TOOLCEN intelligen

multi axis servo robot controller instruction

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Shenzhen TOOLCEN Automation Equipment Co., Ltd

Shenzhen TOOLCEN Automation Equipment Co., Ltd. is located in the country's largest economic zone ---- Shenzhen City. Is a collection research and development, design, manufacture, sales and service in the integration of integrated enterprise.

The company is committed to packaging, electrical appliances, daily necessities, medical and other fields, R & D and production of single-axis, two-axis, three-axis, five-axis servo injection molding, the company has a number of industries, Machine tool, further development and production of IML in-mold labeling system, IMD mold inlay system, PET preforms to take special robots, and CNC lathe loading and unloading manipulator, CNC machining center loading and unloading manipulator, punch - forging manipulator, more Joint robot applications, for the automation industry to provide professional intelligent equipment.

We uphold the "innovation as the driving force, market-oriented, customer-centric to serve as a fundamental" concept, is a new technology services company, to provide customers with the best overall automation program.



Company address: the first floor, building B, yuechang industrial park, songbai road, shiyan town, baoan district, shenzhen city, guangdong province, China

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1.Specification and Installation

1.1 Specification

- 1. 8" colored LCD display with touch screen
- 2. 3-axis servo control board
- 3. I/O Board
- 4. Power Supply(2 suits)
- 5. Communicating cable

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1.2 Installation Notes

- 1. The wiring work must be done by a professional electrician.
- 2. Confirming the power off when you are working.
- 3. Please installed on metal flame retardants and must be away from combustible materials.
- 4. Ground connection is needed for your safe.
- 5. When there is something wrong with external power supply, which may make control system out of work, you must set a safety circuit.
- 6. Be familiar with the Instructions before installing, wiring, operating and maintaining. Have a good knowledge of mechanical, electronic may help a lot when you use.
- 7. Installing the controller should have well ventilated, defending the oil and dust. If the electronic controller is installed in a close room, to prevent environment temperature goes high, a fan is necessary to make sure temperature inside the box is below 50 °C.
- 8. The controller shouldn't be installed near to the relay, transfer etc., for these are disturb source.

Notice: Improper operation may cause hazards, including personal injury or equipment accidents.

2.Operate panel

2.1 Appearance



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2.1 Main Frame

2.2.1 Main page



2.2.2 Axis Definitions

- Z: Traverse in/out.
- X1: Main arm forward/backward.
- Y1: Main arm up/down.
- X2: Vice arm forward/backward.
- Y2: Vice arm up/down.
- C: Pose Horizontal/Vertical.Operation

3.Operation

Manipulator manual, stop, automatic are three operating status, the selection switch on the left of the gear is manual mode, in which the robot can be operated manually; the stop switch only to be used by homing robot operation is to the middle position of selection switch to stop all action. When the selection switch is to the right, pressed a "start" button, the robot enters the automatic operation.

3.1 Origin Position Returned

To make the robot can run automatically correctly after power on, an Origin Position Returned(OPR), driving the robot return to the home position for each axis, sucker and fixture return to the closed is needed.

In the stop mode, press the "Home" button once, then press the "Start" button to return to the home position with each axis Y1 (Y2) X1 (X2) Z by order. At the same time, a page box comes to remind you that you are ongoing OPR operation and all back to their origin that each electric axis position is 0.

When all axes, sucker and fixture return to the home position, there is a top right of the screen , you can operate automatic and manual mode.

icon on the

You can not operate manual, automatic and modify setting when OPR, please press the stop button or emergency stop button in case of emergency to stop the OPR.

3.2 Manual Operation

Turn the knob to left, the robot will go into Manual Status. As shown below

		09:58 2016/09/06	Mold:66 Run Time:0.0 h			Advance Admin
					Hori	zontal-1
Fixture 1 <table-cell></table-cell>	NO RO	OFF		Fixture 3	N RO	OFF
Fixture 2 😝	KO KO	OFF		Fixture 4	NO RO	OFF
			Fixture	Sucker tail Loop Time	Reserve 0.0 s Finished Frodu	Manipul- ator I/0
Z : 0.00 mm	X1: 0.00 mm	¥1:	0.00m X2:	0.00 mm ¥2:	0.00 mm	
C:	D. OO Degree		Step	0		
Function		ןן י	Instruct		ןן י	Return

3.2.1 Axis Action

Users can not move the arms before set origin. But can operate pneumatic valves.





Traverse Out

Traverse In

3.2.2 Fixture Action

As shown below:

In the manual page click the Fixture button on the bottom right to go into the manual fixture page.

	09:58 Signal 2016/09/06	Mold:66 Run Time:0.0 h	Advance Admin
			Horizontal-1
Fixture 1 😡 ON	OFF OFF	Fixture 3	ON OFF
Fixture 2 😡 ON	OFF OFF	Fixture 4 🛛	ON OFF
		Fixture Sucker Detail Loop Time	Reserve Manipul- ator I/0 0.0 s Finished Products 16
Z: 0.00 mm X1:	0.00 mm ¥11:	0.00 mm X2: 0.00 mm Y2:	0.00 mm
C: 0.00 Degree		Step 0	
		Instruct	

There are four fixtures. Press the On button to turn it on and press the OFF button to turn it off.

Attention: Input signal shows red and output signal shows green. The input or output indicator is off if there is no signal.

3.2.3 Sucker Action

In the manual page click the Sucker button **[**Sucker **]** on the bottom right to go into the manual sucker page. As shown below:

		IMI Signal 20	09:59 116/09/06	Mold:66 Run Time:0.0 h				Advance Admin
							Horizo	ntsl-1
Sucker 1	ON O	OFF			Sucke	r 3 😡	N N	OFF
Sucker 2 🚇	N	OFF			Sucke	r 4 😡	ON O	OFF
			_	Fixture	Sucker Detail Loop Time	Rese 0.0 s Fin	rve	Manipul- ator I/0 ts 16
Z : 0.00 mm	X1:	0.00 mm ¥	l: 0	.00 mm X2:	0.00 mm ¥2:	. 0.0)0 mm	- 1
C:	0.00 Degree			Stej	p 0		-	
Function	ጋር	Monitor	כ	Instruct				b turn

There are four suckers. Press the On button to turn it on and press the OFF button to turn it off.

Attention: Input signal shows red and output signal shows green. The input or output indicator is off if there is no signal.

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3.2.4 Auxiliary Action

In the manual page click the Other button on the bottom right to go into the manual other page. As

shown below:		Signal	09:59 2016/09/06	Mold:66 Run Time:0.0 h			Advance Admin
						Hor	izontal=1
	Injection \Theta 🛛 0	N OFF			Conveyo	r 🕘 ON	OFF
				Fixture	Sucker	Reserve	Manipul- ator I/O
				Det	tail Loop Time O.	.O s Finished Prod	lucts 16
	Z: 0.00 mm	X1: 0.00 mm	¥1:	0.00 mm X2:	0.00 mm ¥2:	0.00 mm	
	C : 0.0	U Degree		Step	0		
	Function][Instruct	Alarm	ר	Return

The operation is the same as fixture.

