

完成伯朗特
2049就是
造福全人类

Operation manual of inclined arm manipulator

伯朗特董事长寄语伯朗特员工

您们加入的是一家到2049年要通过伯朗特应用商模式和伯朗特供应链规则培养136个百亿富豪和11744个亿万富翁且伯朗特董事长要培养11880个董事长的公司届时伯朗特2049必定实现，我将无我、天人合一，您们尽管努力，伯朗特自有安排：如果您们想成为百亿富豪未来就做伯朗特一级应用商或一级供应商；如果您们想成为亿万富翁未来就做伯朗特二级应用商或二级供应商；如果您们仅仅想成为百万富翁未来就做伯朗特三级应用商或三级供应商，136家伯朗特一级应用商和一级供应商从具备百亿富豪的潜能到成为百亿富豪您们都要历经九九八十一难，期待伯朗特成就您们的梦想。

A stylized, handwritten signature in black ink, consisting of a large, sweeping 'Y' shape followed by a circular flourish and a long, thin tail stroke pointing downwards.

伯朗特董事长：尹荣造

贰零贰零年贰月贰拾玖日

伯朗特机器人股份有限公司成立于2008年，注册资本2.25亿，研发、生产、销售机器人、机械手及其零部件，伯朗特的核心竞争力是在“完成伯朗特2049就是造福全人类”的“伯朗特的千年文化”引领下通过伯朗特应用商模式和伯朗特供应链规则打造伯朗特生态圈。

BORUNTE ROBOT CO., LTD. was founded in 2008. The registered capital is 225 million RMB. BORUNTE is also a enterprises of R&D, production, sales of industrial robots, IMM robot and its parts. The core competence of BORUNTE is to create BORUNTE ecosystem through the BORUNTE integrator style and the BORUTNE supply chain rules under the guidance of BORUNTE millennium culture, which to to achieve annual sell 40,000,000 robots to supply 40,000,000 global labor and break the revenue of trillions by 2049. The completion of produce 40 million robots and break the revenue of trillions will benefit the whole mankind.

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伯朗特董事长寄语伯朗特员工

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伯朗特董事长：尹荣迪
贰零贰零年贰月贰拾玖日

2049的方法论

伯朗特2049破万亿营收路径图分三步走

第一步：完成年销售40万台机器人；（营收百亿级）

第二步：完成年销售400万台机器人；（营收千亿级）

第三步：完成年销售4000万台机器人。（营收万亿级）

释义：完成伯朗特2049就是造福全人类是指：伯朗特的目标到2049年完成年销售破4000万台BORUNTE机器人补给全球4000万以上劳工营收破万亿就是造福全人类且在践行“构建人类命运共同体”。

尹荣造始于2018年7月28日 定于2020年3月10日

伯朗特生态圈

① 伯朗特的核心竞争力是在“完成伯朗特2049就是造福全人类”的“伯朗特的千年文化”引领下通过伯朗特应用商模式和伯朗特供应链规则打造伯朗特生态圈。伯朗特的目标是通过伯特应用商模式和伯朗特供应链规则到2049年要培养11772家伯朗特应用商和108家伯朗特供应商挂牌新三板实现资产证券化且108家伯朗特一级应用商和28家一级供应商从新三板的精选层转板科创板或创业板实现上市，伯朗特与伯朗特应用商或伯朗特供应商之间都是相互独立的法人单位，与伯朗特是对等的法律主体且相互之间不存在持股的关系。

② 伯朗特应用商模式中的一级、二级、三级应用商门槛分三步走：第一步：2850万、285万、28.5万；第二步：2.85亿、2850万、28.5万；第三步：28.5亿、2850万、28.5万，伯朗特的目标是发展108家一级应用商，每家一级应用商建一个“100台BORUNTE机器人实训室”，每家一级应用商发展108家二级应用商，每家二级应用商发展108家三级应用商， $108 \times 108 \times 108 = 1259712 \times 40 \text{ 台每家} = 50388480 \text{ 台} \times 28500 \text{ 元每台} = 1.43607168 \text{ 万亿元}$ 完成伯朗特2049实现BORUNTE机器人造福全人类。

③ 伯朗特供应链规则：成本、品质、交期，新进入供应商必须比老供应商成本下降20%以上才能通过研发中心品质和生产中心交期的验证，只要您具备足够的成本、品质、交期，伯朗特的大门永远都是开放的，这就是规则的力量。

④ 伯朗特应用商和供应商可能是伯朗特前员工就是在践行“我将无我、天人合一”即伯朗特应用商模式和伯朗特供应链规则已经突破传统管理的边界了。

尹荣造始于2018年11月3日 定于2020年3月10日

1.11 伯朗特文化节是智能制造的“伯朗特宣言”

伯朗特文化节

它是宣言书

向智能制造发出呐喊

王侯将相宁有种乎？

伯朗特文化节

它是播种机

在智能制造播洒希望

星星之火，可以燎原！

伯朗特文化节

它是指明灯

为智能制造指明方向

路途遥远、行则将至！

1.11 伯朗特文化节

一场智能制造的饕餮盛宴

智能制造，世界大同

同心者同路！

释义：① 每年的1月11日是伯朗特员工+伯朗特供应商+伯朗特应用商的狂欢节日（开启篇章）；

② 伯朗特的千年文化是指：伯朗特的“伯朗特的千年文化”的魂是“我将无我、天人合一”其落脚点就是“完成伯朗特2049就是造福全人类”。

尹荣造始于2018年11月17日 定于2020年3月10日

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Chap.1 Specification and Installation

