CONTENTS

Chap.1   Specification and Installation

1.1 Specification

1, a control Pad
2, a Relay board
3, a Power Supply
4, a 37Pin Wire

1.2 Installation

1,   Installation should be performed by workers with lisence in electric field.
2,   Make sure the power is off before installation.
3,   Install on metal material, keep off from the combustible thing.
4,   Make sure the safety connection to the ground.
5,   The power supply is important for the control system. Controller installation should be avoided contactors, transformers and other AC accessories layout, Make sure your system has stable power supply and protection.
6,   Read the Guide first before Installation, maintenance, and operation. Operrators should be familiar with the safety specification in machinical and electric area.
7,   Environment temperature is below 50℃. Do not use in brume and frozen places.

Attention: Installing incorrectly may cause danger, including the human body injury and equipments damage.

Chap.2 Operation

2.1 Panel
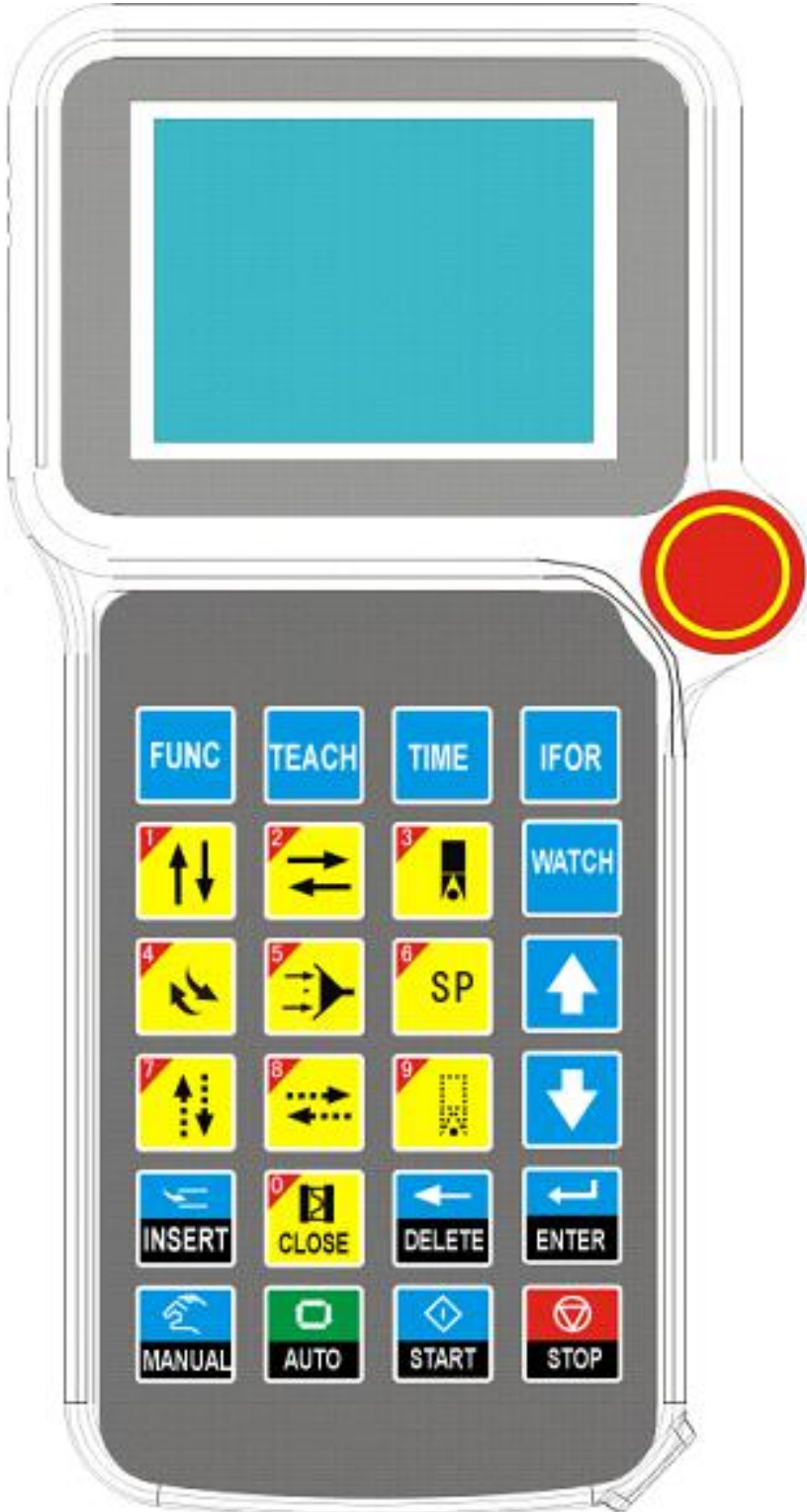
2.2 STOP mode

At power on, system self-test then turn into STOP mode. Press "STOP" key in other mode will also enter STOP mode.

RunStatu	StopPage	RunTime
Stop		000:00:00

Robot Ctrl System

CurrMold: 20

OpMold●	SafDor●	CloMld●	Thimb●

35 OpenLmtOff,NotAtOrigin

Lamp，Flash in red when alarm.   Signal is gray when OFF.

2.3 MANUAL mode

press **MANUAL** key in STOP mode, system turn into MANUAL mode. Action key can be used to perform certain operation.

