Chen Hsong A*i*-02 Injection Multi-function Computer

Operation Manual

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震雄集團

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1.Characteristics:

It is designed, researched and developed by using the technology of Japan and complying with JIS standards, equipped with TFT 320×240 color liquid crystal display. Power range applies to AC110V ～ AC280V 50/60HZ. It features LED backlight, high brightness and long life of usage. The electronic components and production technique adopt the most advanced technology of SMT with highest stability and reliability. The processing data can be stored for over 5 years reliably and safely under power failure. It can freely choose Chinese and English for the convenience of study and operation, have the function of intelligent fault detection and auxiliary operation instructions and fully support the network system – iChen.

2.Basic features

1.Storage of 150 groups of molding data, like time, times, pressure, speed, stroke, metering, mould thickness, mould data, function selection, temperature of raw materials, etc.
2.Detailed tips on online operation.
3.Lock the software data by stage encryption.
4.Mistake-proof tips when inputting materials in case of unsuitable modification. The materials modification can be stored on the central server online through iChen System.
5.Most advanced SMT electron plate assembling technology with a high reliability.
6.32 bit high speed CPU.
7.Automatically setting the position value of high pressure clamping.
8. Scale and temperature control of nozzle (standard), supporting additional furnace nozzle thermometer (optional).
9. 8 groups of PID temperature control, adjustment between 30℃ and 500℃ with a high degree of accuracy of control.
10. Prevent the startup of cold materials, automatic temperature-keeping setting, detection of nozzle Reserved and materials overflowing.
11.During the operation, setting the deviation of high and low temperature and detecting the breakage of temperature-sensing line.
12. Setting injection 5 stage speed, 5 stage pressure and 5 stage pressure holding.
13. Setting plasticizing 3 stage speed, 3 stage pressure and 3-stage back press.
14. Support the function of 3 groups of blowing and 3 groups of core pulling.
15. Clamping, injection and ejector all adopt high precision optics encoder (standard) or linear potentiometer (optional).
16. The storage of historic records of alarms is convenient for the technique debugging and maintenance.
17. Setting production quantity and batch. Can set auto stop as per production quantity. Can coordinate with order arrangement system of iChen System.
18. Setting auto lubrication of toggle. Alarm in case of oil starvation.

19. The operation actions are showed in figures, convenient for the supervision of the operation of plastic jetting-forming machine.
20. Monitor the operate time of circulation for the convenience of adjustment to shorten the circulation time.
21. Statistics of the injection speed, pressure and the comparison between pressure standard graph and current graph, injection ending position.
22. Online monitor the program run status and all the status of in-out point, timer and counter, convenient for debugging and maintenance.
23. Support the monitor on the status of 32 output points, 32 input points, 100 timers and 20 counters, and extend another 48 output points and 48 input points.
24. Offer free options for copying or clearing mold data, reservedly, use preset mold data in the compute to save time.
25. Intelligent fault detection and auxiliary operation instructions.
26. Support the temperature control of at most 40 channels of hot runner for the mold.
27. Perfect support for iChen System of workshop network management.
28. Perfect support for iChen Wireless Network.

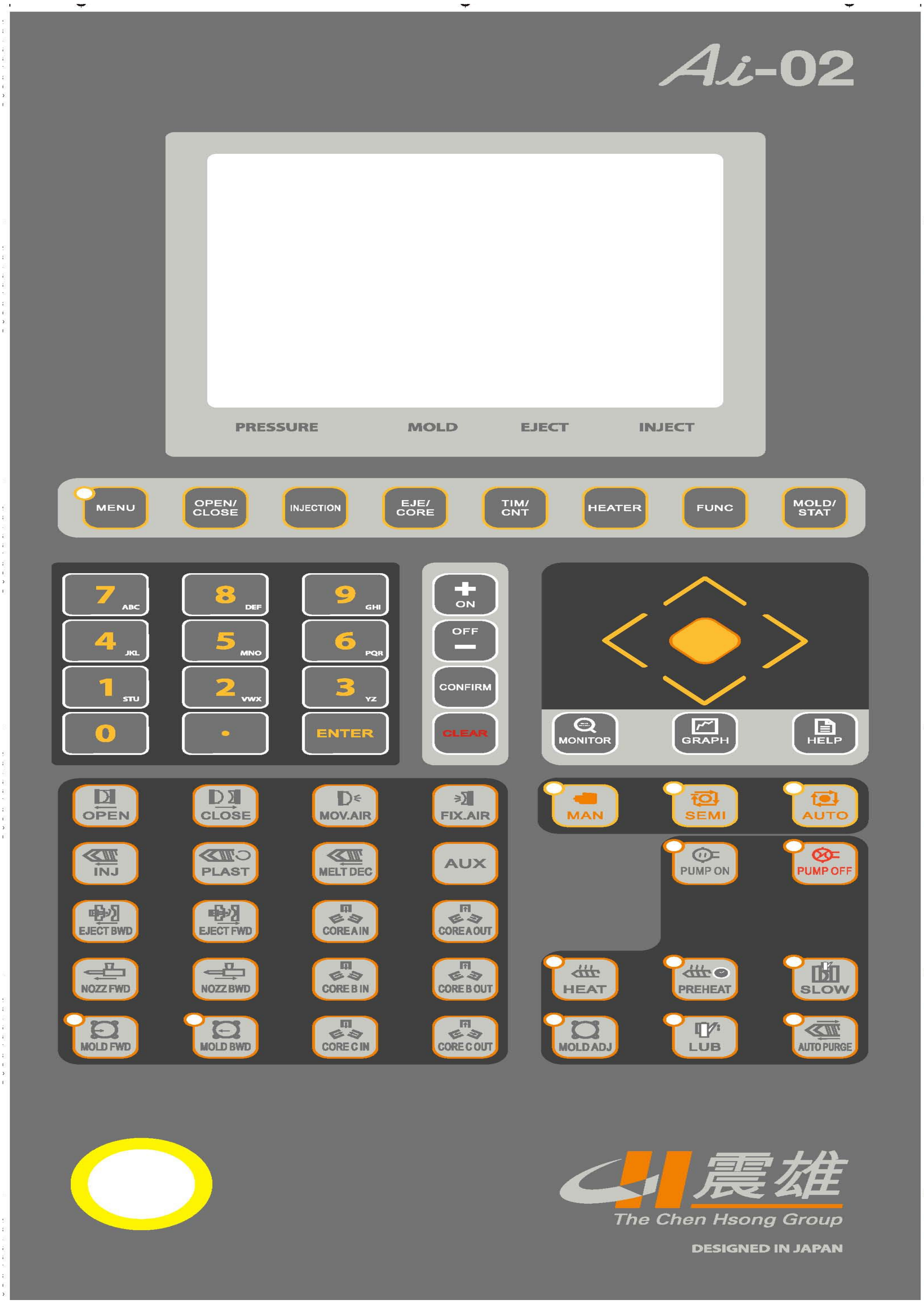
3.Function Comparison

Ai-02 Multi-function computer is the upgraded version of Ai-01 computer.
The detailed comparison in function are as follows:

FUNCTION	AI-02	AI-01
Potentiometer input	4 channel	3 channel
LCD display	TFT true color	STN
Air blow	Support 4 sets of multi-sequence air blow	Fix sequence of other 3 sets of air blow
Keylock function	by password	No
FRAM for backup of parameters	Backup of machine parameters and 10 sets of mold data	No
PID temperature control	10 channel	8 channel

4. Introduction on each Part of Computer's Panel

4.1 Computer's Panel

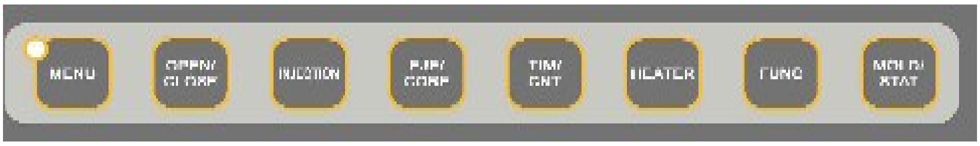

Ai-02
PRESSURE
MOLD
EJECT
INJECT
MENU
OPEN/ CLOSE
INJECTION
EJE/ CORE
TIM/ CNT
HEATER
FUNC
MOLD/ STAT
7 ABC
8 DEF
9 GHI
4 JKL
5 MNO
6 PQR
1 STU
2 VWX
3 YZ
0
.
ENTER
ON
OFF
CONFIRM
CLEAR
MONITOR
GRAPH
HELP
OPEN
CLOSE
MOV.AIR
FIX.AIR
INJ
PLAST
MELT DEC
AUX
EJECT BWD
EJECT FWD
CORE A IN
CORE A OUT
NOZZ FWD
NOZZ BWD
CORE B IN
CORE B OUT
MOLD FWD
MOLD BWD
CORE C IN
CORE C OUT
MAN
SEMI
AUTO
PUMP ON
PUMP OFF
HEAT
PREHEAT
SLOW
MOLD ADJ
LUB
AUTO PURGE
震雄
The Chen Hsong Group
DESIGNED IN JAPAN

4.2 Keys for Operation Mode control

MAN
SEMI
AUTO

4.3 Keys for function of forming conditions

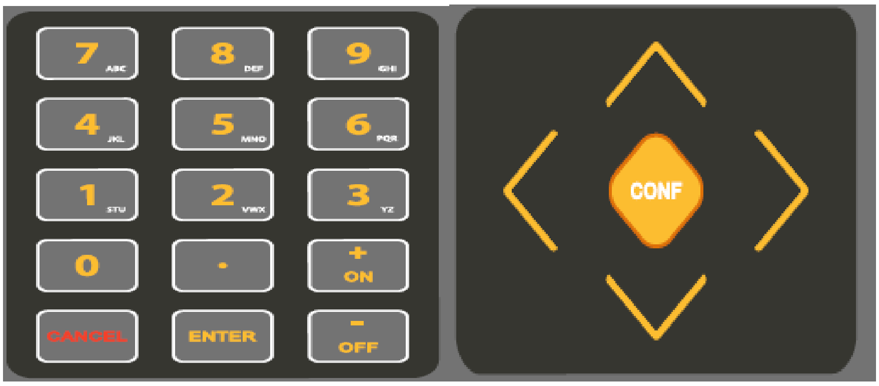
The keyboard is responsible for the switch of forming operation status.


MENU
OPEN/
CLOSE
INJECTION
EJE/
CORE
TIM/
CNT
HEATER
FUNC
MOLD/
STAT

The keyboard has the following functions:

(1)Can set the forming conditions like position, speed, pressure, time, counter and temperature, etc.
(2)Can change the mould data and rewrite the materials of mould data.
(3)According to the requirements of finished products and mould design, choose the function or action required by forming.
(4)Under any operational interface, the cursor can be moved to the expected position for changing data.

4.4 Digital data key, cursor key and auxiliary operational



This keyboard has the following functions:

If press CANCEL + ENTER + CONF at the same time, then turn on the power of the computer, the mould data and system setting inside the computer can be initialized. After hearing the alarm of a long "beep", the initialization is completed. Release the three keys, and the operation on computer can be continued.

When operating the computer, press CANCEL and ∧ simultaneously, the function of pageup can be realized; press CANCEL and ∨ simultaneously, the function of pagedown can be realized.

(1) Input the digital data required by forming conditions:

Speed setting ranges 00%～99%; 00% means no speed.
Pressure setting ranges 00%～99%; 00% means no pressure.
Position setting ranges 0000～999.9 mm.
Time setting ranges 0～999.9 sec.
Counter setting ranges 0～65535.
Mould thickness setting ranges 0～9999.9 mm.

(2) To check if the function keyboard is all right.
(3) To monitor the operation states of all outputs, inputs, timer and counter.
(4) To display the injection curve.
(5) To review help information.

4.5Power Switch：

(1)Emergency Stop Button

The Emergency Stop Button 🔴 locates in the bottom-right of the computer operation panel. If press it, the power can be cut off. If restart is required, the button must be released by turning rightward.

(2)Start Button

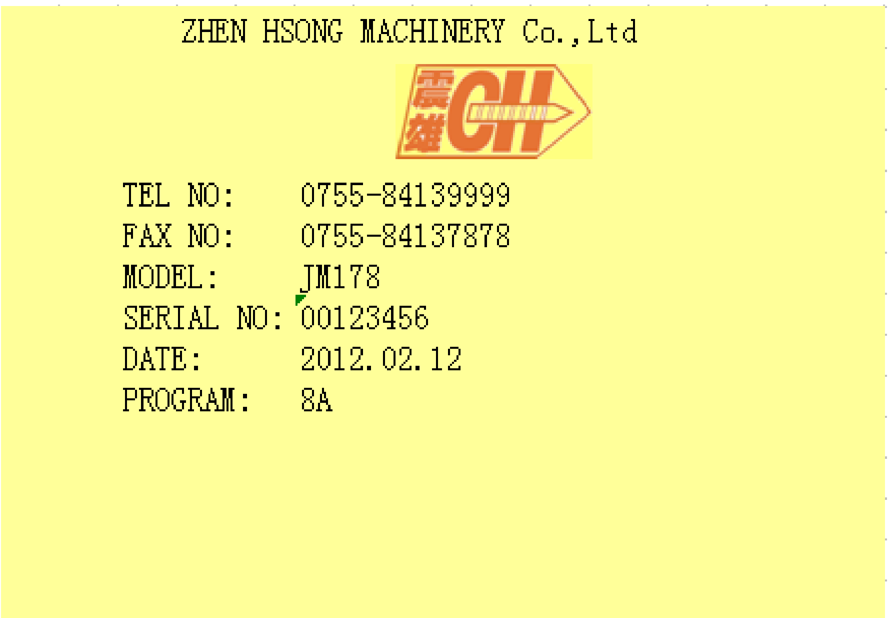
The Start Button 🟢 locates on the right under the computer operation panel. If the Emergency Stop Button has been released, the power of the machine can be switched on by pressing the Start Button. This function can effectively protect the control system.

(3)Equipped with voltage stabilizer of high performance, this controller is enabled to applicable to power input of AC90-AC265V, 50/60HZ with vast variation.

5. Operational instructions for computer interface

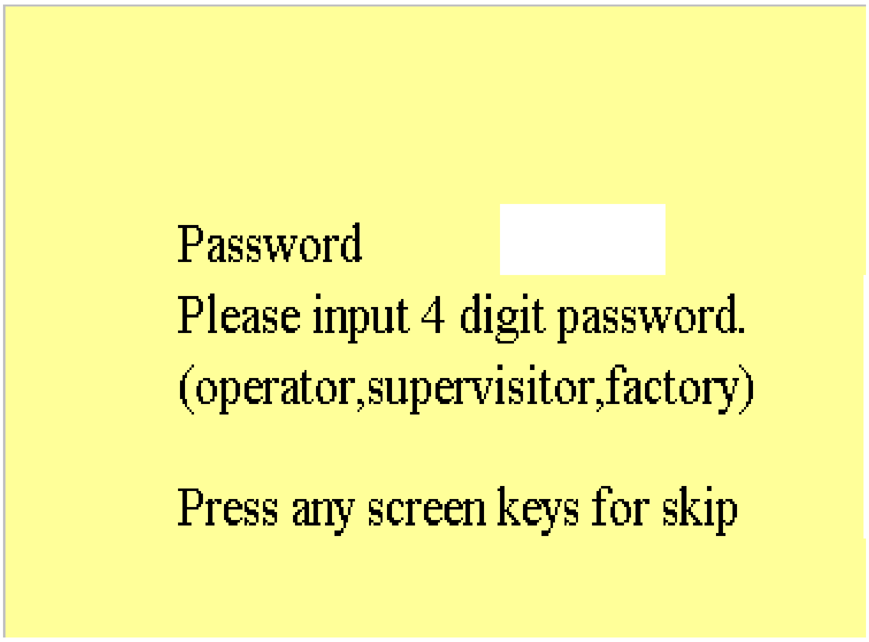
5.1Starting the computer

The interface of starting the computer (01)



```
ZHEN HSONG MACHINERY Co.,Ltd

TEL NO:     0755-84139999
FAX NO:     0755-84137878
MODEL:      JM178
SERIAL NO:  00123456
DATE:       2012.02.12
PROGRAM:    8A
```

The interface of starting screen (02)



Password

Please input 4 digit password.

(operator,supervisitor,factory)

Press any screen keys for skip

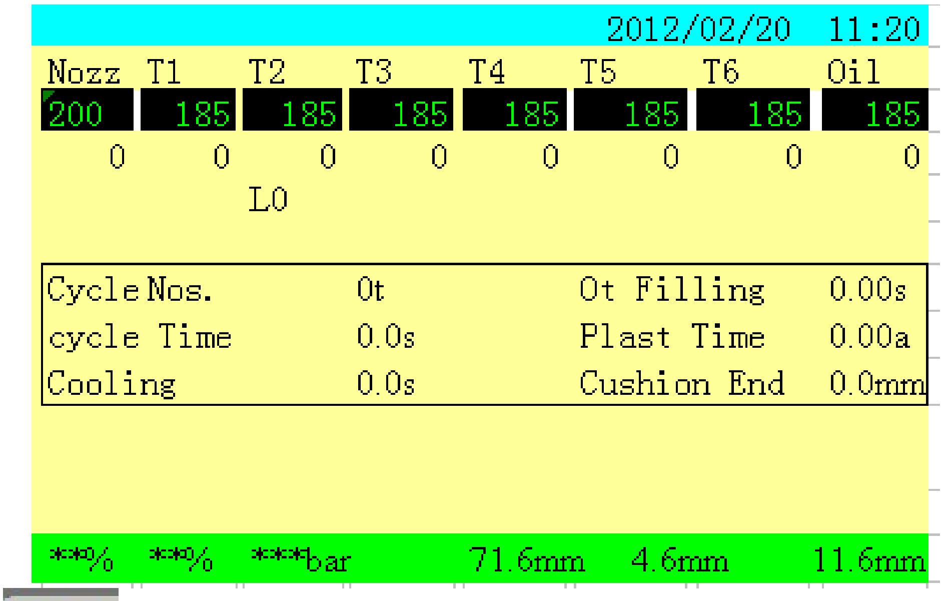
(1)After the computer is powered on and when the system is performing automatic test, at which moment the startup screen (00) is displayed, just input the account no. and password you will be authorized to log into the control system if the system is online,then, press the CANCEL key and hold it, the computer shall pause at (02), this screen indicates the model, machine no. and the running program, in the event the machine wants maintaining or technical answer to the inquiry, please fill the customer service of this factory with these data so as to enjoy expeditious service.

(2)If no action is conducted, the system will automatically switch to the interface (03) after about 3 seconds, which reminds you to input the password of 6 digits or press the interface key for omitting. If you input a password, you will gain the power of controlling corresponding level of interface without the need of inputting the password again. The password can be divided into 3 levels of powers like Operator, Administrator or Manufacturer. After 3 seconds, it will be switched into operation interface (03) automatically.

5.2 Setting normal operation

Interface of normal operation (03) is as follows under normal operation:

Interface of normal operation (03)



2012/02/20 11:20

Nozz	T1	T2	T3	T4	T5	T6	Oil
200	185	185	185	185	185	185	185
0	0	0	0	0	0	0	0

L0

Cycle Nos.	0t	0t Filling	0.00s
cycle Time	0.0s	Plast Time	0.00a
Cooling	0.0s	Cushion End	0.0mm

***% ***% ****bar 71.6mm 4.6mm 11.6mm

(1)Press MENU one time to display this interface (After the normal start of the system, the default is manual operation. After the start is completed, this interface will appear automatically).

（2）To modify the set value of temperature (Nozzle, T1~T8、Oil), use ◁△▽▷ to select the temperature stage to be set, input the numerical value and press ENTER, then the setting is complete.

This interface is used to monitor the relevant parameters of operation and each stage temperature settings of the barrel.

（3） Input the numerical value and press the ENTER then the set is completed.

"Nozzle parameter": Nozzle temperature setting

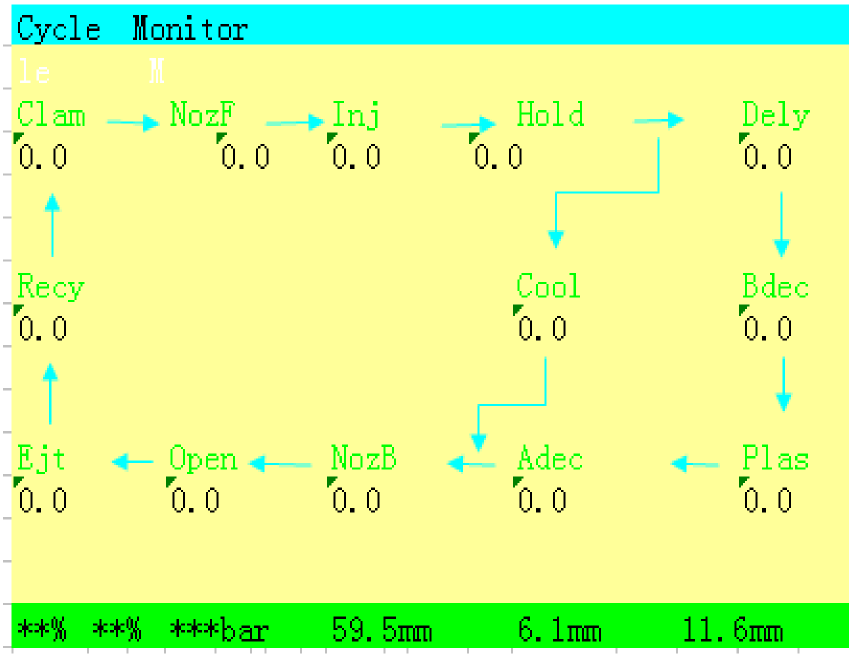
"T1": Stage 1 temperature setting

"T2": Stage 2 temperature setting
"T3": Stage 3 temperature setting
"T4": Stage 4 temperature setting (depend on machine model)
"T5": Stage 5 temperature setting (depend on machine model)
"T6": Stage 6 temperature setting (depend on machine model)
"T7": Stage 7 temperature setting (depend on machine model)

Note : T7 can be selected as oil temperature control or barrel heating control。

5.3 Monitor the cycle

Interface of monitoring the cycle (04)


Cycle Monitor
le M
Clam
0.0
NozF
0.0
Inj
0.0
Hold
0.0
Dely
0.0
Recy
0.0
Cool
0.0
Bdec
0.0
Ejt
0.0
Open
0.0
NozB
0.0
Adec
0.0
Plas
0.0
**% **% ***bar 59.5mm 6.1mm 11.6mm

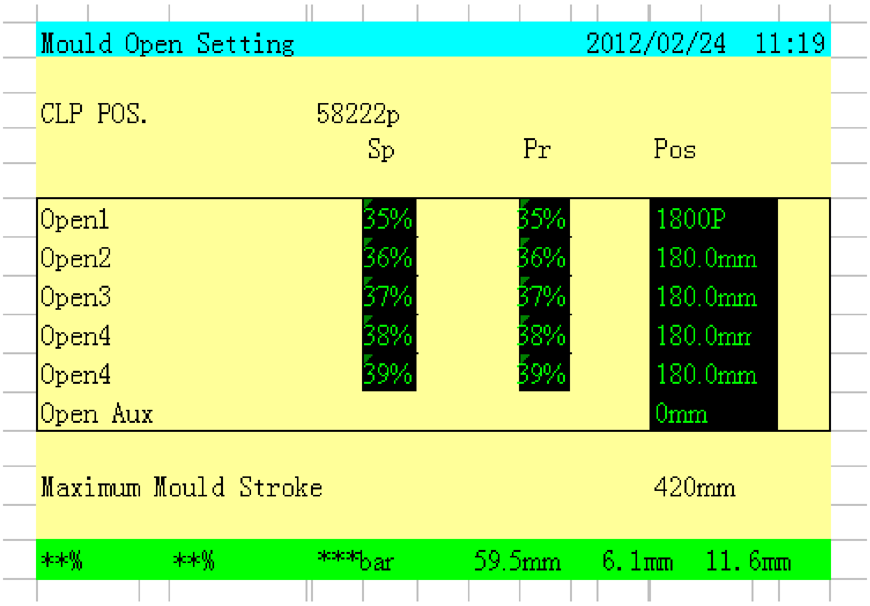
Press MAIN twice to call the cycle monitor screen , which shows the entire action cycle:

Clamping —→Carriage Forward —→Injection —→Pressure Holding —→Delay......—→Ejector—→ Recycle

The numerical value of each step is the time consumption of this step. The frame in the middle of the interface shows the cycle time, product number, cycle number and rejected part number.

5.4 Setting of Mould opening

Interface of Setting of Mould opening (05)



```
Mould Open Setting                      2012/02/24   11:19

CLP POS.            58222p
                        Sp          Pr          Pos

Open1                   35%         35%         1800P
Open2                   36%         36%         180.0mm
Open3                   37%         37%         180.0mm
Open4                   38%         38%         180.0mm
Open4                   39%         39%         180.0mm
Open Aux                                        0mm

Maximum Mould Stroke                            420mm

**%       **%       ***bar     59.5mm    6.1mm   11.6mm
```

(1)Press OP./CL.MD to call mould open close setting screen .

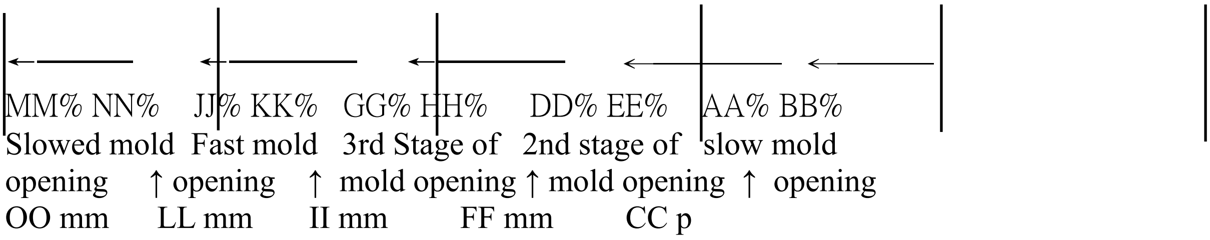
(2)Use ◁△▽▷ to select the parameters to be set, input the numerical value and press ENTER, then the setting is completed.

CLP pos：58222p mean the current position of opening.

“AA”: Setting for speed of slow mold opening
“BB”: Setting for pressure of slow mold opening
“CC”: Setting for the end-point of mold opening
“DD”: Setting for speed of 2nd stage of mold opening
“EE”: Setting for pressure of 2nd stage of mold opening
“FF”: Setting for ending position of 2nd stage of mold opening

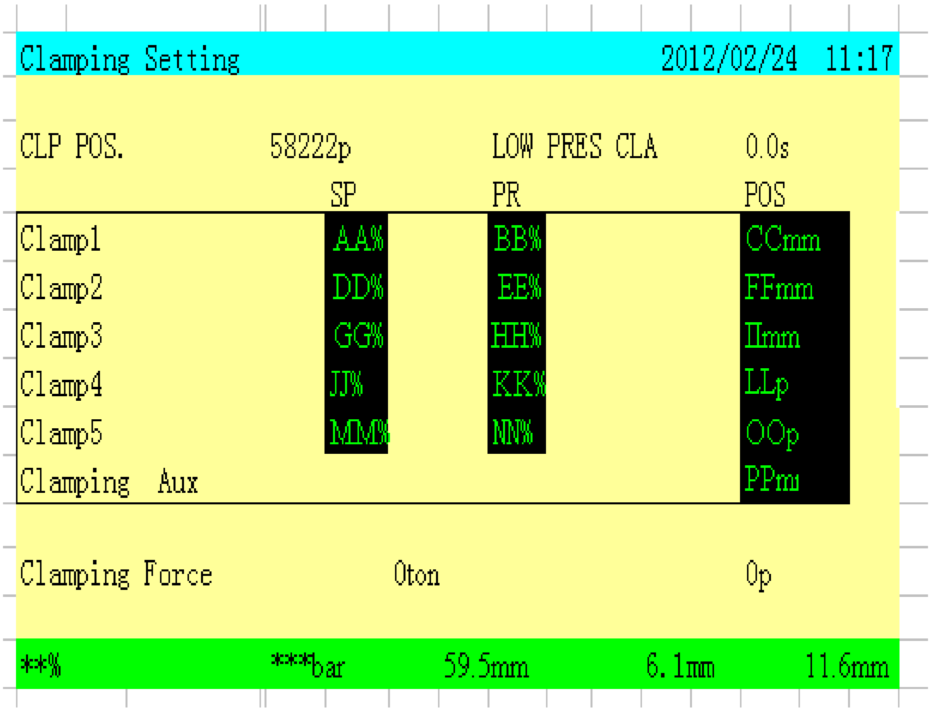
“GG”: Setting for speed of 3rd stage of mold opening
“II”: Setting for ending position of 3rd stage of mold opening

“JJ”: Setting for speed of fast mold opening
“KK”: Setting for pressure of fast mold opening
“LL”: Setting for ending position of fast mold opening
“MM”: Setting for speed of slowed mold opening
“NN”: Setting for pressure of slowed mold opening
“OO”: Setting for ending position of slowed mold opening
“PP”: Setting for reserved of mold opening (Optional)
“QQ”: Display maximum stroke


MM% NN%
Slowed mold opening
OO mm
JJ% KK%
Fast mold opening
LL mm
GG% HH%
3rd Stage of mold opening
II mm
DD% EE%
2nd stage of mold opening
FF mm
AA% BB%
slow mold opening
CC p

5.5 Setting of Mould closing

Interface of setting of clamping (06)


Clamping Setting 2012/02/24 11:17

CLP POS. 58222p LOW PRES CLA 0.0s

	SP	PR	POS
Clamp1	AA%	BB%	CCmm
Clamp2	DD%	EE%	FFmm
Clamp3	GG%	HH%	IImm
Clamp4	JJ%	KK%	LLp
Clamp5	MM%	NN%	OOp
Clamping Aux			PPmm

Clamping Force 0ton 0p

**% ***bar 59.5mm 6.1mm 11.6mm

（1） press OPEN/ CLOSE key twice to display clamping screen(06)。

（2） press ◆ key to select the clamping parameters。

Input proper value， and then press ENTER key， to complete the setting。

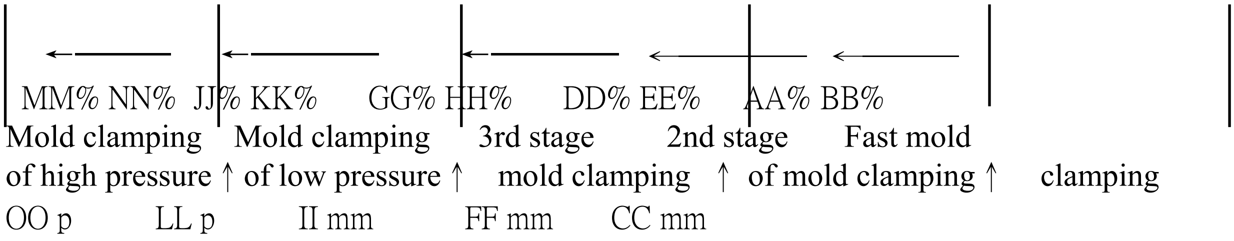
clamping force” is use to display the clamping force and correspond pulse position for automatic force adjustment.

CLP POS：“25999p” mean the current position of clamping。

LOW PRESS CLAMP Timer is used to count the time for building up low pressure for clamping. If this timer is count over, mold protection alarms occur. The mold will be opened and stop automatic operation.

