-On	- 100	100	None -	325	250		
	12		HD-Exa	- 100	100	None -	325	250		
Sys						None				
Config						Pressure Vision				
						Vacuum+Visi	<u>c</u>			
Manual										
										1 2 3 4 5 6 HD 2
										Move Message
										X: 293.19 Y: 30.35
										Low Speed
		<u> </u>		m	ĩ	<u> </u>	Ť	Ĩ	ŀ	Low Speed

7, choose run

	SN:6C-35-	30-1E-39-65	V1.00 FW:2	0181016				2
启和科技			Cor	nponent		0/67	SubPCB	
Edit	Done	Name	Feeder	х	Y	Angle	Peb IC	/
		R29_1	F14	14.56	24.19	135.0	IC 3 IC 9	C
Run		R28_1	F14	12.13	20.60	157.5	Col 0 0	
	2	U1_1	[I3]	48.09	18.05	0.0	Row 0 0	
Sys	E1	R30_1	F14	18.10	26.55	112.5		
Config	123	1	F14	10.89	47.45	0.0		
	10	U2_1	I9	48.09	18.05	360.0		Innn
Manual		R11_1	F14	15.70	16.48	180.0		
		R26_1	F14	12.13	12.37	202.5		100
		R12_1	F14	16.20	18.96	157.5		1
	(2)	R27_1	F14	11.35	16.54	180.0		C
	[7]	R9_1	F14	17.54	11.91	225.0	Auto Move Message	
	(¹¹)	R40_1	F14	18.24	6.45	250.5		
		R10_1	F14	16.11	14.02	202.5	Production Data	
		R25_1	F14	14.61	8.88	225.0	Time: 00:00 Speed:50% +	-
		R14_1	F14	19.77	22.51	112.5	Single Speed: 0 PCB Time: 000:00	
		R3_1	F14	20.19	18.64	135.0	Done: 0 Reset	
	13	R4_1	F14	22.24	19.51	90.0		ause
Home All	23	R13_1	F14	17.64	21.12	135.0	Plan: 1000 Set	use
inome / in	17	R1 1	F14	20.16	14.48	225.0	-	

4.6. Feeder mechanism





If the spacing of components is different from that of feeder, you can adjust the spacing of the feeder according to the above instructions.

4.7. The IC array

Install the fixed block ,you could adjust the fixed block according to the size of PCB.



While install the fixed block, we suggest use one right-angled block and one straight fixed block, that will make full use of space. (see image below)



Note: Before plugging into power cord, ensure the safety.

5. Interface of Introduction

QIHE Pick And Place	SN:6C-35-30-1E-39-65 V1.00 FW:20181016	
QHE	Pick Place for top1_Top11.qhd	
启和科技	Board Component Feeder Assist SubPCB Config	
Edit	Mark	
Run	Source Pos: 7.33 6.06 37.38 29.42 Measure	
Sys Config	Target Pos: 293.19 30.35 323.22 53.73	
Manual	Template Size: 3.00 mm	
	Shape: Get Get Test Get	1 2 3 4 5 6 HD 2
	Match Degree: 5 · Vision Range: 70	Move Message
	Conveyor Flow In Flow Out	X: 293.19 Y: 30.35
		Low Speed
Home All	Load Save Add Delete Select The Same Comp Size Array Aimed Capture	

5.1. Home all

The first step - to locate the origin after turn on the computer.

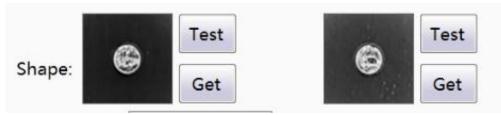
Particular attention! You can't choose the feeder (NO.35, NO.34, NO.33) when you're using the No.1 of the nozzle; You can't choose the feeder (NO.35, NO.34,) when you're using the No.2 of the nozzle; You can't choose the feeder (NO.33) when you're using the No.3 of the nozzle; The same, You can't choose the feeder (NO.1, NO.2, NO.3) when you're using the No.6 of the nozzle. You can't choose the feeder (NO.1, NO.2) when you're using the No.5 of the nozzle.You can't choose the feeder (NO.1, NO.2) when you're using the No.5 of the nozzle.You can't choose the feeder (NO.1) when you're using the No.4 of the nozzle.

5.2. Board

Mark:

Generally, the Mark is the two points on the diagonal of the PCB.Set the Mark point:First, find the Mark position in PCB file. The position as the drawingCoordinate.Second, Use the Visual system(down) to capture the appropriate Mark point.Template size and match Degree: modify according to your own needs.we would have to adjust the "match Degree" when the Mark does not be recognize

When you set the mark point, you need to grab the coordinates.



Match Degree:

If there is a problem, you can make it smaller

Vision Range:

If there are similar mark points around, we can modify here to make the positioning of mark point more accurate

Conveyor: Flow in: flow in the PCB Flow out: flow out the PCB Pls Note: Remember to save.