RunStatu	ManualPage	RunTime
Manual		000:00:00

SelArm   MainArm

ManualAction   MainBack
MainForw
Main   Up

OpMold ●	SafDor ●	CloMld ●	Thimb ●

35   OpenLmtOff,NotAtOrigin

	Main arm rising/falling action, press once more, acting to the other side.
	Main arm going forward/ backward action, press once more, acting to the other side.
	Main arm clips on/off.
	Arm rotating in/out action, press once more, acting to the other side
	Vacuum sucks on/off .
	Spare valve on/off the action.
	Vice arm rising/falling action, press once more, acting to the other side.
	Vice arm going forward/ backward action, press once more, acting to the other side.
	Vice arm clip on/off action.
	Arm single/both select.
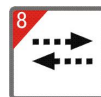
2.4 Auto Mode

press key in Auto mode, system turn into Auto mode, Robot int automatic state of preparation, Page as follows:

RunStatu	AutoPage	RunTime
AutoPrep		000:00:00

CurrMold：01   CyclTime：000.00   S
ProdSet：32767   FetTime：184.63   S
ActFini：00000   ActTime：0.00   S
CurrAct：NoAction

OpMold ●	SafDor ●	CloMld ●	Thimb ●

Press Start key to start!

In the state of preparation, You can run the auto actions when press the START key, Page as follows.

RunStatu	AutoPage	RunTime
Auto		000:00:00

CurrMold：01   CyclTime：000.00   S
ProdSet：32767   FetTime：184.63   S
ActFini：00000   ActTime：0.00   S
CurrAct：OpenDely

OpMold ●	SafDor ●	CloMld ●	Thimb ●

CurrMold: Mode number of the currently selected, Running program in accordance with this model number int the AUTO mode.

CyclTime: Record the current automatic cycle with time.

ProdSet: The plans of products number, It will alarm when the actual output reaches the set production.

FetTime: In the AUTO run-time, Each automatic cycle time from prohibit the injection switch-mode to allow

ActFini: The number of complete production

ActTime: The actual time of action.

CurrAct: The executing action.

Auto run-time, press TIME key to enter the page to modify the time parameters, and can

enter MONITOR, INFO page to view I/O signal and INFO record, Press automatic key to return to auto page.

When fetch failed alarm accurs in AUTO mode, You can press Auto key(or open safe door) to close alarm and continue. Or press the stop button to back to the origin status, and exit auto mode.

2.5 FUNCTION

2.5.1 General function

In the status of STOP and AUTO, Press 「FUNC」 key to enter Function page, Use up/down key to move to each function, You can press STOP key to leave Function page and return Stop page.

RunStatu	FuncPage	RunTime
Stop		000:00:00

Language	Chinese
EjectCtrl	Use
ChkMainFixt	PositPhase
ChkViceFixt	PositPhase
ChkVacuum	Use

OpMold●	SafDor ●	CloMld ●	Thimb ●

1、 Language：Language Selection
2、 EjectCtrl：
NotUse：Allow the thimble signal long-term output, Thimble action of injection does not be controled.
Use   ： When the robot began to move, Disconnect thimble signal and start timing,. Allow to output thimble signal after thimble delay time.
3、ChkMainFixt：
PositPhase： Positive detected fixture switch. Fixture swich signal will be ON when Fetch success in AUTO mode.
ReverPhase： RP to detect fixture switch. Fixture swich signal will be OFF when Fetch success in AUTO mode.
NotUse： Not detect fixture switch. Not detect switch signal no matter what the Fetching action success or not.
4、ChkViceFixt： The same as Chk ChkMainFixt.
5、ChkVacuum：
Not Use： Not detect vacuum switch signal at Automatic run-time.
Use：Vacuum swich signal will be ON when Fetch success in AUTO mode.

2.5.2 Special Function

In STOP page, press [FUNC] key twice to enter PASSWD page, Page as follows:

RunStatu	FuncPage	RunTime
Stop		000:00:00

Passwd　***

OpMold●	SafDor●	CloMld ●	Thimb ●

Enter 2011 before press [ENTER] key, can enter PASSWD1 page. Use up/down key to move to each function, Page as follows:

RunStatu	Passwd1Page		RunTime	
Stop			000:00:00	
SafDoor	NotUse	BtnSound	ON	
ClrProd	OFF	OsdStdby	NotUse	
StopSta	NotUse	SlDOutSi	Use	
RsvTime	00001	CloScrTi	0200　S	
CycTime	0600.0　S	ProdtSet	32767	
AlmTime	0600.0　S			
OpMold●	SafDor ●		CloMld ●	Thimb●

1、SafDoor：

 NotUse：Not detect safe door signal

 Use　：When falling to fetch, can detect injection safe door signal. It will alarm if there is
    no signal.

2、ClrProd：

 Choose whether to clear the existing production, "ON" clear existing production, "OFF"
 append existing production.

3、StopSta：

 NotUse：In STOP status, The ON/OFF signal always output.

 Use　：　In STOP status, It will forbid the injection OPEN/CLOSE mold if robot received
    open mold end signal, or you will open and close the safe door one time.

4、RsvTime:

If the program has reserved action, this parameter is times of the reserved action output time. If this parameter is '3', the reserved action will be output every 3 mold.

5、CycTime：

Waiting time of open finish output again after robot finish an auto cycle. If the real time more than the setted, it will alarm.

6、AlmTime：

Set alarm time. The alarm will stop if time out, but the alarm screen will be retained.