1.1 Specification

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

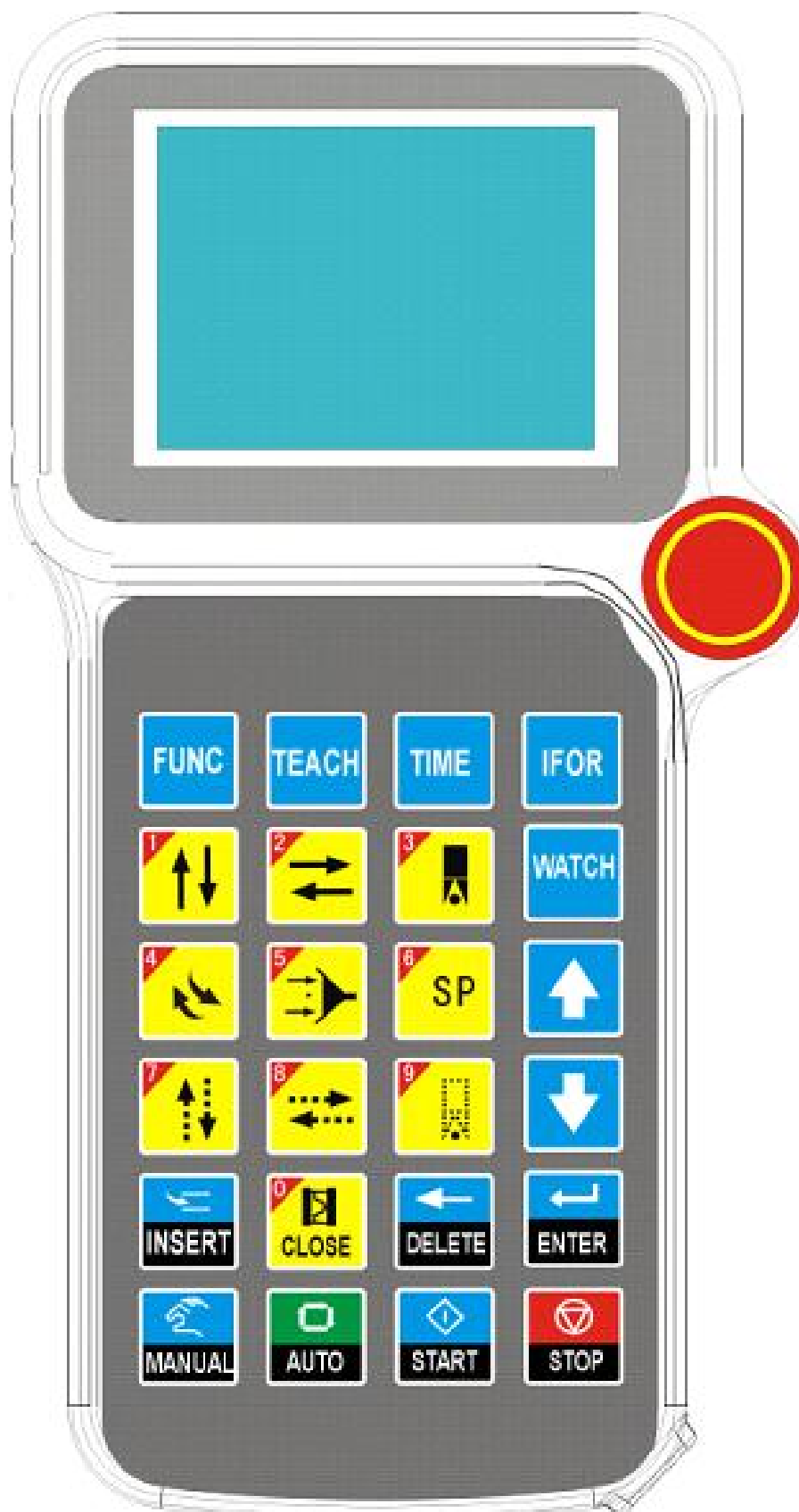
1.2 Installation

- 1, Installation should be performed by workers with licence 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. Operators should be familiar with the safety specification in machinical and electric area.
- 7, Environment temperature is below 50°C. Do not use in brume and frozen places.

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

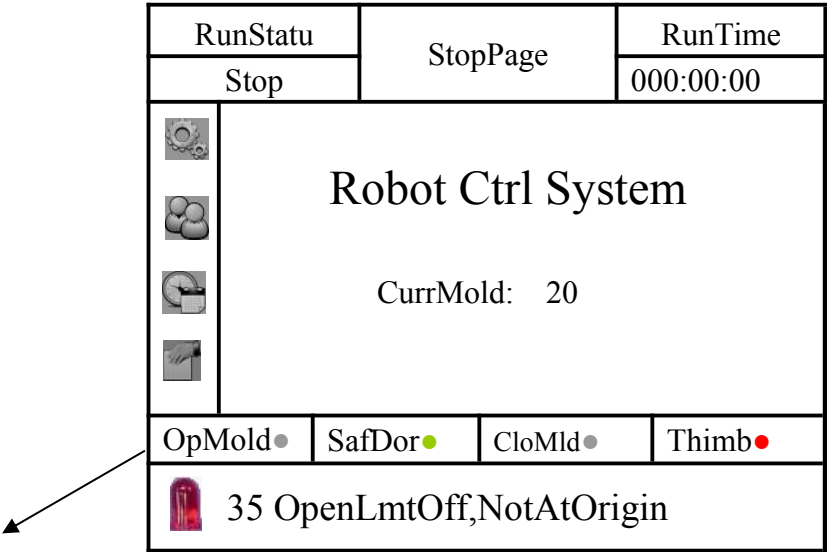
Chap.2 Operation

2.1 Panel




2.2 STOP mode

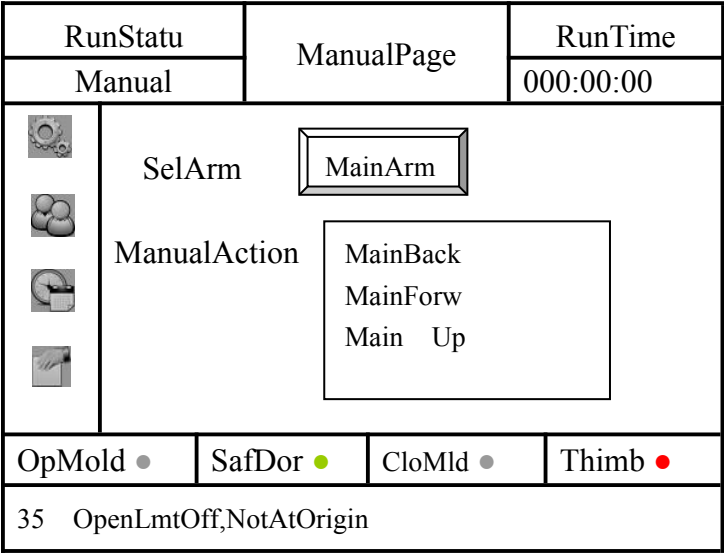
At power on, system self-test then turn into STOP mode. Press “STOP” key in other mode will also enter STOP mode.









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

2.3 MANUAL mode

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



-  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 .
-  SP Spare valve on/off the action.

- 7


Vice arm rising/falling action, press once more, acting to the other side.
- 8





Vice arm going forward/ backward action, press once more, acting to the other side.
- 9

Vice arm clip on/off action.
- 0





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
<div> CurrMold: 01</div> <div> ProdSet: 32767</div> <div> ActFini: 00000</div> <div> CurrAct: NoAction</div>		<div>CyclTime: 000.00 S</div> <div>FetTime: 184.63 S</div> <div>ActTime: 0.00 S</div>
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
<div> CurrMold: 01</div> <div> ProdSet: 32767</div> <div> ActFini: 00000</div> <div> CurrAct: OpenDely</div>		<div>CyclTime: 000.00 S</div> <div>FetTime: 184.63 S</div> <div>ActTime: 0.00 S</div>
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 occurs 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 switch signal will be ON when Fetch success in AUTO mode.

ReverPhase: RP to detect fixture switch. Fixture switch 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:

RunSt		FuncPage	RunTime		
atu			000:00:00		
Stop					
<div><div></div><div>Passwd ***</div></div>					
OpMold ●		SafDor ●	CloMld ●	Thimb ●	

Enter 2011 before press  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	SIDOutSi	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、SIDOutSi:

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 settetd lower than 15s.

11、ProdtSet:

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

2.5.3 SI/DO Arm Select

Enter 2012 in the password line, then press  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:



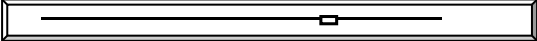



SiArmProg: Set the standard procedure for single-arm procedures。

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  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  key to enter Program Select page, page as follows:





RunStatu	SavePage	RunTime
Stop		000:00:00
<div>Read (0-99) <input type="text" value="01"/></div> <div>Wrt (20-99) <input type="text" value="20"/></div>		
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 referred(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
<div>     </div>	<div> <div>Action Time(S) Mold: 21</div> <div>Num : 01</div> <div>Action: OpenDely</div> <div>SelArm M./V.Arm</div> <div>SettedTime 0.10 S</div> </div>	<div>Action area</div> <div>Time area</div>
OpMold ●	SafDor ●	CloMld ● Thimb ●



Insert a no action instruction row into the teachings.