QIHE Pick And Place SN:6C-35-30-1E-39-65 V1.00 FW-20181016 **IHE** Pick Place for top1_Top11.qhd 启和科技 Component Feeder Assist SubPCB Board Config Edit Name Feeder X Y Angle Detailed 29.92 24.19 R33_1 F25 45.0 0805R 3k Run R37_1 F25 29.95 8.80 135.0 0805R 3k R34 1 32.31 20.71 22.5 0805R 3k F25 Sys R36_1 F25 32.33 12.44 337.5 0805R 3k Config R35_1 F25 33.16 16.54 0.0 0805R 3k 0.0 U1 1 48.09 18.05 LOFP100 N LOFP100 N 11 Manual U2_1 I2 48.09 18.05 360.0 LQFP-48_N LQFP48_N R50_1 F25 62.94 16.28 360.0 1206 6.8k 315.0 R51 1 F25 66.89 25.36 1206 6.8k R49_1 67.01 7.33 45.0 1206 6.8k F25 6 HD 1 2 3 4 5 Q1_1 F25 68.93 16.42 270.0 SOT-23A S8050 21.79 225.0 SOT-23A S8050 Q2 1 F25 70.67 Move Message 11.05 315.0 SOT-23A S8050 Q8_1 F25 70.68 X: 293.19 Y: 30.35 180.0 R48 1 F25 73.09 16.39 0402 5.1k R47_1 F25 73.92 14.35 225.0 0402 5.1k Low Speed R41_1 73.95 18.52 135.0 0402 5.1k F25 Select Comp Delete Capture Home All Load Save Add Array Aimed The Sam

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5.3. Component

- **Feeder:** Pls choose the appropriate feeder Selected the appropriate position to adjust the coordinates and angles.
- Load: Loading the "CSV" file by protel, DXP, Altium Designer, pads, Candes, proteus.
- Save: To save the file that are modified in the process of running or debugging.
- Add : T o add the position of device.

Delete: To delete the position of device.

Selected the same: To selected the all devices with the same position, device or the same

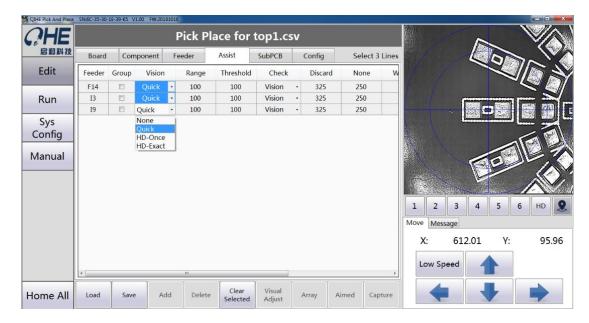
Clear selected: To delete the position of devices by your selection.

Aimed: Use the visual system(down) to locate the appropriate position of devices.

Capture: Set the current coordinate is the position of devices.

Pls Note: Remember to save after changes.

HE					Pick	Pla	ce fo	or to	p1.cs	v								V	
自和科技	Board	C	ompone	ent 🗌	Feeder		Assist	Su	ubPCB	Config							0		V,
dit	Feeder	Noz1	Noz2	Noz3	Noz4	Noz5	Noz6	High	Speed	Angle	Det	tailed	1				4		3
	F14	V		E			0	0.50	100 -	0.00	080	5R 3k	X					1	an .
Run	I3	12	((P)	0.50	100 -	0.00	LQFP100	N LQFP1	Carnel .		F				-
	19			(E)			V	0.50	100 •	0.00	LQFP-48	N LQFP4			~	-			
Inual																	10		1
anual													1 Move	2 Messa	3 age 612	4	5 Y:	6 HD	5.90



IHE Pick And Place	SN:6C-35-30-	1E-39-65 \	/1.00 FW:2018	1016							
?HE			Pic	k Place							
启和科技	Board	Cor	nponent	Feeder	Assist	SubPCB	C	onfig	Select	3 Lines	
Edit	Feeder	Group	Vision	Range	Threshold	Check		Discard	None	w	
	F25	13	Quick	· 100	100	None	•	325	250		
Run	I1	E	HD-On	· 100	100	None	•	325	250		
	12		HD-Exa	- 100	100	None	-	325	250		
Sys						None Pressure					
Config						Vision					Append Constanting of the Appendix
						Vacuum+V	isic				
lanual											
											1 2 3 4 5 6 HD
											Move Message
											X: 293.19 Y: 30.3
											Low Speed
	4			.111		1					
	12										
ome All	Load	Save	e Ad	d Delete	Clear	Comp		ray Air	med Ca	apture	

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HE			Ρ	ick Plac	e for to	p1_To	p11.qh	d		
启和科技	Board	Compo	nent	Feeder	Assist	SubPC	B Cor	ıfig		
Edit	Feeder	Check		Discard	None	Width	Length	MaxError	OpenDelay	
	F25	None	•	325	250	0	0	10	0	
Run	I1	None	-	325	250	0	0	10	0	
Sys	I2	None	•	325	250	0	0	10	0	
Config Manual										1 2 3 4 5 6 HD 9 Move Message
	4						m		,	X: 293.19 Y: 30.35

5.4. Feeder and Assist

Nozzle: Selected the appropriate nozzle

High: Generally speaking, the high is the default. But there are a number of higher need to adjust their own.

Speed: To reduce the speed when the machine are operation.(The speed of each device be reduce from 100 to 50 or 60)

- **Vision:** Generally speaking, Resistance capacitance does not require through the visual. The rapid lamp and high precision, please select the "quick". The chip and the higher precision, please select the "Accurate"
- Range: When identifying large devices, you can modify here.

Threshold: If individual feeder components are not well identified, adjust.

- **Check**: we can not select the pressure test that the electric capacity have rough surface or some round glass tube of device.
- **Discard and None:** If it is lower than that, it will discard the components l and then retake it. If it is lower than None, will be taken components again.