3.2.5 Reserve Action

In the manual page click the Adjust button on the bottom right to go into the manual Adjust page. There are six adjust reserve action, you can set as what you want. As shown below:

0	\bigcirc		Si gnal	10:00 2016/09/06	Mold:66 Run Time:0.0 h			Advance Admin
							1	Horizontal-1
		Reservel	ON	OFF		Reserve2 ON	OFF	
		Reserve3	KO (OFF		Reserve4 ON	OFF	
	_	_	_		Fixture	Sucker	Reserve	Manipul- ator I/0
Z:	0.00 mm	X1:	0.00 mm	¥1:	0.00mm X2 :	0.00mm ¥2 :	0.0 s Finished I	rouders 10
	C:	0.00 Degre	e		Ste	p 0		
C	Function][Monitor][Instruct		כ	Return

The operation is the same as fixture.

3.3 Auto Mode

3.3.1 Monitor Auto Running Status

Turn the knob to the right to go into the auto run page. The robot will turn to **Auto Ready Status**. In this status, press the start button will let the robot turn to **Auto Running Status**. You can monitor the running status, as shown below

0 10:01 10:0	Advance Admin
Home * Vertical posture 1: Delay time:0.00	
Home * X1: 0.00 Speed:80 Delay time:0.00	
Home * Y1: 0.00 Speed:80 Delay time:0.00	
Home * Z: 0.00 Speed:80 Delay time:0.00	Time 0.00 Get Time 0.00
Home * X2: 0.00 Speed:80 Delay time:0.00	
Home * Y2: 0.00 Speed:80 Delay time:0.00	
1 * Wait Mold Opened Delay time 0.00	Setted products 10000
2 * Mold end: Delay time:0.00	Good products 0
Edit Do Follow Single Step	SPD UN
Detail Loop Time 0	0 s Finished Products 16
Z: 0.00mm X1: 0.00mm Y1: 0.00mm X2: 0.00mm Y2:	0.00 mm
Step U	
L Runction DL Monitor DL Linstruct	

Period: Time suspend in the Auto carry out cycle.

Extract Time: The time that robot dropped to get and take out the product in the Auto

Setted Products: The mount of product per-set. Alarm occurs when product counter reached.

Qualified: The number of chi ban took out by robot.

Stacking Number: The number of products have been stacked by robot.

Loop Time: Time after a carry out cycle in the Auto.

Finished Count: the number of finished products.

3.3.2 Adjust Running Configures

In the auto running status, you can modify the action of program configures. Just select a step and then click the edit button will show a editor dialog, after you click "OK", those data will be accepted and in the next cycle will be run according to your setting, if you press "Cancel" to cancel the operation.

To ensure that those setting won't make the robot, machine, mold damage, within 5 mm range is allowed. As shown below:

			OK
Delay Time:	0.00	s	
Speed:	80) * [Cancel
Pos(+/-5):	0.0		

After you finished, just click the OK button to confirm your change.

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3.3.3 Single Step Running

On the auto running status, you can click the single button to run a step. Click again will run the next step, as so on. This feature is very useful when debug you program.

3.3.4 Speed Adjustment

Click "Speed"button so that it becomes "Speed display" to adjust the overall speed by pressing "Speed adjustment" on the Key board and the the panel on the lower left corner.

4.Record Management

4.1 Create and Load Program

On the stop status and then click the record button on the menu bar to go into the record management page. You can maintain your programs in this page. As shown below:

	0 10:0 Signal 2016/05	06 Mold:00 9/06 Run Time:0.0 h	Advance Admin
	All select All unselect Inverse	Local [USB Export USB Import
1	Mold Name	Create Date 2016/09/06 10:02:54	New
2	1	2016/04/24 20:03:19	Copy
3	55	2016/09/01 17:34:14	
4	66	2016/09/02 17:26:14	Load
5	test	2016/09/01 17:12:58	Del
			Export
			Import
501	urce File Name	New File Name	
		Detail Loop Time	0.0 s Finished Products 16
Z :	0.00mm X1: 0.00mm Y1:	0.00mm X2: 0.00mm Y2:	0.00 mm
	Function		

Create Program: Input a program name in the file name box and then click the new button to create a new program.

Copy Program: Input a program name in the file name box and then click the copy button to copy a program to a new program.

Load Program: Select a program and then click the load button to load a program.

Delete Program: Select a program and then click the delete button to delete a program. The current used program can not be deleted.

Export Program: Select a program and then click the export button to move out a program.

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4.2 Program instruct

Turn the knob to the left to go into manual status and then click the teach button on the main menu bar to open the program editor. As shown below:

0 10:06 Mold:00 Signal 2016/09/06 Run Time:0.0 h		Advance Admin
Editing: Main 🧪 Guide 🛒 Program	Tin.	
Home * Vertical posture 1: Delay time:0.00	Line	
Home * X1: 0.00 Speed:80 Delay time:0.00	Fixture	Injection
Home * Y1: 0.00 Speed:80 Delay time:0.00	pr	
Home * Z: 0.00 Speed:80 Delay time:0.00	Periphery	Reserve
Home * X2: 0.00 Speed:80 Delay time:0.00		
Home * Y2: 0.00 Speed:80 Delay time:0.00	V Cut	🔀 Wait
1 * Wait: Mold Opened Delay time:0.00		
2 * X1: 0.00 Speed:80 Delay time:0.00	tor I/0	Conditions
3 * Mold end: Delay time:0.00	Comment	Flags
Modify X Del Deco-	Iry	Menu Insert
1	Detail Loop Time 0.0	s Finished Products 16
Z: 0.00 mm X1: 0.00 mm V1: 0.00 mm X2:	0.00mm ¥2 :	0.00 mm
Function Control Instruct		

Servo action, Stack action, Fixture action, Injection, Auxiliary action, Reserve action, Check action, Wait action, Series action, Periphery are included in "Teach" button. Clicking those buttons to edit a program. Press "Teach" to back to menu.

In teaching mode, after selecting the actions you want to combine with, click "Combination" and you will get a same action step which is working at the same time when Auto operation. You can also separate a combined step into several steps by pressing "Break" button.