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 executes 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	
<div></div> <div></div> <div></div> <div></div>	ActionTime (S)		Mold: 20 Nul: 00 SettedTime 0.50 S	
	OpenDely0.50			
	ThimDely0.50			
	DoblDown0.50			
	DoblForw0.50			
	MainClip0.50			
	Sub Clip0.50			
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

LS

- 1, Up limit
- 2, Main arm fixture confirm
- 3, Vice arm fixture confirm
- 4, Vacuum confirm
- 5, Rotate in limit
- 6, Rotate out limit
- 7, Middle mold confirm
- 8, reserved signal
- 9, NG signal
- 10, Automation signal
- 11, Safety Door signal
- 12, Mold opened signal
- 13, Emergency Stop

OUTPUT

SOL


- 1, Vice arm forward valve
- 2, Main arm descending valve
- 3, Main arm forward valve
- 4, Main fixture valve
- 5, Vacuum valve
- 6, Rotate outside valve
- 7, Rotate inside valve
- 8, Vice arm descending valve
- 9, Vice fixture valve
- 10, Spare valve
- 11, Alarm
- 12, Slow down outside IMM
- 13, Recycle
- 14, Ejection enable
- 15, Mold open enable
- 15, Mold close enable

2.9 Alarm Record

In the Stop or Auto Page, press  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  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

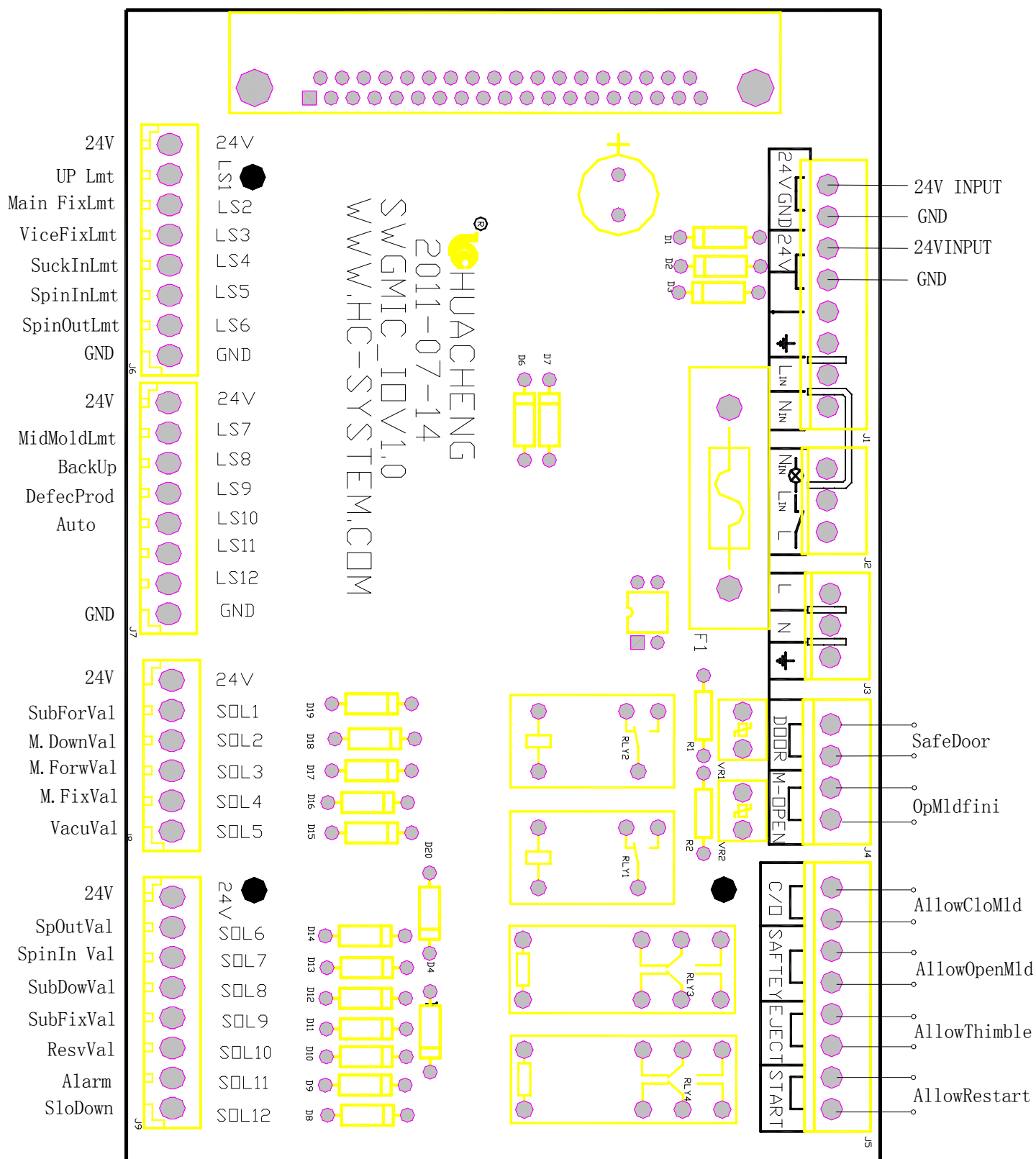
When alarm occurs in automation, press “STOP” key to cancel the alarm, the picker will return to the start point.

Error Inform.	Reasons	How to debug.
The wrong number is 01 DaisInAndDaisOutLmtOnAbove 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 is 06 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 is 07 Suck Off,Suck Lmt On 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 is 08 M.Nip Off,M.Nip Lmt Off 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 is 09 Sub Nip Off,Sub Nip Lmt On 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.