Width and length: Dimensions of components

Max error: Allowed to identify the deviation, the general fill 30

Open delay: Feeder delayed start, generally for large components

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	SN:6C-35-30-1E-			Place f	for top1	_Top1	1.qho	l l		
E 和科技 Edit Run Sys Config Manual	Board 1 1 2 3	Componen	nt Fee	der	Assist	SubPCB	Cont	ig		
	Num <1,1: <2,1: <3,1:	>	X 0.00 0.00 0.00		Y 0.00 0.00 0.00	Angl 0.0 0.0 0.0)	Row: 3 Column: 1 Regular Rank	Enter	1 2 3 4 5 6 HD Move Message X: 346.42 Y: -102.99 High Speed
Home All	Load	Save	Add	Delete	Select The Same	Comp Size	Array	Aimed	Capture	

5.5. SUBPCB

Row: How many block of ROW), Please just put how many block. Column: How many block of Column, Please just put how many block If it is lower than that, it will discard the components l and then retake it. If it is lower than NONE, will be taken components again.then click enter and the click regular rank



It's important to note that if the X direction is 1, the coordinates of 1 and 2 are the same.

if the Y direction is 1, the coordinates of 1 and 3 are the same. We take the same points at each board as a reference point. then click ok

QIHE Pick And Place	SN:6C-35-30-1	LE-39-65 V1.00	FW:20181016														- 0	×
QHE			Pick	Place fo	or top	1_Top	011.qh	d				/	/				K	
启和科技 Edit					_						7					9		5
Run	1	•					e botton e those						1				3-	$\langle \langle$
Sys					(The sa	me refe small P	rence		nts in				o I	<u>D</u> D			
Config							Sman	(0)			0	1					20	X
Manual	3											6			C.			
	The	Top Left	Conner P	CB(Point1)	295.	32	L07.56	Capt	ure	Aimed			/	-		Ø		1
	The T	Top Right	Conner P	CB(Point2)	: 295.	32 :	L07.56	Capt	ure	Aimed	1	2	3	4	5	6	HD	8
	The Bott	om Left C	onner PC	B(Point3):	295.	32	41.51	Capt	ure	Aimed	Move	10 2 C 2000						
							ОК		Car	col	×	:	29	5.32	Y:	h	107	.56
							OK		Cai	icei	Lo	ow Sp	eed	1				
Home All	Load	Save	Add	Delete	Select The Same	Comp Size	Array	/ A	imed	Capture		4		4	ŀ		+	