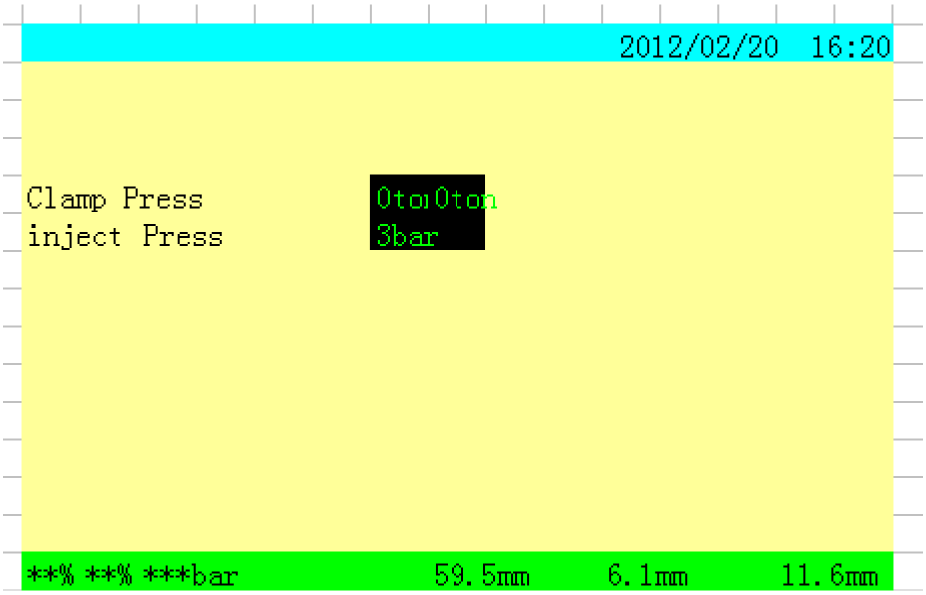
“AA”: Setting for speed of fast mold clamping
“BB”: Setting for pressure of fast mold clamping
“CC”: Setting for ending position of fast mold clamping
“DD”: Setting for speed of 2nd stage of mold clamping
“EE”: Setting for pressure of 2nd stage of mold clamping
“FF”: Setting for ending position of 2nd stage of mold clamping

“GG”: Setting for speed of 3rd stage of mold clamping
“HH”: Setting for pressure of 3rd stage of mold clamping.
“II”: Setting for ending position of 3rd stage of mold clamping
“JJ”: Setting for speed of mold clamping of low pressure
“KK”: Setting for pressure of mold clamping of low pressure
“LL”: Setting for ending position for mold clamping of low pressure
“MM”: Setting for speed of mold clamping of high pressure
“NN”: Setting for pressure of mold clamping of high pressure
“OO”: Setting for ending position of mold clamping of high pressure
“PP”: Setting for ending position of reserved of mold clamping (Optional)
“ QQ”: Display the tonnage of mold clamping force, this value is automatically computed according to the FF p position.


MM% NN%
JJ% KK%
GG% HH%
DD% EE%
AA% BB%
Mold clamping of high pressure ↑
Mold clamping of low pressure ↑
3rd stage mold clamping ↑
2nd stage of mold clamping ↑
Fast mold clamping
OO p
LL p
II mm
FF mm
CC mm

5.6 Interface of Mould Clamping and Injection Pressure Setting

Interface of Mould Clamping and Injection Pressure Setting (07)



```
                                        2012/02/20   16:20

Clamp Press          0ton0ton
inject Press         3bar

**% **% ***bar        59.5mm     6.1mm      11.6mm
```

(1) Press OPEN/CLOSE for three times or for five times and you can enter into interface of mould clamping and injection pressure setting (07).

(2)Use to ◇ select the parameters of mould clamping to be set,

Input the numerical value and press ENTER the, then the set is completed.

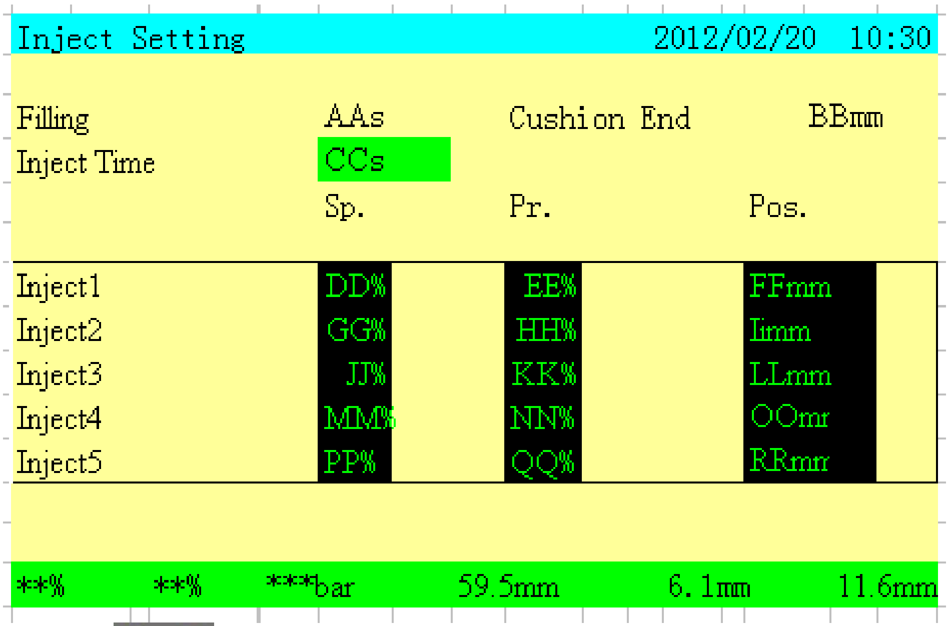
Of which,

Clamp pressure is used to set the clamping force for direct hydraulic clamping machine

Injection pressure is used to set the pressure for switching to the holding stage（filling to holding）

5.7 Injection Setting

Interface of Injection Setting (08)



Inject Setting 2012/02/20 10:30

Filling	AAs	Cushion End	BBmm
Inject Time	CCs		
	Sp.	Pr.	Pos.
Inject1	DD%	EE%	FFmm
Inject2	GG%	HH%	IImm
Inject3	JJ%	KK%	LLmm
Inject4	MM%	NN%	OOmm
Inject5	PP%	QQ%	RRmm

**% **% ***bar 59.5mm 6.1mm 11.6mm

(1) Press INJECTION and you can enter into interface of injection setting (08).

(2) Use to ◇ select the parameters of injection to be set,

Input the numerical value and press ENTER the, then the set is completed.

Of which,

"AA": Set the filling time from stage 1 – 5 of injection

"BB": Set the termination position of injection

"CC": Set the injection time

"DD": Set the speed of stage 1 of injection

"EE": Set the pressure of stage 1 of injection

"FF": Set the termination of action of stage 1 of injection

"GG": Set the speed of stage 2 of injection

"HH": Set the pressure of stage 2 of injection

"II": Set the termination of action of stage 2 of injection

"JJ": Set the speed of stage 3 of injection

"KK": Set the pressure of stage 3 of injection

"LL": Set the termination of action of stage 3 of injection

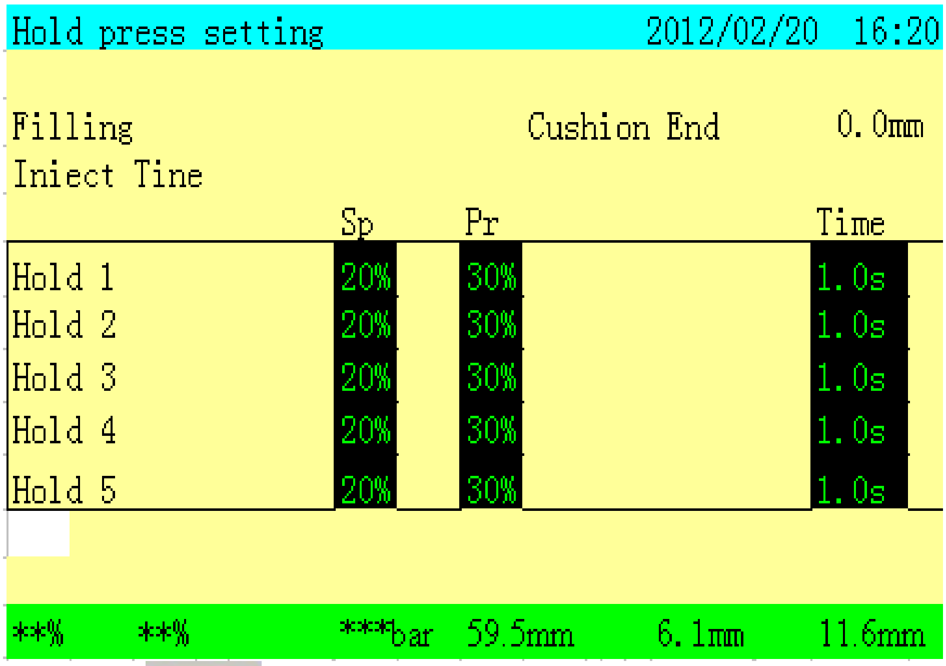
"MM": Set the speed of stage 4 of injection

"NN": Set the pressure of stage 4 of injection

"OO"：	Set the termination of action of stage 4 of injection
"PP"：	Set the speed of stage 5 of injection
"QQ"：	Set the pressure of stage 5 of injection
"RR"：	Set the termination of action of stage 5 of injection

5.8 Setting of pressure holding

Interface of setting of pressure holding (09)



Hold press setting 2012/02/20 16:20

Filling Cushion End 0.0mm

Iniect Tine

	Sp	Pr	Time
Hold 1	20%	30%	1.0s
Hold 2	20%	30%	1.0s
Hold 3	20%	30%	1.0s
Hold 4	20%	30%	1.0s
Hold 5	20%	30%	1.0s

**% **% ***bar 59.5mm 6.1mm 11.6mm

(1) Press INJECTION for two times and you can enter into interface of pressure holding (09).

(2) Use to ◇ select the parameters to be set,

Input the numerical value and press the, ENTER then the set is completed.

In which

"AA": Setting for injection time (to convert time into pressure holding)

"BB": Setting for ending position of injection

"CC": Setting for speed of 1st stage of pressure holding

"DD": Setting for pressure of 1st stage of pressure holding

"EE": Setting for time of 1st stage of pressure holding

"FF": Setting for speed of 2nd stage of pressure holding

“GG”: Setting for pressure of 2nd stage of pressure holding

“HH”: Setting for time of 2nd stage of pressure holding
“II”: Setting for speed of 3rd stage of pressure holding

“JJ”: Setting for pressure of 3rd stage of pressure holding

“KK”: Setting for time of 3rd stage of pressure holding

“LL”: Setting for speed of 4th stage of pressure maintenance

“MM”: Setting for pressure of 4th stage of pressure holding

“NN”: Setting for time of 4th stage of pressure holding

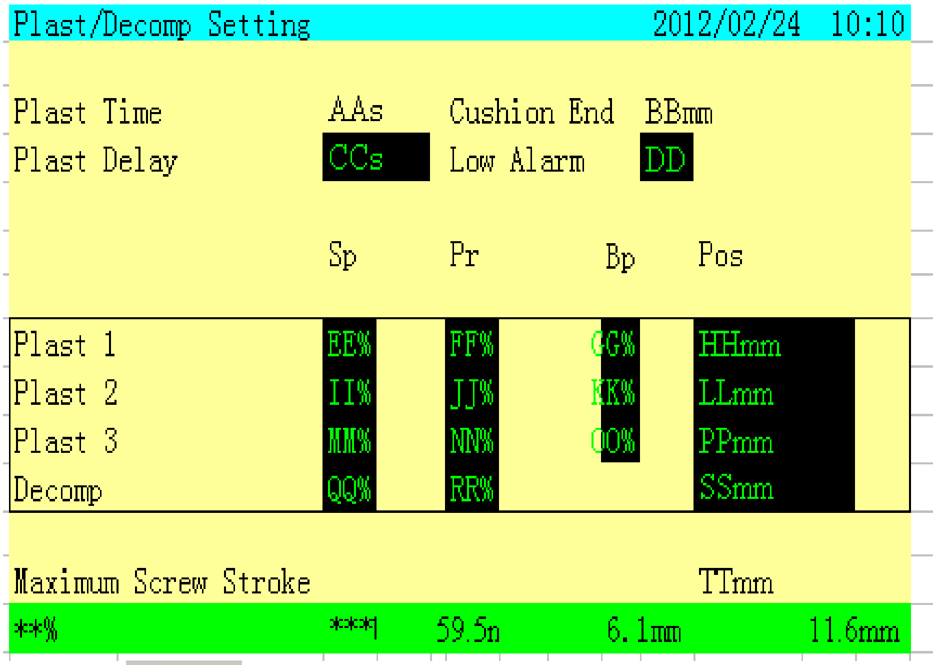
“OO”: Setting for speed of 5th stage of pressure holding

“PP”: Setting for pressure of 5th stage of pressure holding

“QQ”: Setting for time of 5th stage of pressure holding

5.9 Setting of plasticizing/back pressure

Interface of plasticizing/back pressure setting (10)



Plast/Decomp Setting 2012/02/24 10:10

Plast Time AAs Cushion End BBmm

Plast Delay CCs Low Alarm DD

	Sp	Pr	Bp	Pos
Plast 1	EE%	FF%	GG%	HHmm
Plast 2	II%	JJ%	KK%	LLmm
Plast 3	MM%	NN%	OO%	PPmm
Decomp	QQ%	RR%		SSmm

Maximum Screw Stroke TTmm

% *| 59.5n 6.1mm 11.6mm

(1) Press INJECTION for three times and you can enter into interface of plasticizing/backlash setting (10).

(2) Use to ◇ select the parameters of plasticizing to be set,

Input the numerical value and press the, ENTER then the set is completed.

Of which,

"AA": Set the time of plasticizing

"BB": Set the termination of injection

"CC": Set the time delay of plasticizing

"DD": Low temperature alarm can be selected by the setting of (closed in programme)

"EE": Set the speed of stage 1 of plasticizing

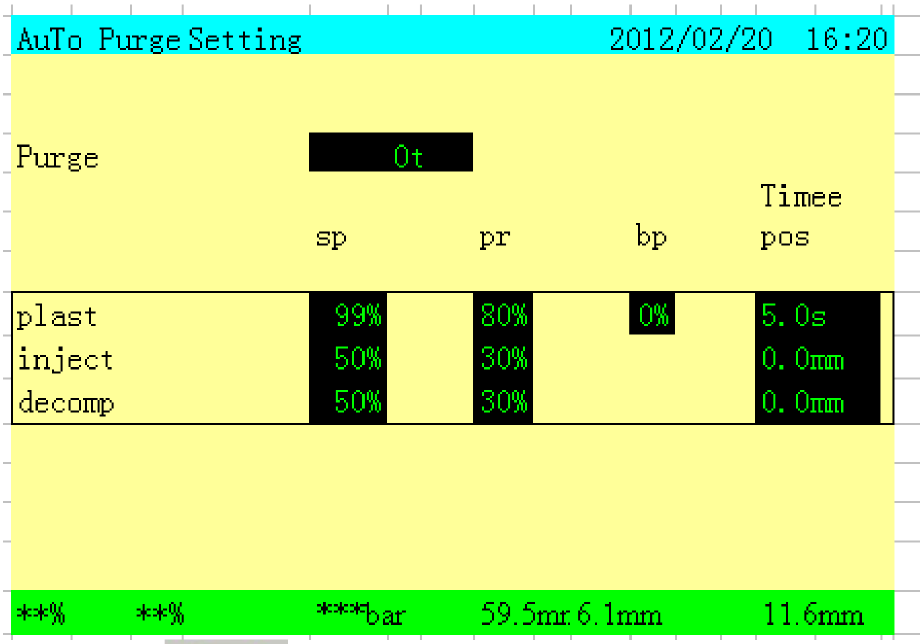
"FF": Set the pressure of stage 1 of plasticizing

"GG": Set the back press of stage 1 of plasticizing

"HH"：Set the termination of action of stage 1 of plasticizing
"II"：Set the speed of stage 2 of plasticizing
"JJ"：Set the pressure of stage 2 of plasticizing
"KK"：Set the back press of stage 2 of plasticizing
"LL"：Set the termination of action of stage 2 of plasticizing
"MM"：Set the speed of stage 3 of plasticizing
"NN"：Set the pressure of stage 3 of plasticizing
"OO"：Set the back press of stage 3 of plasticizing
"PP"：Set the termination of action of stage 3 of plasticizing
"QQ"：Set the speed of melt decompression
"RR"：Set the pressure of melt decompression
"SS"：Set the termination of action of melt decompression
"TT"：Maximum plasticizing stroke

5.10 Setting of automatic purge

Interface of automatic purge (11)



AuTo Purge Setting 2012/02/20 16:20

Purge 0t

	sp	pr	bp	Timee pos
plast	99%	80%	0%	5.0s
inject	50%	30%		0.0mm
decomp	50%	30%		0.0mm

**% **% ***bar 59.5mr 6.1mm 11.6mm

（1） Press INJECTION for four times and you can enter into interface of automatic purge (11).

（2） Use to ◇ select the parameters of automatic plastic purge to be set,

Input the numerical value and press the, ENTER then the set is completed.

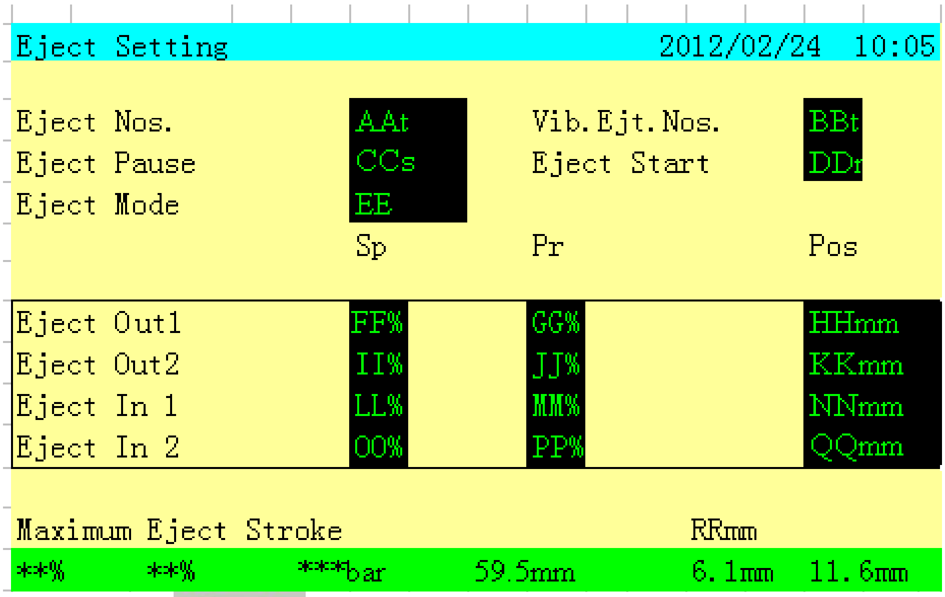
Of which,

"AA": Set the frequency of automatic purge
"BB": Set the speed of plasticizing
"CC": Set the pressure of plasticizing
"DD": Set the back press of plasticizing
"EE": Set the time of action of plasticizing
"FF": Set the speed of injection
"GG": Set the pressure of injection
"HH": Set the termination of action of injection
"II": Set the speed of melt decompression
"JJ": Set the pressure of melt decompression
"KK": Set the termination of action of melt decompression

Function of automatic purge is used when resin is changed. Purge time is the number of purging cycle

5.11 Setting of Ejector

Interface of Ejector Setting (12)



Eject Setting 2012/02/24 10:05

Eject Nos.	AAt	Vib.Ejt.Nos.	BBt
Eject Pause	CCs	Eject Start	DDr
Eject Mode	EE		

	Sp	Pr	Pos
Eject Out1	FF%	GG%	HHmm
Eject Out2	II%	JJ%	KKmm
Eject In 1	LL%	MM%	NNmm
Eject In 2	OO%	PP%	QQmm

Maximum Eject Stroke RRmm

**% **% ***bar 59.5mm 6.1mm 11.6mm

（1） Press INJECTION and you can enter into interface of Ejector setting (12).

（2） Useto select the parameters of Ejector to be set,

Input the numerical value and press the, ENTER then the set is completed.

Of which,

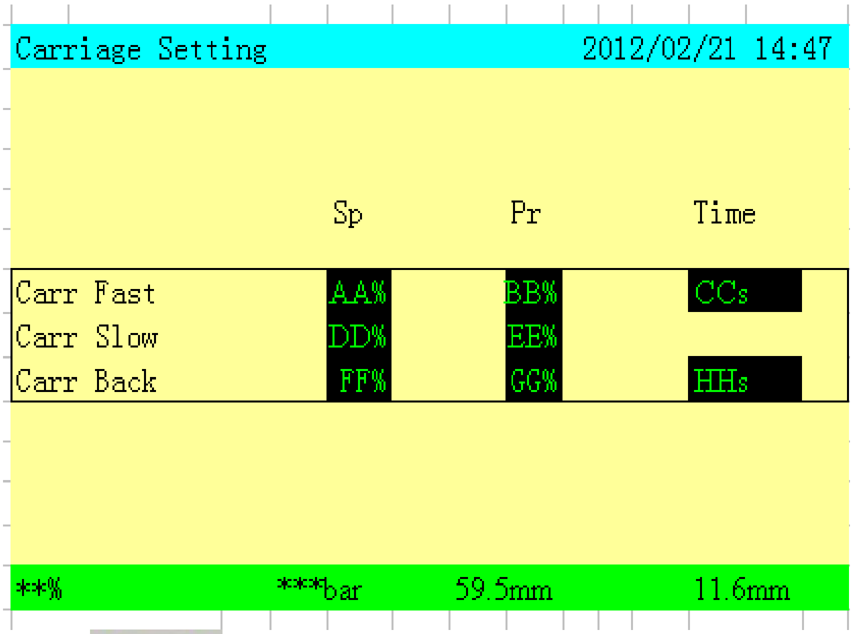
"AA"：	Set the frequency of ejector
"BB"：	Set the frequency and shake of Ejector (used with several ejectors)
"CC"：	Show pause time of ejector
"DD"：	Set the position of mould opening with synchronizing ejector in the process of mould opening
"EE"：	Useto + ON − OFF select the following three ejector actions

(i) unused
(ii) Ejector pause
(iii) several Ejectors

"FF"： Set the speed of ejection forward 1
"GG"： Set the pressure of ejection forward 1
"HH"： Set the termination of action of ejection forward 1
"II"： Set the speed of ejection forward 2
"JJ"： Set the pressure of ejection forward 2
"KK"： Set the termination of action of ejection forward 2
"LL": Set the speed of ejection retraction 1
"MM": Set the pressure of ejection retraction 1
"NN": Set the switching of action of deceleration of ejection retraction 1
"OO": Set the speed of ejection retraction 2
"PP": Set the pressure of ejection retraction 2
"QQ": Set the switching of action of deceleration of ejection retraction 2
"RR": Set maximum ejector stroke

5.12 Setting of Carriage

Interface of Setting of Carriage (13)



Carriage Setting 2012/02/21 14:47

	Sp	Pr	Time
Carr Fast	AA%	BB%	CCs
Carr Slow	DD%	EE%	
Carr Back	FF%	GG%	HHs

**% ***bar 59.5mm 11.6mm

(1) Press EJE/CORE for two times and you can enter into Interface of Setting of Carriage (13).

(2) Useto ◇ select the parameters of Carriage to be set,

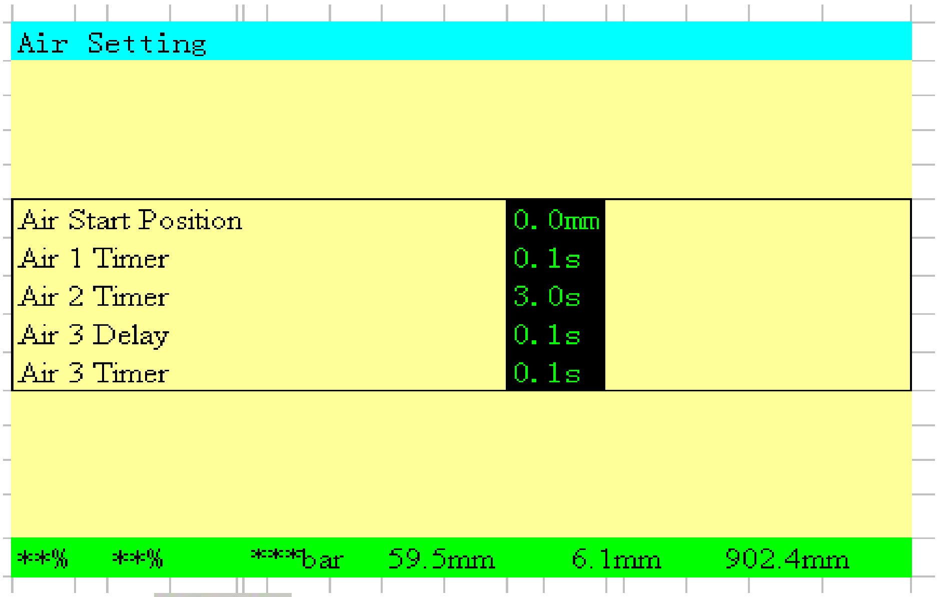
Input the numerical value and press the, ENTER then the set is completed.

Of which,

"AA"：	Set quick speed of Carriage
"BB"：	Set quick pressure of Carriage
"CC"：	Set the stroke time of quick action of Carriage
"DD"：	Set slow speed of Carriage
"EE"：	Set slow pressure of Carriage
"FF"：	Set the speed of Carriage retraction
"GG"：	Set the pressure of Carriage retraction
"HH"：	Set the stroke time of slow action of Carriage

5.13 Setting of air blowing

Interface of Blowing Setting (14)



Air Setting

Air Start Position	0. 0mm
Air 1 Timer	0. 1s
Air 2 Timer	3. 0s
Air 3 Delay	0. 1s
Air 3 Timer	0. 1s

**% **% ***bar 59.5mm 6.1mm 902.4mm

（1） Press EJE/ CORE for three times and you can enter into interface of Blowing Setting (14).

（2） Useto ◇ select the parameters of blowing to be set,

Input the numerical value and press the, ENTER then the set is completed.

Of which,

Blowing 1 is the starting in mould opening midway

Blowing 2 is the starting in mould opening termination

Blowing 3 is the delay starting in mould opening termination

"AA"： Opening position in Blowing 1 starting

"BB"： Duration of Blowing 1

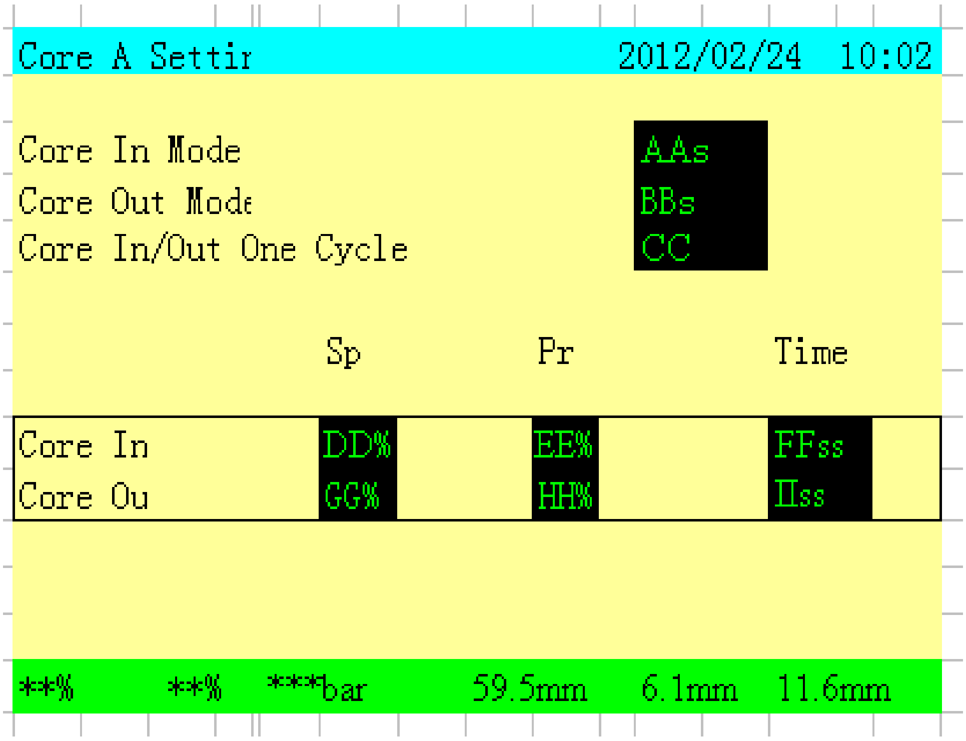
"CC"： Duration of Blowing 2

"DD"： Delay time of starting Blowing 3

"EE"： Duration of Blowing 3

5.14 Setting of Core pulling A

Setting Interface of Core Pulling A (15)



Core A Settir 2012/02/24 10:02

Core In Mode AAs
Core Out Mode BBs
Core In/Out One Cycle CC

	Sp	Pr	Time
Core In	DD%	EE%	FFss
Core Ou	GG%	HH%	IIss

**% **% ***bar 59.5mm 6.1mm 11.6mm

(1) Press EJE/ CORE for four times and then the interface of setting core pulling A (15) will appear.

(2) Useto ◆ select the parameters of core pulling to be set,

Input the numerical value and press the, ENTER then the set is completed.
Of which,

"AA": Inserting core: useto ON OFF select from the following four modes
- (1) Before mould clamping
- (2) After mould clamping
- (3) Mould clamping midway (set clamping position of inserting core starting)

(4) Unused

"BB"： Pulling core: useto + ON OFF − select from the following four modes

(1) Before mould opening
(2) After mould opening
(3) Mould opening midway (set clamping position of pulling core starting)
(4) Unused

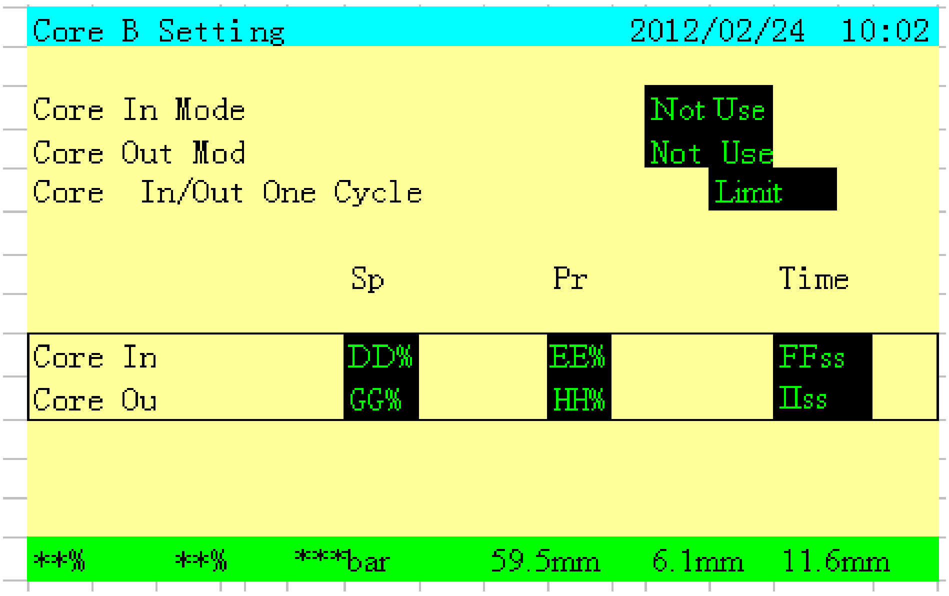
"CC"： Cycle of inserting/pulling core: use to + ON OFF − select from the following two modes

(1) Time
(2) Position switch

"DD"： Set the speed of inserting core
"EE"： Set the pressure of inserting core
"FF"： Set the time of inserting core
"GG"： Set the speed of pulling core
"HH"： Set the pressure of pulling core
"II"： Set the time of pulling core

5.15 Setting of Core pulling B

Setting Interface of Core Pulling B (16)



Core B Setting 2012/02/24 10:02

Core In Mode Not Use

Core Out Mod Not Use

Core In/Out One Cycle Limit

	Sp	Pr	Time
Core In	DD%	EE%	FFss
Core Ou	GG%	HH%	IIss

**% **% ***bar 59.5mm 6.1mm 11.6mm

(1) Press EJE/ CORE for five times and then the interface of setting core pulling B (16) will appear.