4.2.1 Servo Action

Click the Line button to go into servo action editor, you can set the X1(X2), Y1(Y2),Z,C(Pose) axis status ,as shown below:

0 10:07 Mold:00 Signal 2016/09/06 Run Time:0.0 h				Advance Admin	
Editing: Main Cuide Program Home * Vertical posture 1: Delay time:0.00	Set	Pos	Speed(%)	Delay(s)	
Home * X1: 0.00 Speed:80 Delay time:0.00	GX1	0.00	80	0.00	
Home * Y1: 0.00 Speed:80 Delay time:0.00	GY1	0.00	80	0.00	
Home * Z: 0.00 Speed:80 Delay time:0.00	GZ	0.00		0.00	
Home * X2: 0.00 Speed:80 Delay time:0.00	GX2	0.00		0.00	
Home * V2: 0.00 Speed:80 Delay time:0.00	GY2	0.00		0.00	
2 * X1: 0.00 Speed:80 Delay time:0.00 3 * Mold end: Delay time:0.00					
Modify X Del Deco- mpose Com- pose		Try J	lenu	Insert	
1	Detail	oop Time 0.0 s	Finished Produ	icts 16	
Z: 0.00 mm X1: 0.00 mm X1: 0.00 mm X2:	0,00 mm	¥2:	0.00 mm		
Function Monitor	<u>]</u> [Alarm	ר][Return	

In this page, you can set X1(X2),Y1(Y2),Z axes' position, operating speed and delay time. After clicking, the icon $\sqrt{}$ comes on the left, then set up the parameters of axes, select and click "Insert" button so that the corresponding settings are confirmed and inserted into the program steps.

There are two ways to set the axis position:

1)Input the position you wanted in the editor box.

2) Press the axis button on the keyboard to let the arm locate to the position you wanted and then click the set button.



4.2.2 Program Starting point

The six steps are shown as six axes' origin position and pose.

0 10:06 Mold:00 Signal 2016/09/06 Run Time:0.0 h		Advance Admin
Editing: Main 🧪 Guide 📝 Program		
Home * Vertical posture 1: Delay time:0.00	Line	Stack
Home * X1: 0.00 Speed:80 Delay time:0.00	Fixture	Injection
Home * Y1: 0.00 Speed:80 Delay time:0.00	pr	
Home * Z: 0.00 Speed:80 Delay time:0.00	Periphery	Reserve
Home * X2: 0.00 Speed:80 Delay time:0.00		
Home * Y2: 0.00 Speed:80 Delay time:0.00	V Cut	Wait
1 * Wait: Mold Opened Delay time:0.00	N @ Hariania	
2 * X1: 0.00 Speed:80 Delay time:0.00	tor I/0	Conditions
3 * Mold end: Delay time:0.00	Comment	Flags
Modify X Del Deco-	Iry	Menu Insert
	Detail Loop Time 0.0	s Finished Products 16
Z: 0.00mm X1: 0.00mm X1: 0.00mm X2:	0.00mm ¥2 :	0.00 mm

Six steps of [Home] status above, which are default steps status in a new program, can just be edited by click "Edit" to modify the starting position, operating speed and delay time of axes, not be deleted. 4.2.3 Stack action

Click the Stack button to go into stack action editor, as shown below:

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Advance Advin
diting: Main 🧪 Guide 🐺 Program	Seq S:Pos Num Step
Home * Vertical posture 1: Delay time:0.00	Group=1 X→Z→Y Y: RP 2 10.00 Z: P 2 10.00 Z: P 2 10.00
Home * X1: 0.00 Speed:80 Delay time:0.00	Group-2 X→Z→Y Y: RP 3 10.00 Z: P 3 10.00 Z: P 3 10.00
Home * V1: 0.00 Speed:80 Delay time:0.00 Home * Z: 0.00 Speed:80 Delay time:0.00	Group*3 X->Z->Y Y: RP 4 5.00 Z: P 4 5.00 Z: P 4 5.00
Home * X2: 0.00 Speed:80 Delay time:0.00	Group-4 X->Z->Y Y: RP 5 5.00 Z: P 5 5.00
Home * Y2: 0.00 Speed:80 Delay time:0.00	
1 * Wait: Mold Opened Delay time:0.00	
2 * X1: 0.00 Speed:80 Delay time:0.00	
3 * Mold end: Delay time:0.00	
Modify X Del Deco-	Try Menu Insert
	Detail Loop Time 0.0 s Finished Products
X: 0.00 mm X1: 0.00 mm ¥1: 0.00 mm X2:	0.00 mm ¥2 : 0.00 mm
Step	0

Select the left side of the stack to insert the program group, set the group and then click Insert button in front of the stacking step. The robot will stack products as order when Auto operation.

If you want to use the Y axis to stack, you should make sure the stack is inserted before Y-axis is lowering operation.

4.2.4 Fixture action

Click the Fixture button to go into fixture and sucker action editor, as shown below:



Controller can set four fixtures and two sucker action, clicking the button to be controlled and the indicator turns red when output. Then click on the left so that it becomes $\sqrt{}$, clicking "Insert" the action step is inserted into the front steps of the selection procedure.

After inserting fixture and sucker action, be sure to insert Check action, or the program does not test their conformation signal. If you do not acknowledge signal, you don't need the Check action. You'd better have Check action to protect machine.



4.2.5 IMM Action

Click the Injection button to go into injection action editor, as shown below:

diting: Main 🥜 Guide 📊 Program	Injectio	n		
Home * Vertical posture 1: Delay time:0.00	En	Current/Setting	Delay	
Home * X1: 0.00 Speed:80 Delay time:0.00		O Close Mold Permit	0.50	
Home * Y1: 0.00 Speed:80 Delay time:0.00		Ejection Permit	0.50	
Home * Z: 0.00 Speed:80 Delay time:0.00		Ejection BW Permit	0.50	
Home * Y2: 0.00 Speed:80 Delay time:0.00		\Theta Corel Permit	0.50	
1 * Wait: Mold Opened Delay time:0.00		Corel Out Permit	0.50	
2 * X1: 0.00 Speed:80 Delay time:0.00		Core2 Permit	0.50	1
3 * Mold end: Delay time:0.00				
		Ore2 Out Permit	0.50	0
Modify X Del Deco-		Try Menu	Inser	t
I	Detail	Loop Time 0.0 s Finishe	ad Products	
. 0.00mm X1: 0.00mm V1: 0.00mm X2:	0.00)mm ¥2 : 0.00 mm	I	
I: 0.00mm X1: 0.00mm Y1: 0.00mm X2: Step	0.00 0	Loop Time 0.0 s Finishe	ed Products	

The operation is the same with program fixture action. See 4.2.4.

4.2.6 Auxiliary Action

Click the Auxiliary button to go into periphery action editor, you can find injector, conveyor, reserve point and stack action in this editor, as shown below:

0 10:11 Mold:00 Run Time:0	1.0 h				Advance Admin
Sditing: Main // Program	Peripher	y Action	-		
Home * Vertical posture 1: Delay time:0.00	En	Current/Setting	i	Actio	n T- imes
Home * X1: 0.00 Speed:80 Delay time:0.00		Injector	0.00	٦	0
Home * Y1: 0.00 Speed:80 Delay time:0.00				۲.	<u> </u>
Home * Z: 0.00 Speed:80 Delay time:0.00		onveyor 💮	0.00	s	0
Home * X2: 0.00 Speed:80 Delay time:0.00					
Home * Y2: 0.00 Speed:80 Delay time:0.00					
1 * Wait Mold Opened Delay time 0.00					
2 * X1: 0.00 Speed:80 Delay time:0.00					
3 * Mold end: Delay time:0.00					
Modify 🔀 Del 🚽 Deco-	Com- pose	Try	nu	Ī,	Insert
	Detail	Loop Time 0.0 s F	inished Pr	roduot	ts
X: 0.00 mm X1: 0.00 mm X1: 0.00 mm	K2 : 0.0)mm ¥2 : 0), 00 mm		
Step	0				
				- /	5
. 🛆 . 🛯 . 📟 . 🔄 . 🐌		. 🔼 .			\neg .