7、BtnSound：

OFF：No key tone when pressing the key.

ON：It has key tone when pressing the key.

8、OsdStdby：

NotUse：Robot will standby in the of spin in side at AUTO mode. According to the module program action.

Use ：Robot will standby in the of spin out side at AUTO mode. When injection open finish, mold will be executed after spin in.

9、SlDOutSi：

NotUse：Arm falling down at normal speed after spin out at AUTO mode.

Use：Arm falling down at slow speed after spin out at AUTO mode.

10、CloScrTi：Set the display sleep time, the minimum is 15s, it will be change to 15s if the setted lower than 15s.

11、ProdtSet：

Plans of the number of products, it will alarm when current product reach to the setted.

2.5.3 SI/DO Arm Select

Enter 2012 in the password line, then press ⏎ ENTER key, you will enter single or double arm select page
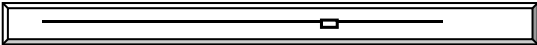
RunStatu	Passwd2Page	RunTime
Stop		000:00:00

SiOrDoArm　　SiArmProg
ProdType：　　HC19001
VerDate：　　2011-05-06
Version：　　1.0.0.1

OpMold ●	SafDor ●	CloMld ●	Thimb ●

1、SiOrDoArm：

SiArmProg：Set the standard procedure for single-arm procedures。

DoArmProg：Set the standard procedure for double-arm procedures

2、ProdType：VerDate、Version：All of them are factory system data.

2.5.4 BRIGHTNESS

In STOP page, press FUNC key three times to enter Brightness page, page as follows:

RunStatu	BackLight	RunTime
Stop		000:00:00

Brightness　　060　%

Use updown buttons adjust

OpMold●	SafDor ●	CloMld ●	Thimb ●

2.6 Program

2.6.1 Program Select

In STOP page, Press TEACH key to enter Program Select page, page as follows:

RunStatu	SavePage	RunTime
Stop		000:00:00

Read　（0-99）　01

Wrt　（20-99）　20

OpMold●	SafDor ●	CloMld ●	Thimb ●

Reference to the diagram above. After select the model number you want to run in the Read text box, press the Enter key.

2.6.2 Teach

Controller can store 100 groups of molds, 20 fixed program(0-19) of them are for the user to choose. If the 20 fixed programs can not meet production requirements, Users can self-teach programs, and store them in the 20-99 group.

Enter the action program which can be refered(0-99) in Read text box, press the Enter key, then move the cursor down to the Wrt text box, press the Enter key after enter the mold number which need to be taught, can enter Teach page. Page as follows.

RunStatu	Teach	RunTime
Teach		000:00:00

Step area

Action area

Action	Time(S)	Mold:	21
	OpenDely 0.10	Num :	01
	ThimDely 0.20	Action: OpenDely	
	DoblDown 0.50	SelArm M./V.Arm	
	DoblForw 0.50	SettedTime 0.10 S	

Time area

OpMold●	SafDor ●	CloMld ●	Thimb ●

INSERT Insert a no action instruction row into the teachings.

DELETE Delete an instruction row in the teachings.

Teach：In Step area, press the cursor keys to each step sequence to modify the action. After modify done, press the Enter key, cursor will move to the Time setting box. Press the Enter key again, robot executs and stores this action, then the cursor move to the next step.

SettedTime：In Step area, press the cursor keys to each step sequence to modify the time, press the Enter key, cursor will move to the Time setting box. Press Enter key after input the number, Time changes is finished.

2.7 Time Modify

In the Stop or Auto Page, Press TIME key can enter Time Modify page.

RunStatu	TimeSetting	RunTime
Stop		000:00:00

	Action	Time（S）	
	OpenDely	0.50	Mold： 20
	ThimDely	0.50	Nul： 00
	DoblDown	0.50	
	DoblForw	0.50	SettedTime
	MainClip	0.50	0.50 S
	Sub Clip	0.50	

OpMold●	SafDor●	CloMld●	Thimb●

Press the cursor keys to each step sequence to modify the time, Press Enter key after input the number, Time changes is finished.

The time behind Action step is delay time before action. Current action will be executed until delay time-out.

If the current step sequence action is the switch to confirm. Action time will be recorded the same. If real action time cost more than the record, then the next action can be continued until action switch confirmed after time-out.

2.8 I/O Signal

In the Stop or Auto Page, press WATCH key to enter Input page.

RunStatu	InputPage	RunTime
Stop		000:00:00

LS1UpLmt	●	LS8Backup	●
LS2MainFixLmt	●	LS9DefecProd	●
LS3ViceFixLmt	●	LS10Auto	●
LS4SuckInLmt	●	SafeDoor	●
LS5SpinInLmt	●	OpMldFini	●
LS6SpinOutLmt	●	EmerStopIn	●
LS7MidMoldLmt	●		

OpMold ●	SafDor ●	CloMld ●	Thimb ●

One more time, WATCH , can enter Output page.