(2) Useto ◇ select the parameters of core pulling to be set,

Input the numerical value and press the, ENTER then the set is completed.

Of which,

"AA": Inserting core: useto ON OFF select from the following four modes

(1) Before mould clamping
(2) After mould clamping
(3) Mould clamping midway (set clamping position of inserting core starting)
(4) Unused

"BB"： Pulling core: useto +ON OFF− select from the following four modes

(1) Before mould opening
(2) After mould opening
(3) Mould opening midway (set clamping position of pulling core starting)
(4) Unused

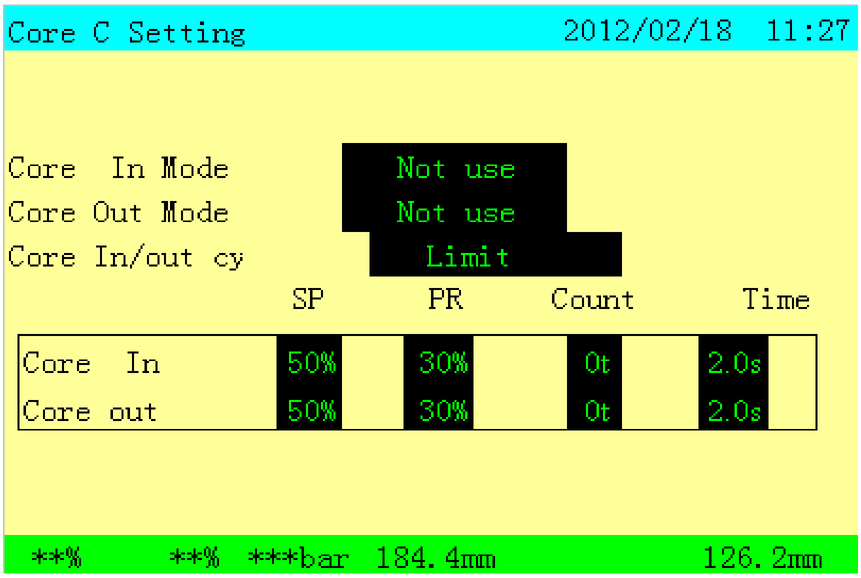
"CC"： Cycle of inserting/pulling core: use to +ON OFF− select from the following two modes

(2) Time
(3) Position switch

"DD"： Set the speed of inserting core
"EE"： Set the pressure of inserting core
"FF"： Set the time of inserting core
"GG"： Set the speed of pulling core
"HH"： Set the pressure of pulling core
"II"： Set the time of pulling core

5.16 Setting of Core pulling C

Setting Interface of Core Pulling C (17)



Core C Setting 2012/02/18 11:27

Core In Mode Not use
Core Out Mode Not use
Core In/out cy Limit

	SP	PR	Count	Time
Core In	50%	30%	0t	2.0s
Core out	50%	30%	0t	2.0s

**% **% ***bar 184.4mm 126.2mm

(1) Press EJE/CORE for six times and then the interface of setting core pulling C (17) will appear.

(2) Use ◇ to select the parameters of core pulling to be set, Input the numerical value and press the ENTER, then the set is completed.

Of which,

"AA": Inserting core: useto + ON OFF − select from the following four modes
- (1) Before mould clamping
- (2) After mould clamping
- (3) Mould clamping midway (set clamping position of inserting core starting)
- (4) Unused

"BB"： Pulling core: useto + ON OFF − select from the following four modes

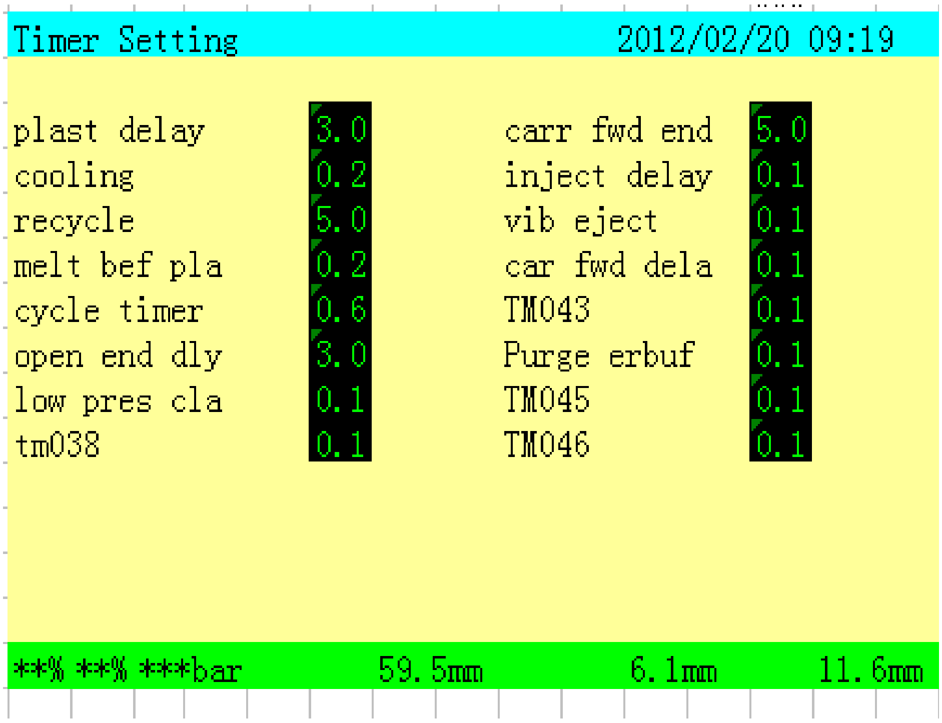
(1) Before mould opening
(2) After mould opening
(3) Mould opening midway (set clamping position of pulling core starting)
(4) Unused

"CC"： Cycle of inserting/pulling core: uset + ON OFF − select from the following three modes

(1) Time
(2) Position switch
(3) Count

"DD"： Set the speed of inserting core
"EE"： Set the pressure of inserting core
"FF"： Set the frequency of inserting core
"GG"： Set the time of inserting core
"HH"： Set the speed of pulling core
"II"： Set the pressure of pulling core
"JJ"： Set the frequency of pulling core
"KK"： Set the time of pulling core

5.17 Setting of Timer



```
Timer Setting                          2012/02/20 09:19

plast delay      3.0       carr fwd end     5.0
cooling          0.2       inject delay     0.1
recycle          5.0       vib eject        0.1
melt bef pla     0.2       car fwd dela     0.1
cycle timer      0.6       TM043            0.1
open end dly     3.0       Purge erbuf      0.1
low pres cla     0.1       TM045            0.1
tm038            0.1       TM046            0.1

**% **% ***bar        59.5mm        6.1mm        11.6mm
```

Interface of Time Setting (18)

(1) Press TIM/CNT and then the interface of time setting (18) will appear.

(2) Use to ◇ select the time to be set,

Input the numerical value and press the ENTER, then the set is completed.

Of which,

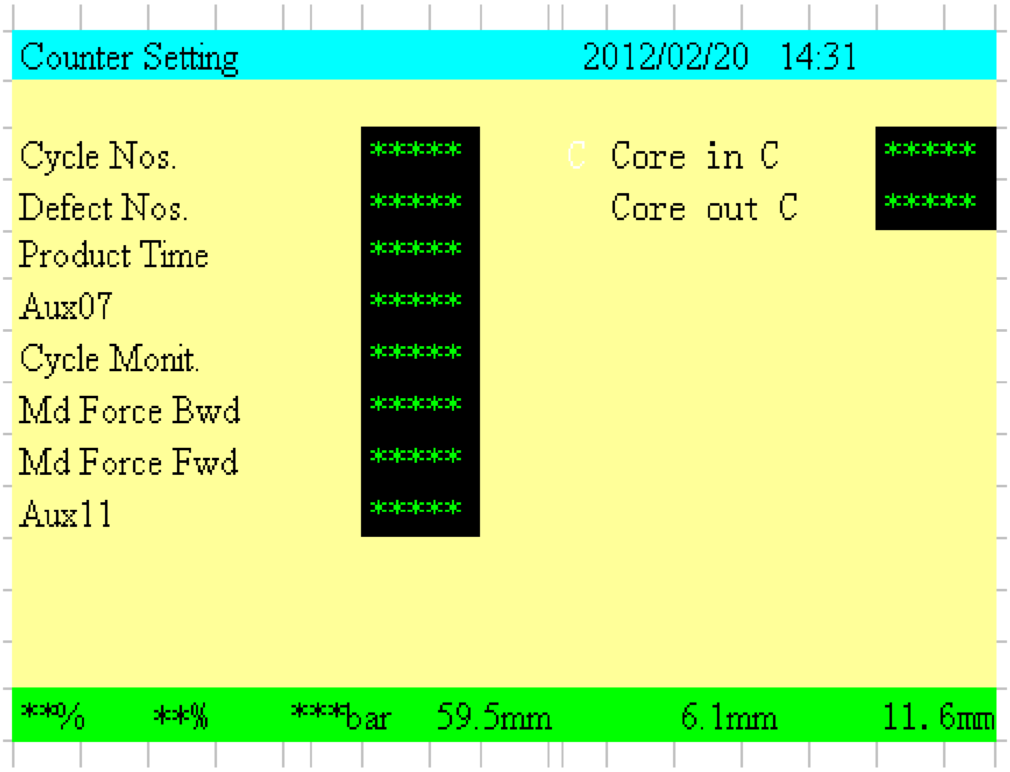
"AA": Set the time of plasticizing delay
"BB": Set the time of cooling
"CC": Set the time of recycling
"DD": Set the time of melt decompression before plasticizing
"EE": Set the time of cycle alarm
"FF": Set the time delay of mould opening termination

"GG"： Set the time of monitoring of low pressure clamping
"HH"： Set the time of quick carriage forward
"II"： Set the time delay of carriage forward termination
"JJ"： Set the time delay of injection
"KK"： Set the time of retraction of Ejector shake
"LL"： Time delay of carriage retraction after backlash
"MM"： Standby
"NN"： Standby
"OO"： Standby
"PP"： Standby

The timers in this screen are mostly used for internal timers

5.18 Setting of Counter 1

Interface of Counter Setting (19)



```
Counter Setting                    2012/02/20  14:31

Cycle Nos.        *****        C  Core in C    *****
Defect Nos.       *****           Core out C   *****
Product Time      *****
Aux07             *****
Cycle Monit.      *****
Md Force Bwd      *****
Md Force Fwd      *****
Aux11             *****

**%    **%    ***bar   59.5mm      6.1mm      11.6mm
```

(1) Press TIM/ CNT for two times, and then the interface of counter setting (19) will appear.

(2) Use to ◇ select the counter to be set,

Input the numerical value and press the ENTER , then the set is completed.

Of which,

"AA": Set mould number of forming

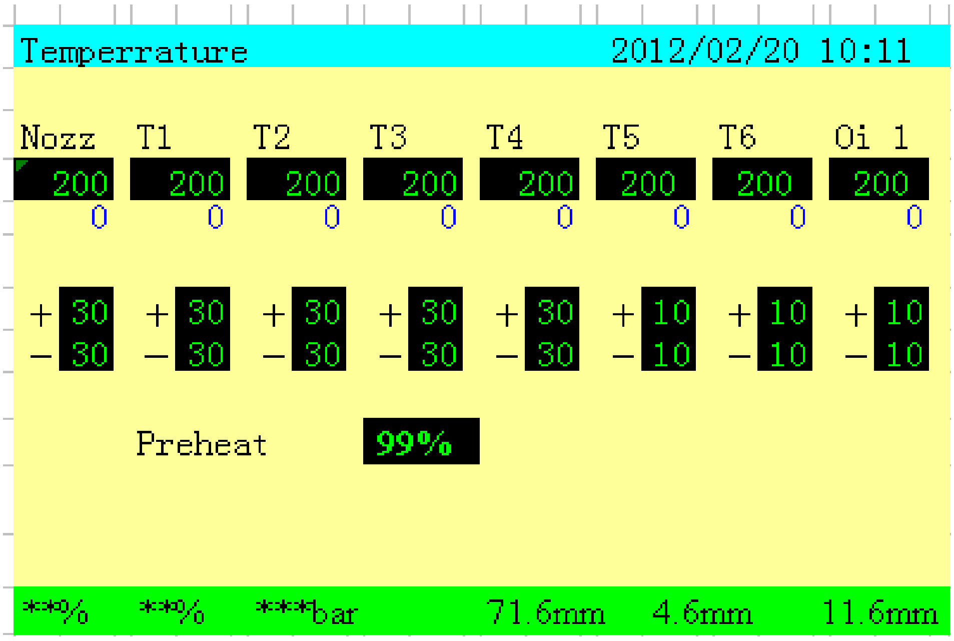
"BB": Set the alarm of excessive inferior production

"CC": Set automatic production time

"DD"： Standby
"EE"： Cycle monitor
"FF"： Set mould clamping by the adjustment
"GG"： Set mould pressing by the calibrating
"HH"： Standby
"II"： C timers of inserting cores
"JJ"： C timers of pulling cores

5.19 Setting of Temperature Deviation Alarm

Interface of Setting of Temperature Deviation Alarm (20)



Temperrature 2012/02/20 10:11

Nozz	T1	T2	T3	T4	T5	T6	Oi 1
200	200	200	200	200	200	200	200
0	0	0	0	0	0	0	0
+ 30	+ 30	+ 30	+ 30	+ 30	+ 10	+ 10	+ 10
− 30	− 30	− 30	− 30	− 30	− 10	− 10	− 10

Preheat 99%

**% **% ***bar 71.6mm 4.6mm 11.6mm

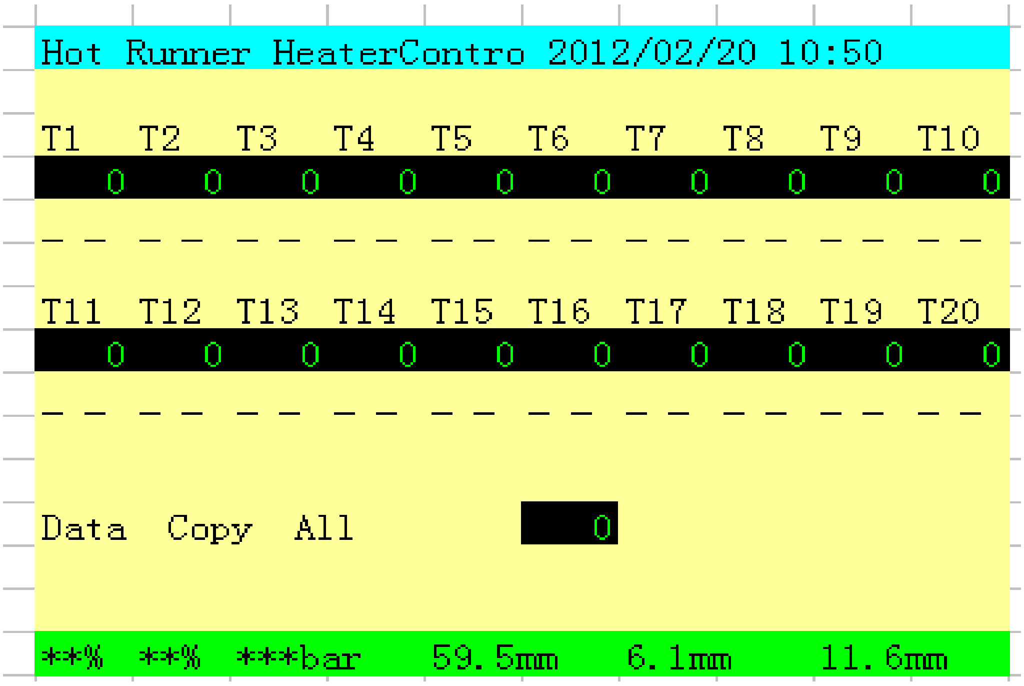
(1) Press HEATER ,then the interface of temperature alarm (20) will appear.

（2） Use to ◇ select the deviation alarm of each stage of temperature to be set, input the numerical value and press the, ENTER then the set is completed.

This screen is used for setting barrel temperature for each channel. The deviation setting “+30”“-30”mean no alarm within actual temperature from 170 to 230. If the actual temperature exceed the deviation range, alarm will be appear with low temperature limit or high temperature limit.

5.20 Temperature setting of hot runner

Interface of Temperature setting of hot runner (21)



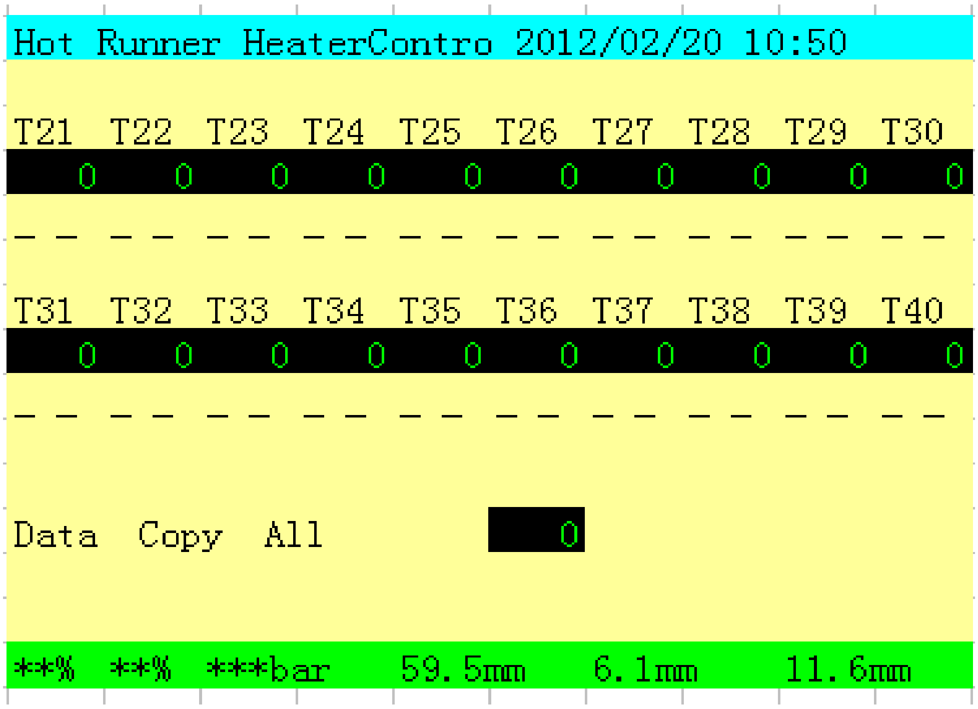
Hot Runner HeaterContro 2012/02/20 10:50

T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
0	0	0	0	0	0	0	0	0	0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
T11	T12	T13	T14	T15	T16	T17	T18	T19	T20
0	0	0	0	0	0	0	0	0	0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Data Copy All 0

**% **% ***bar 59.5mm 6.1mm 11.6mm

Interface of Temperature setting of heat interval channel (22)



Hot Runner HeaterContro 2012/02/20 10:50

T21	T22	T23	T24	T25	T26	T27	T28	T29	T30
0	0	0	0	0	0	0	0	0	0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
T31	T32	T33	T34	T35	T36	T37	T38	T39	T40
0	0	0	0	0	0	0	0	0	0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

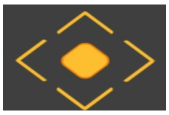
Data Copy All 0

**% **% ***bar 59.5mm 6.1mm 11.6mm

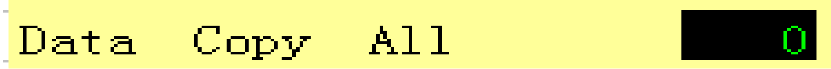
（ 1 ） Press HEATER for two times, then the interface of temperature setting of heat interval channel (21) will appear.

、

Press HEATER for three times, then the interface of temperature setting of heat interval channel (22) will appear.

Use to  select temperature of each stage of heat interval channel to be set, input the preset alarm numerical value and press the ENTER then the set is completed.

T1——T40 is the setting temperature of hot runner for each channel.

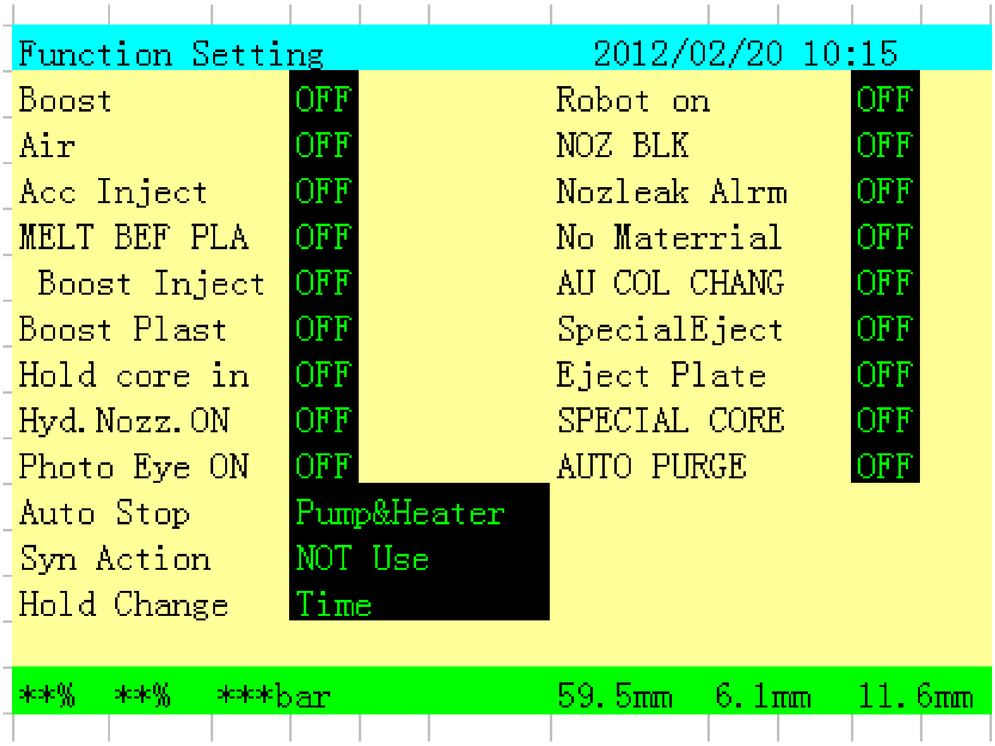


Data Copy All 0

This function is used for fast setting for all channels with same setting.

5.21 Setting of Function

Interface of Setting of Function (23)



Function Setting　　2012/02/20 10:15

Boost	OFF	Robot on	OFF
Air	OFF	NOZ BLK	OFF
Acc Inject	OFF	Nozleak Alrm	OFF
MELT BEF PLA	OFF	No Materrial	OFF
Boost Inject	OFF	AU COL CHANG	OFF
Boost Plast	OFF	SpecialEject	OFF
Hold core in	OFF	Eject Plate	OFF
Hyd. Nozz. ON	OFF	SPECIAL CORE	OFF
Photo Eye ON	OFF	AUTO PURGE	OFF
Auto Stop	Pump&Heater		
Syn Action	NOT Use		
Hold Change	Time		

**%　**%　***bar　59.5mm　6.1mm　11.6mm

(1) Press FUNC then the interface of setting of function (23) will appear.

(2) Use to ◇ locate the cursor in the function settings, press + ON and select “ON”; press OFF − and select “OFF”, then the set is completed.

(3) Automatic stop selection: use + ON OFF − to select the following four modes, which are used with forming numbers, production batch setting and fault stop.

- (i) Not used
- (ii) oil pump
- (iii) electric heat
- (iv) oil pump and electric heat

(4) Switching between filling and pressure holding by pressure holding function:

- (i) Switching by time: in selecting time switching, timer TIM014 counting is completed and pressure holding is switched.
- (ii) Switching by position: in selecting position switching, pressure holding will be switched in stage 5 injection.
- (iii) Switching by pressure: in selecting pressure switching, pressure sensor is required, and pressure holding will be switched in the event that injection pressure achieves preset pressure.

(5) Nitrogen injection: When choose “ON”, the nitrogen injection device can be used (User have to order this device separately).

(6) Alarm for glue leak: When choose “ON”, alarm will ring if the nozzle leaks (additional device).

(7) Alarm for no materials: When choose “ON”, alarm will ring if there is no material in the hopper; when choose “OFF”, no alarm will be given even if the plasticizing is not completed when the cool time ends.

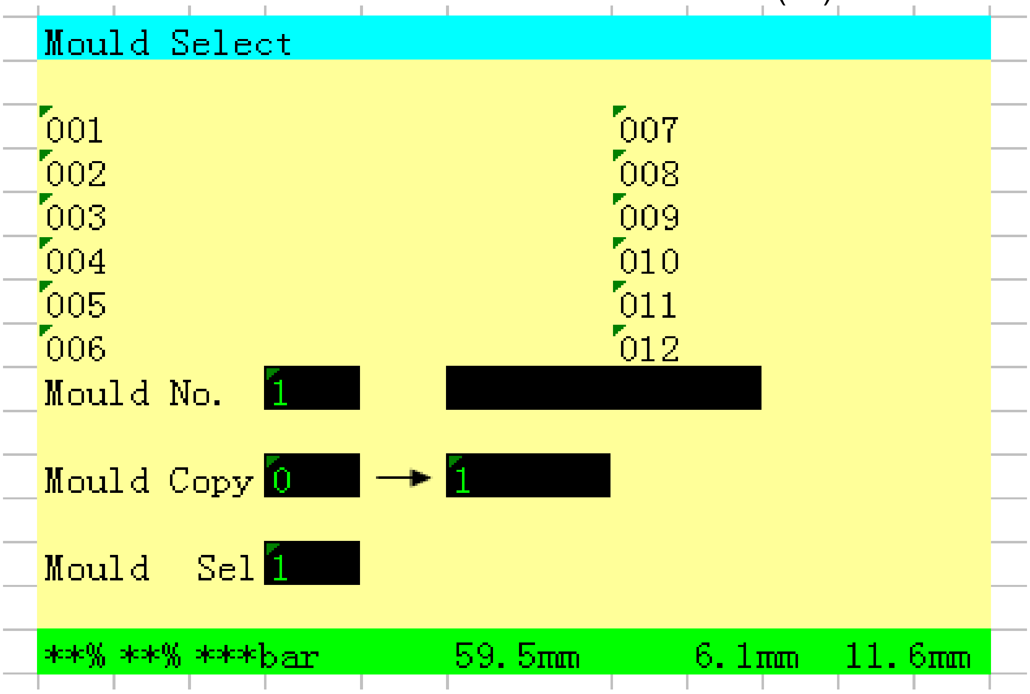
(8) Synchronization action:

- (i) Ejector: When choose Ejectors, the mould opening and ejection can be processed at the same time, and the position of mould opening when the ejector is started can be set.
- (ii) Plasticizing: When choose plasticizing, the mould opening and ejector can be used.
- (iii) Core pulling: When choose core pulling, the action of inserting and pulling core can be processed while opening and clamping.
- (iv)not used.

(9) The meaning of other functions can be understood literally, so no describe will be given hereby.

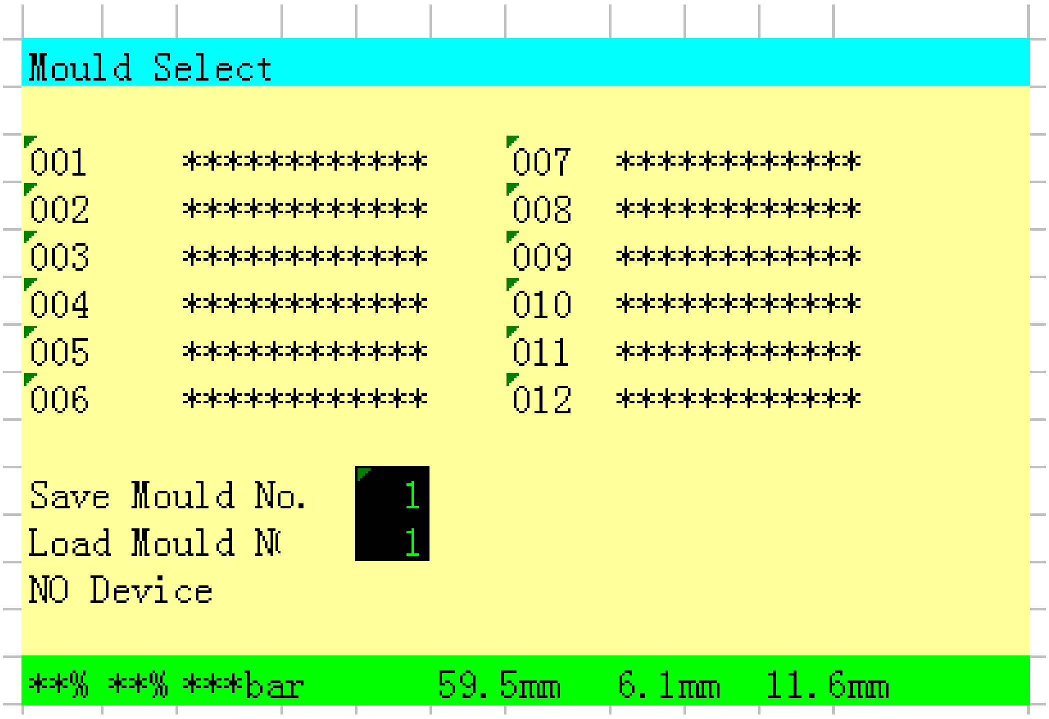
5.22 The Selection of Mould Data

The interface of Selection of Mould Data (24)



```
Mould Select

001                                 007
002                                 008
003                                 009
004                                 010
005                                 011
006                                 012
Mould No.    1
Mould Copy   0  →  1
Mould   Sel  1
**% **% ***bar      59.5mm      6.1mm   11.6mm
```

The interface of Selection of Mould Data (25)



```
Mould Select

001      ************    007   ************
002      ************    008   ************
003      ************    009   ************
004      ************    010   ************
005      ************    011   ************
006      ************    012   ************

Save Mould No.     1
Load Mould N(      1
NO Device
**% **% ***bar      59.5mm   6.1mm   11.6mm
```

(1) Press MOLD/STAT and the interface of Selection of Mould Data (24) will appear.