The operation is the same with program fixture action. See 4.2.4.

Times: Means how long to execute the action in a cycle.

Delay: Set how many molds in Auto when output, maybe every other 1 or two,etc.,



4.2.7 Reserve Action

Click the Reserve button to go into action editor. As shown below:

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				Advance Admin
Editing: Main 🧪 Guide 📝 Program	Reserve .	Action		
Home * Vertical posture 1: Delay time:0.00	En	Current/Setting	Dela	ay/Times
Home * X1: 0.00 Speed:80 Delay time:0.00		\Theta Reservel	0.00	s 0
Home * Y1: 0.00 Speed:80 Delay time:0.00		Reserve2	0.00	s 0
Home * Z: 0.00 Speed:80 Delay time:0.00				=
Home * X2: 0.00 Speed:80 Delay time:0.00		0.00	s 0	
Home * Y2: 0.00 Speed:80 Delay time:0.00		\Theta Reserve4	0.00	s
1 * Wait Mold Opened Delay time 0.00				
2 * X1: 0.00 Speed:80 Delay time:0.00				
3 * Mold end: Delay time:0.00				
Modify X Del Deco-		Try		• Insert
	Detail	Loop Time 0.0 s F	inished Prod	luots 16
Z: 0.00 mm X1: 0.00 mm Y1: 0.00 mm X2:	0.00	Imm ¥2: 0), 00 mm	
Function Monitor	Ĵ	Alarm	<mark>ال</mark>	Return

There have four reserves on the system.

Times: Means how long to execute the action in a cycle.

Delay: Set how many molds in Auto when output, maybe every other 1 or two,etc.,

4.2.8 Wait Action

Click the wait button to go into wait action editor. This type of action means the program will stop before the input signal you want to wait is on. The editor is as shown below:

•		MM Signal	10:13 2016/09/06	Mold:00 Run Tíme:0.0 h				Advance Admin
Editing: Main		ng Gui d	•	📝 Program	Wait Condition			
Home *	Vertical posture	1: Delay time:	0.00		Wait Mold pened	0-	Wait XCLIP1 [Wait X04
Home *	X1: 0.00 Speed:	80 Delay time:	0.00		Wait Secu	rity D-	Wait XCLIP2	Wait X04
Home *	Y1: 0.00 Speed:	80 Delay time:	0.00		Wait X043		Wait XCLTP3	
Home *	Z: 0.00 Speed:8	0 Delay time:0.	00					
Home *	X2: 0.00 Speed:	80 Delay time:	D. <mark>O</mark> O		Wait X044		Wait XCLIP4	Wait X02
Home *	Y2: 0.00 Speed:	80 Delay time:(0.00		Wait EVEL	r 📄	Wait XCLIP5 [Wait XO4
1 * Waiti	Mold Opened	Delay time:0.00					Wait VOLTRE	Wai+ 702
2 * X1:0).00 Speed:80 E	elay time:0.00					wait Acturo	
3 * Mold	d end: Delay tin	ne:0.00			Wait EU- COREIN		Wait EUC- OREOUT	Wait X03
Modi	ify 🗙	Del	Deco- mpose	Com-	Try	Mer	u ([].	Insert
					Detail Loop 1	lime 0.0 s F:	inished Produc	ts 16
Z : 0.	.00 mm X1:	0.00 mm	¥1:	0.00 mm X2 :	0.00 mm	Y2 : 0	. 00 mm	
l.		3		Step	Ø			
	39		- 1 (
Funct	tion	Monitor		Instruct	JU 7	larm 📙	Re Re	turn

Just check the signal you want to wait and click the insert button to confirm your change.



4.2.9 Comment

Click the Comment button to go into Comment editor. It can be have some comment on the program



Keyboard can input the information.



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4.2.10 Conditions

If have some conditions, the program go to some step.

0 10:23 Mold:00 Signal 2016/09/06 Run Time	:0.0 h	Advance Admin
Editing: Main 🧪 Gnide 📝 Progr	om Conditions	
Home * X1: 0.00 Speed:80 Delay time:0.00	Fixture-1	Fixture-3 Sucker-1
Home * Y1: 0.00 Speed:80 Delay time:0.00	Fixture-2	Fixture-4 Sucker-2
Home * Z: 0.00 Speed:80 Delay time:0.00	Defective	 X043 Sucker-3
Home * X2: 0.00 Speed:80 Delay time:0.00	- Froducts	
Home * Y2: 0.00 Speed:80 Delay time:0.00	duct	X044 Sucker-4
1 * Wait Mold Opened Delay time:0.00	Product Count 0	
2 * X1: 0.00 Speed:80 Delay time:0.00	Sampling	
3 * Check: Defecti- ve Products Go to Flag[0]Limit time:0.00	Go to flag	.ag[0]:
4 * #Flag[0]:Comment:	Use Macro Be	id Product 🖌
5 * Mold and Dolou time 000		
Modify X Del	Com- pose Try	lenu Insert
	Detail Loop Time 0.0 s	Finished Products 16
Z: 0.00mm X1: 0.00mm Y1: 0.00mm	X2: 0.00mm ¥2:	0.00 mm
Step	0	

Attention: The program should have a Comment , then can use the conditions.

4.2.11 Modify Program

Select the step you want to modify and then click the modify button it will open the modify dialog, as shown below:

Set		
osition	0.00] nm
peed	80) %
elay Time	0.00] 5
Early End		
Early Speed-Down	0) %
End Position	0) mm
	OK Cancel	

You can modify the action configure and press OK to confirm.

4.3 Demo

The following procedure will help to teach you to learn and practice robot programming. In the actual mold robot program, depending on your actual situation and set the servo axis position, and setting the correct sequence with the injection molding machine.

4.3.1 command

The procedure used to pick products and feed tail, the robot stays at the top of the mold injection molding machine and waits for the mold opened signal. When injection molding machine mold opened, arms go down and pick products and feed tail, then lay feed tail to the crusher, put down the product to the conveyor belt, which moving every mold cycle.

4.3.2 actions

1)Turn to auto-mode.

2)Arms run to start point waiting for mold opened signal.

3)Suck1 for product, fixture1 for feed tail.

4)Arms go outside injection mold machine, and enable mold close signal.

5)Lay feed tail.

6) Put down the product to conveyor and start moving for 3 seconds. 7)Arms return to waiting point.