RunStatu	OutputPage		RunTime
Stop			000:00:00

SOL1SubForVal	●	SOL9SubFixVal	●
SOL2M.DownVal	●	SOL10ResvVal	●
SOL3M.ForwVal	●	SOL11Alarm	●
SOL4M.FixVal	●	SOL12SloDown	●
SOL5VacuVal	●	AllowRestart	●
SOL6SpOutVal	●	AllowThimble	●
SOL7SpinInVal	●	AllowOpenMld	●
SOL8SubDowVal	●	AllowCloMld	●

OpMold ●	SafDor ●	CloMld ●	Thimb ●

INPUT	OUTPUT
LS	SOL
1, Up limit	1, Vice arm forward valve
2, Main arm fixture confirm	2, Main arm descending valve
3, Vice arm fixture confirm	3, Main arm forward valve
4, Vacuum confirm	4, Main fixture valve
5, Rotate in limit	5, Vacuum valve
6, Rotate out limit	6, Rotate outside valve
7, Middle mold confirm	7, Rotate inside valve
8, reserved signal	8, Vice arm descending valve
9, NG signal	9, Vice fixture valve
10, Automation signal	10, Spare valve
11, Safety Door signal	11, Alarm
12, Mold opened signal	12, Slow down outside IMM
13, Emergency Stop	13, Recycle
	14, Ejection enable
	15, Mold open enable
	15, Mold close enable

2.9 Alarm Record

In the Stop or Auto Page, press [IFOR] key to enter Alarm Record page.

RunStatu	AlarmPage	RunTime
Stop		000:00:00

No.	Num	AlarmInfo
01	[35]	OpenLmtOff,NotAtOrigin
02	[33]	DaisOutLmtOn
03	[31]	UpLmtOff,NotAtOrigin
04	[59]	OpenWaitOver
05	[73]	DaisOutLmtOff
06	[06]	SubNipOn,SubNipLmtOff

OpMold●	SafDor●	CloMld●	Thimb●

Record the last 48 alarm messages, press ⇧ ⇩ key to view all of them.

In the Stop or Auto Page, press **IFOR** key twice to enter CycleTime page.

RunStatu	CycleTime	RunTime
Stop		000:00:00

No.	Mold	CycleTime (S)
01	20	025.40
02	20	026.30
03	20	024.50
04	20	023.38
05	20	022.40
06	20	021.40

OpMold ●	SafDor ●	CloMld ●	Thimb ●

Record the last 6 products' cycle time.

Chap.3 Standard Programs

3.1 Single-arm Program Sets

Program 0: Clip in the moving side

0000 Produce the quantity	0001 Open mold delay	0002 Ejection delay
0003 Main arm descends	0004 Main arm goes forward	0005 Main arm clips on
0006 Main arm goes backward	0007 Main arm rises	0008 Arms rotate outside
0009 The main arm descends	0010 Main arm clips off	0011 Main arm rises
0012 Arms rotate inside		

Program 1: Clip in the fix side

0100 Produce the quantity	0101 Open mold delay	0102 Ejection delay
0103 Main arm goes forward	0104 Main arm descends	0105 Main arm goes backward
0106 Main arm clips on	0107 Main arm goes forward	0108 Main arm rises
0109 Arms rotate outside	0110 Main arm descends	0111 Main arm clips off
0112 Main arm rise s	0113 Arms rotate inside	

Program 2: Clip in the fix side

0200 Produce the quantity	0201 Open mold delay	0202 Ejection delay
0203 Main arm descends	0204 Main arm clips on	0205 Main arm goes forward
0206 Main arm rises	0207 Main arm goes backward	0208 Arms rotate outside
0209 The main arm descends	0210 Main arm clips off	0211 Main arm rises
0212 Arms rotate inside		

Program 3: Clip in the moving side

0300 Produce the quantity	0301 Open mold delay	0302 Ejection delay
0303 Main arm goes forward	0304 Main arm descends	0305 Main arm clips on
0306 Main arm goes backward	0307 Main arm rises	0308 Arms rotate outside
0309 Main arm descends	0310 Main arm clips off	0311 Main arm rises
0312 Arms rotate inside		

Program 4: Suck in the moving side

0400 Produce the quantity	0401 Open mold delay	0402 Ejection delay
0403 Main arm descends	0404 Main arm goes forward	0405 Sucks on
0406 Main arm goes backward	0407 Main arm rises	0408 Arms rotate outside
0409 Main arm descends	0410 Sucks off	0411 Main arm rises
0412 Arms rotate inside		

Program 5: Clip and Suck in the moving side

0500 Produce the quantity	0501 Open mold delay	0502 Ejection delay
0503 Main arm descends	0504 Main arm goes forward	0505 Sucks on
0506 Main arm clips on	0507 Main arm goes backward	0508 Main arm rises
0509 Arms rotate outside	0510 Main arm descends	0511 Sucks off

0512 Main arm rises	0513 Main arm descends	0514 Main arm clips off
0515 Main arm rises	0516 Arms rotate outside	

Program 6: Clip on/off inside, in the moving side

0600 Produce the quantity	0601 Open mold delay	0602 Ejection delay
0603 Main arm descends	0604 Main arm goes forward	0605 Main arm clips on
0606 Main arm goes backward	0607 Main arm clips off	0608 Main arm rises

Program 7: Clip on.off inside, in the fix side

0700 Produce the quantity	0701 Open mold delay	0702 Ejection delay
0703 Main arm goes forward	0704 Main arm descends	0705 Main arm goes backward
0706 Main arm clips on	0707 Main arm goes forward	0708 Main arm clips off
0709 Main arm rises		

3.2 Dual-arm program Sets

Dual-arm:

Program 0: Main arm sucks, Vice vice arm clips, in the moving side

0000 Produce the quantity	0001 Open mold delay	0002 Ejection delay
0003 Arms descend	0004 Arms go forward	0005 Sucks on
0006 Vice arm clips on	0007 Arms go backward	0008 Arm rise
0009 Arms go forward	0010 Arms rotate outside	0011 Main arm descends
0012 Sucks off	0013 Main arm rises	0014 Vice arm descends
0015 Vice arm clips off	0016 Vice arm rises	0017 Arms rotate inside
0018 Arms go backward		

Program 1: The main arm clips, Vice arm clips, in the moving side

0100 Produce the quantity	0101 Open mold delay	0102 Ejection delay
0103 Arms descend	0104 Arms go forward	0105 Arms clip
0106 Arms go backward	0107 Arms rise	0108 Arms go forward
0109 Arms rotate outside	0110 Main arm descends	0111 Main arm clips off
0112 Main arm rises	0113 Vice arm descends	0114 Vice arm clips off
0115 Vice arm rises	0116 Arms rotate inside	0117 Arms go backward

Main-arm:

Program 2: Main arm clips, in the moving side

0200 Produce the quantity	0201 Open mold delay	0202 Ejection delay
0203 Main arm descends	0204 Main arm goes forward	0205 Main arm clips on
0206 Main arm goes backward	0207 Main arm rises	0208 Arms rotate outside
0209 Main arm descends	0210 Main arm clips off	0211 Main arm rises
0212 Arms rotate inside		

Program 3: Main arm clips, in the fix side

0300 Produce the quantity	0301 Open mold delay	0302 Ejection delay
0303 Main arm goes forward	0304 Main arm descends	0305 Main arm goes backward
0306 Main arm clips on	0307 Main arm goes forward	0308 Main arm rises
0309 Arms rotate outside	0310 Main arm descends	0311 Main arm clips off
0312 Main arm rises	0313 Arms rotate inside	

Program 4: Main arm clips, in the fix side

0400 Produce the quantity	0401 Open mold delay	0402 Ejection delay
0403 Main arm descends	0404 Main arm clips on	0405 Main arm goes forward
0406 Main arm rising	0407 Main arm goes backward	0408 Arms rotate outside
0409 Main arm descends	0410 Main arm clips off	0411 Main arm rises
0412 Arms rotate inside		

Program 5: Main arm clips, in the moving side

0500 Produce the quantity	0501 Open mold delay	0502 Ejection delay
0503 Main arm go forward	0504 Main arm descends	0505 Main arm clips on
0506 Main arm goes backward	0507 Main arm rises	0508 Arms rotate outside
0509 Main arm descends	0510 Main arm clips off	0511 Main arm rises
0512 Arms rotate inside		

Program 6: Main arm sucks, in the moving side

0600 Produce the quantity	0601 Open mold delay	0602 Ejection delay
0603 Main arm descends	0604 Main arm goes forward	0605 Sucks on
0606 Main arm goes backward	0607 Main arm rises	0608 Arms rotate outside
0609 Main arm descends	0610 Sucks off	0611 Main arm rises
0612 Arms rotate inside		

Program 7: Main arm clips and sucks in the moving side

0700 Produce the quantity	0701 Open mold delay	0702 Ejection delay
0703 Main arm descends	0704 Main arm goes forward	0705 Sucks on
0706 Main arm clips on	0707 Main arm goes backward	0758 Main arm rises
0709 Arms rotate outside	0710 Main arm descends	0711 Sucks off
0712 Main arm rises	0713 Main arm descends	0714 Main arm clips off
0715 Main arm rises	0716 Arms rotate inside	

Program 8: Main arm clips on/off inside, in the moving side

0800 Produce the quantity	0801 Open Mold delay	0802 Ejection delay
0803 Main arm descends	0804 Main arm goes forward	0805 Main arm clips on
0806 Main arm goes backward	0807 Main arm clips off	0808 Main arm rises

Program 9: Main arm clips on/off inside, in the fix side

0900 Produce the quantity	0901 Open Mold delay	0902 Ejection delay

0903 Main arm goes forward   0904 Main arm descends   0905 Main arm goes backward

0906 Main arm clips on   0907 Main arm goes forward   0908 Main arm clips off

0909 Main arm rises

Vice-arm:

Program 10: Vice arm clips, in the fix side

1000 Produce the quantity   1001 Open Mold delay   1002 Ejection delay

1003 Vice arm goes forward   1004 Vice arm descends   1005 Vice arm goes backward

1006 Vice arm clips on   1007 Vice arm goes forward   1008 Vice arm rises

1009 Arms rotate outside   1010 Vice arm descends   1011 Vice arm clips off

1012 Vice arm rises   1013 Arms rotate inside

Program 11:Vice arm clips, in the moving side

1100 Produce the quantity   1101 Open Mold delay   1102 Ejection delay

1103 Vice arm descends   1104 Vice arm goes forward   1105 Vice arm clips on

1106 Vice arm goes backward   1107 Vice arm rises   1108 Arms rotate outside

1109 Vice arm descends   1110 Vice arm clips off   1111 Vice arm rises

1112 Arms rotate inside

Program 12:Vice arm clips, in the moving side

1200 Produce the quantity   1201 Open Mold delay   1202 Ejection delay

1203 Vice arm goes forward   1204 Vice arm descends   1205 Vice arm clips on

1206 Vice arm goes backward   1207 Vice arm rises   1208 Arms rotate outside

1209 Vice arm descends   1210 Vice arm clip off   1211 Vice arm rises

1212 Arms rotate inside

Program 13:Vice arm clips, in the fix side

1300 Produce the quantity   1301 Open Mold delay   1302 Ejection delay

1303 Vice arm descends   1304 Vice arm clips on   1305 Vice arm goes forward

1306 Vice arm rises   1307 Vice arm goes backward   1308 Arms rotate outside

1309 Vice arm descends   1310 Vice arm clips off   1311 Vice arm rises

1312 Arms rotate inside

Program 14:Vice arm clips on/off inside, in the fix side

1400 Produce the quantity   1401 Open Mold delay   1402 Ejection delay

1403 Vice arm goes forward   1404 Vice arm descends   1405 Vice arm goes backward

1406 Vice arm clips on   1407 Vice arm goes forward   1408 Vice arm clips off

1409 Vice arm rises

Program 15:Vice- arm clips on/off inside, in the moving side

1500 Produce the quantity   1501 Open Mold delay   1502 Ejection delay

1503 Vice arm descends   1504 Vice arm goes forward   1505 Vice arm clips on

1506 Vice arm goes backward   1507 Vice arm clips off   1508 Vice arm rises

Dual-arm:

Program 16: Main arm sucks, Vice arm clips, in the moving side

1600 Produce the quantity	1601 Open Mold delay	1602 Ejection delay
1603 Arms descend	1604 Arms go forward	1605 Main arm sucks on
1606 Vice arm clips on	1607 Arms go backward	1608 Arms rise
1609 Arms go forward	1610 Arms rotate outside	1611 Arms descend
1612 Main arm sucks off	1613 Vice arm clips off	1614 Arms rise
1615 Arms rotate inside	1616 Arms go backward	

Program 17: Main arm clips, Vice arm clips, in the moving side

1700 Produce the quantity	1701 Open Mold delay	1702 Ejection delay
1703 Arms descend	1704 Arms go forward	1705 Arms clip on
1706 Arms go backward	1707 Arms rises	1708 Arms go forward
1709 Arms rotate outside	1710 Arms descend	1711 Arms clip off
1712 Arms rise	1713 Arms rotate inside	1714 Arms go backward

Chap.4 Error Information

When alarm occurs in automation, press "STOP" key to cancel the alarm, the picker will return to the start point.

Error Inform.	Reasons	How to debug.
The wrong number is 01 DaisInAndDaisOutLmtOn Above is the reasons!	Rotate in limit signal and rotate out limit signal are both on.	1. Check rotate in/out limit signal. 2. Check connections in IO board.
The wrong number is 02 UpLmtOn Above is the reasons !	After arm descends, the up-limit signal is still on.	Has arm descended? If yes, 1. Check up-limit signal. If no, 2. Check arm descend output signal. 3. Check air pressure.
The wrong number is 03 UpLmtOff The wrong number is!	After arm rises, the up-limit signal is still off.	Has arm raised? If yes, 1. Check up-limit signal. If no, 2. Check arm descend output signal. 3. Check air pressure.
The wrong number is 04 SuckOn,SuckLmtOff Above is the reasons!	After main arm sucks on, suck-confirm signal is still off.	Is vacuum valve on? If yes, 1. Check the suck-confirm signal and the air pressure. If no, 2. Check suck output signal. 3. Check air pressure.
The wrong number is 05 M.NipOn,M.NipLmtOff Above is the reasons!	After main arm clips, main clip-confirm signal is still off.	Is clip valve on? If yes, 1. Check the clip-confirm signal. If no, 2. Check clip output signal. 3. Check air pressure.
The wrong number is06 SubNipOn,SubNipLmtOff Above is the reasons!	After vice arm clips, vice clip-confirm signal is still off.	Is clip valve on? If yes, 1. Check the clip-confirm signal. If no, 2. Check clip output signal. 3. Check air pressure.

The wrong number is07 SuckOff,SuckLmtOn Above is the reasons	After main arm sucks off, suck-confirm signal is still on.	Is vacuum valve off? If yes, 1. Check the suck-confirm signal and the air pressure. If no, 2. Check suck output signal. 3. Check air pressure.
The wrong number is08 M.NipOff,M.NipLmtOff Above is the reasons	After main arm clips off, main clip-confirm signal is still on.	Is clip valve off? If yes, 1. Check the clip-confirm signal. If no, 2. Check clip output signal. 3. Check air pressure.
The wrong number is09 SubNipOff,SubNipLmtOn Above is the reasons	After vice arm clips off, vice clip-confirm signal is still on.	Is clip valve off? If yes, 1. Check the clip-confirm signal. If no, 2. Check clip output signal. 3. Check air pressure.
The wrong number is10 DaisOutOnDaisOutLmtOff Above is the reasons	After rotate outside, rotate outside limit signal is off.	Has rotate outside? If yes: 1. Check rorate outside limit signal. If no: 2. Check air pressure. 3. Check rotate out valve signal.
The wrong number is11 DaisOutOff,DaisInLmtOff Above is the reasons	After rotate inside, rotate inside limit signal is off.	Has rotate inside? If yes: 1. Check rorate inside limit signal. If no: 2. Check rotate in valve signal. 3. Check air pressure.
The wrong number is12 M.NipOnM.NipLmtOn Above is the reasons	After main arm clips on, main clip-confirm signal is still on(reverse check option).	Is clip valve on? If yes, 1. Check the clip-confirm signal. If no, 2. Check clip output signal. 3. Check air pressure.
The wrong number is13 SubNipOn,SubNipLmtOn Above is the reasons!	After vice arm clips on, vice clip-confirm signal is still on(reverse check option).	Is clip valve on? If yes, 1. Check the clip-confirm signal. If no, 2. Check clip output signal. 3. Check air pressure.