Press MOLD/STAT for two times and the interface of Selection of Mould Data (25) will appear.

150 groups of mould data memory are available, of which, mould data No. 1 to No.99 are standard data module, and No. 101 to No.150 are easy operation module (some of which can only be altered by mould data 100). Failure to alter the data means no duplication can be realized, so do make free with the mould data 100. Mold data in mold no.0 is used for mold data initialization.

This screen is for upload and download of mold data between Ai－02 controller and SD card memory device （SD memory card and SD card reading device is provided as option）。
After connecting SD memory card and memory card reading device(screen with“No Device”will be disappear)，setting downloading mold number at A2 position，press ENTER key to downloading data to SD memory card device，the LED indicator will be flashing until downloading process are finished。At A3 position, set the uploading mold number，then press ENTER key to upload the mold number data from SD memory card to Ai-02 controller，the LED indicator will be flashing during uploading，data transfer will be stopped if the LED light off。

Backup of mold data in FRAM：

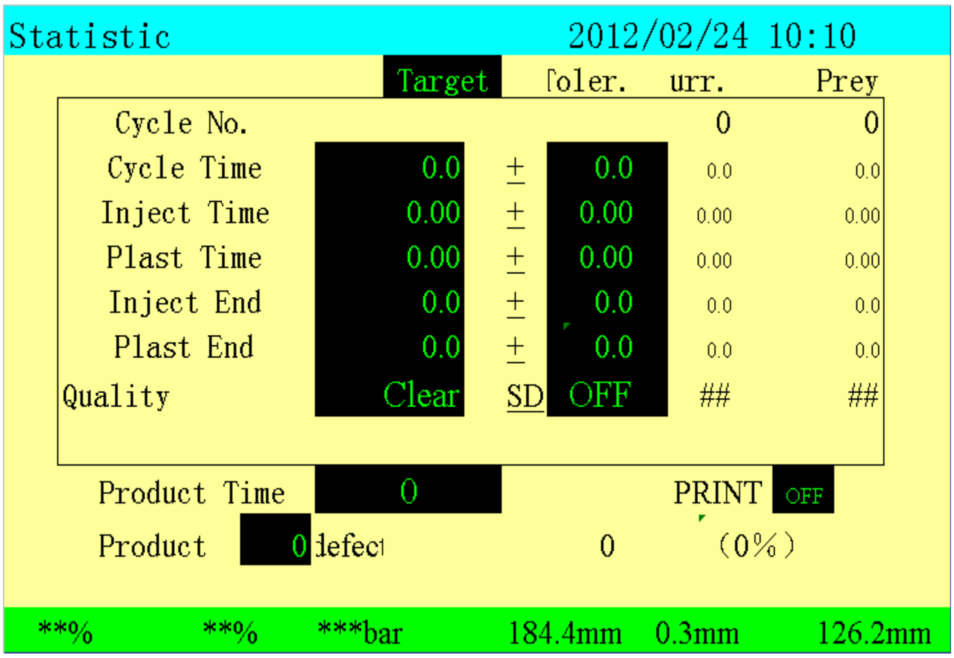
FRAM is a new memory device on the CPU board of Ai-02 controller, it can be used for backup of mold data and machine parameters when the battery is in failure。

（1） Move cursor to“backup”position， press ENTER key， “backup”will be displayed with“？”， then press CONF key to complete the mold data backup process，Mold set data number 1 to 10 will be saved in the FRAM.

（2） Move cursor to select “ recover” ， and then press confirm key to recover the Mold set data number 1 to 10 saved in the FRAM.

5.23 Statistical value

Quality statistics interface (26)



Statistic 2012/02/24 10:10

	Target		oler.	urr.	Prey
Cycle No.				0	0
Cycle Time	0.0	±	0.0	0.0	0.0
Inject Time	0.00	±	0.00	0.00	0.00
Plast Time	0.00	±	0.00	0.00	0.00
Inject End	0.0	±	0.0	0.0	0.0
Plast End	0.0	±	0.0	0.0	0.0
Quality	Clear	SD	OFF	##	##

Product Time 0 PRINT OFF

Product 0 efect 0 (0%)

**% **% ***bar 184.4mm 0.3mm 126.2mm

(1) Press MOLD/ STAT key for three times, and it will show the quality statistics interface (26).

(2) Select ◁△▽▷ the setting item by the key, input the figure and then press ENTER key to complete the setting.

This screen is for monitoring of quality data. If it is setting with "ON", it is judge to be defective product if data are out of tolerance.

Use ◁△▽▷ key to move the setting of“production time”, the press ENTER 输入 key, with display of “？”, then press 确认 CONF key to reset the production time to zero, this is an accumulating production timer。

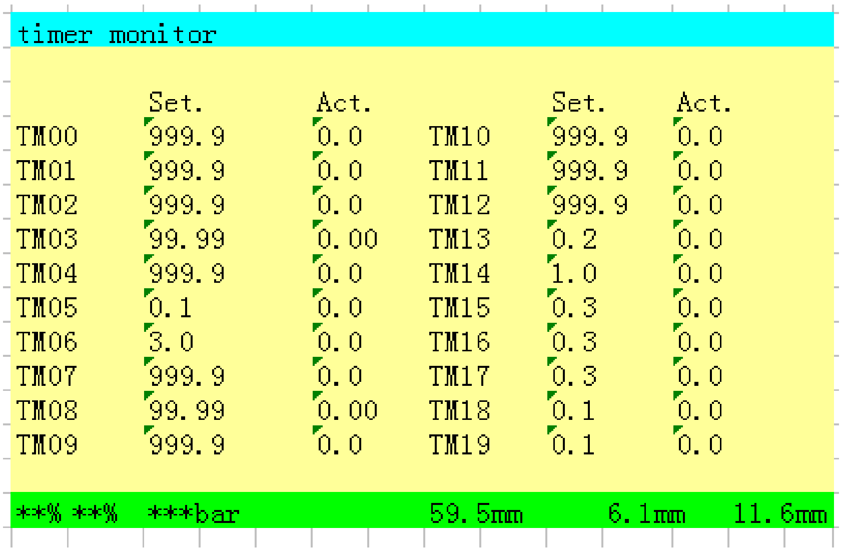
use ◁△▽▷ key to move“production counter”, press ENTER 输入 key, with display of“？”, then press 确认 CONF key to rest the production counyer to zero, this is an accumulating production counter。

use ◁△▽▷ move cursor key to reset 重置 position, press ENTER key, it will display with“？”, the press CONFIRM all monitoring data to zero。

use ◁△▽▷ key to move to SD: OFF position, press ➕ ON key to select "ON", press OFF ➖ key to select"OFF", If it is select to "ON", all quality data will be saved to SD card in the SD card device which is an option device for Ai controller。

5.24 Time monitor

Time monitor interface (27)

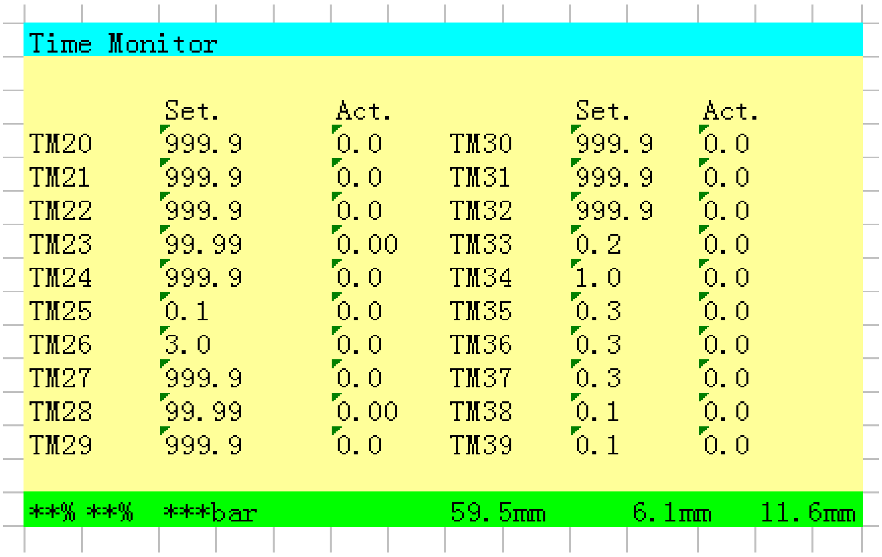


timer monitor

	Set.	Act.		Set.	Act.
TM00	999.9	0.0	TM10	999.9	0.0
TM01	999.9	0.0	TM11	999.9	0.0
TM02	999.9	0.0	TM12	999.9	0.0
TM03	99.99	0.00	TM13	0.2	0.0
TM04	999.9	0.0	TM14	1.0	0.0
TM05	0.1	0.0	TM15	0.3	0.0
TM06	3.0	0.0	TM16	0.3	0.0
TM07	999.9	0.0	TM17	0.3	0.0
TM08	99.99	0.00	TM18	0.1	0.0
TM09	999.9	0.0	TM19	0.1	0.0

**% **% ***bar 59.5mm 6.1mm 11.6mm

Time monitor interface (28)

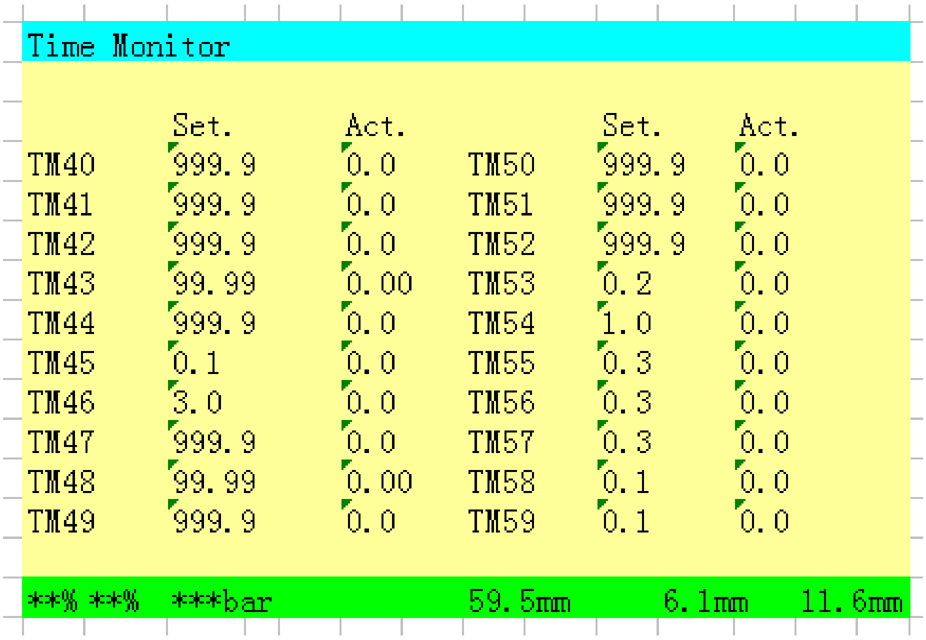


Time Monitor

	Set.	Act.		Set.	Act.
TM20	999.9	0.0	TM30	999.9	0.0
TM21	999.9	0.0	TM31	999.9	0.0
TM22	999.9	0.0	TM32	999.9	0.0
TM23	99.99	0.00	TM33	0.2	0.0
TM24	999.9	0.0	TM34	1.0	0.0
TM25	0.1	0.0	TM35	0.3	0.0
TM26	3.0	0.0	TM36	0.3	0.0
TM27	999.9	0.0	TM37	0.3	0.0
TM28	99.99	0.00	TM38	0.1	0.0
TM29	999.9	0.0	TM39	0.1	0.0

**% **% ***bar 59.5mm 6.1mm 11.6mm

Time monitor interface (29)

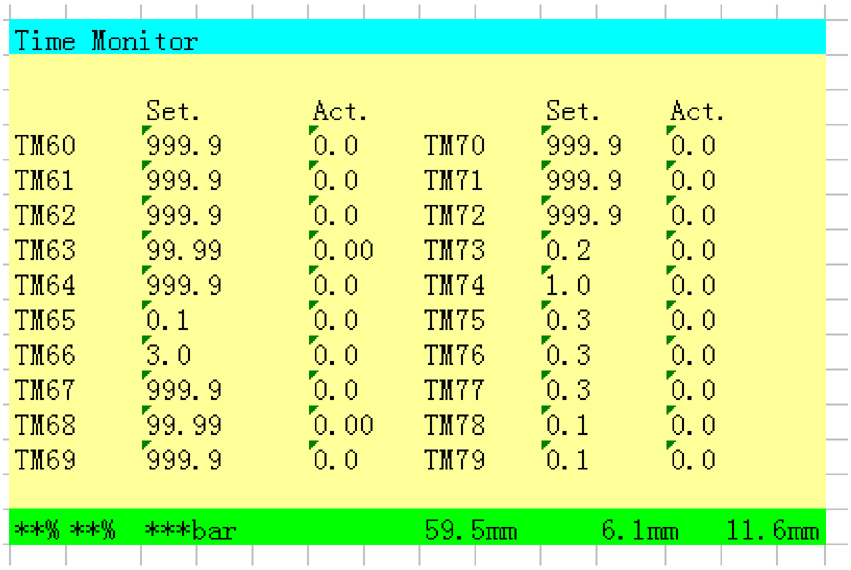


Time Monitor

	Set.	Act.		Set.	Act.
TM40	999.9	0.0	TM50	999.9	0.0
TM41	999.9	0.0	TM51	999.9	0.0
TM42	999.9	0.0	TM52	999.9	0.0
TM43	99.99	0.00	TM53	0.2	0.0
TM44	999.9	0.0	TM54	1.0	0.0
TM45	0.1	0.0	TM55	0.3	0.0
TM46	3.0	0.0	TM56	0.3	0.0
TM47	999.9	0.0	TM57	0.3	0.0
TM48	99.99	0.00	TM58	0.1	0.0
TM49	999.9	0.0	TM59	0.1	0.0

**% **% ***bar 59.5mm 6.1mm 11.6mm

Time monitor interface(30)

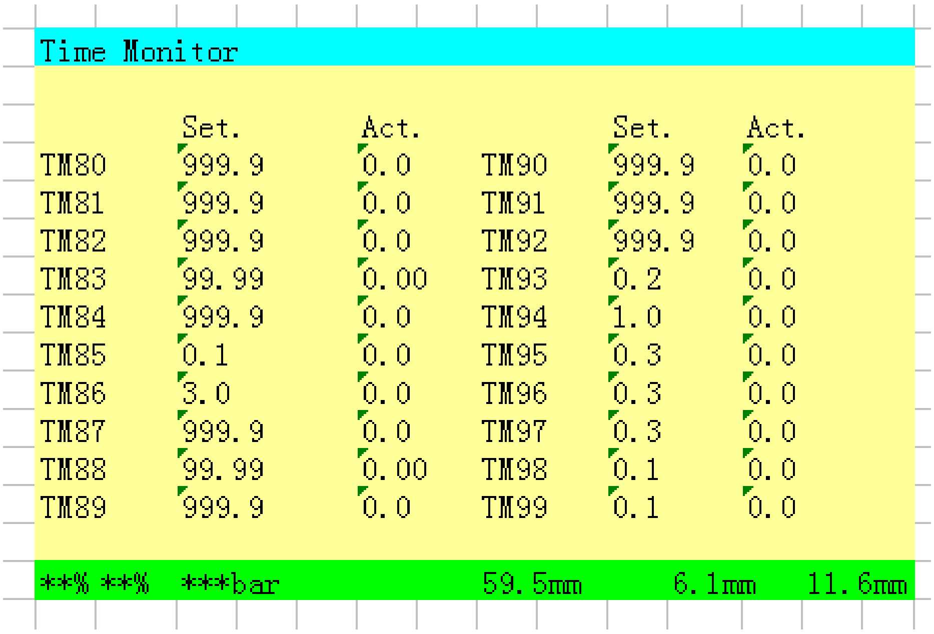


Time Monitor

	Set.	Act.		Set.	Act.
TM60	999.9	0.0	TM70	999.9	0.0
TM61	999.9	0.0	TM71	999.9	0.0
TM62	999.9	0.0	TM72	999.9	0.0
TM63	99.99	0.00	TM73	0.2	0.0
TM64	999.9	0.0	TM74	1.0	0.0
TM65	0.1	0.0	TM75	0.3	0.0
TM66	3.0	0.0	TM76	0.3	0.0
TM67	999.9	0.0	TM77	0.3	0.0
TM68	99.99	0.00	TM78	0.1	0.0
TM69	999.9	0.0	TM79	0.1	0.0

**% **% ***bar 59.5mm 6.1mm 11.6mm

Time monitor interface (31)



```
Time Monitor

         Set.       Act.              Set.     Act.
TM80     999.9      0.0      TM90     999.9    0.0
TM81     999.9      0.0      TM91     999.9    0.0
TM82     999.9      0.0      TM92     999.9    0.0
TM83     99.99      0.00     TM93     0.2      0.0
TM84     999.9      0.0      TM94     1.0      0.0
TM85     0.1        0.0      TM95     0.3      0.0
TM86     3.0        0.0      TM96     0.3      0.0
TM87     999.9      0.0      TM97     0.3      0.0
TM88     99.99      0.00     TM98     0.1      0.0
TM89     999.9      0.0      TM99     0.1      0.0

**% **%   ***bar             59.5mm      6.1mm    11.6mm
```

(1) Press MONITOR thekey once, and it will show Time monitor interface (27).

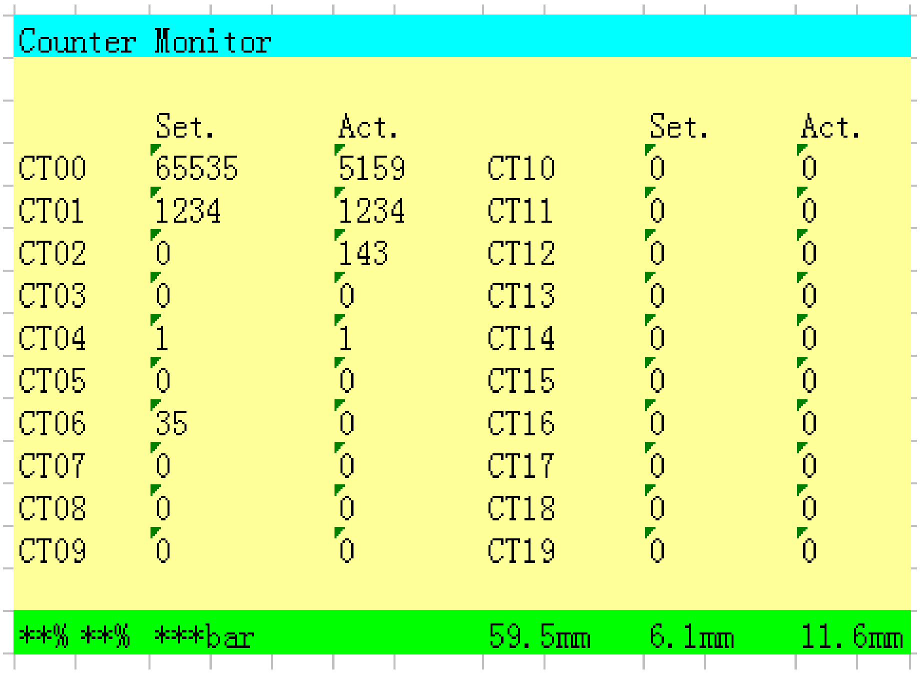
(2) In the interface, the setting and operation status of timer can be monitored, in case of monitoring other timers, press

simultaneity press ◆ and CLEAR keys, and switch between the interface(27)-(31).

(3) This screen is used to monitor of totally 100 timers （TM00 to TM100）including setting value and monitoring current value.

5.25 Counter monitor

Counter monitor interface (32)



Counter Monitor

	Set.	Act.		Set.	Act.
CT00	65535	5159	CT10	0	0
CT01	1234	1234	CT11	0	0
CT02	0	143	CT12	0	0
CT03	0	0	CT13	0	0
CT04	1	1	CT14	0	0
CT05	0	0	CT15	0	0
CT06	35	0	CT16	0	0
CT07	0	0	CT17	0	0
CT08	0	0	CT18	0	0
CT09	0	0	CT19	0	0

**% **% ***bar 59.5mm 6.1mm 11.6mm

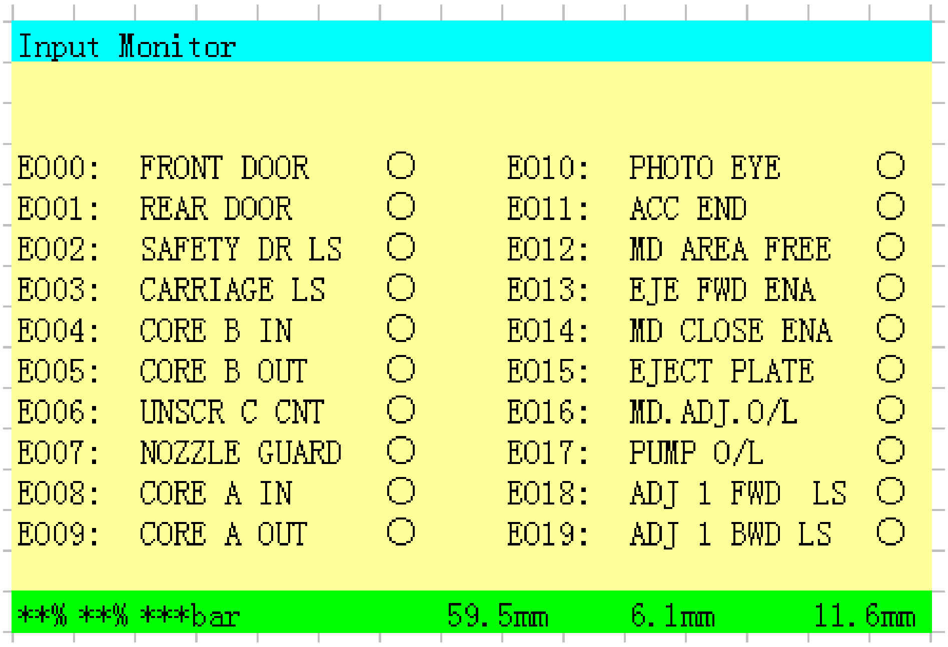
(1) Press MONITOR key for twice, it will show counter monitor interface (32).

(2) The interface is mainly used for monitoring setting and working status of counters.

This screen is to monitor counter data。

5.26 Input monitor

Input monitor interface (33)



Input Monitor

E000:	FRONT DOOR	○	E010:	PHOTO EYE	○
E001:	REAR DOOR	○	E011:	ACC END	○
E002:	SAFETY DR LS	○	E012:	MD AREA FREE	○
E003:	CARRIAGE LS	○	E013:	EJE FWD ENA	○
E004:	CORE B IN	○	E014:	MD CLOSE ENA	○
E005:	CORE B OUT	○	E015:	EJECT PLATE	○
E006:	UNSCR C CNT	○	E016:	MD.ADJ.O/L	○
E007:	NOZZLE GUARD	○	E017:	PUMP O/L	○
E008:	CORE A IN	○	E018:	ADJ 1 FWD LS	○
E009:	CORE A OUT	○	E019:	ADJ 1 BWD LS	○

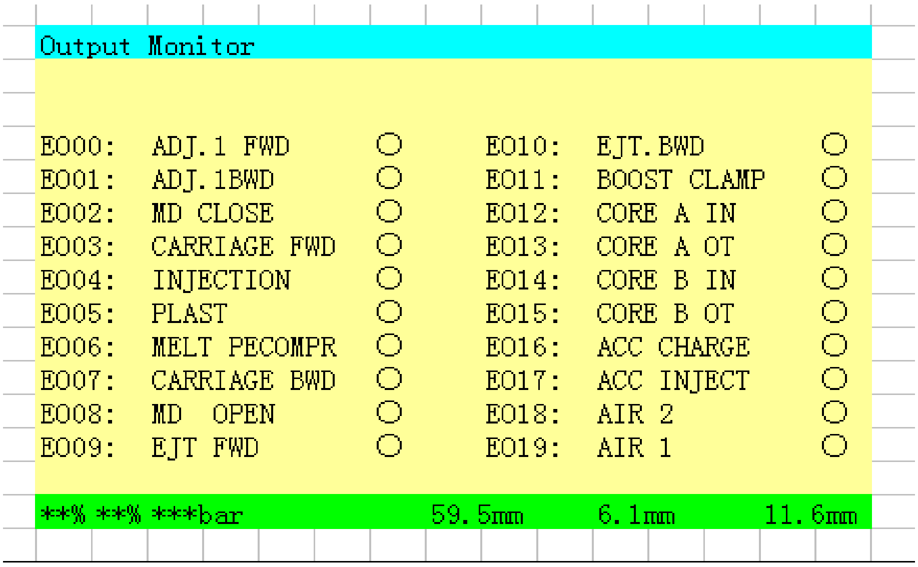
**% **% ***bar 59.5mm 6.1mm 11.6mm

（1） Press MONITOR key for three times, it will show input monitor interface(33).

（2） In the screen, the input status can be monitored, in case of monitoring others screen, press ◆ to switch between the interfaces(33)-（34）

5.27 Output monitor

Output monitor interface (34)



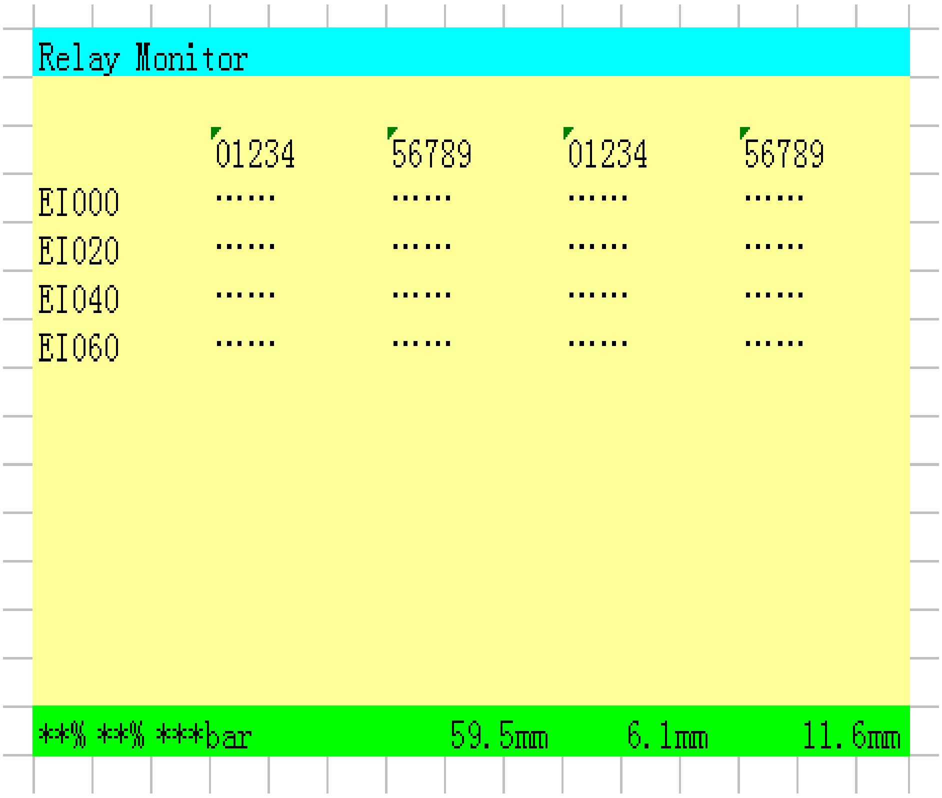
```
Output Monitor

E000:   ADJ.1 FWD      ○      E010:   EJT.BWD        ○
E001:   ADJ.1BWD       ○      E011:   BOOST CLAMP    ○
E002:   MD CLOSE       ○      E012:   CORE A IN      ○
E003:   CARRIAGE FWD   ○      E013:   CORE A OT      ○
E004:   INJECTION      ○      E014:   CORE B IN      ○
E005:   PLAST          ○      E015:   CORE B OT      ○
E006:   MELT PECOMPR   ○      E016:   ACC CHARGE     ○
E007:   CARRIAGE BWD   ○      E017:   ACC INJECT     ○
E008:   MD  OPEN       ○      E018:   AIR 2          ○
E009:   EJT FWD        ○      E019:   AIR 1          ○

**% **% ***bar            59.5mm      6.1mm       11.6mm
```

Press MONITOR four times to call the output monitor screen.
In this interface, the setting and operation status of outputs can be monitored, in case of monitoring other outputs status, simultaneously press ▲(or ▼)keys to switch among the page .

Through inspection of the relevant outputs status, to confirm whether the output signals from the controller have been sent to the corresponding points on I/O board, and estimate the operating status of I/O board system or PCB failure.

5.28 Relay monitor

Relay monitor (35)



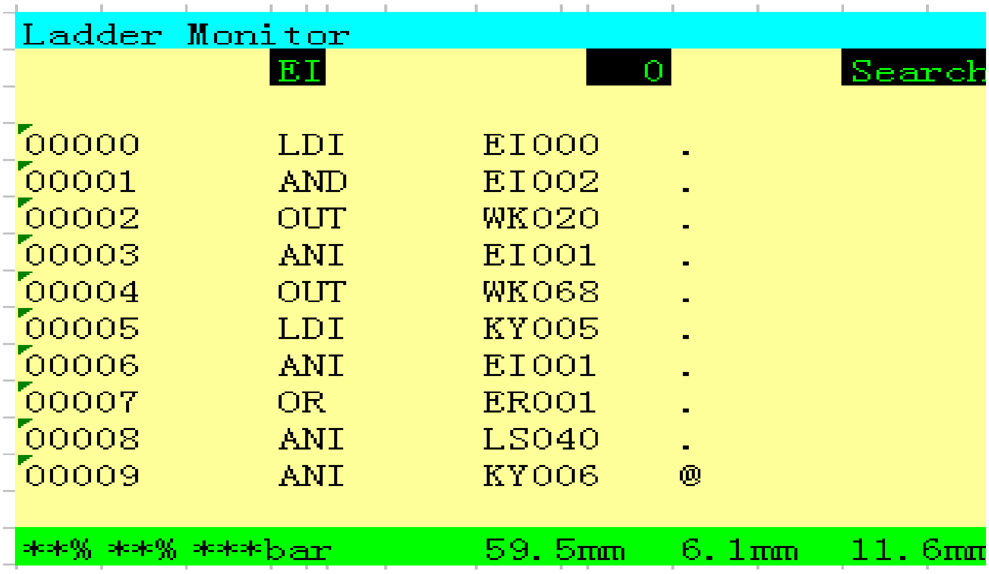
```
Relay Monitor

          01234     56789     01234     56789
EI000     ......    ......    ......    ......
EI020     ......    ......    ......    ......
EI040     ......    ......    ......    ......
EI060     ......    ......    ......    ......

**% **% ***bar          59.5mm     6.1mm      11.6mm
```

Press MONITOR five times to call the relay monitor screen.
In this interface, internal relays status can be monitored, in case of monitoring other relays status, press ▲(or▼) keys to switch among relay monitor interfaces.