4.3.3 program

Home	X1:	0.0	Speed	: 30	Delay time	e: 0.00
Home	Y1:	0.0	Speed	: 30	Delay time	e: 0.00
Home	Z:	0.0	Speed	: 30	Delay time	: 0.00
Home	X2:	0.0	Speed	: 30	Delay time	e: 0.00
Home	Y2:	0.0	Speed	: 30	Delay time	: 0.00
Home	Verti	cal pos	ture	Delay t	time: 0.00	
Wait:	Mold C	pened	Delay ti	me 0.0	0	
1.Y1:	850.0	Speed	: 90 l	Delay t	ime: 0.00	
2.X1:	400.0	Speed	: 90 l	Delay t	ime: 0.00	
3.Y2:	850.0	Speed	: 90 l	Delay t	ime: 0.00	
4.X2:	400.0	Speed	: 90 l	Delay t	ime: 0.00	
5.Suck	ter1 On	Dela	y time:	0.00		
6.X1:	0.0 S	peed:	90 De	lay tim	e: 0.35	
7.Y1:	0.0 S	peed:	90 De	lay tim	e: 0.00	
8.X2:	0.0 S	peed:	90 De	lay tim	e: 0.35	
9.Y2:	0.0 S	peed:	90 De	lay tim	e: 0.00	
10.Suc	ker1 Be	gin-cut				
11.Loc	k Mold	On 1	Delay ti	me: 0	.00	
12. Ho	rizontal	posture	e Del	ay tim	e: 0.00	
13.Z:	1000.0	Speed	d: 90	Delay	time: 0.00	
14.Y1	: 800.0	Speed	d: 90	Delay	time: 0.00	
15.Y2	: 800.0	Speed	d: 90	Delay	time: 0.00	
16.Suc	ker1 OF	F	Delay ti	me: 0	.00	
17.Y1	: 0.0	Speed:	90 D	elay ti	me: 0.25	

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18.Y2: 0.0 Speed: 90 Delay time: 0.25
19.Conveyor On Times: 1 Action time: 3.00
20.Z: 0.0 Speed: 90 Delay time: 0.00
21.Vertical posture Delay time: 0.00
22.Mold End Delay time: 0.00

5.Function Configures

In the stop status and then click the function menu item on the main menu bar to go into function

configures page. As shown below:



You can select function group in this page. Click the item will open the corresponding detail settings page. The Structure **Settings** can only set by the **Advance Administrator**.

5.1 Signal Settings

Click the Signal Settings item to go into the signal setting page, as shown below:

	10:28 Mold:00 2016/09/06 Run Time:0.0h	[Advance Admin
Detect fixture 1 Positi- ve Phase	Detect Fostion Horizontal	Detect Security Door	Not Vise 🗸
Detect fixture 2 Fositi- ve Phase	Detect Origin Don't need Mo.	Detect Pressure	Not Use
Detect fixture 3 Positi- ve Phase	U/D Position Vertical V	Detect Mid Mold	Not Vse 🗸
Detect fixture 4 Positi- ve Phase	Hor Standby No Limit Lock	Ejection Link Lock	Not Vse
	Close Mold Not Use	Auto Run	Not Use
	Detail	Loop Time 0.0 s Finished	Products 16
Z: 0.00 mm X1: 0.00 mm	¥1: 0.00 mm ¥2: 0.00	0 mm ¥2 : 0.00 mm	
			Baturn

Detect Fixture 1-4:

Positive: Check if the fixture input signal is on.

Reverse: Check if the fixture input signal is off.

Emergency Stop:

Not Use: The robot does not check the emergency stop signal.

Use: Check the signal and when there is no signal, Alarm shows "Emergency Stop".

Detect Position: Detect the pose when executing traverse action.

Horizontal: Must be horizontal pose when executing traverse action.

Vertical:

Must be vertical pose when executing traverse action.

No Limit: Does not detect.

Detect Origin: Detect the mold-opened signal when origin.

Need: Must have the mold-opened signal when origin.

No Need: Do not need the mold-opened signal when origin.

Origin Position: Detect the pose when origin.

Horizontal: Must be horizontal pose when origin.

Vertical: Must be vertical pose when origin.

No Limit: Do not detect.

Horizontal:

Limited : Mold locked until arm goes up horizontal.

Mold locked allowed: Arm up to be mold locked.

Mold locked:

Use: A mold locked signal comes means mold open signal.

Not Use: Mold open signal is finished means mold open signal.

Detect Security Door:

Use: Alarm when the security door is open when the robot is auto running, no matter which action.

No Use: Alarm when the security door is open when executing the arm down action.

Detect Pressure:

Use: The robot will check the pressure, if is low and then will alarm.

No Use: Not check the pressure.

Detect Mid Mold:

Use: The robot will check the mid mold signal, if there is no mid mold signal when arm down inside

the mold, will alarm.

No Use: Not check the mid mold signal.

Ejection Link Lock:

Use: System will control the ejection permit signal.

No Use: the ejection permit signal is always on.

Automatic:

Use: The robot will control check the Auto signal from Injection Molding Machine.

Not Use: Not check the signal.



5.2 Product Settings

	JMM Signal	10:29 2016/09/06	Mold:00 Run Time:0.0h			Advance Admin
Product [1	10000		Wait Mold Opened Limit Time	65.9		s
TryProduct (Alarm Times	30		s
Sampling Interval (Recycle Time	0.0		s
			Fixture	Positi- ve Phase	Rever- sed Phas	ie
Get Fail	larm When Up 🗸		Count Ways	All		~
			Product Save		Product Clear	
			Det	ail Loop Time	0.0 s Finished Product	ts 16
Z: 0.00 mm	X1 : 0.00 mm	¥1:	0.00 mm X2 :	0.00 mm ¥2 :	0.00 mm	
Function		כ	Step C			

Click the **Product Settings** item to go into the product setting page, as shown below:

Product: Setting the product count, when over the number you setting, it alarms.

Trial production: The number you are trying to produce.

Delay: setting take products out every other 1 or 2 etc,.

Wait Mold Opened Limit Time: The time to wait mold-opened signal when auto running.

Failed extract:

Arm up alarm: Arm up and alarm when checked the failure signal.

Alarm: Alarm when checked the failure signal.

Alarm Times: The time of alarm.

Product Clear: Clear the finished product count.

5.3 Machine Configure

Click the Machine Configure item to go into the machine configure page, as shown below:

	10:29 Signal 2016/09/06	Mold:00 Run Time:0.0h	Advance Admin
Tolerance	10.00 mm	Pull Push Distance 50). O mm
X1 Acceleration and Deceleration	0.30 s	X1 Max Speed 10	10 %
V1 Acceleration and Deceleration	0.30 s	Y1 Max Speed [10	N0 %
Z Acceleration and Deceleration	0.30 s	Z Max Speed [10	10 %
X2 Acceleration and Deceleration	0.30 s	X2 Max Speed [10	N0 %
V2 Acceleration and Deceleration	0.30 s	Y2 Max Speed 10	10 %
C Acceleration and Deceleration	0.30 s	C Max Speed [10	0 %
		Detail Loop Time	0.0 s Finished Products 16
Z : 0.00 mm X1 :	0.00mm ¥1:	0.00 mm X2: 0.00 mm Y2:	0.00 mm
	Monitor	Record D Alarm	

Tolerance: The tolerance between the sent pulse and feedback pulse of servo.