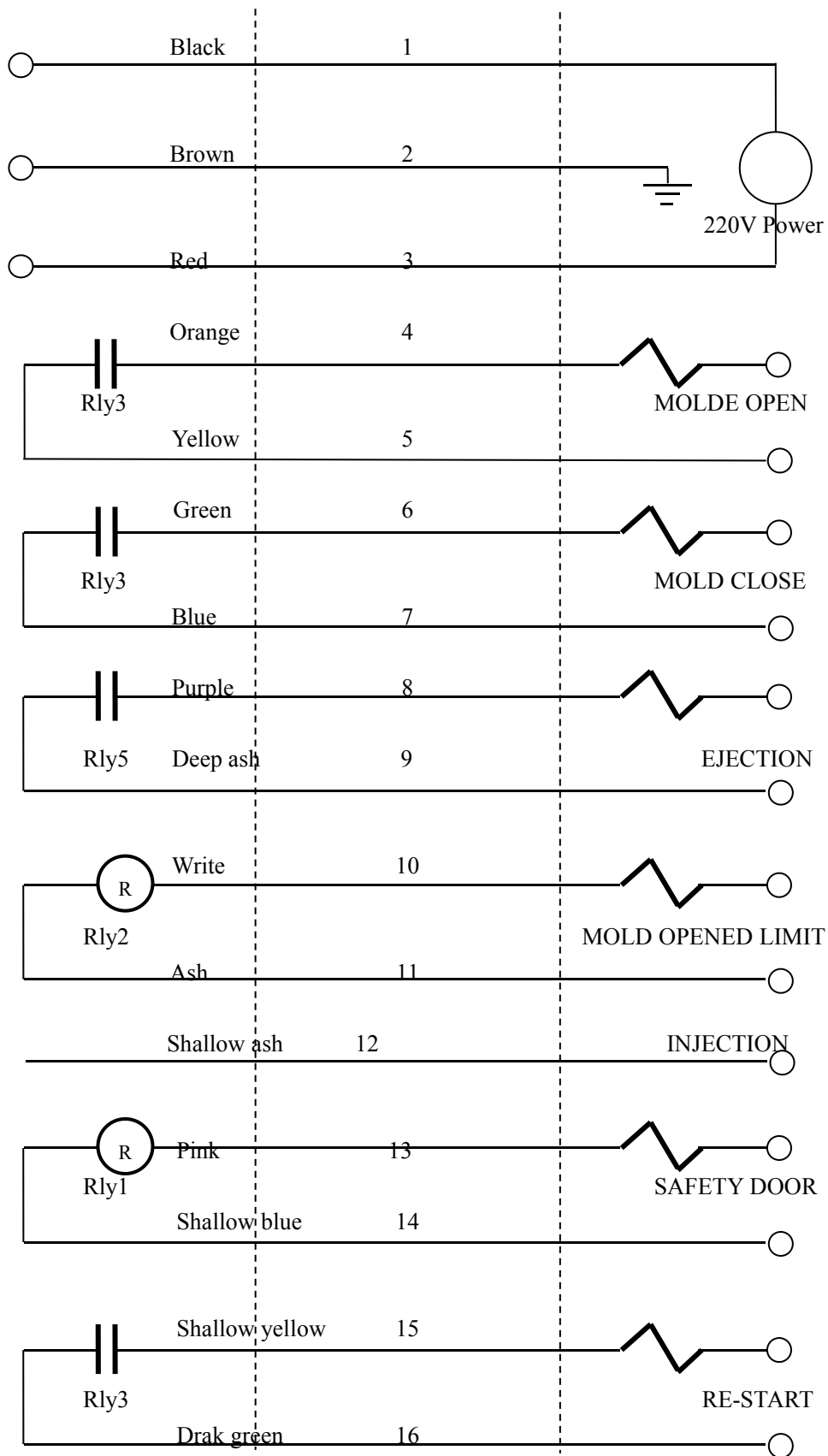
The wrong number is10 Dais Out On Dais Out Lmt Off Above is the reasons	After rotate outside, rotate outside limit signal is off.	Has rotate outside? If yes: 1. Check rotate outside limit signal. If no: 2. Check air pressure. 3. Check rotate out valve signal.
The wrong number is11 Dais Out Off,Dais In Lmt Off Above is the reasons	After rotate inside, rotate inside limit signal is off.	Has rotate inside? If yes: 1. Check rotate inside limit signal. If no: 2. Check rotate in valve signal. 3. Check air pressure.
The wrong number is12 M.Nip On M.Nip Lmt On 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 Sub Nip On,Sub Nip Lmt On 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 Up Lmt Off, Not At Origin 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 Dais In Lmt Off 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 Dais Out Lmt On 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 Mid Mold Off,Not At Origin Above is the reasons	No middle mold signal input.	Check middle mold signal from IMM to IO board..
The wrong number is35 Open Lmt Off,Not At Origin 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 Bef Dais Out,Main Down On 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.

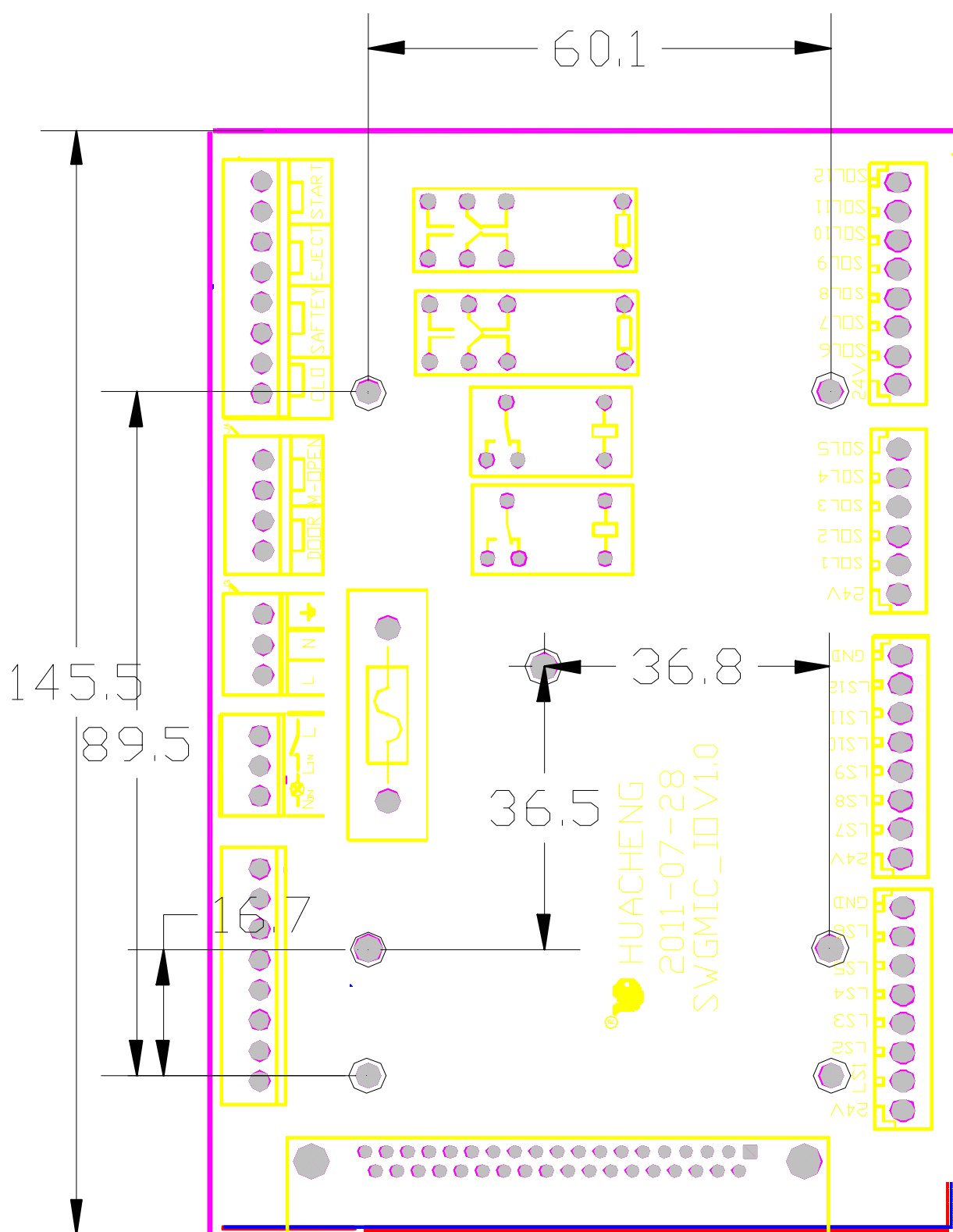
The wrong number is54 BefDown,SuckOn Above is the reasons	Main arm suck signal ON before descending.	1. Check main arm suck valve. 2. Check main arm suck confirm signal. 3. Check rotate inside signal.
The wrong number is55 BefDown,OpenLmtOff Above is the reasons	Mold opened signal OFF before descending 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 middle 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 middle 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.