Run Pattern: Mvision Manual None Sys Pause After MVision Pause After MVision Pause After MVision Delay Delay Nozzle1 Nozzle2 Nozzle3 Nozzle5 Nozzle6 Pick Delay: 20 20 20 20 20 ms Place Delay: 40 40 40 40 ms 1 2 3 4 5 6 Other Other 0.60 Save Feeder Data: X: 293.19 Y: Low Speed X: 293.19 Y:	- 0 X					FW:20181016	0-1E-39-65 V1.00	SN:6C-35-30-	QIHE Pick And Place
Edit Num Done X Y Angle Run -1,1> 0 295,32 107,56 0.0 Run -3,1> 0 295,32 41.51 0.0 Sys -3,1> 0 295,32 41.51 0.0 Manual Femplate Size: 5.00 mm Run 0K Cancel Home All Load Size Add Delete Size Array Almed Capture Vice Towards Mode Component Feeder Assist SubCEB Config Manual Noze Noze Noze Noze Noze Noze Vice Towards Mode Component Feeder Assist SubCEB Config Mark Pattern: MVision Manual None None None Sys Config Mark Pattern: MVision Manual None Pick Delay: 20 20 20 20 20 20 ms Pick Delay: 20 20 <				_Top11.qhd	ice for top1	Pick Pl			CHE
Run c3,1> 0 295,32 41,51 0.0 Sys Config Manual I 2 3 5 6 Manual Template Size: 5.00 mm Run OK Cancel More Message Home All Load save Add Deter Select Comp. Array Aimed Capture I 2 4 5 6 More Mask Stelect Select Comp. Array Aimed Capture I I 0 0 I <th></th> <th></th> <th>0.0</th> <th>107.56</th> <th>295.32</th> <th></th> <th><1,1></th> <th></th> <th></th>			0.0	107.56	295.32		<1,1>		
Config Manual Manual Template Size: 5.00 mm Template Size: 5.00 mm Run OK Home All Load Save Add Delete Template More had here Save Add Delete Template Size Array Aimed Capture More had here Save Save Fick Place for top1_Top11.qhd Top11.qhd	C J O		212222211		2410030020000000000000000000000000000000				Run
Template Size: 5.00 mm Run OK Cancel Home All Load save Add Delete Select Comp Array Aired Capture Vox 32 802 39 03 903 903 903 903 903 903 903 903 9	E P								Config
Template Size: 5.00 mm Run OK Cancel Home All Load Save Add Delete Select Comp Size Array Aimed Capture Image: Capture Image: Capture Image: Capture Mark Pick Place for top1_Top11.qhd Board Component Feeder Assist SubPCB Config Edit Mark Pattern: Image: MVision Manual None None Pause After MVision Pause After MVision Manual None Image: Capture Image: Capture <td< th=""><th>HD Q</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>	HD Q								
Template Size: 5.00 mm Run OK Cancel Home All Load Save Add Delete Select Comp Array Aimed Capture Image: Component Size Pick Place for top1_Top11.qhd Image: Component Feeder Assist SubCB Config Board Component Feeder Assist SubCB Config Mark Pattern: MVision Manual None Pause After MVision Pause After MVision Delay Nozzle1 Nozzle2 Nozzle3 Nozzle4 Nozzle5 Nozzle6 Manual Pick Delay: 20 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
Home All Load Save Add Delete The Same Size Array Array Array Capture	107.56		Cancel	RunOK	mm	e: 5.00	nplate Size	Tem	
Pick Place for top1_Top11.qhd Board Component Feeder Assist SubPCB Config Edit Mark Pattern: MVision Manual None Pause After MVision Pause After MVision None Pause After MVision Pause After MVision Delay Nozzle1 Nozzle2 Nozzle3 Nozzle5 Nozzle6 Pick Delay: 20 20 20 20 20 20 1 2 3 4 6 Other PCB Thickness: Component Auto Sort: Save Feeder Data: X: 293.19 Y: Low Speed A			imed Capture			Add	Save	Load	Home All
Board Component Feeder Assist SubPCB Config Run Mark Pattern: MVision Manual None Pause After MVision Pause After MVision Nozzle1 Nozzle2 Nozzle3 Nozzle5 Nozzle6 Pick Delay: 20 20 20 20 ms 1 2 3 4 5 Other PCB Thickness: 0.60 Component Auto Sort: Image: Component Auto	- 0 <mark>- X -</mark>					FW:20181016	0-1E-39-65 V1.00	SN:6C-35-30-1	QIHE Pick And Place
Edit Mark Run Pattern: MVision Manual None Pause After MVision Pause After MVision Nozzle1 Nozzle2 Nozzle3 Nozzle5 Nozzle6 Delay Nozzle1 Nozzle2 Nozzle3 Nozzle4 Nozzle5 Nozzle6 Pick Delay: 20 20 20 20 20 20 ms Place Delay: 40 40 40 40 40 ms 1 2 3 4 5 6 Other Component Auto Sort: Save Feeder Data: Save Feeder Data: X: 293.19 Y: Low Speed M							Compon	Roard	CHE 启和科技
Run Pause After MVision Sys Delay Delay Nozzle1 Nozzle2 Nozzle3 Nozzle4 Nozzle5 Nozzle6 Pick Delay: 20 20 20 20 ms Place Delay: 40 40 40 40 ms Other 0.60 Component Auto Sort: Image: 20 ms Image: 20 ms Save Feeder Data: X: 293.19 Y: Low Speed Image: 20 ms Image: 20 ms Image: 20 ms		. 02		SUDPEB	Assist	ient reede	Compon		Edit
Sys Config Delay Nozzle1 Nozzle2 Nozzle3 Nozzle4 Nozzle5 Nozzle6 Manual Pick Delay: 20 20 20 20 20 ms Place Delay: 40 40 40 40 ms 1 2 3 4 5 6 Other PCB Thickness: 0.60 Component Auto Sort: Image: Component Auto Sort: Image: Component Auto Sort: X: 293.19 Y: Low Speed Image: Component Auto Sort: Image: Component Auto Sort: <t< td=""><td></td><td></td><td></td><td>I None</td><td></td><td></td><td>Pattern:</td><td></td><td>Run</td></t<>				I None			Pattern:		Run
Manual Nozzle1 Nozzle2 Nozzle3 Nozzle4 Nozzle5 Nozzle6 Pick Delay: 20 20 20 20 20 ms Place Delay: 40 40 40 40 ms Other Other Component Auto Sort: Image: Component Auto Sort: Image					e After Mivision	Pau		Delay	
Place Delay: 40 40 40 40 ms Other PCB Thickness: Component Auto Sort: 1 2 3 4 5 6 Move Message X: 293.19 Y: Low Speed 1									
PCB Thickness: Component Auto Sort: 0.60 Save Feeder Data: Component Auto Sort: Save Feeder Data: Component Auto Sort: Save Feeder Data: Low Speed									
0.60 X: 293.19 Y: Low Speed	HD Q	1 2 3 4 5 6						Other	
Save Feeder Data:				mponent Auto Sor	Co		3 Thickness:	РСВ	
	30.35			Save Feeder Data		0.60			
Home All Load Save Add Delete Select Comp Array Aimed Capture			imed Capture	Comp Size Array	elete Select The Same	Add	Save	Load	Home All

the click run, the machine will automatically identify the reference points on the circuit board.

5.6. Config

Mark: If it is the standard Mark, pls use choose automatic identification.

If use the bonding pads or another position as Mark, pls choose the manual Identification.

If there is no requirement for accuracy, we can choose not to distinguish.

Pls Note: Proposed distinguish the Mark so taht the accuracy of the patch will be better.

Delay: If the device appears leakage or suck not to live, we need to increase the corresponding suction nozzle of suction "Pick Delay".

If the device appears leakage, we need to increase the corresponding suction nozzle of the paste "place delay"

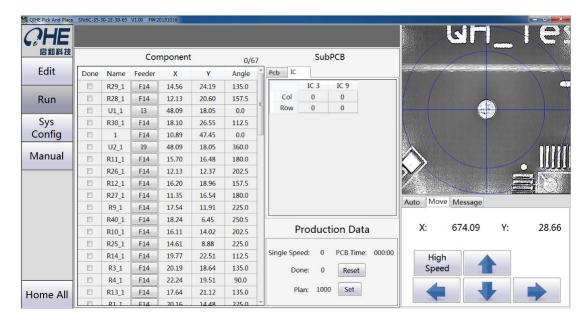
Other: PCB thickness, Generally do not nee to modify.

save feeder data, it will save data in the file

Component auto sort: The software will be run in whatever order he thinks is best