Safety Zone: A safety zone between arms and sub arms.

X,Y,Z Acceleration and Deceleration: The servo axis acceleration and deceleration time.

X,Y,Z Max Speed: The max speed of the servo axis.



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5.4 Security Point Settings

Click the **Security Point Settings** item to go into the security point settings page, as shown below:

	10:31 Signal 2016/09/06	Mold:0 Run Ti	10 Mdvance Advance Admin
X1 Axis ¥1 Axi	is Z Axis X2 A	xis	Y2 Axis C Axis Figure
Security Point		_	Test Feedback
Maximum displacement	400.0	mm	Test 0
		_	Feedback 0
Min pos inside mold	0.0	nm	Z Signal 0
Max pos inside mold	400.0	mm	+Test -Test Clear
Save			Detail Loop Time 0.0 s Finished Products 16
Z: 0.00mm X1 :	0.00 mm ¥1 :	0.00 mm	X2: 0.00 mm Y2: 0.00 mm
	Monitor	Step	

1. Press the X menu item on the top to select the axis you want to see. Max:

The max for axis to move.

Maximum inside: The maximum position that the axis could move in machine.

Minimum inside: The minimum position that the axis could move in machine.

+Test: Test the servo positive pulse.

-Test : Test the servo reverse pulse.

Clear: Clear the test data.

When you have done, just click the set in button to confirm.

2. Press the Y1 menu item on the top to select the axis you want to see.

Maximum standby position: Set the standby position Y1 axis maximum points.

Distance back to origin: Y1's position before OPR operation

Press the Y1 menu item on the top to select the axis you want to see.

3. Press the Z menu item on the top to select the axis you want to see.

Safety zone inside: Setting a number which is safety zone inside of machine.

Safety zone outside: A safety distance number out of the machine.

4. Press the C menu item on the top to select the axis you want to see.

Transverse safe range: A safety angle when move towards transverse.

5. Press the Structure menu item on the top. As shown below:
Min increase inside of X axis: Min position for X when arm rise in machine.
Max increase inside of X axis: Max position for X when arm rise.
Min increase outside of Y axis: Min position for Y when arm rise out of machine.
Max increase outside of Y axis: Max position for Y when arm rise.

Attention: You can modify the X's minimum, maximum position in the mechanical parameters page

X axis parameter field.

5.5 Stack Settings

Click the Stack Settings item to go into the stack settings page, as shown below:

	10:32 2016/09/06	Mold:00 Run Time:0.0h			Advance Admin
Group-1 Group-1	у-х-г		Direction	X RP	1
Group-2 Z-X-Y	У-Z-Х		Y PP	Y RP	
Group-3			Z PP	Z RP	
Lattice			Step		
Group-4 X 2			10.00		nm
¥ 2			10.00		mm
Z 2			10.00		mm
Is Sub Arm			Stack Counter	All	~
			Detail Loop Time	0.0 s Finished Products	s 16
Z: 0.00 mm X1: 0.00 mm	¥1:	0.00 mm X2 :	0.00 mm ¥2 :	0.00 mm	
		Step	0		
		Reard			┑

There four group stack setting in our system.

Sequence: Select the stack sequence

X RP: If checked, the robot will stack reverse on the X axis.

Y RP: If checked, the robot will stack reverse on the Y axis.

Z RP: If checked, the robot will stack reverse on the Z axis.

5.6 System Settings

5.6.1 Setting

Click the System Settings item to go into the system settings page, as shown below:

0 15:35 Mold:1 2014/10/15 Run Time:0 h	Advance Admin
System Settings Level Management Admin Settings BackUp/Restore Machine Config	
	libration
Language. HX Inglish	
Data Time: 2014 / 10 / 15 15 : 35	
Back Light Time: 5 min	
Brightness 🛞	
Version: OS:1.0; App 4.2.4;Libs:4.7.3; Host:0	Save
Loop Time O Finished Product	s O
Z: 0.00 mm Y1: 0.00 mm Y2: 0.00 mm	
	Return

Key Tone: When press the keyboard will beep if on.

Language: Select the Interface language.

Data Time: Set the current data time.

Back Light Time: If no action in the setting time, the back light will turn off.

Version: The version for the system

When you have done, just click the save to confirm.



5.6.2 Level Management

Click the Level Management item to go into settings page, as shown below:

• ()		10:34 2016/09/06	Mold:00 Run Time:0.0h			Advance Admin
System Settings	Level Management	Admin Settings	BackUp/Restor	e		
Level	Machine Admin Advance Admin					
Old Password						
New Password						
Change	Clear					
4				<u></u> 2		
				Detail Loop Time	0.0 s Finished Product	:s 16
Z : 0.00 mm	X1 : 0.00 mm	¥1:	0.00 mm X2 :	0.00 mm ¥2 :	0.00 mm	-
Function			Step Record			

Level management can change the basic information while administer can modify any parameters.

Enter the old password and then input a new one, the moment you confirmed, you change the password.

5.6.3 Backup/Restore

Click the Backup/Restore item to go into settings page, as shown below:

ts

You can use USB to backup or restore "Machine parameters", "System Parameters" and "mold parameter" or select all to backup/restore.



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5.7 Structure Settings

Click the Structure Settings item to go into the structure settings page, as shown below:

		10:36 M 2016/09/06 R	old:00 un Time:0.0h		<u>8</u> 5 pu	Advance Admin
X1 Axis Y1 As	is Z Axis	X2 Axis Y2	Axis C Axis	s Struct Define	Time	
Security Point			Test Fee	edback		
Mechanical length	500.0	nn	Test	0		
Maximum displaceme	nt 400.0	nn	Feedback	0		
Min pos inside mol	d 0.0	nm	Z Signal	. [0		
Max pos inside mol	d 400.0	nn		+Test	-Test	Clear
Distance/Rotation	20.00	nn				
Save						
			D	etail Loop 1	lime 0.0 s Finis	hed Products 16
Z: 0.00 mm	X1: 0.00 mm	¥1: 0.0	0 nm X2:	0.00 mm	¥2: 0.00	nm
Function		<u>ן ר</u>	Step Record	<mark>)רַ ר</mark>		Retwn

Mechanical Length: The axis mechanical length.

Distance/Rotation: The distance of one rotation of the servo.

You can also set other parameters as 5.4 please press the save button to confirm your change.

WARING: Structure Define may cause damage to the machine and personal injury!