These interfaces are used to confirm whether the signal receiving and sending function of controller internal relays is in normal condition, in case of failure during the machine operating, troubleshooting can be found through these interfaces(in which, @ means operating,·means not operating).

5.29 Program monitor

Program monitor interface (36)



```
Ladder Monitor
                 EI                    0             Search

00000          LDI        EI000     .
00001          AND        EI002     .
00002          OUT        WK020     .
00003          ANI        EI001     .
00004          OUT        WK068     .
00005          LDI        KY005     .
00006          ANI        EI001     .
00007          OR         ER001     .
00008          ANI        LS040     .
00009          ANI        KY006     @

**% **% ***bar         59.5mm    6.1mm    11.6mm
```

Press MONITOR six times, it will show program monitor screen.

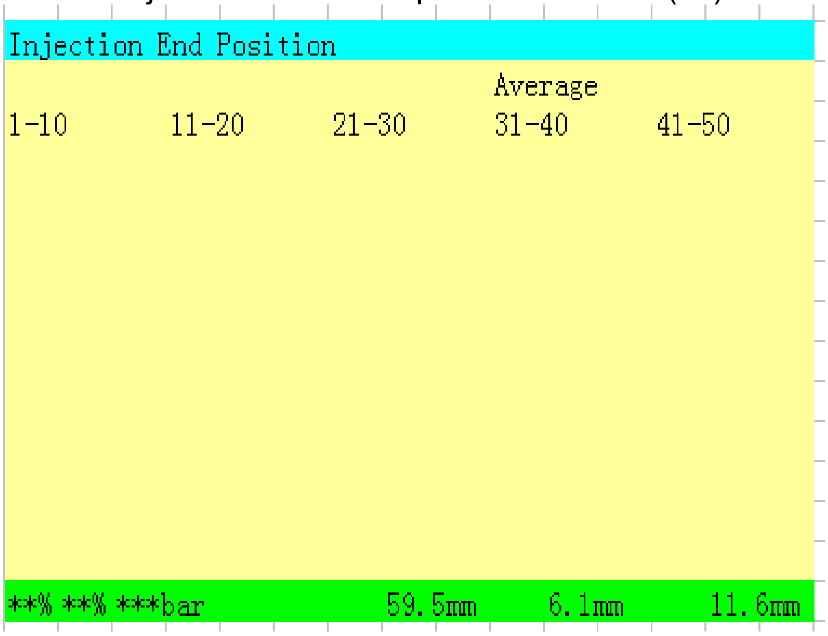
"EI": Input position of internal relay types, press + ON or - OFF key to switch internal relay types, then press ENTER key to confirm.

"0": Input position of internal relay serial number, input the serial number, and then press ENTER key to confirm.

"Search": While moving the cursor to this position, press ENTER key once, one required relay that internal program used can be found immediately, press ENTER key again, and a second relay that internal program used can be found.

5.30 Injection termination position

Injection termination position interface (37)

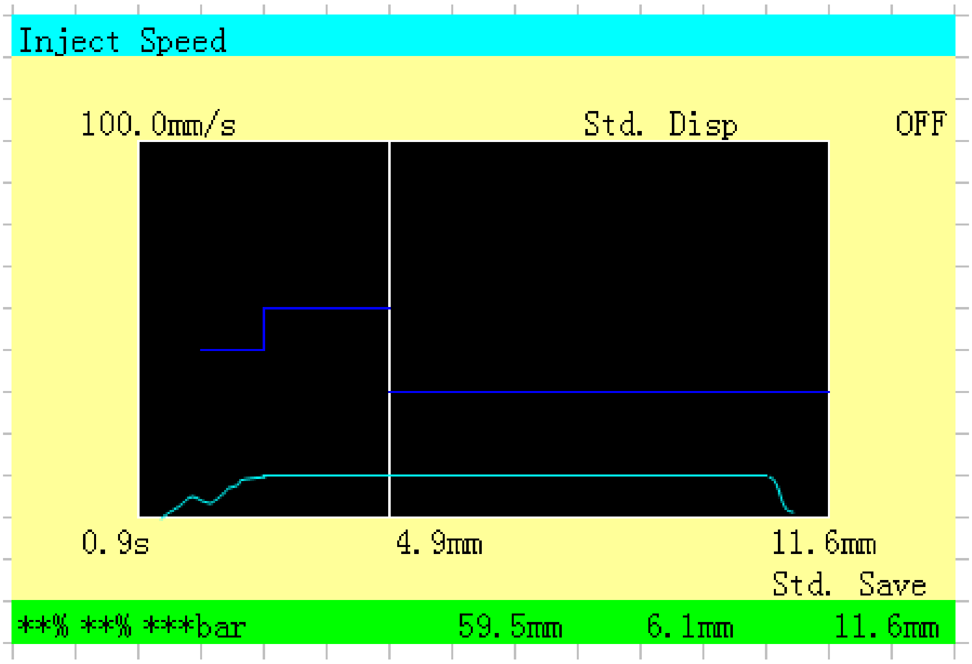


```
Injection End Position
                                     Average
1-10        11-20       21-30        31-40       41-50

**% **% ***bar              59.5mm       6.1mm        11.6mm
```

Press GRAPH key for one time, it will show injection termination interface (44).The interface can show the injection termination position and the average of 50 mould products produced.

5.31 Injection speed curve

Injection speed curve interface (38)



Inject Speed

100.0mm/s Std. Disp OFF

0.9s 4.9mm 11.6mm

Std. Save

**% **% ***bar 59.5mm 6.1mm 11.6mm

Press GRAPH twice to call the injection speed curve screen.

Press ◇, move the cursor Std. Save position, press ENTER key to save the previous curve as standard curve for comparsion。

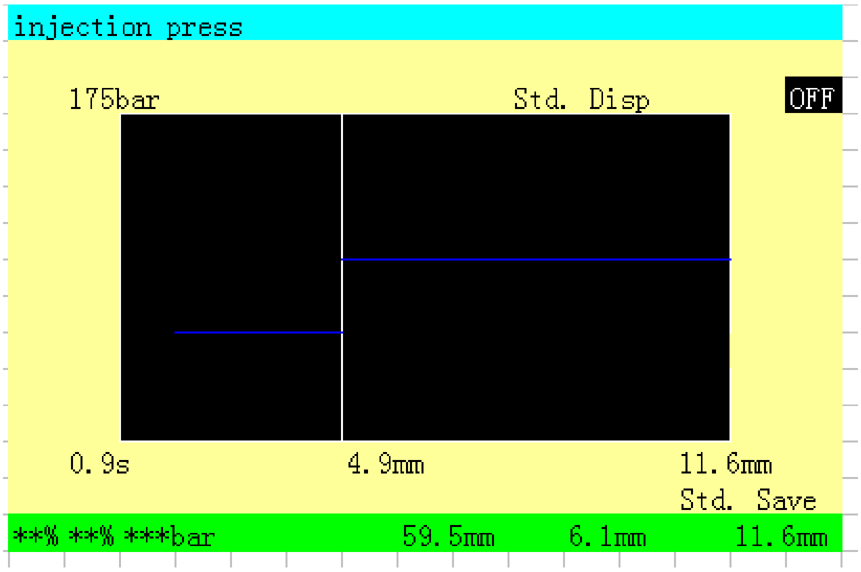
Move cursor to Std. Disp OFF position, press + ON or - OFF key to select the display of standard curve, if it is“ON”, the standard

curve will be display and compared with every new injection curve in e each cycle.

Move cursor to 0.0 mm/s for setting the maximum injection speed. If the maximum 99 % injection speed just overlap the top of the graph, the maximum speed setting is correct. If not adjust the maximum injection speed.

5.32 Injection pressure curve

Injection pressure curve interface (39)



injection press

175bar Std. Disp OFF

0.9s 4.9mm 11.6mm

Std. Save

**% **% ***bar 59.5mm 6.1mm 11.6mm

Press GRAPH three times to call the injection pressure curve screen.

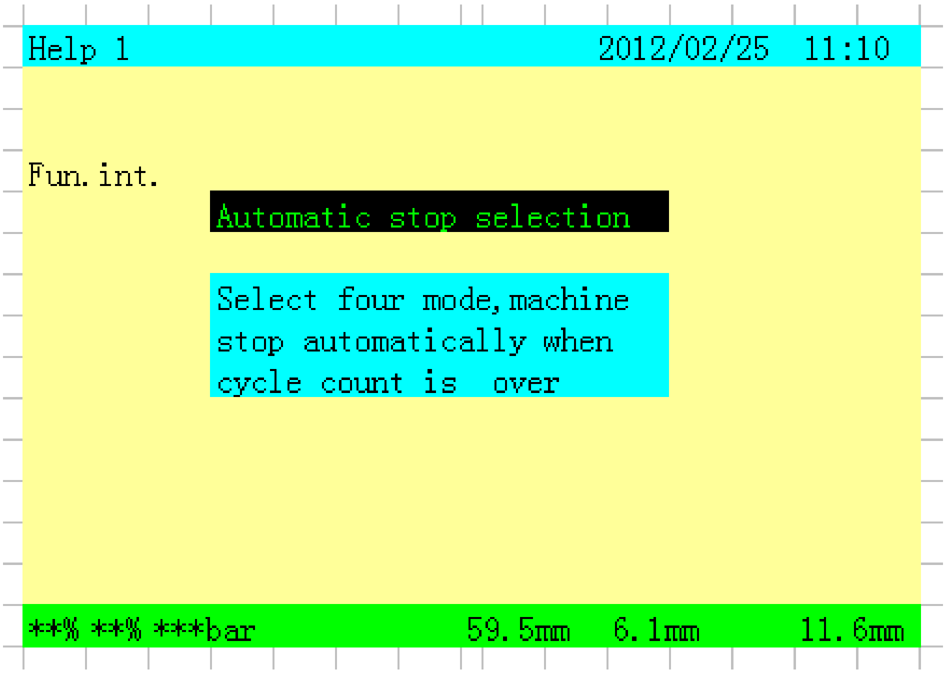
use CONF key, to move the cursor to Std. Save position, press ENTER key to save the current injection pressure curve as standard curve for comparsion in the next cycle.

Move the cursor to Std. Disp OFF position, press ON or OFF key to select the display of standard curve. The standard curve will be used for comparsion with the curve in the next cycle.

Move cursor to Std. Disp OFF position, press ON or OFF to select the display of standard curve.

5.33 Help

Help interface (40)



Help 1 2012/02/25 11:10

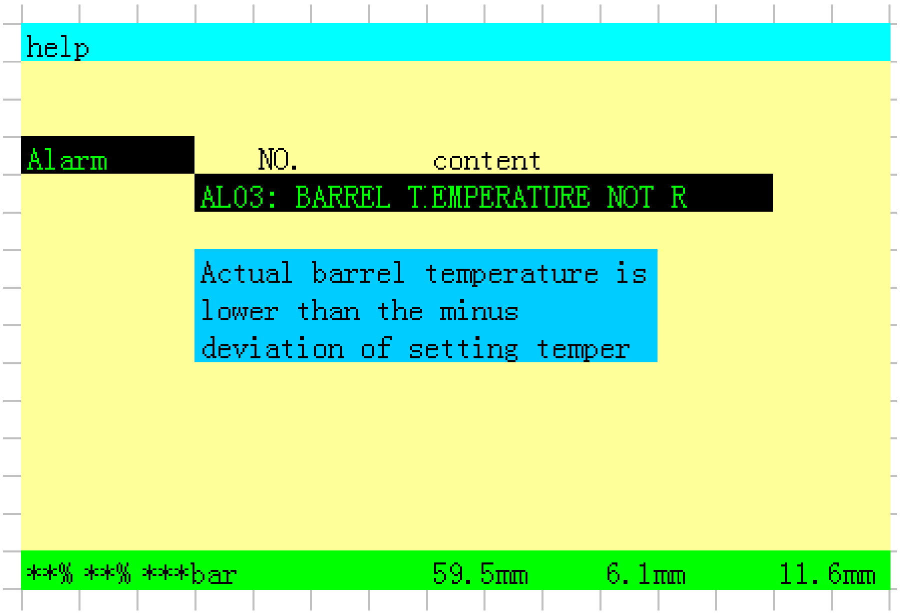
Fun. int.

Automatic stop selection

Select four mode, machine stop automatically when cycle count is over

**% **% ***bar 59.5mm 6.1mm 11.6mm

Help interface (41)



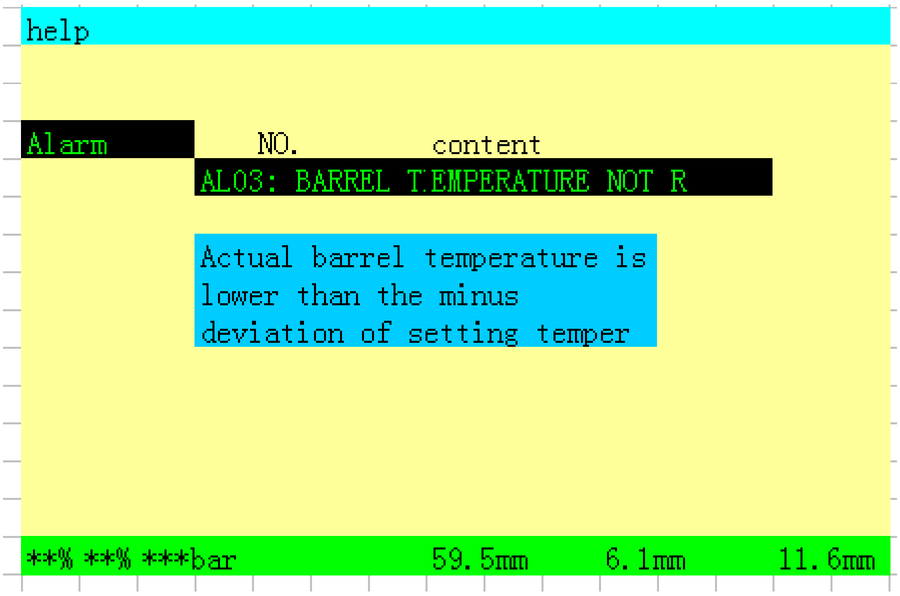
help

Alarm	NO.	content
	AL03: BARREL T.EMPERATURE NOT R	

Actual barrel temperature is lower than the minus deviation of setting temper

**% **% ***bar 59.5mm 6.1mm 11.6mm

Help interface (42)



help

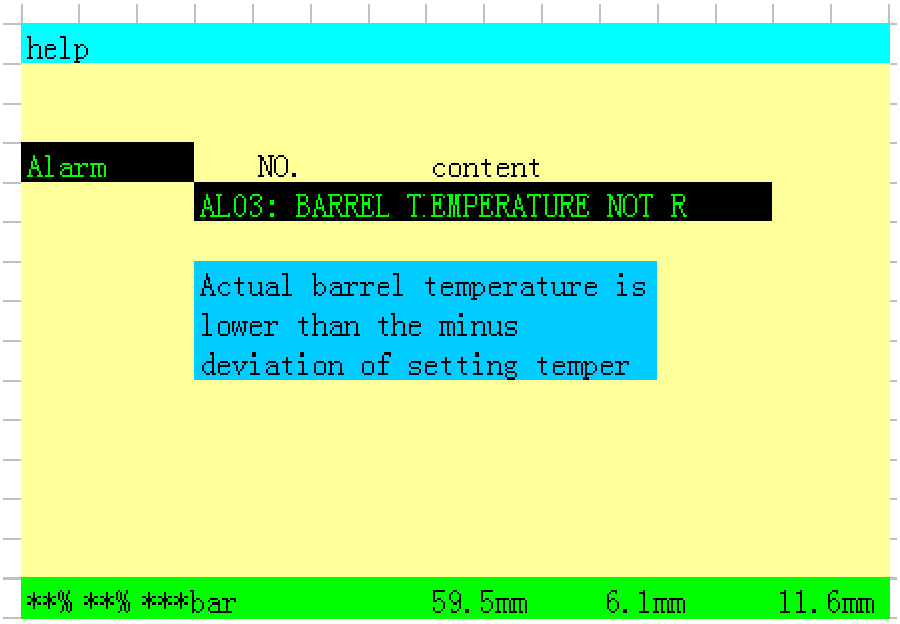
Alarm NO. content

AL03: BARREL T.EMPERATURE NOT R

Actual barrel temperature is
lower than the minus
deviation of setting temper

**% **% ***bar 59.5mm 6.1mm 11.6mm

Help interface (43)



help

Alarm NO. content

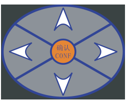
AL03: BARREL T.EMPERATURE NOT R

Actual barrel temperature is
lower than the minus
deviation of setting temper

**% **% ***bar 59.5mm 6.1mm 11.6mm

（1） Press

key for one time, it will show help interface (47).

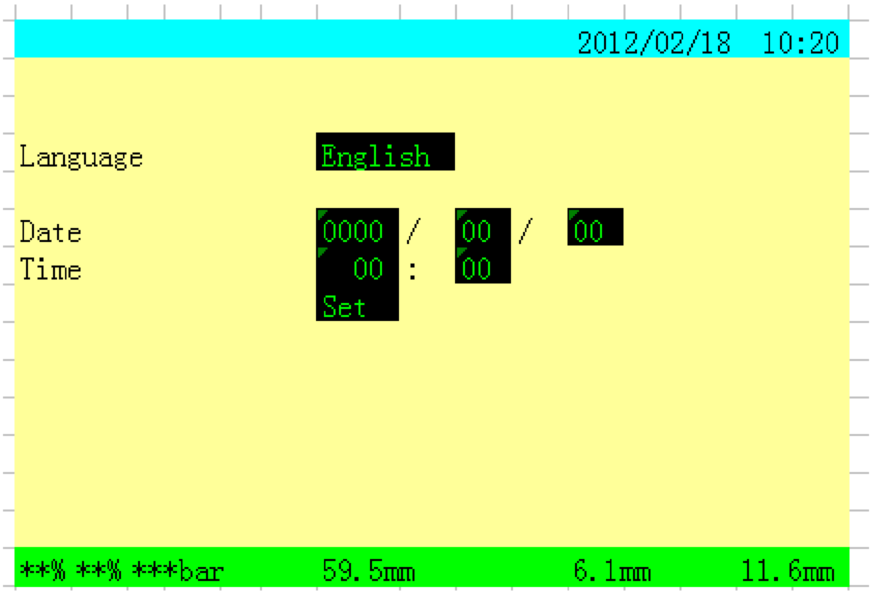
（2）Press  to select help types.

Help types include Function Introduction, Data Introduction, Alarm and Maintenance.

Press ◈ key, move the cursor from the main catalogue to the sub-catalogue, then press ＋ 开/ON or － 关/OFF key, to check the detailed description of help content.

5.34 Language and System time setting

Language and System time setting interface (44)



2012/02/18 10:20

Language English

Date 0000 / 00 / 00

Time 00 : 00

Set

**% **% ***bar 59.5mm 6.1mm 11.6mm

（1） Press CLEAR and MENU at the same time to enter into language selection interface (44)

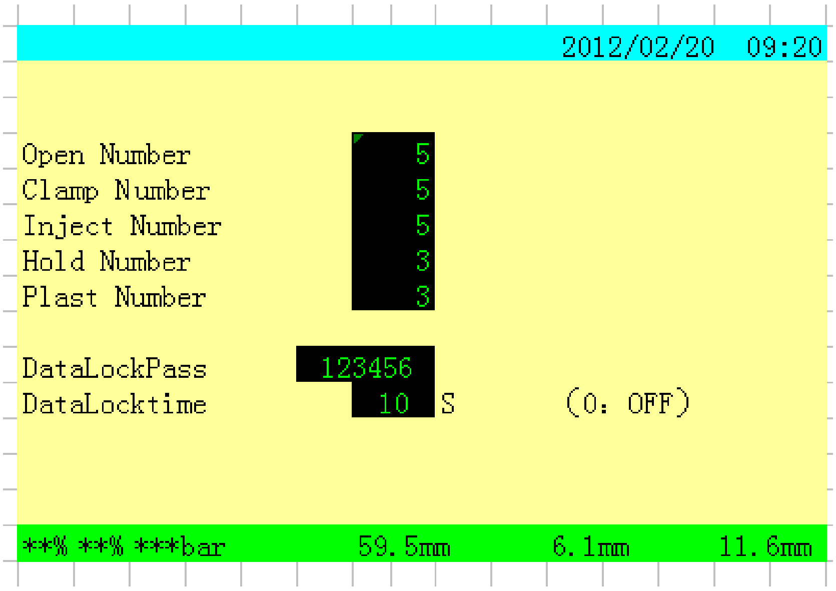
then press supervisor password，then press CANCEL ＋ △ （or ▽ ） to turn over the page, call the system time and language setting screen.

Press ◈ to move the cursor to the items to be set, input corresponding value, then press ENTER 输入 key, to complete the setting (in which, date format: yyyy/mm/dd, time format: hh:mm).

To change system language, press ＋ 开/ON or － 关/OFF key, switch among English, Chinese and the third language.

5.35 Action stroke stage numbers selection

Stage numbers selection (45)



2012/02/20 09:20

Open Number 5
Clamp Number 5
Inject Number 5
Hold Number 3
Plast Number 3

DataLockPass 123456
DataLocktime 10 S (0: OFF)

**% **% ***bar 59.5mm 6.1mm 11.6mm

Press CANCEL + MAIN , input supervisor password, setting necessary number of stages need for processing.
In which: "A1"~"A5" are respective the stage numbers setting value of mould opening, mould clamping, injection, pressure holding and plasticizing.

Data setting locking function

Press < CONF > key, move cursor to DataLockpass 456789 , input password, then press ENTER key, password can be 1 to 6 digits, move cursor to DataLockTime 0s , setting the data locking delay timer（0 setting mean not using locking function）.

For examples of 10 seconds, press ENTER key to complete the setting, the press MAIN key to quit the screen。 If there is no operation on the data keys for 10 seconds. The data keys will be locked.

Data keys

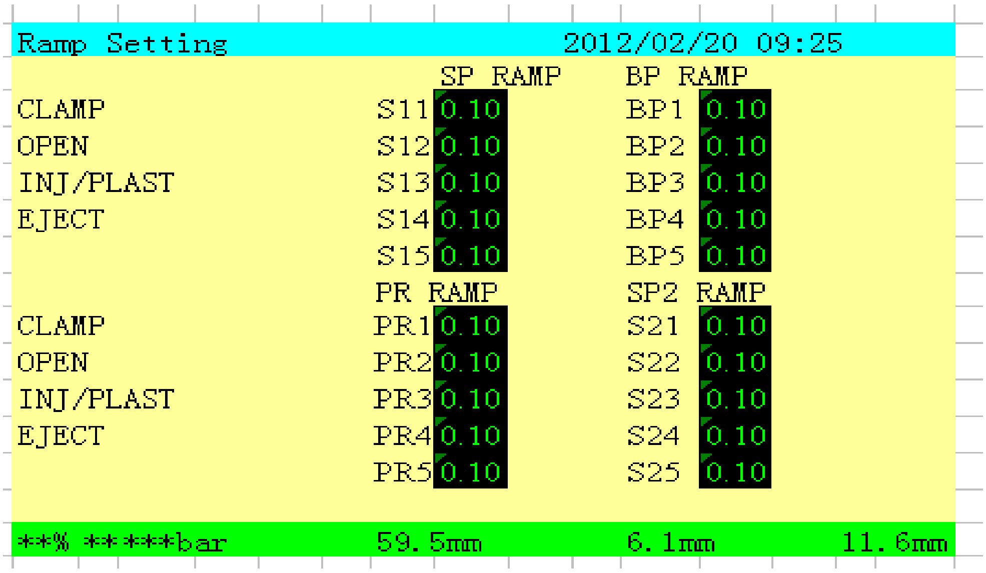
7 ABC
8 DEF
9 GHI
4 JKL
5 MNO
6 PQR
1 STU
2 VWX
3 YZ
0
·
+ 开
取消
输入
- 关

To release the locking of data key， press CANCEL + MAIN， screen comes out as shown below， inputing the keylock password ， then press ENTER key，“ON”will be changed to“OFF” it mean it is unlocked.

If the keylock password was forgot, it is necessary to input the supervisor password；or set DataLockTime 0s to“0”，the press ENTER

5.36 Ramp setting

Ramp setting interface (46)



Ramp Setting 2012/02/20 09:25

	SP RAMP		BP RAMP	
CLAMP	S11	0.10	BP1	0.10
OPEN	S12	0.10	BP2	0.10
INJ/PLAST	S13	0.10	BP3	0.10
EJECT	S14	0.10	BP4	0.10
	S15	0.10	BP5	0.10
	PR RAMP		SP2 RAMP	
CLAMP	PR1	0.10	S21	0.10
OPEN	PR2	0.10	S22	0.10
INJ/PLAST	PR3	0.10	S23	0.10
EJECT	PR4	0.10	S24	0.10
	PR5	0.10	S25	0.10

**% *****bar 59.5mm 6.1mm 11.6mm

（1） Press CLEAR and MOLD/STAT keys, and enter slope setting interface(54). Press ◀▲▼▶ key, to choose slope, and input corresponding slope, then

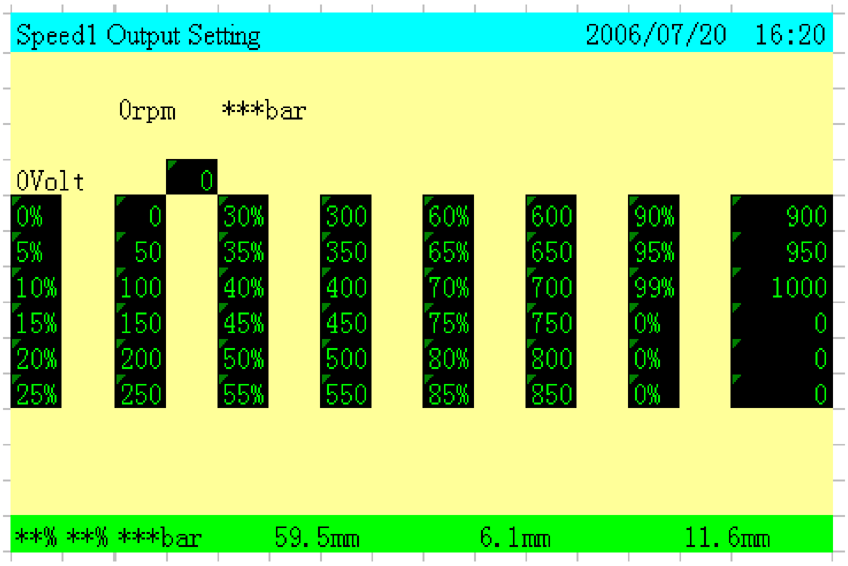
（2） press ENTER key, to complete setting.

Of which,

"S" ： the abbreviation of Speed
"PR"： the abbreviation of Press
"BP"： the abbreviation of Back Press
S11： Speed slope of fast mould clamping and low pressure mould clamping
S12： Speed slope of mould opening;
S13： Speed slope of injection and plasticizing
S14： Backlash speed slope
S15： The mould clamping speed slope of adjusting mould clamping force
PR1： pressure slope of fast mould clamping
PR2： Mold opening pressure slope
PR3： Pressure slope of injection and plasticizing
PR4： Backlash pressure slope
PR5： The mould clamping pressure slope of adjusting mould clamping force

5.37 Speed 1 output setting

Speed 1 output setting interface(47)



Speed1 Output Setting 2006/07/20 16:20

0rpm ***bar

0Volt 0

0%	0	30%	300	60%	600	90%	900
5%	50	35%	350	65%	650	95%	950
10%	100	40%	400	70%	700	99%	1000
15%	150	45%	450	75%	750	0%	0
20%	200	50%	500	80%	800	0%	0
25%	250	55%	550	85%	850	0%	0

**% **% ***bar 59.5mm 6.1mm 11.6mm

（1） Press CLEAR and MOLD/STAT keys twice, and it will show speed 1 setting output interface (47).

（2） Press △▽◁▷ key, to choose speed, and input corresponding speed,

（3） then press ENTER key, to complete setting.

Of which,

"AA"：Speed percentage

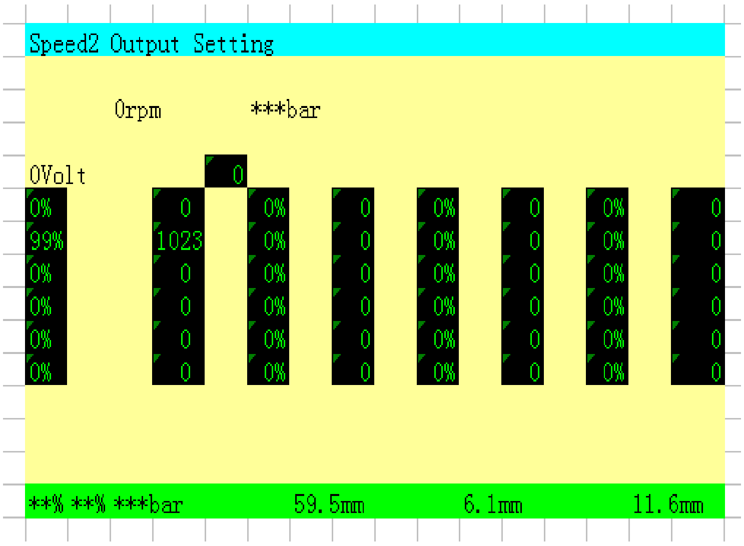
"BB"：Analog value of speed output

Note: As the speed percentage increasing, the corresponding analog value of speed output will also increase, decreasing is not allowed, otherwise, the output speed signal will be in disturbance, which causes the machine instable.

(The analog voltage output range is 0~10V,current range is 0~0.8A).

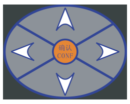
5.38 Pressure output

Pressure output setting interface (48)



```
Speed2 Output  Setting

         0rpm          ***bar

0Volt                    0
0%            0     0%     0     0%     0     0%     0
99%        1023     0%     0     0%     0     0%     0
0%            0     0%     0     0%     0     0%     0
0%            0     0%     0     0%     0     0%     0
0%            0     0%     0     0%     0     0%     0
0%            0     0%     0     0%     0     0%     0

**% **% ***bar        59.5mm        6.1mm         11.6mm
```

（1） Press CLEAR and MOLD/STAT keys for three times, and it will show pressure output setting interface(48).

（2） Press  key, to choose pressure, and input the

（3） corresponding pressure, then press ENTER key, to complete setting.

Of which,

"AA"：Pressure percentage

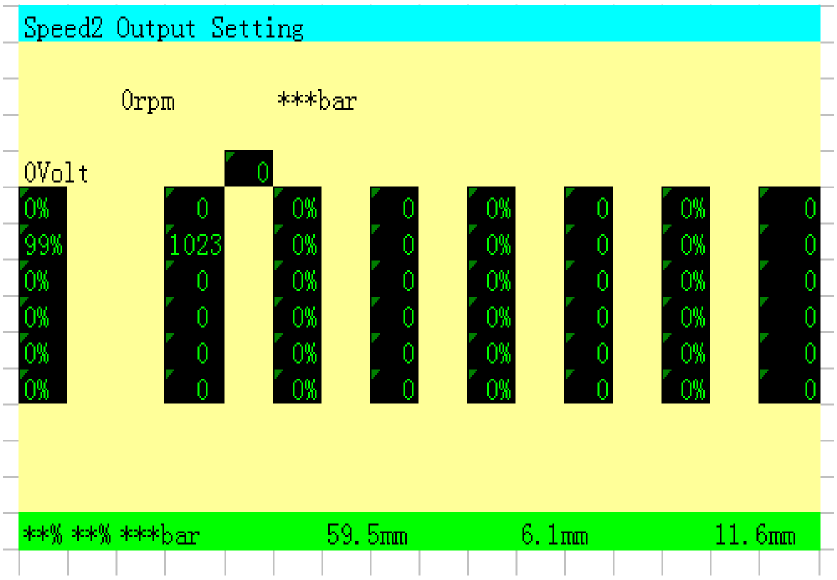
"BB"：Analog value of pressure output

Note: As the pressure percentage increasing, the corresponding analog value of pressure output will also increase, decreasing is not allowed, otherwise, the output pressure signal will be in disturbance, which causes the machine instable.