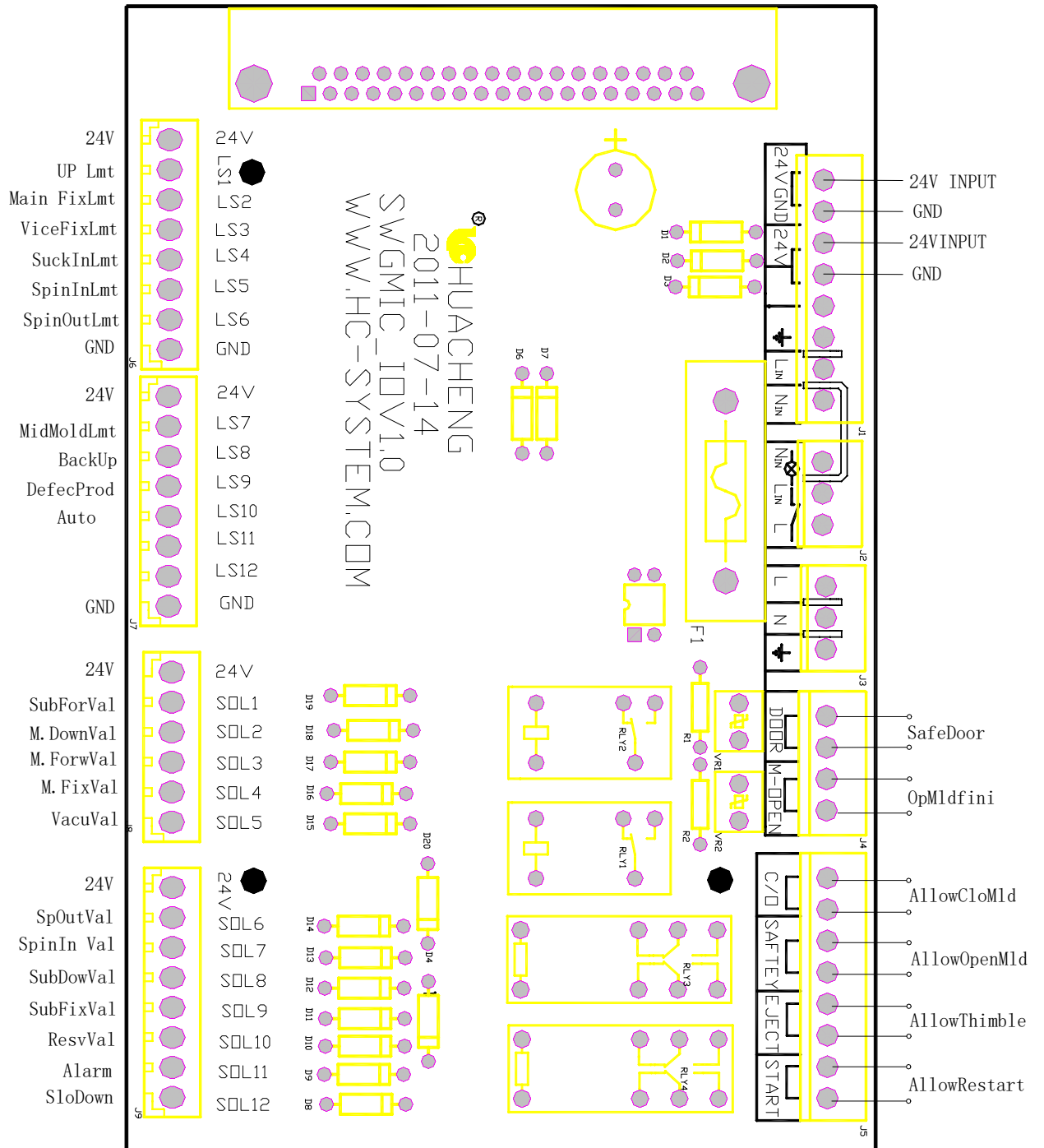|		
The wrong number is31 UpLmtOff,NotAtOrigin Above is the reasons	No up-limit signal input, picker is not in the waiting position.	1. Check air pressure. 2. Check up-limit signal.
The wrong number is32 DaisInLmtOff Above is the reasons	No rotate inside limit signal input, picker is not in the waiting position.	1. Check air pressure. 2. Check rotate inside limit signal.
The wrong number is33 DaisOutLmtOn Above is the reasons	Has rotate outside limit signal input, picker is not in the waiting position.	1. Check air pressure. 2. Check rotate outside limit signal.
The wrong number is34 MidMoldOff,NotAtOrigin Above is the reasons	No middle mold signal input.	Check middle mold signal from IMM to IO board..
The wrong number is35 OpenLmtOff,NotAtOrigin Above is the reasons	No mold opened signal input.	1. Check IMM mold opened signal. 2. Check connections from IMM to IO board.
The wrong number is45 BefDaisOut,MainDownOn Above is the reasons	Main arm descend valve on before rotating.	Perform main arm rise action.
The wrong number is46 BefDaisOut,SubDownOn Above is the reasons	Vice arm descend valve on before rotating.	Perform vice arm rise action.
The wrong number is47 BefDaisOut,UpLmtOff Above is the reasons	No up-limit signal input before rotating.	1. Check arms up-down position. 2. Check up-limit signal input
The wrong number is50 OpenLmtOn,MidMoldOff Above is the reasons	Mold opened signal ON, middle mold signal OFF.	1. Check IMM middle mold position. 2. Check middle mold signal.
The wrong number is51 DaisOutOff,DaisInOff Above is the reasons	Rotate inside limit signal and outside limit signal are both OFF before rotating.	1. Check rotate inside limit signal. 2. Check rotate outside limit signal.
The wrong number is52 BefDown,MainNipOn Above is the reasons	Main arm clip signal ON before descending.	1. Check main arm clip valve. 2. Check main arm clip confirm signal. 3. Check rotate inside signal.
The wrong number is53 BefDown,SubNipOn Above is the reasons	Vice arm clip signal ON before descending.	1. Check vice arm clip valve. 2. Check vice arm clip confirm signal. 3. Check rotate inside signal.