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QIHE Pick And Place	SN:6C-35-	30-1E-39-65	V1.00 FW:2	0181016			ur_ie
启和科技			Cor	nponent		0/67	SubPCB
Edit	Done	Name	Feeder	х	Y	Angle	Pcb IC
		R29_1	F14	14.56	24.19	135.0	1
Run	<u></u>	R28_1	F14	12.13	20.60	157.5	
	100	U1_1	I3	48.09	18.05	0.0	2
Sys		R30_1	F14	18.10	26.55	112.5	
Config	[23]	1	F14	10.89	47.45	0.0	3 🔟
	123	U2_1	19	48.09	18.05	360.0	
Manual		R11_1	F14	15.70	16.48	180.0	
		R26_1	F14	12.13	12.37	202.5	
		R12_1	F14	16.20	18.96	157.5	
	(PT)	R27_1	F14	11.35	16.54	180.0	Selected Clear Aimed SubPCB Auto Move Message
	100	R9_1	F14	17.54	11.91	225.0	Same Selected Aimed Disable Auto Move Message
	E	R40_1	F14	18.24	6.45	250.5	
		R10_1	F14	16.11	14.02	202.5	Production Data
		R25_1	F14	14.61	8.88	225.0	Time: 00:00 Speed:50% + -
		R14_1	F14	19.77	22.51	112.5	Single Speed: 0 PCB Time: 000:00
		R3_1	F14	20.19	18.64	135.0	Done: 0 Reset
	0	R4_1	F14	22.24	19.51	90.0	Plane 1000 Step Run Pause
Home All	E	R13_1	F14	17.64	21.12	135.0	Plan: 1000 Set
	F	R1 1	F14	20.16	14.48	225.0	•



QIHE Pick And Place	SN:6C-35-	30-1E-39-65	V1.00 FW:2	0181016													
CHE													K				9
启和科技			Cor	nponent		0/6	7		Subl	РСВ							
Edit	Done	Name	Feeder	X	Y	Angle	*	Pcb IC	[4	-	10			- /	
	0	R29_1	F14	14.56	24.19	135.0	1	I	C 3	IC 9	1						
Run	Ē	R28_1	F14	12.13	20.60	157.5			0	0	4						
		U1_1	[]] I3	48.09	18.05	0.0		Row	0	0							
Sys	(2)	R30_1	F14	18.10	26.55	112.5											
Config	123	1	F14	10.89	47.45	0.0	μ				and in						
		U2_1	I9	48.09	18.05	360.0											
Manual		R11_1	F14	15.70	16.48	180.0	1									1	
		R26_1	F14	12.13	12.37	202.5					D				and the state	Presson and a	
		R12_1	F14	16.20	18.96	157.5							the second		and the second		1.1
	(191)	R27_1	F14	11.35	16.54	180.0					Aut		232233	Messag		Personnell	12.84.24.91
	(***)	R9_1	F14	17.54	11.91	225.0					Au		ove		and a second	-	
	E	R40_1	F14	18.24	6.45	250.5						X		674.0	9 Y		28.66
	E	R10_1	F14	16.11	14.02	202.5		Pro	duct	ion Data	Z		0.0	A1	0.0	Pick1	5
		R25_1	F14	14.61	8.88	225.0					Z	2	0.0	A2	0.0	Pick2	5
		R14_1	F14	19.77	22.51	112.5		Single Speed:	0	PCB Time: 000:00	Z		0.0	A3	0.0	Pick3	5
	[PT]	R3_1	F14	20.19	18.64	135.0		Done:	0	Reset	Z		0.0	A4	0.0	Pick4	5
	100	R4_1	F14	22.24	19.51	90.0					Z		0.0	A5	0.0	Pick5	5
Home All	173	R13_1	F14	17.64	21.12	135.0		Plan:	1000	Set	Ze	-	0.0	A6	0.0	Pick6	5
	E I	R1 1	F14	20.16	14.48	225.0	+						0.0		0.0	· isko	

5.7. Run

Aimed: It's can be observed the coordinate of each device

Step: Single step operation

Run: Start stop

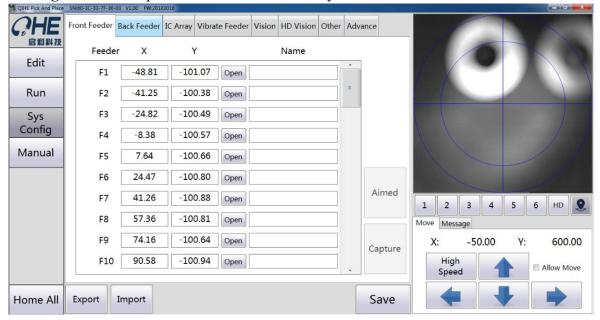
Pause: Pause continue

Time: Display the time of Mount

Speed: Adjust the speed of machine

SubPCB Disable: Skip the select pcb, Machine will default that this board has been placed. **IC:** Choose where to start picking.

Message: Show the pressure of Z axis and Rotary axis



5.8. Sys Config

Front Feeder:

Feeder: The corresponding feeder

X, Y: The corresponding of X, Y coordinates, pls using the Visual system (down) to catch

Name: The name of the component can be given to each.