(The analog voltage output range is 0~10V,current range is 0~0.8A)

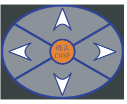
5.39 Back pressure output setting

Page layout of back press output setting (49)



```
Speed2 Output Setting

      0rpm       ***bar

0Volt         0
0%        0  0%   0   0%   0   0%   0
99%    1023  0%   0   0%   0   0%   0
0%        0  0%   0   0%   0   0%   0
0%        0  0%   0   0%   0   0%   0
0%        0  0%   0   0%   0   0%   0
0%        0  0%   0   0%   0   0%   0



**% **% ***bar    59.5mm     6.1mm      11.6mm
```

（1） Press CLEAR and MOLD/ STAT key for 4 times, and it comes the page layout of back press output setting(49).

（2） Press  key to select back press, input the

（3） corresponding back press figure, and then press ENTER key to complete setting.

Of which,

"AA"：Back press percentage

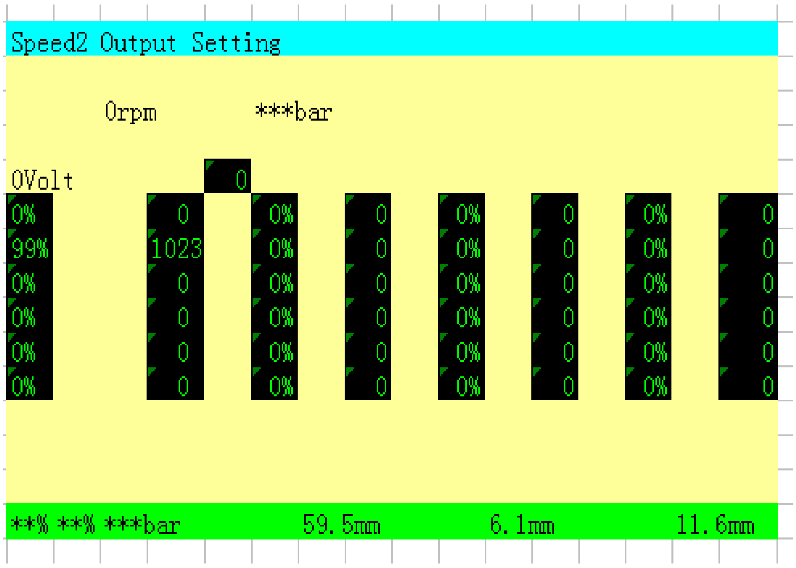
"BB"：Analog value of back press output

Note: As the back pressure percentage increasing, the corresponding analog value of back pressure output will also increase, decreasing is not allowed, otherwise, the output back pressure signal will be in disturbance, which causes the machine instable.

(The analog voltage output range is 0~10V,current range is 0~0.8A).

5.40 Speed 2 output setting

Speed 2 output setting (50)



Speed2 Output Setting

0rpm ***bar

0Volt 0

0%	0	0%	0	0%	0	0%	0
99%	1023	0%	0	0%	0	0%	0
0%	0	0%	0	0%	0	0%	0
0%	0	0%	0	0%	0	0%	0
0%	0	0%	0	0%	0	0%	0
0%	0	0%	0	0%	0	0%	0

**% **% ***bar 59.5mm 6.1mm 11.6mm

（1） Press CLEAR ＋ MOLD/ STAT key for 5 times, and it comes the page layout of the velocity 2 output setting(50).

（2） Press ↑↓←→ key to select velocity, input the

（3） corresponding velocity, and then press ENTER key to complete the setting.

Of which,

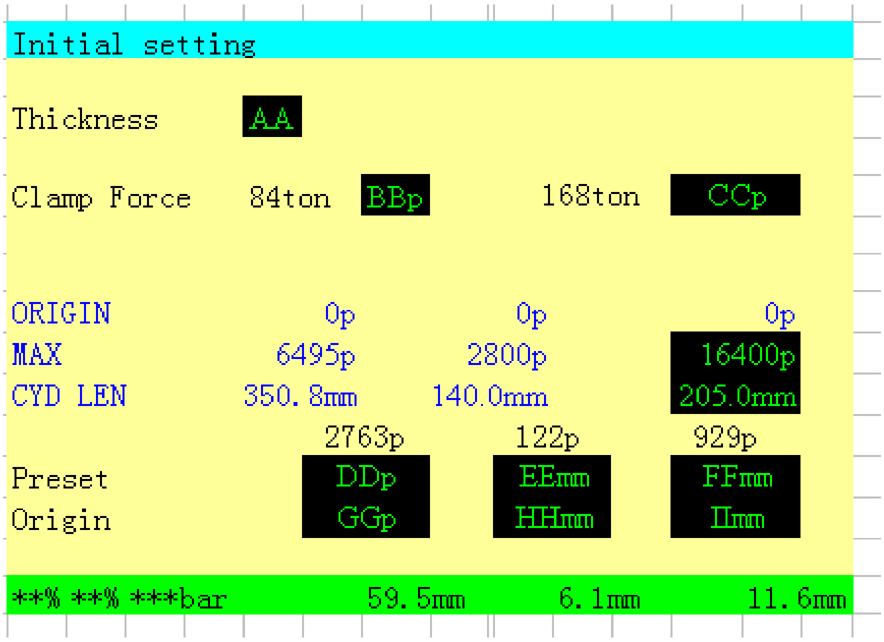
"AA"：Velocity percentage

"BB"：Analog value of velocity output

Note: As the speed percentage increasing, the corresponding analog value of speed output will also increase, decreasing is not allowed, otherwise, the output speed signal will be in disturbance, which causes the machine instable. (The analog voltage output range is 0~10V,current range is 0~0.8A).

5.41 Initial setting (Origin setting for decoder)

Page layout for initial setting(51)



```
Initial setting

Thickness        AA

Clamp Force    84ton  BBp       168ton   CCp


ORIGIN              0p        0p         0p
MAX              6495p     2800p     16400p
CYD LEN         350.8mm  140.0mm    205.0mm
                 2763p      122p       929p
Preset            DDp       EEmm       FFmm
Origin            GGp       HHmm       IImm

**% **% ***bar     59.5mm     6.1mm     11.6mm
```

（1） Press CLEAR ＋ MOLD/STAT key for 6 times to access into the page layout for initial setting(51).

（2） By pressing key, select item to be input, input corresponding value, and

（3） press ENTER key to complete setting.

Of which,

"AA"：Set mould thickness
"BB"：Minimum of mould clamping position
"CC"：Maximum of mould clamping position
"DD"：Preset of mould clamping position
"EE"：Preset of ejector position
"FF"：Preset of injection position
"GG"：Original value of mould clamping
"HH"：Original value of ejector
"II"： Original value of injection

Setting of origin data for potentiometer，move the potentiometer by hand up to the minimum position，copy the 2000P 2P 80P actual position data to the origin，then press ENTER key to complete setting. Again move the potentiometer by hand up to the maximum position，copy 2000P 2P 80P actual position data to maximum location and then press ENTER key to complete the setting。Cyliner length ＝（maximum position－minimum origin）/10。

Others data on the screen：

"A1"：mold thickness，After clamping end, measure the current thickness of the mold and input the data。

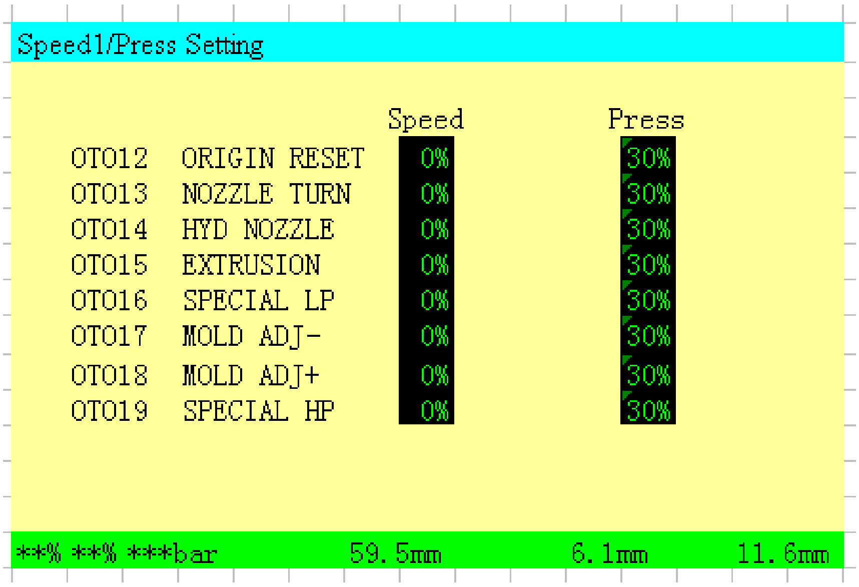
"A2"：During auto mold adjustment, the correspond position for adjusting half of maximum clamping force。

"A3"：During auto mold adjustment, the correspond position for adjusting maximum clamping force。

Those data are adjusted or preset before shipment。It is recommend not to be adjusted by customer. Please consult service department.

5.42 Auxiliary velocity and pressure setting

Page layout for auxiliary velocity and pressure setting (52)

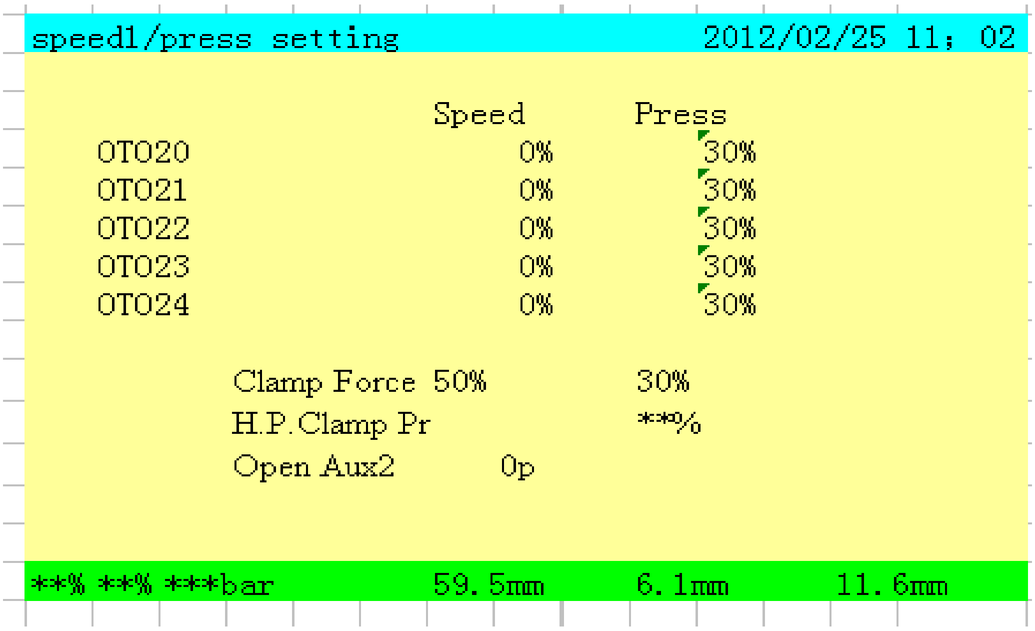


Speed1/Press Setting

		Speed	Press
OT012	ORIGIN RESET	0%	30%
OT013	NOZZLE TURN	0%	30%
OT014	HYD NOZZLE	0%	30%
OT015	EXTRUSION	0%	30%
OT016	SPECIAL LP	0%	30%
OT017	MOLD ADJ-	0%	30%
OT018	MOLD ADJ+	0%	30%
OT019	SPECIAL HP	0%	30%

**% **% ***bar 59. 5mm 6. 1mm 11. 6mm

Page layout for auxiliary velocity and pressure setting(53)



speed1/press setting 2012/02/25 11; 02

	Speed	Press
OT020	0%	30%
OT021	0%	30%
OT022	0%	30%
OT023	0%	30%
OT024	0%	30%

Clamp Force 50% 30%
H.P.Clamp Pr **%
Open Aux2 0p

**% **% ***bar 59. 5mm 6. 1mm 11. 6mm

（1） Press CLEAR ＋ MOLD/STAT key for seven times at the same time, display the Page layout for standby velocity and pressure setting(60), and further page down to indicate the page layout for standby velocity and pressure setting(61).

Clamping force"A6" ： clamping speed during automatic clamping force adjustment；

Clamping force"B6" ： clamping pressure during automatic clamping force adjustment；

High clamping pressure"B7"：High clamping pressure setting；

Open Aux 2"A7"：setting auxiliary open position，sometimes use for position to start the back pressure control of opening。

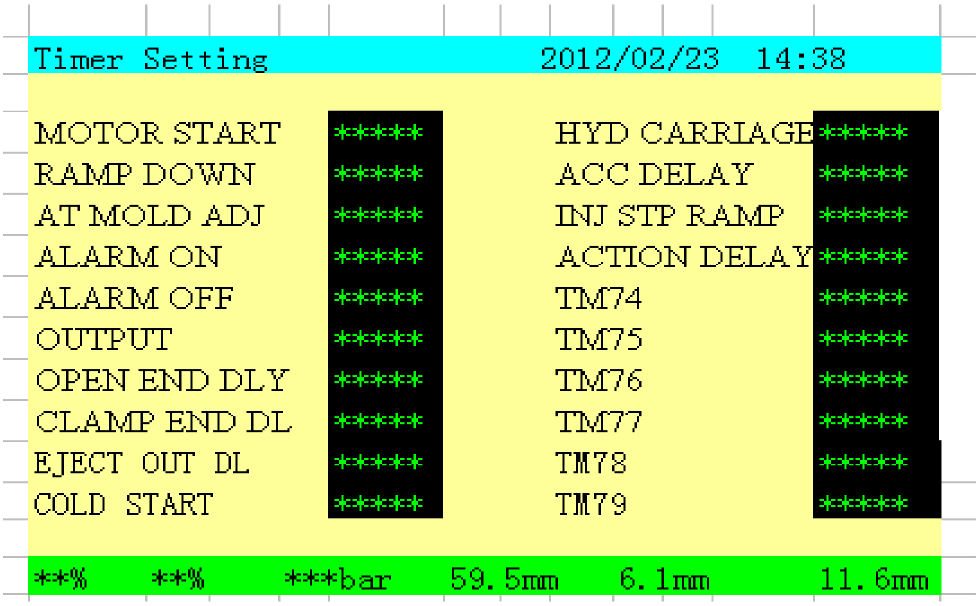
OT012: is the pressure and speed for origin setting；

OT016: is for the low pressure and speed setting for clamping start。

OT019:use in potentiometer version with clamping end confirmation switch，this setting is for proceeding to clamping end confirmation。

5.43 Timer setting

Page layout for timer setting (54)

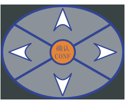


Timer Setting 2012/02/23 14:38

MOTOR START	*****	HYD CARRIAGE	*****
RAMP DOWN	*****	ACC DELAY	*****
AT MOLD ADJ	*****	INJ STP RAMP	*****
ALARM ON	*****	ACTION DELAY	*****
ALARM OFF	*****	TM74	*****
OUTPUT	*****	TM75	*****
OPEN END DLY	*****	TM76	*****
CLAMP END DL	*****	TM77	*****
EJECT OUT DL	*****	TM78	*****
COLD START	*****	TM79	*****

**% **% ***bar 59.5mm 6.1mm 11.6mm

（1） Press CLEAR ＋ MOLD/STAT key for 8 times, and it comes the page layout for timer setting(62).

（2） Press  key to select item to be input, and input corresponding value, and

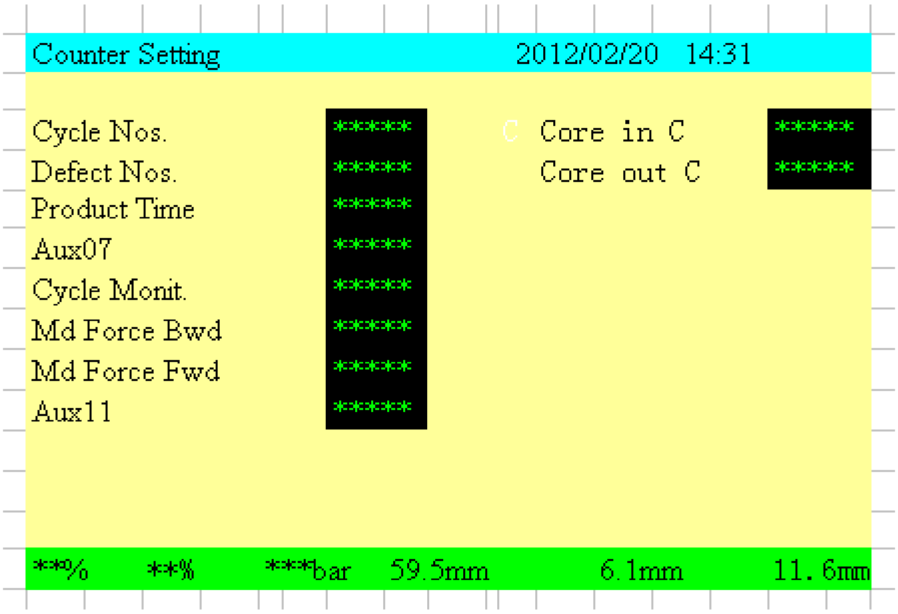
（3） press ENTER key to complete setting.

Of which,

"AA"：Motor Y→△start time
"BB"：Time resetting for decoder origin
"CC"：Time setting for mould calibrating monitoring
"DD"：Siren lasting time setting
"EE"：Siren stop time setting
"FF"：Action monitoring time setting
"GG"：Standby
"HH"：Standby
"II"： Ejection and retraction interval setting
"JJ"： Heat preservation start time setting
"KK"：Nozzle closing time setting (oil pressure nozzle sealing)
"LL"：Nitrogen injection time setting
"MM"：Low pressure delay time setting for clamping
"NN"：Action delay buffer time setting
"OO"：Safety door monitoring time setting
"PP "：Specific low pressure time setting for clamping
"QQ"：Mould opening back press time setting
"RR "：Nozzle opening time setting (oil pressure nozzle sealing)
"SS "：Injection buffer time setting
"TT "：Plasticizing buffer time setting

5.44 Counter setting 2

Page layout for counter setting (55)



Counter Setting 2012/02/20 14:31

Cycle Nos. ***** C Core in C *****

Defect Nos. ***** Core out C *****

Product Time *****

Aux07 *****

Cycle Monit. *****

Md Force Bwd *****

Md Force Fwd *****

Aux11 *****

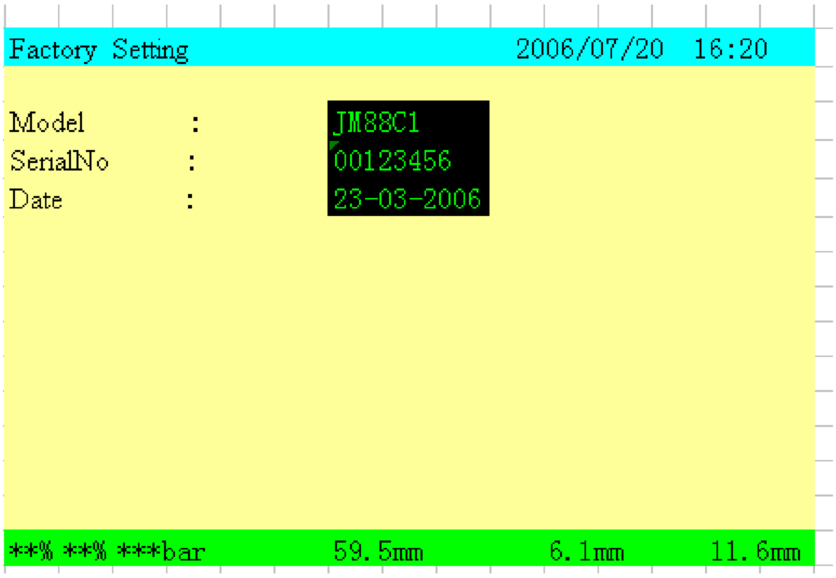
**% **% ***bar 59.5mm 6.1mm 11.6mm

（1）Press CLEAR ＋ MOLD/ STAT key for 9 times, and it comes the page layout for counter setting(55).

Press ◀▲▼▶ to select the item to be set, input the corresponding value, and press ENTER to complete the setting.

5.45 Factory setting

Page layout for factory setting (56)



Factory Setting 2006/07/20 16:20

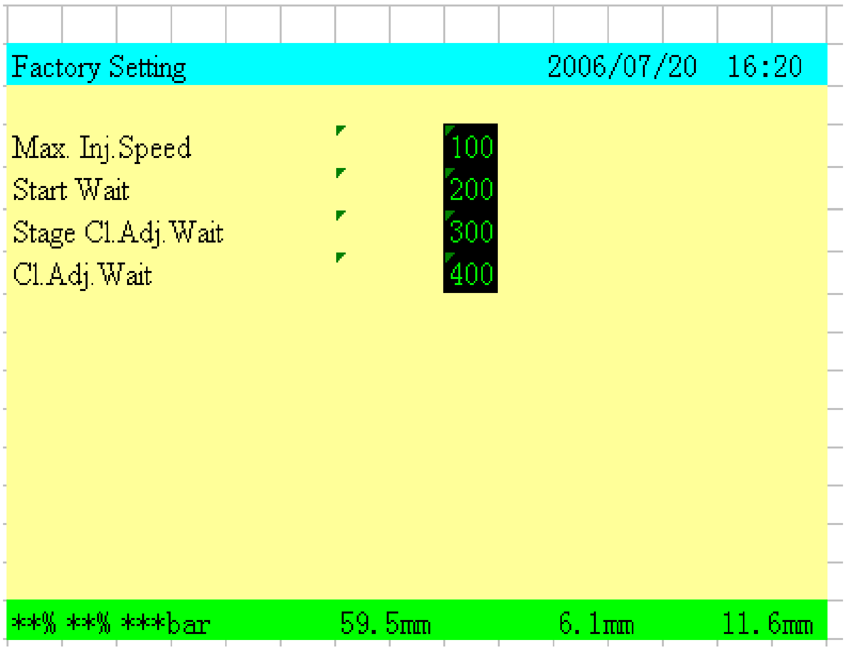
Model : JM88C1

SerialNo : 00123456

Date : 23-03-2006

**% **% ***bar 59.5mm 6.1mm 11.6mm

Page layout for factory setting (57)



Factory Setting 2006/07/20 16:20

Max. Inj.Speed 100

Start Wait 200

Stage Cl.Adj.Wait 300

Cl.Adj.Wait 400

**% **% ***bar 59.5mm 6.1mm 11.6mm

(1) Press CLEAR + MOLD/STAT key for 10 times, it comes the page layout for factory setting (56), and further page down to indicate the page (57).

（2） Press ENTER key to select item to be input, input corresponding value, and press key to complete setting.

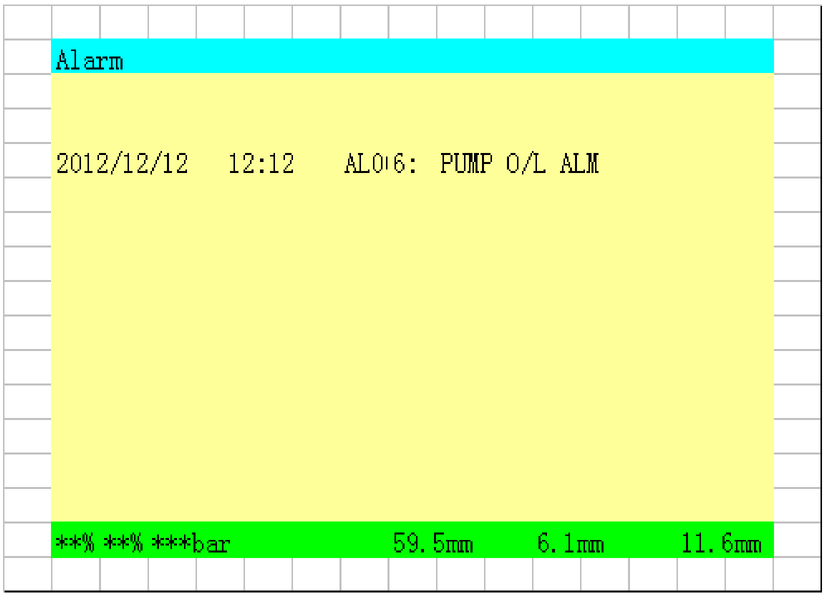
Of which,

"AA"：Machine model setting
"BB"：Machine number setting
"CC"：Setting of date of production
"DD"：Max injecting speed setting
"EE"：Start delay setting
"FF"： Regulating delay setting for each closed Loop
"GG"：Time interval setting for closed Loop regulating

Factory setting screen 1 is for machine information.
Factory setting screen 2 is for exfactory machine parameters.
This two screens do not allow any changes by agents or customer.

5.46 Warning record display

Page layout of warning record display (58)



Alarm

2012/12/12 12:12 AL016: PUMP O/L ALM

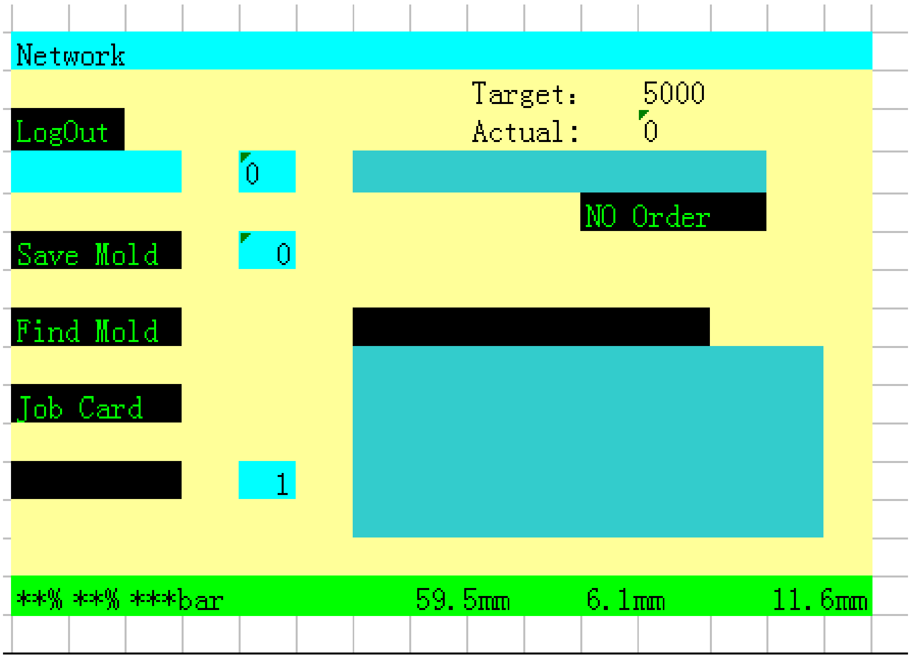
**% **% ***bar 59.5mm 6.1mm 11.6mm

（1） Press CLEAR and MONITOR at the same time to display the page layout of warning record display (58).

（2） Press ◇ key to check the contents of the warning records.

5.47 Network

Network page layout (59)



Network

Target: 5000

Actual: 0

LogOut

0

NO Order

Save Mold 0

Find Mold

Job Card

1

**% **% ***bar 59.5mm 6.1mm 11.6mm

（1） Press CLEAR and GRAPH key once at the same time, and it comes the network page layout (which is available when you have bought the iCHEN network system of CHEN HSONG Corp.).

（2） Then, press ◇ key to switch to the item to be set.、

（3） Input the value, and press ENTER key to confirm and complete setting.

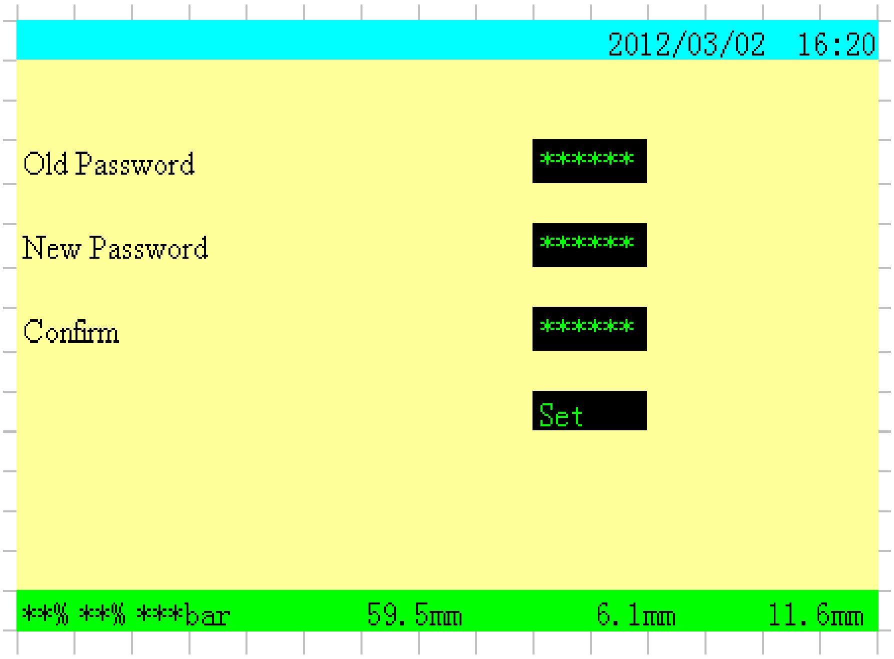
Of which,

"AA"： Press + ON or OFF − key to select following 13 modes

(1) Machine regulating
(2) Stop
(3) Malfunction
(4) Waiting for mould
(5) Waiting for material
(6) Material changing
(7) Mould changing
(8) Mould testing
(9) Mould modifying
(10) Color blending
(11) Production
(12) No order
(13) Others 3

"

5.48 Password modification



2012/03/02 16:20

Old Password ******

New Password ******

Confirm ******

Set

**% **% ***bar 59.5mm 6.1mm 11.6mm

Page layout of password modification (60)

Press CANCEL + HELP key for over three seconds， to call the change password screen (This password is used system operator and supervisor).