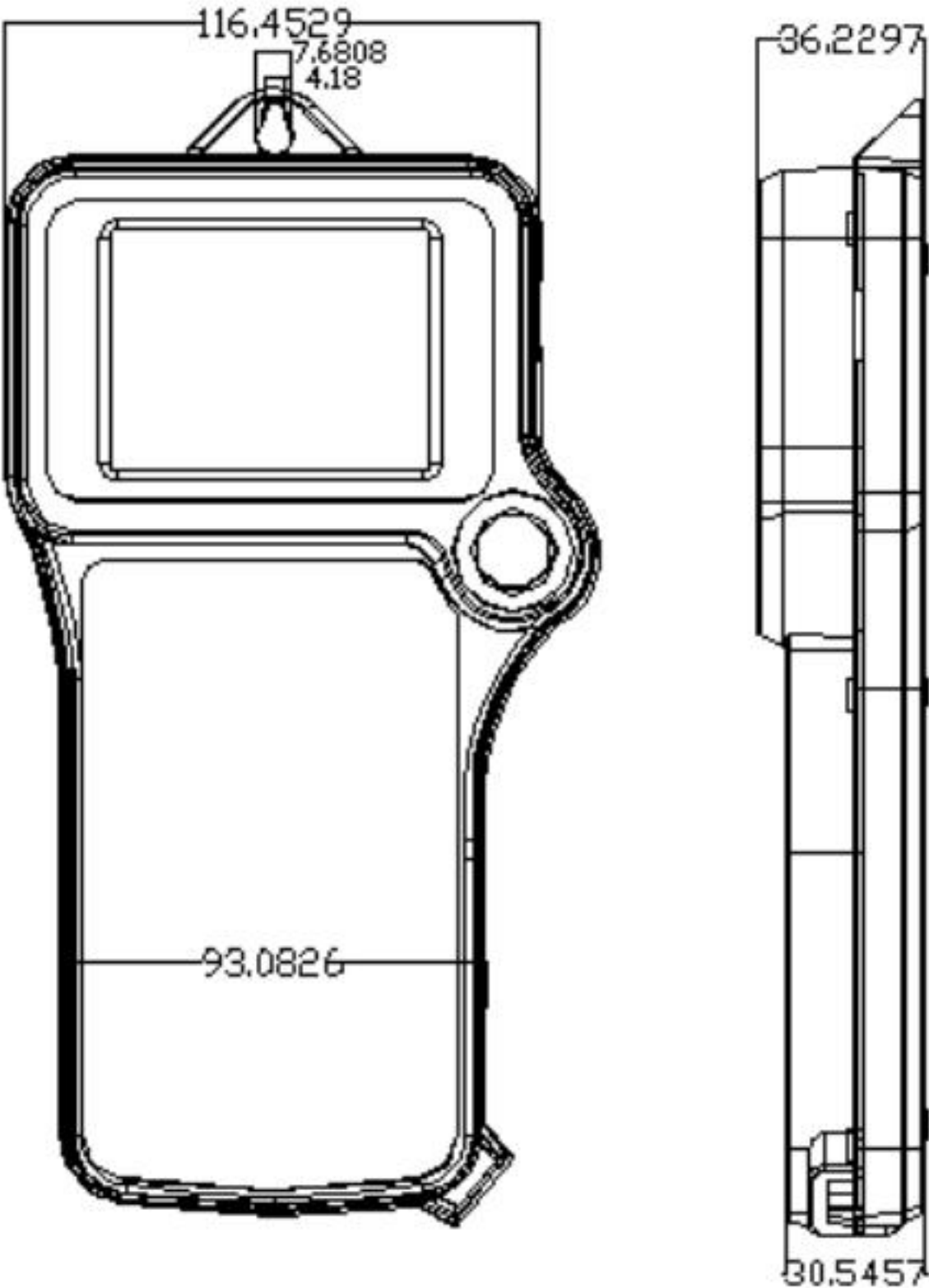
5.1 Wiring Diagram of control board



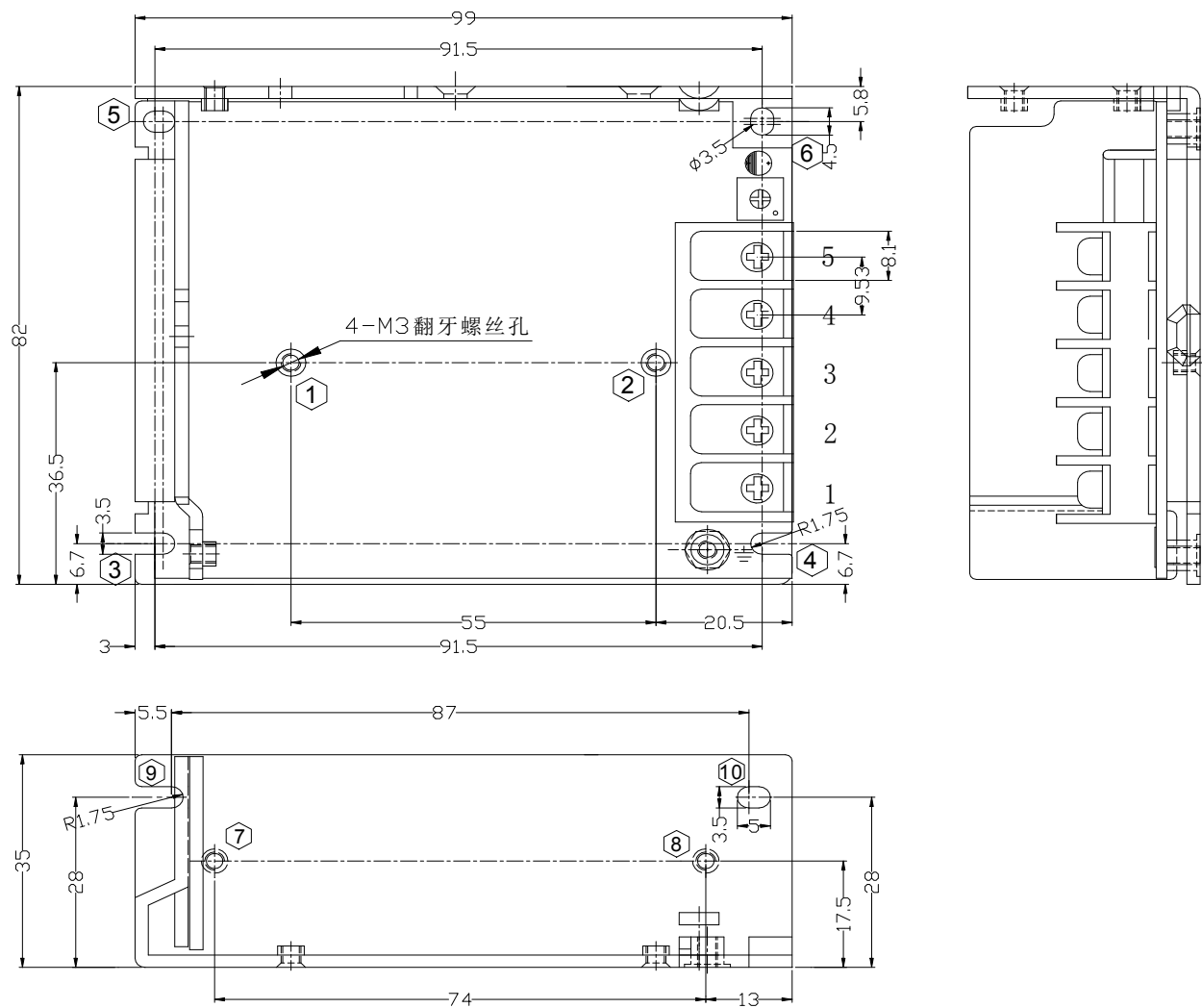
5.2 Conjunction with Injection machine diagrams