Please contact the manufacturer

5.8 Maintains

Click the Maintains item to go into the maintain page, as shown below:

0	\bigcirc		IIII Signal	10:39 2016/09/06	Mold:00 Run Time:	0. Oh				Advance Admin
Main	tain Care	J.								
	Name			Cre	ate Time				Update Lo	go
									Scan Pane	ı
									Update HM	α
									Update Sup Passwor	d
Update	• Host Process	0						0%	Back To Fac	tory
						Det	tail Loo	p Time O.	0 s Finished Produ	10ts 16
Z:	0.00 mm	X1:	0.00 mm	¥1:	0.00 mm Step	X2:	0.00 mm	¥2:	0.00 mm	
L	Function][Monitor][Recor		ſ	Alarm	<u>ן</u> ך	

You can update the control panel system by a USB. Put the system update packet to a U disk. Click the Refresh button and wait for a while the page will show the system version if it can check the system update packet from the disk. If it can't, just press the refresh button again or use another U disk. If it check the system update packet, just click the Update button to start update system. After finish will show a message and the system will restart and then you can unplug-in your U disk.

6.I/O Monitor and Alarm History

6.1 I/O Monitor

Click the Monitor menu item in the main menu bar will open the monitor page, as shown below:

a		IM Signal 2014,	5:40 Mol /10/15 Run	l:1 Time:O h		
Manip	ulator I/O	thine I/0	Manipulator	I/O Injection Mac	hine I/O	
	Input Out	put 🕨		Input Out;	put 🕨	
X010	Horizon-1	Θ	Y010 H	orizon-1	Θ	
X011	Vertical-1	9	Y011 V	ertical-1	Θ	
X012	Fixture1	9	Y012 F	ixturel Valve	Θ	
X013	Fixture2	9	Y013 F	ixture2 Valve	Θ	
X014	Sucker2	Θ	Y014 S	icker2 Valve	Θ	
X015	Sucker1	Θ	Y015 S	ickerî Valve	Θ	
X016	X1 Out Limit	9	Y016 M	ain Forward Valve	Θ	
X017	X1 In Limit	Θ	Y017 A	ljust Sub Back	•	
7.	0.00 ¥1:	0.00 19:	0.00	Loop Time	O Finished Products	0
4.	0.00mm 11.	0.00mm 12.	0.00 mm Step	0		
[Monitor			Alarm	

The left side and the right side are independent. You can view the input and output signal in the same time. Click the Injection Machine I/O button will open the IMM signal monitor.

6.2 Alarm History

Click the Alarm menu item in the main menu bar will open the alarm history page, as shown below:

-	Alarm	Alarm	Alarm	Alarm
Ē	500	Lost contact with MainCtrl!	16-09-01 16:59	no-solve
	500	Lost contact with MainCtrl!	16-09-01 16:58	no-solve
3	500	Lost contact with MainCtrl!	16-09-01 16:39	no-solve
	500	Lost contact with MainCtrl!	16-08-31 16:04	no-solve
	500	Lost contact with MainCtrl!	16-08-25 11:51	no-solve
5	500	Lost contact with MainCtrl!	16-08-01 11:39	no-solve
	500	Lost contact with MainCtrl!	16-08-01 11:39	no-solve
	500	Lost contact with MainCtrl!	16-06-22 16:18	no-solve
i.	500	Lost contact with MainCtrl!	16-04-24 20:04	no-solve
0	500	Lost contact with MainCtrl!	16-04-24 20:03	no-solve
			Detail Loop Time	0.0 s Finished Products
	0, 00 mm	X1: 0.00 mm ¥1:	0.00 mm X2: 0.00 mm Y2:	0.00 mm

The top 50 alarm records will show in this page.

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If the machine has a alarm, click the "detail" button.

Alarm ID:	500
Alarm Text:	
Alarm Reason:	
Alarm Solution:	
	Close

6.3 Modify Log

Al	arm History Modi	Image: Signal 10:45 Mold:00 Made Signal 2016/09/06 Run Time:0.0h Made	hine ator
-		Log	
1	16-09-06 10:45:35	kCS_User_Changed[1] from NoneLevel to Machine	
2	16-09-06 10:42:56	kCS_STRUCT_Config_Save[528] Save	
3	16-09-06 10:42:53	kCS_STRUCT_Axis_Define_C[508] from Pneumatic to None	
4	16-09-06 10:02:01	kCS_Mold_Changed[2] from 66 to 00	
5	16-09-06 10:01:46	kCS_STRUCT_Config_Save[528] Save	
6	16- <mark>09-</mark> 06 10:01:44	kCS_STRUCT_Axis_Define_C[508] from Servo to Pneumatic	
7	16- <mark>09-06</mark> 09:59:00	kCS_STRUCT_Other_Define_Tune_bit[525] from Use to No Use	-
8	16-09-01 17:41:43	kCS_PANEL_Language[903] from 中文 to English	
9	16-09-01 17:40:57	kCS_PANEL_Language[903] from English to 中文	
10	16-09-01 17:40:48	kCS_Mold_Changed[2] from 55 to 66	
_		Detail Loop Time 0.0 s Finished Products	16
Z:	0.00 mm 🛛 🗙	11: 0.00 mm ¥1: 0.00 mm ¥2: 0.00 mm ¥2: 0.00 mm	
		Step 0	
	Function	Monitor	

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Code	Alarm Information	Alarm Reason
1000	Mid-mold signal is off when Arm	The detecting mid-mold signal is enabled but
1000	descend	Mid-mold signal is off when Arm descend.
1001	Mold Opened signal is off when Arm descend	The mold-opened signal is off when Arm descend
1002	Safety door is opened when Arm descend	Safety door is opened when Arm descend
1003	Vertical and horizontal signal is both on.	Vertical and horizontal signal is both on.
1005	Mold Opened signal is off when Arm descend inside mold	Mold Opened signal is off when Arm descend inside mold
1006	Position is horizontal when Arm descend inside mold	Position is horizontal when Arm descend inside mold
1007	Arm descend inside mold but position is not inside Z in security zone.	The origin signal is checked but z axis position is out of z axis security zone when arm down.
1008	Arm descend inside outer but position is not inside Z out security zone	The outside security zone signal is checked but z axis position is not in the security zone when arm down.
1009	Can not check the security zone signal when Arm descend	Can not check the security zone signal when Arm descend
1105	Sub upper limit is on after Sub Arm descended	Sub upper limit is on after Sub Arm descended
1122	It's too fast when Main Arm ascend	It's too fast when Main Arm ascend.
1123	It's too fast when Sub Arm ascend	It's too fast when Sub Arm ascend.
1160	Can not check the main upper limit when position changing	Z axis is inside the security zone but can not check the main upper limit when position changing.
1162	Mold-opened signal is off when position changing	Mold-opened signal is off when position changing.
1163	horizontal limit is off after position change to horizon	The horizontal limit is off after position change to horizon.
1164	Vertical limit is off after position change to vertical	Vertical limit is off after position change to vertical
1184	The position is not the same with the instruction when Traverse out	The position is not the same with the instruction when Traverse out.
1185	Mold-opened signal is off when Traverse in	Mold-opened signal is off when Traverse in.
1186	Main upper limit is off when Traverse in the inside dangerous zone	Main upper limit is off when Traverse in the inside dangerous zone
1187	Sub upper limit is off when Traverse in the inside dangerous zone	Sub upper limit is off when Traverse in the inside dangerous zone.
1189	Main upper limit is not both on when	Z axis traverse from outside security zone to inside