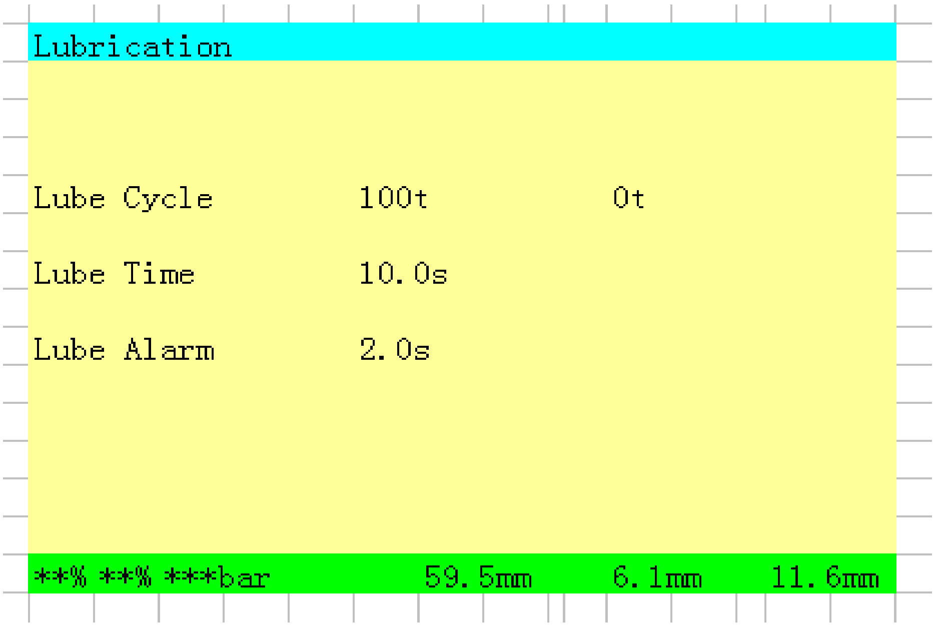
Press ◁ ◇ ▷ to select the item to be set, input the corresponding value, and press ENTER key to complete the setting.
To facilitate the operation and management of the machine, every controller has an initial password when delivery. In this screen, it is suggested to change the class 1 and 2 passwords immediately for better use.

Of which:

"A1": The old password to be modified
"A2": The new password to be inputted
"A3": New password input confirmation

5.49 Manual lubrication setting

Page layout for manual lubrication setting (61)



Lubrication

Lube Cycle	100t	0t
Lube Time	10.0s	
Lube Alarm	2.0s	

**% **% ***bar 59.5mm 6.1mm 11.6mm

Press CARR/LUB. to call the manual lubrication setting screen .

Press CONF key to select the parameters to be set, input the value and press ENTER to complete the setting.

In this screen:

"A1"： lubrication period, lubrication is output after numbers of mold opening。

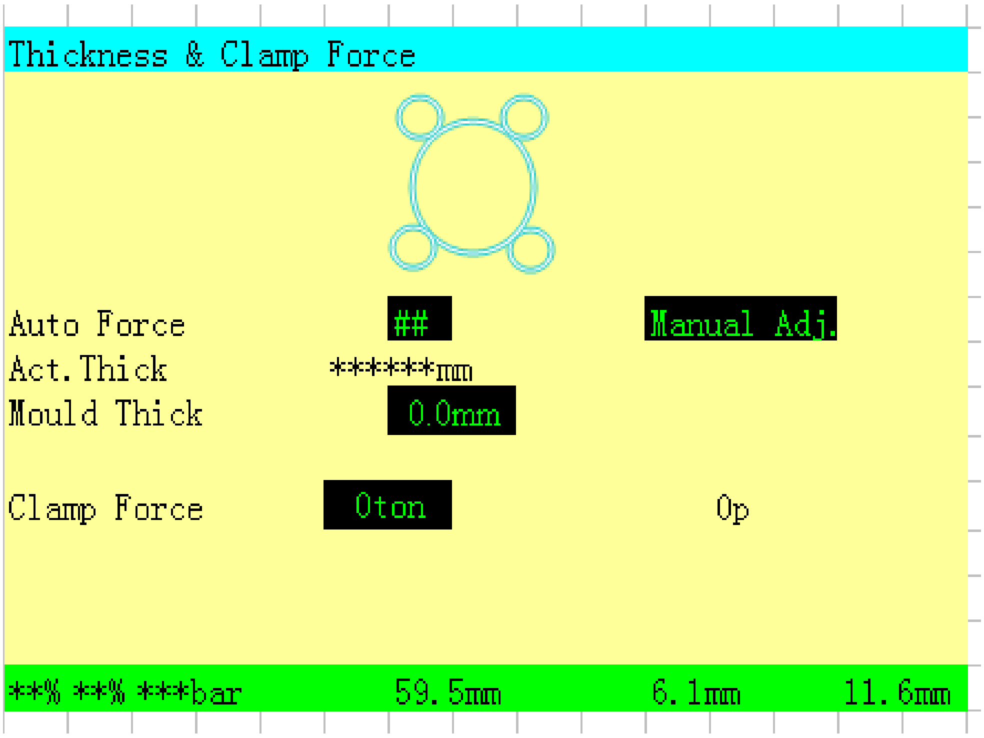
"A2"：time for lubrication output

"A3"：number of lubrication （use in volumetric lubrication）

"A4"：time for lubrication output （use in volumetric lubrication）

5.50 Mould Adjustment setting

Page layout for mould adjustment setting (62)



Thickness & Clamp Force

Auto Force ## Manual Adj.
Act.Thick ******mm
Mould Thick 0.0mm

Clamp Force 0ton 0p

**% **% ***bar 59.5mm 6.1mm 11.6mm

Press MOLD ADJ to call the mould adjustment setting screen .

Press CONF key to select the parameters to be set, input the value and press ENTER to complete the setting.

HYD MD ADJ OFF is for hydraulic mold adjustment，press ON or OFF to select ON and OFF mode。This should be OFF when electric motor is used for mold adjustment。Hydraulic mold adjustmen consist of speed and pressure setting data。

Mould Thick A4 mm is the target mold adjustment thickness ， it will sound out once the mold thickness adjustment was completed 。 HYD MD ADJ OFF is the automatic clamping force adjustment. By turning ON this function， automatic clamping force adjustment wil be done after mold thickness adjustment was completed 。 Clamp Force All is the position where the clamping force can be achieved by automatic clamping force adjustment ， 0.0 P is the point for switching high pressure clamping。

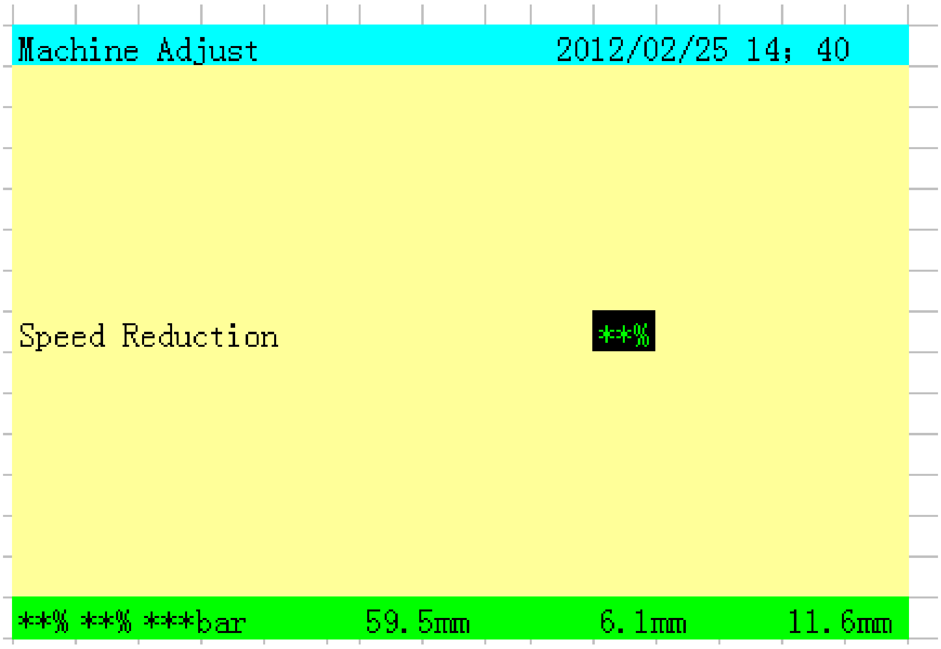
Manual mold thickness adjustment：

Press the mold adjustment function ON， then press MOLD FWD key to move the clamping unit forward， thickness become smaller； Press MOLD BWD key， clamping unit move backward， mold thickness become bigger； press MOLD ADJ key can exit mold adjustment immediately。

Note：Quit from mold adjustment screen will reset all the alarm and output for mold adjustment.

5.51 Machinery Adjustmment

Page layout for machinery adjustment(63)



Machine Adjust 2012/02/25 14; 40

Speed Reduction **%

**% **% ***bar 59.5mm 6.1mm 11.6mm

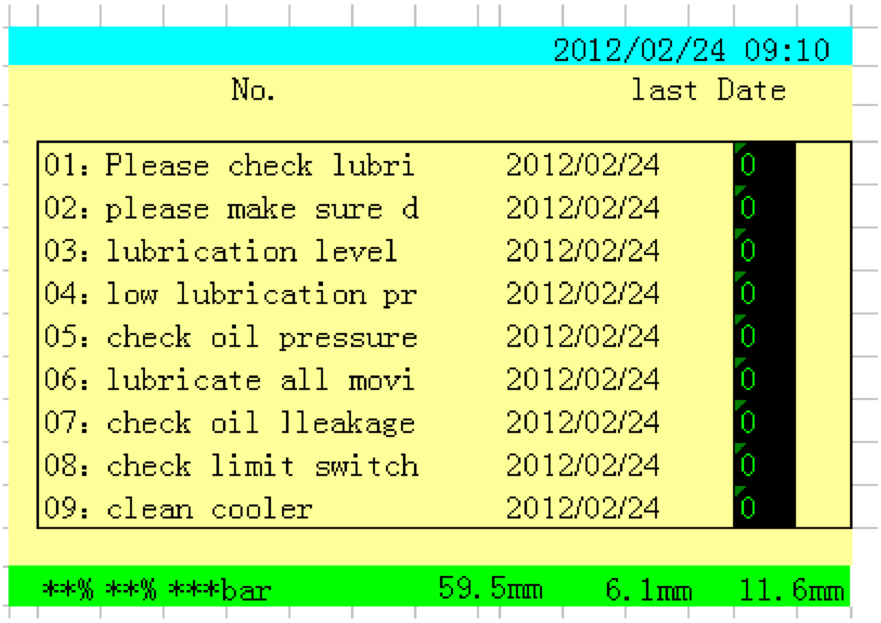
Press SLOW to call the machine adjustment screen .

Press CONF key to switch to A, input the value and press ENTER to complete the setting.

This screen is mainly used for machine adjustment, all current actions speed of the machine will reduce the set percentage. (If the current speed is A, and the speed reduction rate is set as B%, then the current speed = A x B%).

5.52 Maintenance setting

Page layout for maintenance setting (64)



```
                                      2012/02/24 09:10
              No.                           last Date

 01: Please check lubri       2012/02/24    0
 02: please make sure d       2012/02/24    0
 03: lubrication level        2012/02/24    0
 04: low lubrication pr       2012/02/24    0
 05: check oil pressure       2012/02/24    0
 06: lubricate all movi       2012/02/24    0
 07: check oil lleakage       2012/02/24    0
 08: check limit switch       2012/02/24    0
 09: clean cooler             2012/02/24    0

 **% **% ***bar          59.5mm    6.1mm    11.6mm
```

Press CANCEL + MD DATA 14 times to call the maintenance setting screen .

Press ◁△▽▷ to move the cursor to “Last Date” position, and press ENTER key, a “?” appears after the “Last Date”, then press CONF key to confirm and initialize the “Last Date” to the current date of the system, then the maintenance reminding time will be counted from current time of the system.

Set the time interval for machine maintenance reminder so that the customer could maintain the machine regularly and obtain higher production efficiency.

The 2 columns stand for: The last reminding time of the maintenance content indicated;

The reminding time interval setting of the maintenance content indicated. If it sets as “0”, there should be no maintenance reminder.

5.53 Reset method of initial point

In the event of machine is in operation, the computer is suddenly cut off. The screen prompts warning signal to remind operator to reset initial point while restarting the computer.
Check the following setting values prior to initial point reset:

(i) Setting of initial point speed and pressure
Speed = 50% Pressure = 99%
(ii) Timer of initial point reset TIM20 = 4 sec.
(iii) In initialization setting interface (61)
Mold clamping presetting position: DD = 1P
Ejector presetting position: EE = 0.5mm
Injection presetting position: FF = 0.5mm

(1) Mold clamping

In the event of mould opening and clamping, the computer power supply is suddenly cut off; after computer starting, the screen shows “Reset initial point, please press MD CLOSE button until warning signal disappears”. The reset method of mould clamping is as follows:

Press key, and the toggle straightens after 4 seconds running of Timer TIM20. The actual position of mould clamping is automatically changed to preset position DD with setting value of 1p, and the warning signal disappears. Then the initial reset is completed.

In case of products in mould, firstly the products should be ejected with the methods below:

(i) Mould opening to moving plate of mould clamping and stop in the initialization setting interface(61), then set DD as 9999p in preset position of mould clamping; this figure must be larger than setting value in decelerating position of opening (termination) (opening interface (05)).Move the cursor back to preset position of mould clamping and then press key; the screen shows〝？〞.Press key and the actual position of mould clamping is automatically changed to preset position of mould clamping with value of 9999p.The warning signal disappears.

(ｉ) Press key. Until the screen shows “Opening termination” signal.

(ｉｉ) Press key. Until the screen shows “Opening termination” signal.

(ｉｉｉ) Move the cursor back to preset position of mould clamping and change DD from 9999p to 1p.

(2) Ejector

Prior to ejecting and after ejector retraction, the computer power supply is suddenly cut off; after computer starting, the screen shows “Reset initial point, please press Ejector key until warning signal disappears”.

The reset method of ejector initial point is as follows:

Press button, and the ejector retraction is back to the end after 4 seconds running of Timer TIM20 with warning signal disappearing. The actual position of ejector is automatically changed to preset position with setting value of 0.5mm, and the initial point reset is completed.
In case the ejector retraction is not back to the end, reset ejector initial point again.

(3) Injection
In the event of injection and plasticizing, the computer power supply is suddenly cut off. The screen prompts warning signal “Reset initial point, please press INJECT key until warning signal disappears” while restarting the computer.
The reset method of injection initial point is as follows:
Press key, and the injection touched the end after 4 seconds running of Timer TIM20. The actual injection position is automatically changed to preset position with setting value of 0.5mm, and the warning signal disappears. Then the initial reset is completed.
In case the ejector retraction is not back to the end after 4 seconds running of Timer TIM20, reset ejector initial point again.

5.54 Initial position setting of decoder

(1) In the initial setting interface (61), there are mould clamping presetting, mould clamping initial point, injection presetting, injection initial point and ejector presetting and ejector initial point.

(i) Function of presetting is to alter the current value of decorder position and manually adjust initial point position.
(ii) Function of initial point is to reset the position of decorder.

(2) Preset operation method (method to alter actual position of decoder)(mould clamping):

Move the cursor to preset position DD of mould clamping, and input the position required to set, and preset input key, then move the cursor back to the preset position of mould clamping, and preset input key, at this time, the screen will show”?”, then, press confirm key, to complete setting, and the current mould clamping position is the preset position of mould clamping.
(The operation method of injection presetting is the same as the ejector prospecting’s).

Presetting — manually adjust initial point position

While the machine is operating, if the initial point changes, the right initial point position can be relocated by manually adjusting initial point.

(3) Manually adjust initial point position of mould clamping method

Before manually adjust initial point, please check the following setting values:

(i) Initial point speed and pressure setting (initialization interface 61),speed=50%,pressure=99%
(ii) Initial point reset time, TIM20=4 seconds
(iii) Check presetting position is DD=1P

Note：(i) No product is in the mould. If available, firstly take the product out.

(ii) Mold is equipped with core pulling and core rotating devices, and check position stroke, to ensue the core pulling and core rotating devices installed on the safe and right position, to avoid damage.

Method： press key to move the mould clamping machine toggle, after 4 seconds running of Timer TIM20, and the toggle completely straightens, the actual mould clamping position is automatically changed to preset position with setting value of IP. Initial point setting of manual mould clamping is completed.

If the after 4 seconds running of Timer TIM20,the toggle has not completely straightened, it is required to manually set the initial point of mould clamping.

(4) Manually adjust injection initial point position method

Note: Plasticizing cylinder temperature must reach the setting temperature.

Injection presetting position: GG = 0.5mm.

Presskey, injection touched the bottom, and the actual injection position is automatically changed to preset position with setting value of 0.5mm, and the manual injection initial point setting is completed.

(5) Manually adjust ejector initial point position method

Note： mould opening position must reach the termination position. Presetting of ejector is FF = 0.5mm, presskey, and ejector retraction is back to the end, the actual ejection position is automatically changed to preset position with setting value of 0.1mm.Function of initial position is to automatically reset the decoder position. Initial point position refers to the reset sensor position, and reset the initial point by means of this sensor position.

(6) Setting method of mould clamping initial point position:

Initial point position of mould clamping refers to the reset sensor position of mould clamping, during mould opening and reset sensor being triggered, the initial point position of mould clamping will be reset.

(i) Adjust mould thickness to enable the mould fixed on primary board and secondary board will not contact each other, after the toggle of mould clamping has completely straightened. If no mould is on the mould plate, this step can be passed over.

(ii) In the initialization setting interface(61),and in the mould clamping initial point position HHp, input a larger value. (e.g.2000p)

(iii) n mould clamping interface (06), position of high pressure mould clamping will be changed to 0p.

(iv) Manual status, it is required for mould clamping and opening for three times respectively. Each time of manually mould clamping, toggle is required to completely straighten, each time of mould opening, the reset sensor will be triggered.

(v) After mould clamping for three times, while toggle completely straightening, record the actual position of mould clamping (e.g. 1250p).

(vi) New initial point position of mould clamping (the position of reset sensor is triggered) HH = 2000p - 1250p = 750p.

(vii) In the initial point position GG of mould clamping, input new value 750p.

(viii) Perform mold opening and clamping for three times, if each actual position of mould clamping below is ones place, setting of initial point position (position of mould clamping reset sensor) of mould clamping is completed.

If the value of actual mould clamping termination position is tens digit or above,it is required to repeat the steps (v)-(viii)items.

(ix) In mould clamping interface (06), and input 100p the position of high pressure mould clamping.

（7） Setting method of ejection initial point position:

Initial point position of injection is the reset sensor position of injection. During plasticizing and reset sensor being triggered, the initial point position of injection will be reset.

Note: Plasticizing cylinder temperature must reach the setting temperature.

(i) In the initialization setting interface(61),and in the injection initial point position IIp, input a larger value(e.g.100mm).This value must be less than the plasticizing position setting value.
(ii) Manual status, it is required for injection and plasticizing for three times respectively. Each time of injection, plasticizing is required for the stroke back to end. While plasticizing, the reset sensor will be triggered.
(iii) After injection for three times and injection stroke is back to end, record the actual position of injection (e.g. 68mm).
(iv) New injection initial point position (the reset sensor triggered position) II= 100mm-68mm = 32mm.
(v) In the injection initial point positionII, input new value 32mm.
(vi) Perform injection and plasticizing for three times, if each actual termination stroke of injection is below 0.5mm, setting of initial point position (position of injection reset sensor) of injection is completed. If the value of actual injection termination position value is above 0.5mm,it is required to repeat the steps (iii)-(vi)items.

（8） Setting method of ejector initial point position:

Initial point position of ejector is the reset sensor position of ejector. After termination of ejection and the reset sensor is triggered, to reset initial point.

Note: Mould opening position must be the termination position.

(i) In the initialization setting interface(61),and in the ejector initial point position IIp, input a larger value(e.g.15mm).
(ii) Manual status, it is required for ejection forward and retraction and plasticizing for three times respectively. Each time, the ejection retraction must be back to the end, and the reset sensor will be triggered.
(iii) After ejection forward and retraction for three times and ejection retraction is terminated, record the actual position of ejection (e.g.8.5mm).
(iv) New ejection initial point position (the reset sensor triggered position) II = 15mm-8.5mm = 6.5mm.
(v) In the injection initial point position II, input new value 6.5mm.
(vii) Perform ejection forward and retraction for three times, if each actual termination stroke of ejection is below 1mm, setting of initial point position (position of ejection reset sensor) of ejection is completed. If the value of actual ejection termination position value is above 1mm, it is required to repeat the steps (iii)-(vi) items.

Note: This interface setting value will be set by tester prior to the machine launching, if unnecessary,please do not alter freely, to avoid affecting the stability of machine.

6. Alarm and Treatment

6.1 Title Explanation of Computer Alarm

No.	Title	Explanation
AL000	Alarm 1	Failure to use
AL001	Alarm 2	Failure to use
AL002	Temperature of the feeding pipe does not meet the setting value	Actual temperature of the feeding pipe is lower than the summation of temperature's setting value and low temperature deviation
AL003	Insufficient lubricant	Lubricant storage tank has a lower oil level
AL004	Drain valve of lubricator is plugged	Failure to use
AL005	Lubricant leakage or insufficient lubricant	Lubricant pipe leakage or deficiency in slipping pressure
AL006	Oil pump motor is overload	To check the overload relay of oil pump motor
AL007	Mould adjusting motor is overload	To check the overload relay of mould adjusting motor
AL008	Rear safety door is unlocking	Lock the rear safety door and check the limit switch of the rear safety door
AL009	Front safety door is unlocking	Lock the front safety door and check the limit switch of the rear safety door
AL010	Mould adjustment is beyond the minimum size	Mould thickness is beyond the minimum mould thickness or check the frond limit switch of mould adjustment
AL011	Mould adjustment is beyond the maximum size	Mould thickness is beyond the maximum mould thickness or check the front limit switch of mould adjustment
AL019	Check the forward limit of the nozzle	Front limit switch of the nozzle is not trigged in automatic operation
AL020	Protective cover of the nozzle is unlocking	Protective cover is unlocking in injection
AL021	Nozzle hole meets foreign body obstruction	While applying the nozzle obstructing alarm, injection distance does not reach the second stage of the injection or the nozzle hole meets foreign body obstruction. Check the injection position setting or the nozzle hole.
AL022	Insufficient plasticizing capacity or feeding spilling	While applying the glue leakage alarm, injection distance is beyond the position of injection feeding spilling. Adjust the position setting of injection feeding spilling or the final position of plasticizing.
AL023	No feeding in the hopper or the hopper meets obstruction	Plasticizing time is beyond the setting cooling time in automatic operation. Check whether meeting hopper obstruction or excessive setting of plasticizing time.

No.	Title	Explanation
AL024	Has reached the settting forming moulding number	Forming moulding number has reached the due production setting moulding number. It is under the condition of hand movement.
AL025	Excessive cycle time	Cycle production time is beyond the due cycle alarm time. Check whether the setting cycle alarm time is shorter.
AL026	Clean off the foreign body in the mould	Foreign body is found in the mould or it has wrong high voltage position and low voltage time. Check the mould or the time setting of high voltage position and low voltage time.
AL027	Check the manipulator extract	Does not extract the product normally while applying the manipulator
AL028	Abnormal finished product confirming signal	Starting the function of electric eye, and does not check the product normally.
AL029	Sensor chip of the electric eye is covered	While applying the photo sensor for starting next cycle, terminating the injection, so the photo sensor is covered. Clean off the finished product or foreign body on the machine strickle.
AL030	Temperature of the circulating oil is over low	Actual temperature of the hydraulic fluid is lower than the setting temperature(low temperature deviation)
AL031	Temperature of the circulating oil is over high	Actual temperature of the hydraulic fluid is higher than the setting temperature(high temperature deviation)
AL032	Check the core pulling limit switch	Core pulling action time is beyond the setting time of limit alarm in automatic operation. Check the core pulling action distance or limit alarm time
AL033	Check the ejector limit switch	Ejector action time is beyond the setting time of limit alarm in automatic operation. Check the ejector action distance or limit alarm time
AL034	Manipulator breakdown	Manipulator does not return to the setting position in the opening action of the clamping. Check the manipulator.
AL035	Abnormal accumulator pressure filling	While applying the nitrogen injection function, pressure storage action is beyond the cooling time. Check the pressures switch of the pressure storage.
AL036	Mould adjustment counter switch breakdown	Mould adjustment sensor checks the breakdown during mould adjusting action. Check the mould adjustment sensor.
AL037	Manipulator meets insufficient air pressure	Failure to use
AL039	Check the counter switch of the gear	Threading action is beyond the setting action alarm time. Check the threading limit switch or threading counter
AL040	In reserve	Failure to use
AL041	Mould clamping force is in automatic adjustment	Display while applying the automatic mould clamping force adjustment
AL042	Have finished the automatic adjustment of the mould clamping	Display while finishing the automatic adjustment of the mould clamping force

	force	
No.	Title	Explanation
AL043	Actual temperature of the feeding pipe is	Actual temperature of the feeding pipe is beyond the setting value(+high temperature deviation)
AL045	Safety door limit breakdown	Safety door limit switch has no signal within the setting time
AL046	Termination breakdown of Mould opening	Mould opening time is beyond the setting time in automatic operation
AL048	Oil filtering net is in obstruction	While applying the high voltage oil filter, oil filtering net is in obstruction
AL049	Alarm 3	Failure to use
AL050	Oil pump motor is inactivated	Failure to use
AL051	Overlong time of mould adjustment	Failure to use
AL052	In lubricating	Display in outputting the lubricant
AL053	Cut off the power and restart it	Failure to use
AL055	In automatic mould substitution	Failure to use
AL056	Wrong half-nut position	Failure to use
AL057	Check the limit switch of the rotary disk	Failure to use
AL058	Mould opening meets abnormal pressure relief	Failure to use
AL059	Distance of the large cylinder is exceeded	Failure to use
AL060	Mould locking force is under stress	Failure to use
AL061	Insufficient hydraulic fluid	Failure to use
AL062	Mould adjusting gear anomaly follow-up	Failure to use
AL063	Check the equipping position of the mould	Failure to use
AL064	Oil pressure clamping anomaly follow -up	Failure to use
AL065	Mould locking force anomaly follow-up	Failure to use
AL066	Actual temperature of the feeding pipe is over high	Failure to use
AL067	Mould adjusting function is in activation	Failure to use
AL068	In reserve	Failure to use
AL069	In reserve	Failure to use
AL070	In reserve	Failure to use
AL071	In reserve	Failure to use
AL072	In reserve	Failure to use
AL073	In reserve	Failure to use
AL074	In reserve	Failure to use
AL075	In reserve	Failure to use
No.	Title	Explanation
AL076	In reserve	Failure to use

AL077	In reserve	Failure to use
AL078	In reserve	Failure to use
AL079	In reserve	Failure to use
AL080	In reserve	Failure to use
AL081	In reserve	Failure to use
AL082	In reserve	Failure to use
AL083	In reserve	Failure to use
AL086	Ejector does not backspace	Does not detect the backspacing signal of the ejector in mould clamping
MG01	Mould clamping distance has terminated	Display the finishing of the mould clamping action in hand operation
MG02	Mould opening distance has terminated	Display the finishing of the mould opening action in hand operation
MG03	Mould opening distance has not terminated	Display the non-finishing of the mould opening distance in hand mould adjustment or ejection operation
MG04	Ejection distance has terminated	Displaying the finishing of the ejection action in hand operation
MG05	Ejection retraction distance has terminated	Display the finishing of the ejection retraction in hand operation
MG06	Plasticizing distance has terminated	Display the finishing of the plasticizing action in hand operation
MG07	Back lash distance has terminated	Display the finishing of the back lash action in hand operation
MG11	Temperature of the feeding pipe is in preheating	Heat preservation function of the feeding pipe is in activation
MG12	Plasticizing is in delay	Plasticize after terminating the ejection and reaching the delaying time

6.2 Explanation of Forming Operation

6.2.1 Temperature Control Setting

When starting the power, display the temperature, and refer to the page (03). Sign “◢” appearing on the operating panel shows electro thermal chip is heating, and temperature control button will light.

(1) Temperature Setting of Each Stage:

While setting the temperature of first stage, press the button, and set the temperature on the screen T1, produce the inverted cursor, and then input the necessary figure, and then press the button, and input the figure into the computer, when the cursor jumps to the setting value of next stage; if want to stop the temperature setting, press any arbitrary button, and the cursor is cleared.

For the temperature setting of the second stage, in addition to press the buttons and, the other operations are same to the operation of the first stage.

For the temperature setting of the third stage, in addition to press the buttons and, the other operations are same to the operation of the first stage.

For the temperature setting of the forth stage, in addition to press the buttons and, the other operations are same to the operation of the first stage.

For the temperature setting of the fifth stage, in addition to press the buttons and, the other operations are same to the operation of the first stage.

For the temperature setting of the sixth stage, in addition to press the buttons and, the other operations are same to the operation of the first stage.

Among them for the temperature setting of the fifth and sixth stages, according to the type of the machine or the customer’s requirement, could operate the temperature control of the two stages. When the machine is equipped oil temperature control device, apply the oil temperature control, and the standard setting value is 35℃-40℃; when outputting TC7, directly control the switch of the sluice through a relay to keep the oil temperature in accordance with the required value. Generally, the setting value of high temperature positive deviation is 15℃ and the setting value of low temperature negative deviation is 30℃; that is when the standard setting value of oil temperature is 35℃, its allowable scope is 5℃-50℃, the machine will sound the alarm once the temperature is beyond the standard scope.

(2) Heat Preservation Stage Setting of the Nozzle

Heat preservation stage of the nozzle is a stage to control constant temperature. The stage could be applied in the nozzle of the feeding pipe where needs the constant temperature control and its setting value is 00%-99%. When setting as 99%, constant temperature inside the computer could be set as 10-30 seconds all time heating, if setting as 20 seconds heating, i.e. 20 seconds are treated as a cycle of the constant temperature control time.

For example: If the heat preservation stage of the nozzle is set as 60%, the constant temperature time is set as 20 seconds

i.e. 20 x 60% = 12seconds Heat preservation stage of the nozzle is in the state of Electro thermal Opening;
20 - 12 = 8seconds Heat preservation stage of the nozzle is in the state of Electro thermal Closing.

(3) When not using the stage temperature control, set the setting value as 0.

6.2.2 Temperature Deviation (Alarm) Setting：

Temperature deviation alarm has the high and low temperature setting value, please refer to the page(20); when exceeding the deviation setting value, over high temperature or over low temperature alarm will be displayed on the screen.

High temperature deviation setting value could be +20℃ ～ +90℃
Low temperature deviation setting value could be -20℃ ～ -90℃

6.2.3 Heat Preservation Setting：

For setting the heat preservation function, refer to the page (20).
Heat preservation means to keep the setting temperature of each stage in the set percentage of the heat preservation.

For example: Set 20%, and the setting temperature is 250℃
250℃ x (100% - 20%) = 200℃

When the setting temperature reduces to 200℃, keep it in the state of temperature control.

6.2.4 Automatic/Semi/Automatic/Manual mode choosing

（1） For hand operation, press the button.. When start the power, the computer will be automatically in the state of hand movement without pressing this button; after carrying on the other operation, for example when back to the state of hand movement or resetting the screen, press this button.
（2） For half automatic operation, press the button, and the machine is operating in the half automatic state, when could use the opening and closing each time of the safety door to confirm next circulating action. Please take notice that when the rear safety door is opened, the oil pump power will be automatically cut off.
（3） For fully automatic operation, press the button., and the machine is operating in the automatic state. The operator could set the choice in advance, use the re-circulating time, electric eye or manipulator returning, and confirm the next circulating action.