The wrong number is54 BefDown,SuckOn Above is the reasons	Main arm suck signal ON before descending.	1. Check main arm suck valve. 2. Check main arm suck confirm signal. 3. Check rotate inside signal.
The wrong number is55 BefDown,OpenLmtOff Above is the reasons	Mold opened signal OFF before descending to pick.	1. Check IMM mold opened signal 2. Check IO board connection.
The wrong number is56 BefDown,MidMoldOff Above is the reasons	Middle mold signal OFF before descending to pick.	1. Check IMM midlle mold position. 2. Check IMM middle mold signal 3. Check IO board connection.
The wrong number is57 BefDown,SafeDoorOff Above is the reasons	Safety door signal OFF before descending to pick.	1. Check IMM safety door position. 2. Check IMM safety door signal. 3. Check IO board connection.
The wrong number is58 SafeDoorOff Above is the reasons	Safety door signal OFF.	1. Check IMM safety door position. 2. Check IMM safety door signal. 3. Check IO board connection.
The wrong number is59 OpenWaitOver Above is the reasons	Timeout waiting for IMM mold opened.	1. Set picker cycle time bigger than IMM cycle time.
The wrong number is60 RobotDown,OpenLmtOff Above is the reasons	Mold opened signal OFF when descending to pick.	1. Check IMM mold opened signal 2. Check IO board connection.
The wrong number is61 RobotDown,MidMoldOff Above is the reasons	Middle mold signal OFF when descending to pick.	1. Check IMM midlle mold position. 2. Check IMM middle mold signal 3. Check IO board connection.
The wrong number is62 UrgentStop Above is the reasons	Emergency stop.	1. Release picker E_S button. 2. Release IMM E_S button. 3. Check IO board connection.
The wrong number is70 NotRightProgram Above is the reasons	Use's program is incomplete.	1. The last step should be the same position of the first step.
The wrong number is71 SetYieldArrive Above is the reasons	Reached the set product.	1. Input a bigger product value. 2. Clear the product value.
The wrong number is72 ActNotExecByMold Above is the reasons	Arm rise/descend manually not in the way set in teach mode.	1. Arm rise/descend manually should in the same forward/backward position set in auto program.

The wrong number is73 DaisOutLmtOff Above is the reasons	Rotate outside limit signal OFF when waiting outside mode select.	1. Press "STOP" key to rotate outside. 2. Check Rotate outside limit signal 3. Check IO board connection.

Chap.5 Wiring Diagram

5.1 Wiring Diagram of control board

Left labels	J-connector labels
24V	24V
UP Lmt	LS1
Main FixLmt	LS2
ViceFixLmt	LS3
SuckInLmt	LS4
SpinInLmt	LS5
SpinOutLmt	LS6
GND	GND (J6)
24V	24V
MidMoldLmt	LS7
BackUp	LS8
DefecProd	LS9
Auto	LS10
	LS11
	LS12
GND	GND (J7)
24V	24V
SubForVal	SOL1
M.DownVal	SOL2
M.ForwVal	SOL3
M.FixVal	SOL4
VacuVal	SOL5
24V	24V
SpOutVal	SOL6
SpinIn Val	SOL7
SubDowVal	SOL8
SubFixVal	SOL9
ResvVal	SOL10
Alarm	SOL11
SloDown	SOL12 (J9)

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Right side connectors:

- 24VGND24V — 24V INPUT / GND / 24VINPUT / GND (J1)
- L_IN N_IN N_IN L_IN L (J2)
- L N (J3)
- DOOR / M-OPEN — SafeDoor / OpMldfini (J4)
- C/O — AllowCloMld
- SAFTEY — AllowOpenMld
- EJECT — AllowThimble
- START — AllowRestart (J5)

Conjunction with Injection machine diagrams

Black	1	
Brown	2	
Red	3	220V Power

Rly3   Orange   4   MOLDE OPEN

Yellow   5

Rly3   Green   6   MOLD CLOSE

Blue   7

Rly5   Purple   8   EJECTION

Deep ash   9

Rly2   (R)   Write   10   MOLD OPENED LIMIT

Ash   11

Shallow ash   12   INJECTION

Rly1   (R)   Pink   13   SAFETY DOOR

Shallow blue   14

Rly3   Shallow yellow   15   RE-START

Drak green   16