Open: Open the solenoid valve of corresponding

Aimed: search to current location

Capture: Set up the current location

Back Feeder: the same as front feeder

QIHE Pick And Place	SN:6C-35-	30-1E-39-	65 V1.00	FW:2018	81016															- 0	×
QHE	Front F	eeder	Back Fe	eeder	IC Array	Vibrat	e Feeder	Vision	HD Vi	sion (Other	Adva	ince				I				
启和科技				x		Y		с	ol	Row					Y	-	-				
Edit	I1													1		1	10				
		Star	t Pos	0.0	00	0.00	Nur	n 🤇)	0		=			1/						
Run		En	d Pos	0.0	00	0.00	Nam	e								line"	Th				
Sys	12																				
Config		Star	t Pos	0.0	00	0.00	Nur	n 🤇	0	0					1 1		A STORE				
Manual		En	d Pos	0.0	00	0.00	Nam	e								X					
	I3														X		1		Con al		
		Star	t Pos	0.0	00	0.00	Nur	n ()	0			Aimed			1					1
		En	d Pos	0.0	00	0.00	Nam	e						1	2	3	4	5	6	HD	8
	14													Mo	ve Me	essage					
		Star	t Pos	0.0	00	0.00	Nun	n	0	0			Capture		X:	34	6.42	Y:		-102	.99
		End	Pos	0.0	00	0.00	Nam	e					cupture		Hi		4			llow M	ove
Home All	Ехро	rt	Impor	t									Save					ŀ		•	

5.9. IC Array

Start Pos: the first chip's positionEnd Pos: the last chip's positionNum: the number of X direction, the number of Y directionName: Name of components

IC stack setting



the software has 30 IC stack, it means the software can set 30 different kinds of IC. As shown on the left, put one kind of IC on the tray, setting steps are as follows: Move the nozzles to the red circle1, in the upper software computer, click System Config \rightarrow IC Stack. Setting IC stack1, put the cursor in Start, click Set XY, the same way, put the nozzles to the red circle2, put the cursor in End, click Set XY. Array is "10, 6", because the tray has 10 lines and 6 rows.

	T	1	1			T T							
Front Feeder	Back Feede	r IC Arra	y Vibrate Fe	eder Vision	HD Vision	Other A	Advance		1				
Camera	1 Came	ra2	Camera3	Camera	Can	nera5	Camera6	1		0			
		A		0.30						_	4		
		Vi		100									
Nozzle C	Offset With U	Up Cam	era Center	Nozzle Of	fset With	Down Ca	amera Center						
Camera	a Center:	370.53	49.46	Aimed	apture M	leasure	₹					jl.	
	Nozzle1:	-0.33	-1.40	Nozzle2:	-0.12	-0.08		1	2	3 4	5	6	HD S
	Nozzle3:	0.90	-0.95	Nozzle4:	-1.43	0.08				- 0.03			
	Nozzle5:	- <mark>0.98</mark>	-0.01	Nozzle6:	-0.70	0.83		X	:	-50.00	Y:	. 6	600.00
									High Speed	1		🗆 Allo	ow Move
Export	Import						Save		4		ŀ		
	Camera Nozzle C Camera	Camera1 Came Nozzle Offset With I Camera Center:	Camera1 Camera2 A Vi Nozzle Offset With Up Camera Center: 370.53 Nozzle1: -0.33 Nozzle1: -0.33 Nozzle3: 0.90 Nozzle5: -0.98	Camera1 Camera2 Camera3 Angle Offset: Threshold: Vision Range: Nozzle Offset With Up Camera Center Camera Center: 370.53 49.46 Nozzle1: -0.33 -1.40 Nozzle1: -0.90 -0.95 Nozzle5: -0.98 -0.01	Camera1 Camera2 Camera3 Camera4 Angle Offset: 0.30 Threshold: 170.00 Vision Range: 100 Nozzle Offset With Up Camera Center Nozzle Offset With Up Camera Center Nozzle1: -0.33 -1.40 Nozzle2: 0.90 -0.95 Nozzle3: 0.90 -0.95 Nozzle5: -0.01 Nozzle6:	Camera1 Camera2 Camera3 Camera4 Camera4 Angle Offset: 0.30 Threshold: 170.00 Vision Range: 100 Nozzle Offset With Up Camera Center Nozzle Offset With Camera Center: 370.53 49.46 Nozzle1: -0.33 -1.40 Nozzle2: Nozzle3: 0.90 -0.95 Nozzle4: -1.43 Nozzle5: -0.98 -0.01 Nozzle6: -0.70	Camera1 Camera2 Camera3 Camera4 Camera5 Angle Offset: 0.30 Threshold: 170.00 Vision Range: 100 Nozzle Offset With Up Camera Center Nozzle Offset With Down C Camera Center: 370.53 49.46 Aimed Capture Measure Nozzle1: -0.33 -1.40 Nozzle2: -0.12 -0.08 Nozzle3: 0.90 -0.95 Nozzle4: -1.43 0.08 Nozzle5: -0.98 -0.01 Nozzle6: -0.70 0.83	Angle Offset: 0.30 Threshold: 170.00 Vision Range: 100 Nozzle Offset With Up Camera Center Nozzle Offset With Down Camera Center Camera Center: 370.53 49.46 Nozzle1: -0.33 -1.40 Nozzle2: -0.12 -0.08 Nozzle3: 0.90 -0.95 Nozzle5: -0.98 -0.01 Nozzle6: -0.70 0.83	Camera1 Camera2 Camera3 Camera4 Camera5 Camera6 Angle Offset: 0.30 Threshold: 170.00 Vision Range: 100 Nozzle Offset With Up Camera Center Nozzle Offset With Down Camera Center Camera Center: 370.53 49.46 Aimed Capture Measure 1 Nozzle1: -0.33 -1.40 Nozzle2: -0.12 -0.08 Move Nozzle3: 0.90 -0.95 Nozzle4: -1.43 0.08 Move Nozzle5: -0.98 -0.01 Nozzle6: -0.70 0.83	Camera1 Camera2 Camera3 Camera4 Camera5 Camera6 Angle Offset: 0.30	Camera1 Camera2 Camera3 Camera4 Camera5 Camera6 Angle Offset: 0.30	Camera1 Camera2 Camera3 Camera4 Camera5 Camera6 Angle Offset: 0.30	Camera1 Camera2 Camera3 Camera4 Camera5 Camera6 Angle Offset: 0.30

5.10. Vision:

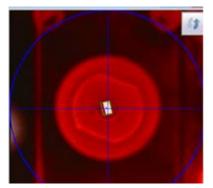
Cameral-Camera6:

Angle Offset:

It's will need to adjust when the angle of the component mounting is offset.