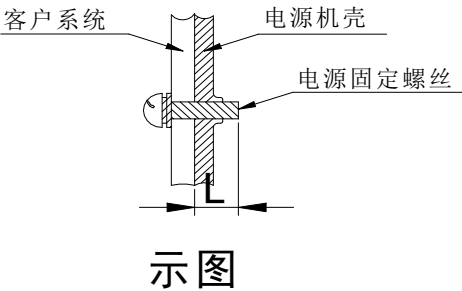


5.5 Switching power supply installation size



安装方位	安装方式	安装位号	螺丝规格	Lmax	安装扭矩(max)
底面安装	螺丝固定	①—②	M3	4mm	6.5Kgf.cm (max)
		③—⑥	M3	4mm	
侧面安装	螺丝固定	⑦—⑧	M3	4mm	6.5Kgf.cm (max)
		⑨—⑩	M3	4mm	

注：1. 为保证安全，螺丝装入电源机壳长度L（如右图所示）要满足上表所示。



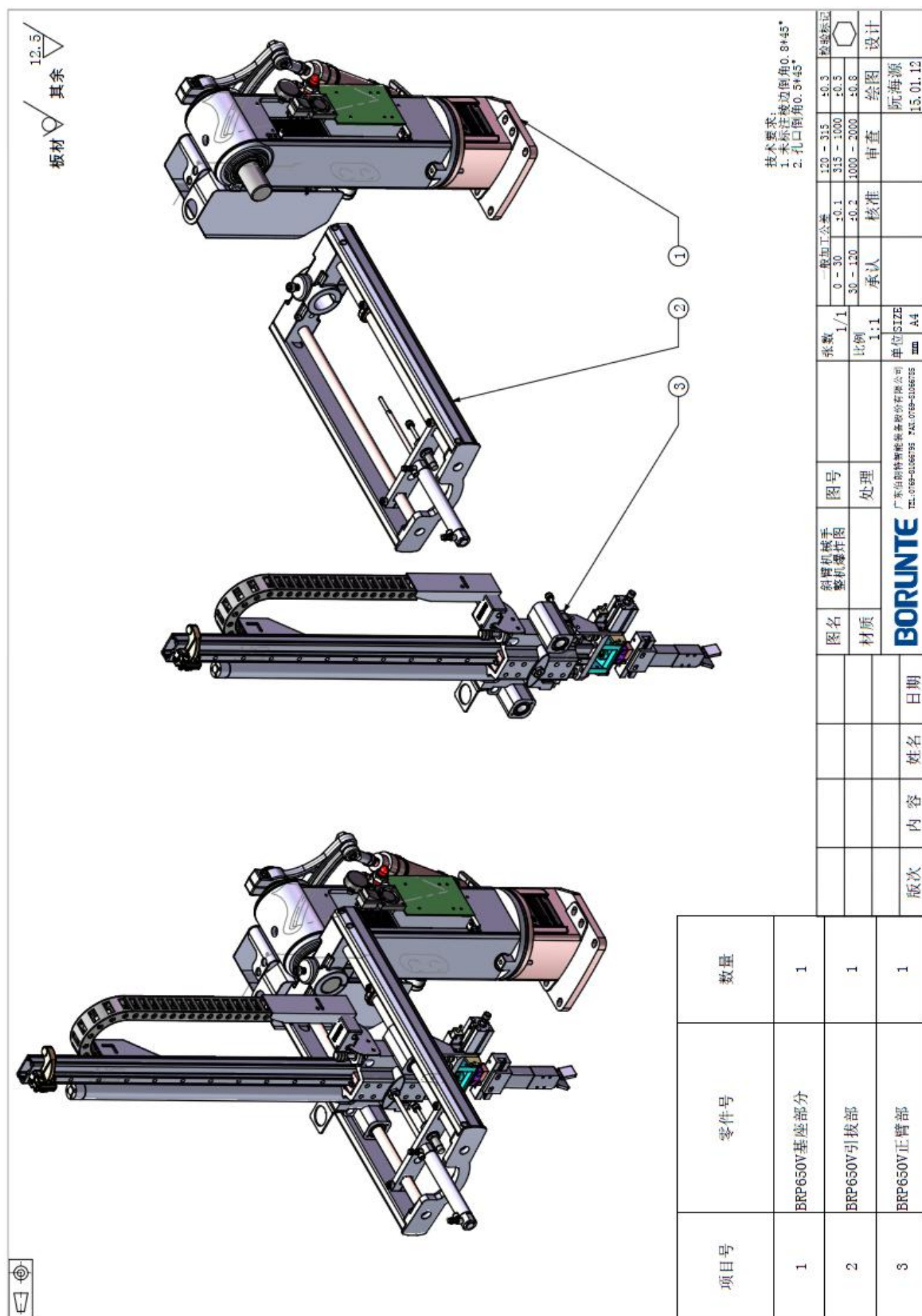
1, 交流输入端子的安装使用

位号	功能	端子	线材安装规格	最大扭矩
1	N	9.5带翻盖端子排	22-14AWG	12Kgf.cm (max)
2	L			
3	⊕			

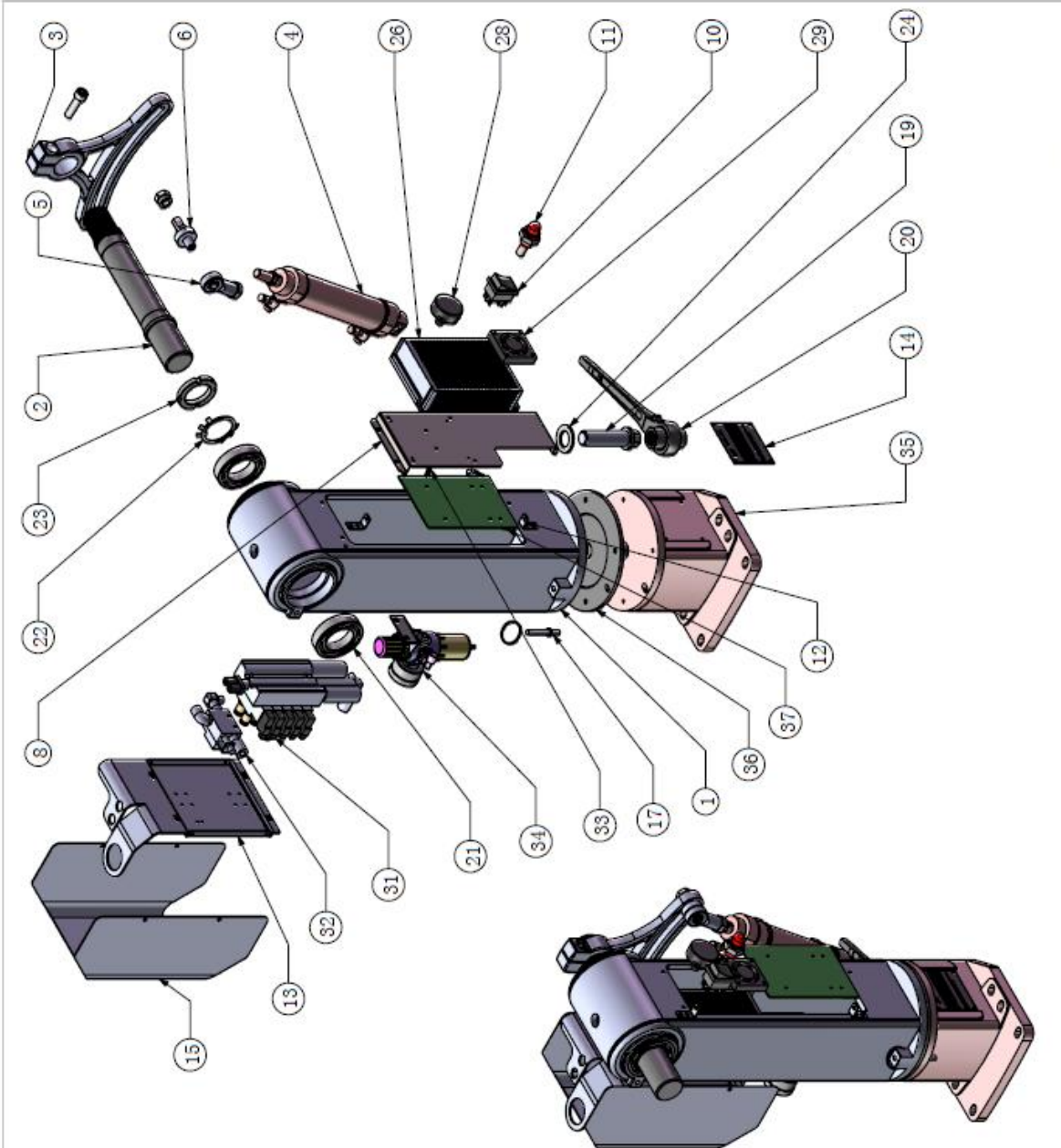
2, 直流输入端子的安装使用

位号	功能	端子	线材安装规格	最大扭矩
4	+V	9.5带翻盖端子排	22-14AWG	12Kgf.cm (max)
5	-V			

Chapter 6 Structural Explosion Diagram



项目号	零件号	数量
1	PA00A020拱	1
2	PA00A030旋转轴	1
3	PA00A040旋出角度调整架	1
4	PCY40125旋出入气缸	1
5	PA00A060鱼眼轴承	1
6	PA00A070旋转角度调整轴	1
7	PA00A080旋转气缸轴	1
8	PA00A090电源供应器固定板	1