6.4 Alarm Information

Company address: the first floor, building B, yuechang industrial park, songbai road, shiyan town, baoan district, shenzhen city, guangdong province, China

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		Shenzhen TOOCEN Automation Equipment CO., LTD.			
	traverse in to out	security zone, main arm upper limit is off.			
1190	Main upper limit is not both on when	Z axis traverse from inside security zone to outside			
	Traverse out to in	security zone, main arm upper limit is off			
1192	Current position is less than the permit security position	Current position is less than the permit security position			
1193	Current position is larger than the permit security position	Current position is larger than the permit security position			
1200	Confirmation signal's error with Fixture 1 ON	Signal checking error after Fixture 1 ON			
1201	Confirmation signal's error with Fixture 1 OFF	Signal checking error after Fixture 1 OFF			
1202	Confirmation signal's error with Fixture 2 ON	Signal checking error after Fixture 2 ON			
1203	Confirmation signal's error with Fixture 1 OFF	Signal checking error after Fixture 2 OFF			
1204	Confirmation signal's error with Fixture 3 ON	Signal checking error after Fixture 3 ON			
1205	Confirmation signal's error with Fixture 3 OFF	Signal checking error after Fixture 3 OFF			
1206	Confirmation signal's error with Fixture 4 ON	Signal checking error after Fixture 4 ON			
1207	Confirmation signal's error with Fixture 4 OFF	Signal checking error after Fixture 4 OFF			
1208	Confirmation signal's error with Sucker 1 ON	Signal checking error after Sucker 1 ON			
1209	Confirmation signal's error with Sucker 1 OFF	Signal checking error after Sucker 1 OFF			
1210	Confirmation signal's error with Sucker 2 ON	Signal checking error after Sucker 2 ON			
1211	Confirmation signal's error with Sucker 2 OFF	Signal checking error after Sucker 2 OFF			
1306	Please check the standby point Fixture 1	Fixture 1 must be OFF when standby, Please check.			
1307	Please check the standby point Fixture 2	Fixture 2 must be OFF when standby, Please check.			
1308	Please check the standby point Fixture 3	Fixture 3 must be OFF when standby, Please check.			
1309	Please check the standby point Fixture 4	Fixture 4 must be OFF when standby, Please check.			
1310	Please check the standby point Sucker 1	Sucker 1 must be OFF when standby, Please check.			
1311	Please check the standby point Sucker 2	Sucker 2 must be OFF when standby, Please check.			
1400	Y-axis is not detected limit when rise	Main arm isn't in the up position in Auto, you should make it origin manually.			
1403	Y2-axis is not detected limit when rise	Sub arm isn't in the up position in Auto, you should make it origin manually.			

7.Board port definition 7.1 HC-S5 Main Board



Company address: the first floor, building B, yuechang industrial park, songbai road, shiyan town, baoan district, shenzhen city, guangdong province, China

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7.2 HC-S5 I/O Board



XXSI

XPS4

7.3 HC-S3 Main Board



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7.4 HC-S3 I/O Board



XXS1

XPS4



7.5 Servo connector



Pin No.	Terminal definition	Pin No.	Terminal definition
1	+24V	9	0V
2	OA+	10	P+
3	OA-	11	Р-
4	OB+	12	BRAKE
5	OB-	13	N+
6	OZ+	14	N-
7	OZ-	15	ALM
8	SON		

8.Wiring Diagram

8.1 Main board to I/O Board



8.2 Main board to Panel



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8.3 Main board to Servo

Please choose position mode for servo system. The command pulse type is forward and reverse pulses. The maximum frequency is 500Kpps.

8.3.1 Connect to Panasonic A5

A5 Servo settings

No.	name	set
Pr0.01	Control mode	0
Pr0.05	Input pulse select	1
Pr0.06	Input pulse positive	0
Pr0.07	Input pulse mode	1
Pr0.08	Pulses of molter circle	10000
Pr0.11	Pulse out for circle	2500

Main Board		Panasonic A4/A5				
pin	define		pin	define		
1	P+	Positive pulse	3	PULS1	Pulse 1 input	
2	P-		4	PULS2		
3	S+	Negative pulse	5	SIGN1	Dulco 2 input	
4	S-		6	SIGN2	Puise 2 Input	
5	A+	Feedback pulse phase A	21	OA+	Phase A output	
6	A–		22	OA-	Phase A output	
7	B+	Feedback pulse phase B	48	OB+	Phase B output	
8	B-		49	0B-		
9	Z+	Feedback pulse phase Z	23	0Z+	Phase 7 output	
10	Z-		24	0Z-	Fllase Z output	
13	GND	Signal ground	13	GND	Signal ground	
26	+24V	+24V power supply	7	COM+	External power+	
25	OV	power ground	41	COM-	External power-	
20			36	ALM-	alarm	
15	ALRM	alarm	37	ALM+	aidilli	
23	SON	Servo-on	29	SRV-ON	Servo-on	

8.3.2 Connect to MITSUBISHI MR-E

MR-E Servo settings

No	Name	Set
No. 0	Control mode	***()
No. 1	Brake selection	0012
No. 3	numerator	14
No. 4	Denominator	1
No. 21	Pulse mode select	0000
No. 27	Pulse out	14
No. 54	Pulse out	1***

(For 131072pulses/cycle molter)

Main Board			MISUBISHI MR-E		
pin	define		pin	define	
1	P+	Positive pulse	23	PP	Dulco 1 input
2	P-		22	PG	Puise I input
3	S+	N	25	NP	Dulco 9 input
4	S-	Negative puise	24	NG	Puise 2 input
5	A+		15	LA	Phago A output
6	A-	reeuback puise phase A	16	LAR	Phase A output
7	B+	Foodbook nulao nhogo P	17	LB	Phase B output
8	B-	reeuback puise phase b	18	LBR	
9	Z+	Eastheast with a share 7	19	LZ	Phase 7 output
10	Z-	reeuback puise phase z	20	LZR	Thase 2 output
13	GND	Signal ground	14	LG	Logic ground
26	+24V	+24V power supply	1	VIN	DC24V power+
25	OV	power ground	13	SG	DC24V power-
15	ALRM	Alarm	9	ALM	alarm
23	SON	Servo-on	4	SON	Servo-on

8.4 Robot connect to IMM

Mold-Open Finis, Safe door and Mold-Close Finish signal to switching signal input.



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Mold-Open Finis, Safe door and Mold-Close Finish signal to voltage signal input.



9.Circuit wiring diagram





9.2 S3 Circuit wiring diagram



Thanks for reading. The information is subject to change WITHOUT notice while update.