Threshold:

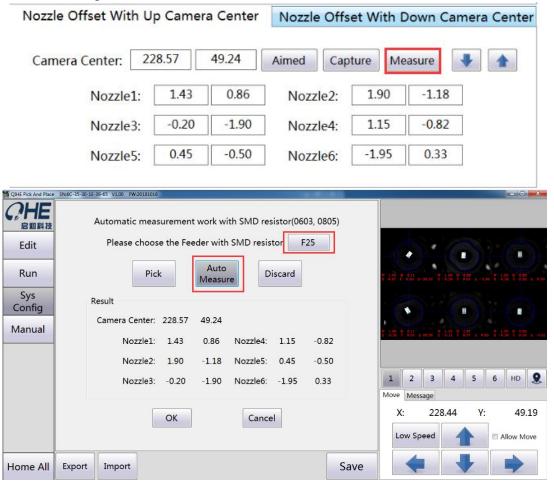
When the components through the vision, the recognition is not good. We need to adjust, Makes the green box just in the periphery of the component.



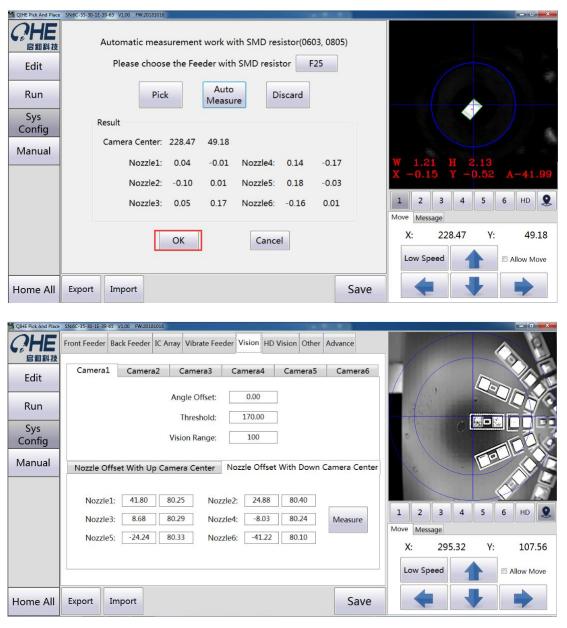
Vision Range:

Nozzle Offset With Up Camera Center:

click the measure and choose right feeder and click auto measure , and finished click discard to discarded components , then click OK







The Offset With Down Camera Center To Nozzle: When the chip is deviation, it needs to be adjusted.

QIHE Pick And Place	SN:60-3C-33-7F-36-03 V1.0	00 FW:20181016						
QHE	Front Feeder Back	Feeder IC Ar	ray Vibrate I	eeder Vision	HD Visio	on Other	Advance	
启和科技	HD Camera							
Edit	Angle Offset:	-0.20	כ	Vision Rang	e:	40		
Run	HD Camera Thre	shold						
Kun	Nozzle1:	140.00	Test	Nozzle4:		0.00	Test	
Sys	Nozzle2:	120.00	Test	Nozzle5:	6	0.00	Test	
Config	Nozzle3:	130.00	Test	Nozzle6:	6	0.00	Test	
Manual	Move To HD Car	nera Center						
	more to the car	Nozzle1:	493.81	589.90	Aimed	Capture		
		Nozzle2:	477.39	590.08	Aimed	Capture		
		Nozzle3:	460.83	590.18	Aimed	Capture		1 2 3 4 5 6 HD 2
		Nozzle4:	444.55	590.28	Aimed	Capture		Move Message
		Nozzle5:	428.19	590.30	Aimed	Capture		X: -50.00 Y: 600.00
		Nozzle6:	<mark>411.41</mark>	590.33	Aimed	Capture		High Speed Allow Move
Home All	Export Imp	ort					Save	

5.11. HD Vision

QIHE Pick And Place SN:6C-35-30-1E-39-65 V1.00 FW:20181016 QHE Front Feeder Back Feeder IC Array Vibrate Feeder Vision HD Vision Other Advance 启和科技 Nozzle Down To Edit PCB: -30.65 -30.30 1001 + + Feeder: + + IC Array: -31.00 + + Discard: -11.00 + + Run -15.00 Vibrate Feeder: . + Advance 15.00 + + Sys Config Conveyor Manual Waiting Front Ready: Waiting Next Ready: Other 6 HD 👤 1 2 3 4 5 Missing Check: Move Message 39.57 -50.30 Aimed Capture Discard Position: 346.42 -102.99 X Y Alarm When Open The Door: High Allow Move Speed Home All Export Import Save

Move To HD Camera Center: when the nozzle is not in the middle of the vision, need to adjust.