9	PA00A100控制箱	1
10	EBT0101电源开关	1
11	ELT0202警示灯	1
12	PA00A110电柜座	2
13	PA00A120电磁阀固定板	1
14	PA00A130名牌	1
15	PA00A140电磁阀盖板	1
16	MEG2018自润轴承	1
17	PA00A160定位销	1
18	锁匙扣	1
19	PA00A170拱固定螺钉	1
20	PA00A180搬手	1
21	MEG6008轴承	2
22	PA00A200止动垫圈	1
23	PA00A190小圆螺母M40	1
24	Φ 20平垫	1
25	M12外六角头紧定螺母	1
26	EPW0202电源供应器（50W）	1
27	EBD0601中继板	1
28	EEL0101蜂鸣器	1
29	EEL0202电风扇	1
30	M10X35内六角盘头螺钉	1
31	PSV0105DT341816五连体双头电磁阀	1
32	PET0302真空产生器	1
33	ESN0221检知开关	2
34	PET0102 2000双点组合	1
35	PA00A010基座	1
36	PA00A015过渡板	1
37	华成斜臂系统板	1



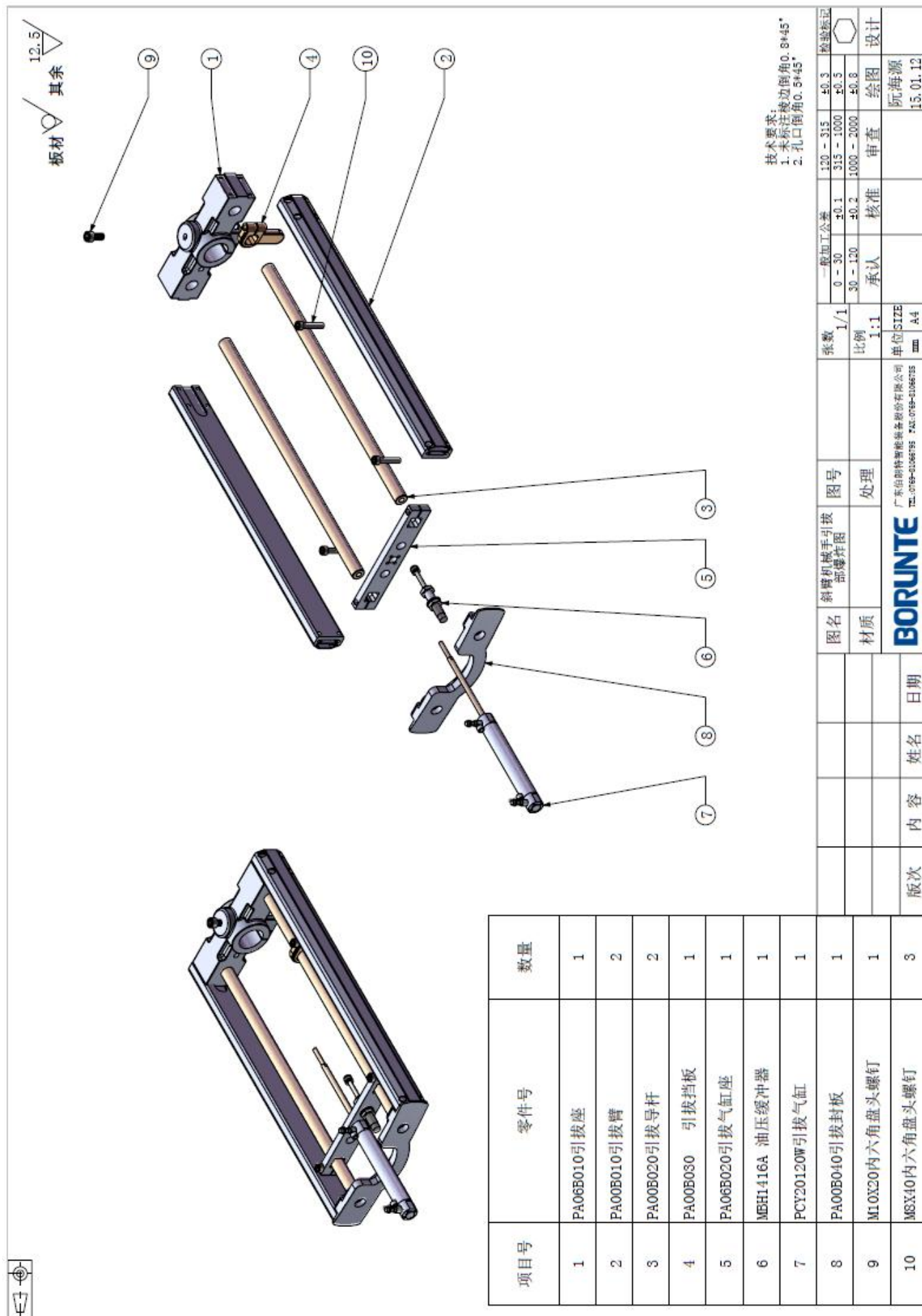
图名	斜臂机械手基座部分爆炸图	图号	处理	张数	1/1	一般加工公差	120 - 315	±0.3	315 - 1000	±0.5	1000 - 2000	±0.8	检验标记
材质				比例	1:1	承认	核准	审核	绘图	设计			
版本	内容	姓名	日期	单位	SIZE								
					A4								

BORUNTE

广东伯朗特智能装备股份有限公司
TEL: 0755-81068795 FAX: 0755-81068795

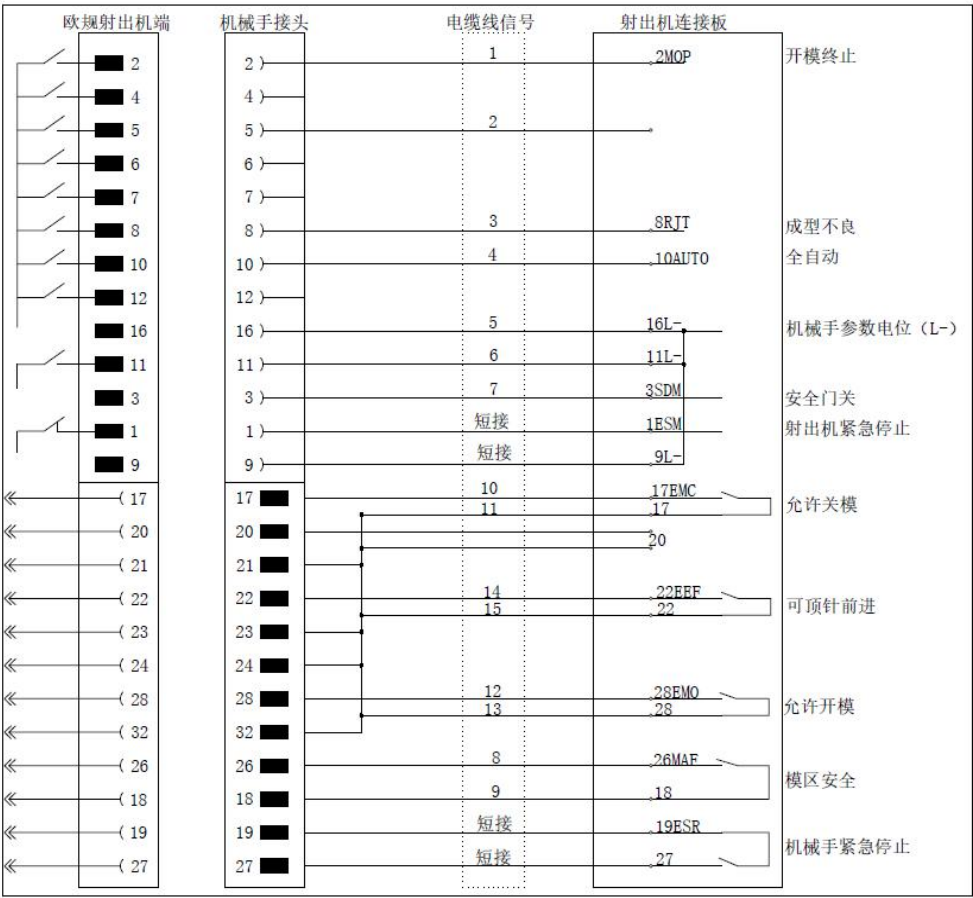
阮海源
15.01.12





Chapter 7 Wiring and Maintenance

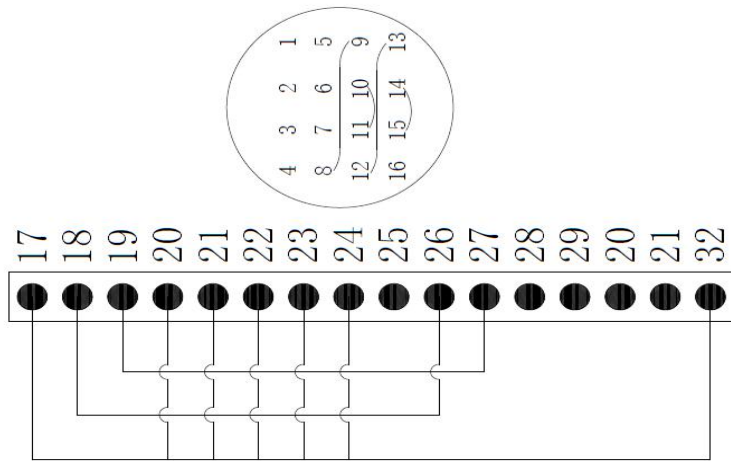
7.1 Standard wiring with injection machine



7.2 Injection machine signal return description

- If the robot is not in use, it can use the following two methods to reset the injection signal:
- 1) If the robot does not turn on the power, you can set "robot not used" under the system function.
 - 2) The signal of the injection machine will not be controlled by the robot. If you want to use it, please press the "Reset" key.
 - 3) Remove the metal connector connected to the injection machine and connect it with the "reset connector" attached. The circuit diagram of the "reset connector" is as follows.
 - 4) If the robot is not in use, move the machine to a safe position outside.
 - 5) The air source should be removed when the robot is not in use.

Euromap connector or round metal connector



7.3 Maintenance

7.3.1 Maintenance safety

(Caution) Before servicing the robot, maintenance personnel should read the following safety regulations in detail to avoid danger.

1. Before checking the injection machine, please turn off the power.
2. Before adjustment and maintenance, please turn off the power of the injection machine and the manipulator and the residual pressure of the manipulator.
3. Except for proximity switches, defective suction clamps, and solenoid valves that can be repaired by themselves, others should be repaired by professionally trained personnel, otherwise do not modify them without authorization.
4. Please do not arbitrarily replace or change original parts.
5. During the adjustment or replacement of the mold, please pay attention to safety to avoid being hit by the robot.
6. After adjusting or repairing the robot, please leave the dangerous work area before testing.
7. During maintenance, do not turn on the power or connect the air pressure source to the manipulator.

7.3.2 Maintenance inspection items and expired

The inspection items and expiration dates are as follows, please implement them:

NO.	Range	Time
1	Check if the suction cups, clip and suction are functioning properly	Every day
2	Two-point combination (air source two-piece) drainage	Every day
3	Fixture fixing screws	Every day
4	Air compressor drainage	Every day
5	Injection machine cable, operator connector cable	Every day
6	Check if the mechanism is loose	Every day
7	Pull-out guide rod, slide rail lubrication	Every week
8	Upper and lower rails, slider lubrication	Every month
9	Air pressure pipeline connection, whether speed adjustment is normal	Every month
10	Clean appearance	Every week
11	Check vacuum generator function	Every month
12	Inspection of base fixing screws	Every month
13	Hydraulic buffer checking	Every month
14	Air compressor and wire and cable replacement	Three year

Note: When any abnormality of the machine is found, the machine must be stopped for inspection, and no abnormality can be checked before maintenance. The above table is for reference only

百年花 伯朗特



微信公众号



抖音企业号

BORUNTE®
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伯朗特机器人股份有限公司

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因改良等原因，规格及外观有所变更时，不另行通知，敬请谅解。
因拍摄需要，某些部件有所增减，请按实际订单为准。

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All stated here is subject to change without advance notice. Some parts have been increased or deleted because of the shooting needed, please order as the actual standard.