5.12. Other

Nozzle Down To:

PCB : Drop to the PCB's height
IC stack: Drop to the tray's height
Feed Stack: Drop to the feed's height
Discard: Drop to the height of the waste material position
Vibrate Feeder: Drop to the vibrate feeder's height
Advance: Suction nozzle down ahead of schedule

Conveyor:

waiting front ready: you need choose to open waiting next ready: you need choose to open

Other:

Missing Check: When the components are not picked up, The machine can be detected and to pick up again when the components are not picked up.

Discard Position: This coordinates we can set their by ourselves

Alarm when open the door: for safety, you need choose to open

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QIHE Pick And Place	SN:60-3C-33-7F-36-03 V1.00 FW:20181016							×
CHE	Front Feeder Back Feeder IC Array	Vibrate Feeder	Vision	HD Vision	Other	Advance		
启和科技								
Edit	Home Pos X:	-50.00	Y	600.00)			
Run	Home Offset Z:	0.50 -1.00	-0.30	-0.70	-1.00	0.20		
	Soft Limit X:	510.00	Y	-105.0	0			
Sys Config	Scale Of X:	1.0005	Y	0.999	3			
Manual	HD Camera Distance / Pixel X:	18.45	Y	: 18.81				
	Up Camera Distance / Pixel X:	33.00	Y	: 30.00				
	Down Camera Distance / Pixel X:	42.00	Y	: 45.00				
	Before Vision Delay:	100	After:	50			1 2 3 4 5 6 HD	8
	Before HD Vision Delay:	0	After:	50			Move Message	
	Scale of Air Senser :	1.00 1.00	1.00	1.00	1.00	1.00 Measure	X: -50.00 Y: 600.0	0
							High Speed Allow Mov	e
Home All	Export Import					Save		

Home Pos X: Generally do not need to modify

Home Offset Z: Make sure the suction nozzle drops at the same height

Soft Limit X: Generally do not need to modify

Scale Of X: Generally do not need to modify

HD Camera Distance/Pixel: Generally do not need to modify

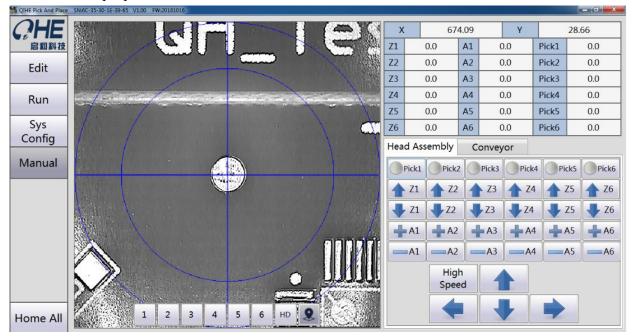
Up Camera Distance/Pixel: Generally do not need to modify

Down Camera Distance/Pixel: Generally do not need to modify

Before Vision Delay: Generally, when it through the visual, it's need to waiting "150"

Before HD Vision Delay: After the waiting for the visual, we need to set data about "100" if there have a nozzle

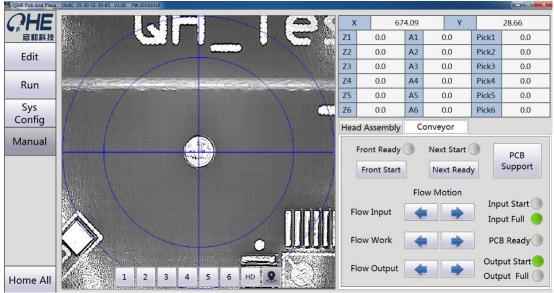
Scale Of Air Sensor: you need open the pick 1-6.then cover nozzle with your hand, click the measure, the purpose is to make sure the NP1-NP6 is same.



5.13. Manual

Head assembly:

The main test the function of Z axis and A axis. when stick the chip, we can enlarged it to see if the chip is accurate identification



Conveyor:

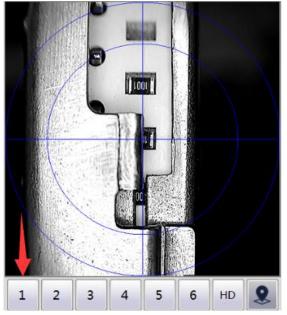
Front start: when you open this, the PCB will flow in the machine from the front inspection conveyor

Next ready: when you open this, the PCB will flow out the machine to second inspection conveyor

Input Start.Input Full .PCB Ready . Output Start and Output Full: When the corresponding sensor is keep out.the signal will appear.

PCB support: When you click this the top bar will go up.

Flow Motion: Control the movement of the assembly line.



This have six camera you can click anyone to switch

5.14. Special attention

Because of the visual system, higher requirement to the light source. In the process of using, avoid direct sunlight, lighting source, otherwise it will cause visual system error, affect the normal operation of equipment.

6. Maintenance

6.1. Nozzle maintenance

6.1.1 Check the nozzle whether it is deformative or wear after impacting, and make sure whether there are blockage inside the suction nozzles.

6.1.2 press the suction nozzles to feel the tightness, if too tight, you should use the abluent to clean the inside of nozzle.

6.1.2 if nozzles are under severe wear, you should replace the nozzles.

6.2. Surface cleaning of machine

Look at the machine surface whether there are foreign matter, if so, using the air gun or brush to sweep away.

6.3. Check feeder

Check the reels whether some reels and the fixed shaft is loose.

6.4. Clean the camera

Using swab with alcohol to clean dust on the camera surface, If there are any components falling on camera surface, please take away in time.

6.5. Lubricate the XY-axis guide rail

Using cloth to wipe the old oil first, then add the new grease.

6.6. The computer antivirus

The computer antivirus need on a regular basis so that the software can run steadily.