* These three buttons could only choose one state, and forming condition setting should be finished before choosing the state; meanwhile, only can choosing it after confirming each action within the cycle comply with the needs. If the LED light on any of the three buttons is flickering, that means that materials in the computer have been locked, and can not be changed; for the using method when the materials being locked, please inquiry the special personnel responsible for the material revising.

6.2.5 Position, Speed and Pressure Material Setting

(1) Choose the button of needing action by use of page control button. When pressing the button of needing action, the needing page could immediately appear on the screen for setting or revising.

(2) For the positing material setting, there are two methods such as optical decoder parameter (P) and distance setting value (mm). When setting the distance, the computer could automatically switch the value of optical decoder.

(3) When stopping in the page of needing action and the operator does not have to revise or set the material, press the button or or any one of there three buttons, so the screen could immediately jump to the normally operating page automatically. In the stages Half Automatic and Fully Automatic, if not press any button within 30 seconds, the screen could immediately back to the normally operating page automatically.

6.2.6 Figure Material Setting of the Forming Condition

When setting the forming condition, shall input the position distance, speed, pressure, time switch, counter and the other project materials of the optical decoder. When inputting the material figure, could move the mouse to the position of the figure needing to be revised, and input the correct material. If input the wrong material, on the screen will give the warning and the suggestions on the scope of inputting material; at this moment, shall press the button to continue the next material revising.

6.2.7 Adjustment of Proportional Control

Action pressure of the machine and the speed all adopt the advanced proportional adjustment method and convenient for the recording and later re-adjustment through percentage digit.

Digital controlling speed and pressure is the work that the computer controls the proportional pressure valve and proportional flow valve in oil circuit through inputting different currents according different actions.

When the pressure ranges in 20Kg/cm^2 ~ 145-175Kg/cm^2, operating current scope of its proportional valve is 200mA ~ 800mA.

Operating current scope of proportional flow valve (speed valve) is set as 200mA ~ 680mA.

(1) Closed Loop Controlling

When adopting the closed loop controlling process, should equip with the systematical pressure sensor and the adjacent switch for detecting the screw rotational speed. In this way, the computer could automatically adjust and record the linear parameter.

For the details, please carry on the linear adjustment of the pressure and speed according the methods in page (45) and (46). Only finishing the linear adjustment, the computer could continue the next operation.

(2) Open Loop Controlling

Generally, all belongs to the way of open loop controlling. At this moment, proportional digital controlling can only be adjusted through hand movement.

For the details, please carry on the linear adjustment of the pressure and speed according the methods in page (45) and (46). On the I/O electronic board of the computer, adjustable potentiometer PRG is the maximum output of the adjusted pressure 99%, PROF is used to adjust null output 0% of the pressure. SPIG adjust the maximum output of the speed 99%, and SPIOG is used to adjust null output 0% of the pressure.

6.2.8 Instruction of the Counter inside the Computer

No.	Function	Explanation
CT000	Cycle count	Setting of forming moulding number
CT001	Non-qualified moulding number	Setting of non-qualified moulding number
CT002	Production time counter	Total time needed in production, per 0.1 hour
CT003	In reserve	
CT004	Variation times of the ejector	Setting of the variation times of the ejector and the variation times the ejector back after ejection
CT005	Ejection times	Setting of the ejection times of the ejector
CT006	Output moulding number of the lubricant	Setting of interval moulding number in automatic lubricant action
CT007	In reserve	
CT008	In reserve	
CT009	Backward counter of the pressing mould	Apply the automatic adjusting function of mould locking force
CT010	Forward counter of the pressing mould	Apply the automatic adjusting function of mould locking force
CT011	In reserve	
CT012	In reserve	
CT013	In reserve	
CT014	In reserve	
CT015	In reserve	

6.2.9 Instructions for usage of timer inside the computer

No.	Function	Description
TM000	Used by system	Time indication of cycle
TM001	Used by system	Time indication of clamping
TM002	Used by system	Time indication of carriage advance
TM003	Used by system	Time indication of filling
TM004	Used by system	Time indication of pressure holding
TM005	Delayed plasticizing after the termination of injection	During the half/full automatic operation, delayed plasticizing after the termination of injection
TM006	Cooling time	Time between the termination of automatic injection and opening
TM007	Used by system	Time indication of backlash before plasticizing
TM008	Used by system	Time indication of plasticizing
TM009	Used by system	Time indication backlash after plasticizing
TM010	Used by system	Time indication of carriage retraction
TM011	Used by system	Time indication of opening
TM012	Used by system	Time indication of ejector
TM013	Middle cycle time	Under the status of full automation, interval time between the completion of eject and the clamping of next cycle
TM014	Injection time	Total injection time, excluding the time of pressure holding
TM015	Time of Stage 1 of pressure holding	Action Time of Stage 1 of pressure holding of injection
TM016	Time of Stage 2 of pressure holding	Action Time of Stage 2 of pressure holding of injection
TM017	Time of Stage 3 of pressure holding	Action Time of Stage 3 of pressure holding of injection
TM018	Time of Stage 4 of pressure holding	Action Time of Stage 4 of pressure holding of injection
TM019	Time of Stage 5 of pressure holding	Action Time of Stage 5 of pressure holding of injection
TM020	Time of purge and plasticizing	Plasticizing time setting during automatic purge
TM021	Pause time of ejector	Pause time after ejecting of automatic ejector, conduct ejection retraction again after time ends.
TM022	Time of core inserting A	Time of core inserting A
TM023	Time of core pulling A	Time of core pulling A
TM024	Time of core inserting B	Time of core inserting B
TM025	Time of core pulling B	Time of core pulling B
TM026	Time of core inserting C	Time of core inserting C
TM027	Time of core pulling C	Time of core pulling C

TM028	Time of core inserting D	Reserved
No.	Function	Description
TM029	Time of core pulling D	Reserved
TM030	Lubrication time	Output time of lubricant, which is suggested to set over 10 seconds
TM031	Lubrication alarm time	Reserved
TM032	Carriage advance rapidly	Duration of rapid stage of carriage advance
TM033	Time of carriage retraction	During the half/full automatic operation, time of carriage retraction, which can be set as zero if no retraction is needed.
TM034	Reserved	Reserved
TM035	Cycle monitor time	Allowable longest cycle time. Alarm if it exceeds.
TM036	Time delay of opening termination	Interval time between opening termination and next action.
TM037	Monitor time of low pressure clamping	Max. allowable time between clamping low pressure and clamping high pressure
TM038	Reserved	Reserved
TM039	Reserved	Reserved
TM040	Time delay of injection	Interval time between clamping termination and next action.
TM041	Ejector shake time	Ejector retraction position of ejector controlling shake
TM042	Time delay of carriage retraction	Time delay of carriage retraction when the backlash is finished.
TM043	Reserved	Reserved
TM044	Reserved	Reserved
TM045	Reserved	Reserved
TM046	Reserved	Reserved
TM047	Buffer of mould adjustment	Buffer time of change between advance and retraction of mould adjustment (the time is suggested to set over 0.3 seconds).
TM048	Opening & Clamping buffer	Buffer time of change between opening and clamping (the time is suggested to set over 0.1 seconds).
TM049	Reserved	Reserved
TM050	Duration of blowing 1	Duration of blowing 1
TM051	Duration of blowing 2	Duration of blowing 2
TM052	Time delay of blowing 3	Time delay of blowing 3
TM053	Duration of blowing 3	Duration of blowing 3
TM054	Automatic mould adjustment/pressing mould time I	Automatic mould adjustment/pressing mould time I, which is suggested to set 2 seconds
TM055	Automatic mould adjustment/pressing mould time II	Automatic mould adjustment/pressing mould time II, which is suggested to set 0.3 seconds

No.	Function	Description
TM056	Reserved	Reserved
TM057	Reserved	Reserved
TM058	Reserved	Reserved
TM059	Reserved	Reserved
TM060	Start of electric machine	Motor start Y→△time
TM061	Origin resetting	Origin resetting time of decoder, which is suggested to set 3~5 seconds.
TM062	Mould adjustment monitor	Mould adjustment sensor monitor time. Alarm if it exceeds.
TM063	Alarm duration	Alarm (buzzer and alarm light) duration, which is suggested to set 10 seconds.
TM064	Alarm pause	Alarm (buzzer and alarm light) pause duration, which is suggested to set 10 seconds.
TM065	Action monitor	Opening and clamping, eject and retraction, core pulling and inserting, carriage slow speed, injection. Alarm if time exceeds, which is suggested to set over 5 seconds.
TM066	Reserved	Reserved
TM067	Reserved	Reserved
TM068	Interval between ejectors	Buffer time of change between advance and retraction of ejector (the time is suggested to set 0.1 seconds).
TM069	Cool-proof start	Timing after electric machine starting. Inject, plasticizing and backlash after time out and the temperate of the tube reaching the set value. (The time is suggested to set over 50 seconds)
TM070	Nozzle closing	Time of nozzle closing (used by the function of closing the nozzle by oil pressure)
TM071	Time delay of nitrogen	Delay the open of nitrogen after injection starting when using nitrogen stored energy
TM072	Time delay of low pressure	Delay the open of auxiliary oil valve when clamping with low pressure (low pressure/fast valve/back pressure valve)
TM073	Time delay of action	Buffer time of each action (Opening and clamping, ejector retraction, core pulling and inserting, injection. The time is suggested to set 0.1 seconds.)
TM074	Safe door monitor	Max. time allowed by action of safe door. Alarm if time exceeds, which is suggested to set over 3 seconds.
No.	Function	Description
TM075	Special low pressure	Duration of special low pressure after clamping starts

TM076	Back pressure of opening	Duration of synchronous opening and back pressure
TM077	Open the nozzle	Action time of opening the nozzle (used by the function of closing the nozzle by oil pressure)
TM078	Injection buffer	Buffer time of injection
TM079	Plasticizing buffer	Buffer time of plasticizing
TM080~~TM099	Reserved	Reserved

6.2.10 Description for input & output point of computer

No.	Function	Description
I00	Input point	Front safe door
I01	Input point	Rear safe door
I02	Input point	Safe threshold
I03	Input point	Front limit of nozzle
I04	Input point	B limit of inserting core
I05	Input point	B limit of pulling core
I06	Input point	Reserved
I07	Input point	Nozzle shielding
I08	Input point	A limit of inserting core
I09	Input point	A limit of pulling core
I10	Input point	Confirmation of electric eye
I11	Input point	Stored energy termination
I12	Input point	Combined clamping by machine and manual work
I13	Input point	Can eject
I14	Input point	Finish pulling
I15	Input point	Confirmation of ejector plate
I16	Input point	Overloading of mould adjustment
I17	Input point	Overloading of oil pump
I18	Input point	Front limit of mould adjustment
I19	Input point	Back limit of mould adjustment
I20	Input point	Counting of mould adjustment
I21	Input point	Level of lubricant
I22	Input point	Pressure of lubricant
I23	Input point	C limit of inserting core
I24	Input point	C limit of pulling core
I25	Input point	Oil cleaner
I26	Input point	Reserved
I27	Input point	Termination of opening door

No.	Function	Description
I28	Input point	Termination of closing door
I29	Input point	Clamping resetting
I30	Input point	Ejector resetting
I31	Input point	Injunction resetting

No.	Function	Description
O00	Output point	Advance of mould adjustment
O01	Output point	Retraction of mould adjustment
O02	Output point	Advance of clamping
O03	Output point	Advance of carriage
O04	Output point	Injection
O05	Output point	Plasticizing
O06	Output point	Backlash
O07	Output point	Retraction of carriage
O08	Output point	Opening
O09	Output point	Advance of ejector
O10	Output point	Retraction of ejector
O11	Output point	Fast clamping
O12	Output point	Core inserting A
O13	Output point	Core pulling A
O14	Output point	Core inserting B
O15	Output point	Core pulling B
O16	Output point	Pressure filling by nitrogen
O17	Output point	Pressure releasing by nitrogen
O18	Output point	Blowing 2
O19	Output point	Blowing 1
O20	Output point	Back pressure of opening
O21	Output point	Fast/low pressure
O22	Output point	Low pressure clamping
O23	Output point	Blowing 3/Reserved
O24	Output point	Automatic door opening
O25	Output point	Automatic door closing
O26	Output point	Fast opening

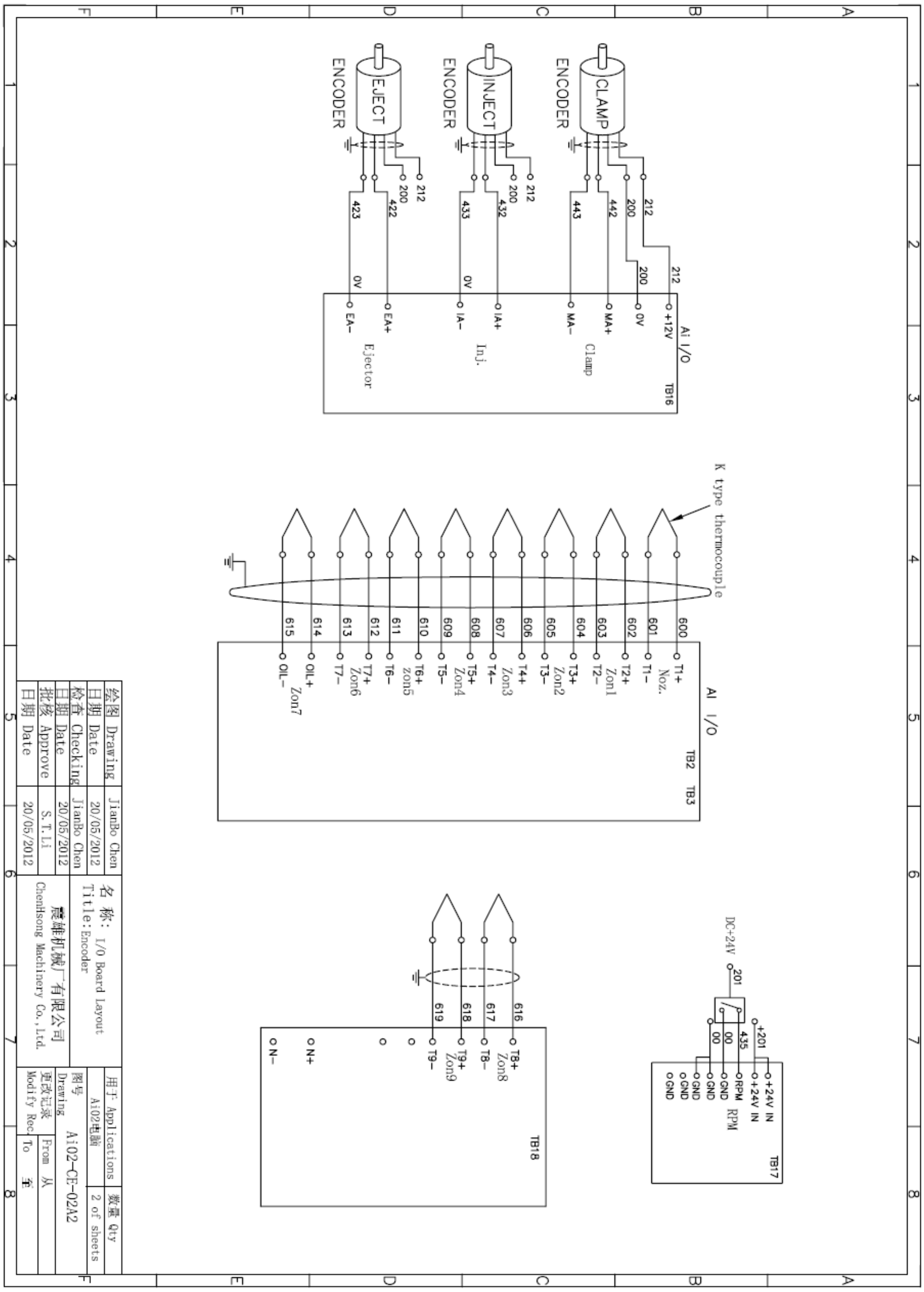
No.	Function	Description
O27	Output point	Full automation
O28	Output point	Opening termination
O29	Output point	Safe door closing
O30	Output point	Core inserting C
O31	Output point	Core pulling C

6.3 Ai-02 Special Interface Operation

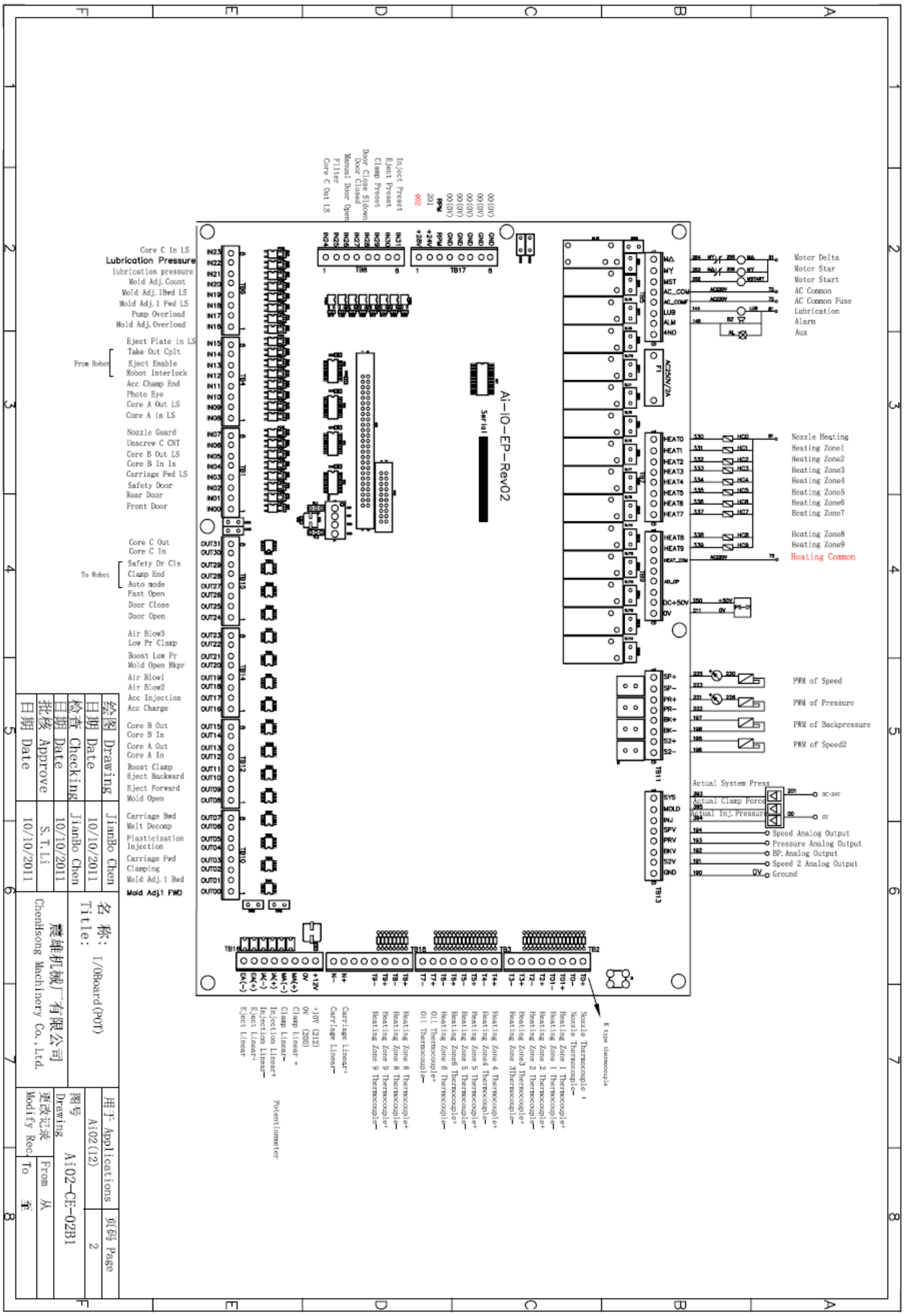
1	Automatic Purge Setting Interface(10)	Press injection key for four times
2	Carriage Setting Interface(12)	Press Ejector/core pulling key for two times
3	Temperature Alarming Interface(19)	Press electric heat key for one time
4	Heat Interval Channel Temperature Setting Interface (20-21)	Press electric heat key for two times
5	Function Setting Interface(22)	Press function key for one time
6	Mould Data Selection Duplication Interface(23)	Press mould data/statistics key for one time
7	Attribute Statistics Interface(25)	Press mould data/statistics key for three times
8	Time Monitoring Interface(26-30)	Press monitor key for one time
9	Counter Monitor Interface (31)	Press monitor key for two times
10	Input Monitor Interface(32-33)	Press monitor key for three times
11	Output Monitor Interface(34-36)	Press monitor key for four times
12	Relay Monitor Interface (37-41)	Press monitor key for five times
13	PLC Monitor Interface(42)	Press monitor key for six times
14	Injection Speed Adjustment Interface(44)	Press injection graph key for two times
15	Injection Pressure Adjustment Interface(45)	Press injection graph key for three times
16	Language Selection Interface(51-52)	Press “Clear” & “ Main Interface” key simultaneously
17	Stage Selection Interface (53)	Press “Clear” & “ Main Interface” key simultaneously for 2 times
18	Factory Setting Interface (65-66)	Press “Clear” & “Mould Data/Statistics” key simultaneously for 10 times
19	Network Interface(68)	Press “Clear” &” injection graph” once at the same time
20	Lubricate Setting Interface(69)	Press Manual Lubrication key once
21	Machine Adjustment Interface (71)	Press Slow Speed Debug key for one time

6.4 Ai-02 circuit diagram

6.4.1 Ai-02 Input Connection (Encoder Version)

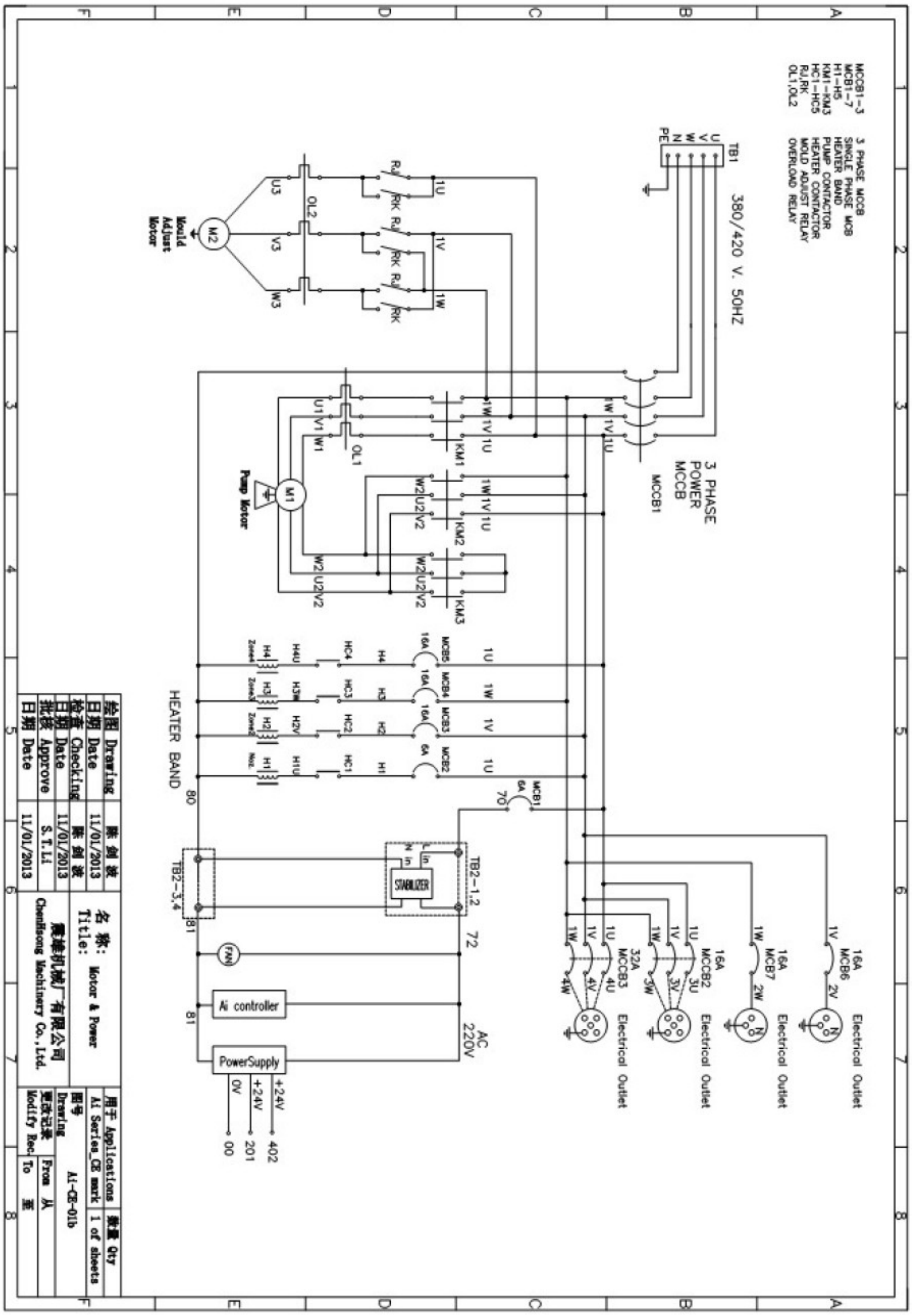

CLAMP
ENCODER
INJECT
ENCODER
EJECT
ENCODER
212
200
442
443
432
433
422
423
+12V
0V
MA+
MA-
IA+
IA-
EA+
EA-
Ai I/O
Clamp
Inj.
Ejector
TB16
K type thermocouple
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
T1+
T1-
Noz.
T2+
T2-
Zon1
T3+
T3-
Zon2
T4+
T4-
Zon3
T5+
T5-
Zon4
T6+
T6-
zon5
T7+
T7-
Zon6
OIL+
OIL-
Zon7
AI I/O
TB2 TB3
DC-24V
201
+201
435
00
+24V IN
+24V IN
RPM
RPM
GND
TB17
616
617
618
619
T8+
T8-
Zon8
T9+
T9-
Zon9
N+
N-
TB18
绘图 Drawing
JianBo Chen
日期 Date
20/05/2012
校合 Checking
JianBo Chen
日期 Date
20/05/2012
批核 Approve
S.T.Li
日期 Date
20/05/2012
名 称: I/O Board Layout
Title: Encoder
震雄机械厂有限公司
ChenHsong Machinery Co.,Ltd.
用于 Applications
Ai02电箱
数量 Qty
2 of sheets
图号
Drawing
Ai02-CE-02A2
更改记录
Modify Rec.
From 从
To 至
A
B
C
D
E
F
1
2
3
4
5
6
7
8

6.4.2 Ai-02 I/O Board Layout (potentiometer version)

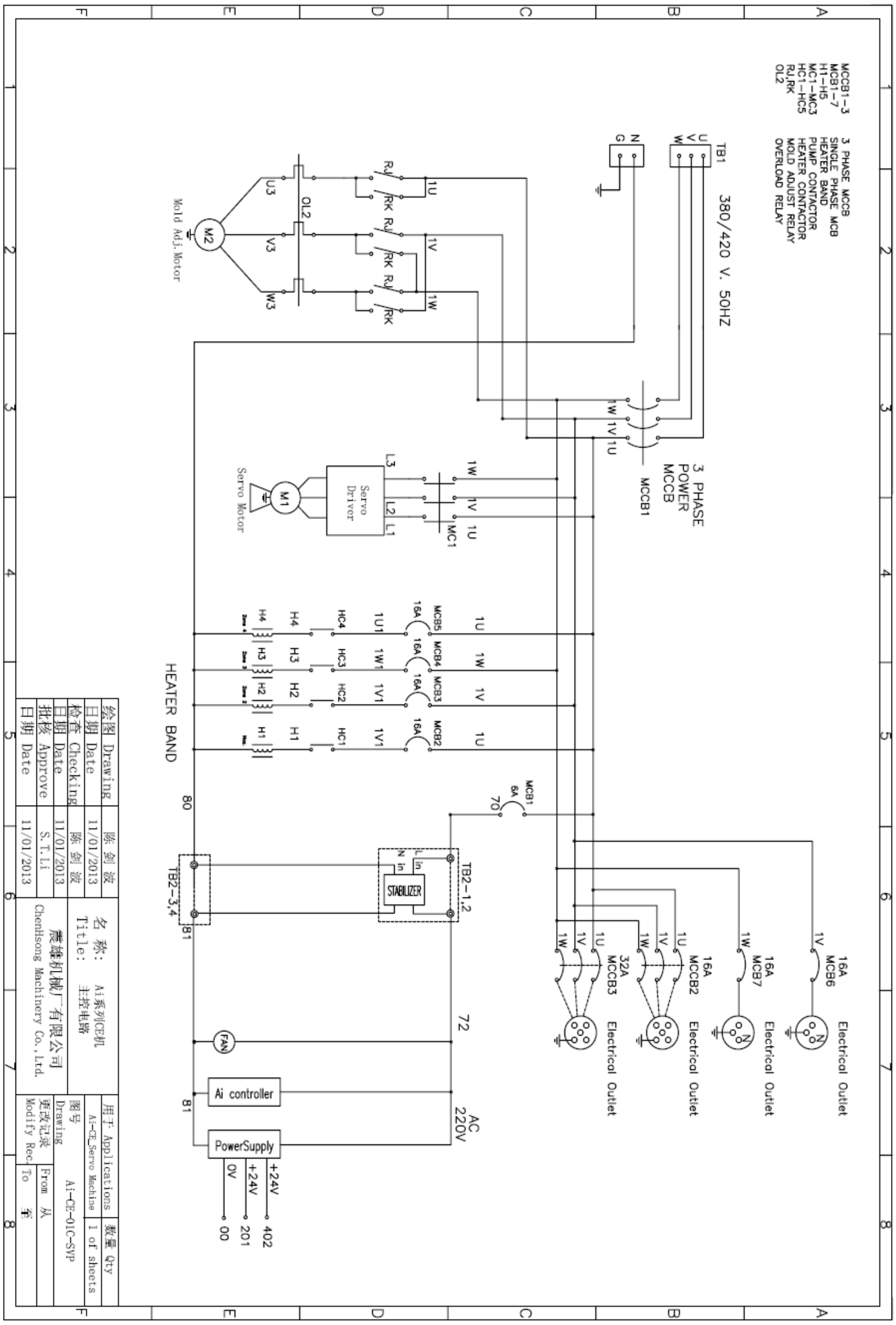


Ai-IO-EP-Rev02
Serial
Core C In LS
Lubrication Pressure
lubrication pressure
Mold Adj.Count
Mold Adj.1Bwd LS
Mold Adj.1 Fwd LS
Pump Overload
Mold Adj.Overload
Eject Plate in LS
Take Out Cplt
Eject Enable
Robot Interlock
From Robot
Acc Champ End
Photo Eye
Core A Out LS
Core A in LS
Nozzle Guard
Unscrew C CNT
Core B Out LS
Core B In ls
Carriage Fwd LS
Safety Door
Rear Door
Front Door
Core C Out
Core C In
Safety Dr Cls
Clamp End
Auto mode
To Robot
Fast Open
Door Close
Door Open
Air Blow3
Low Pr Clamp
Boost Low Pr
Mold Open Bkpr
Air Blow1
Air Blow2
Acc Injection
Acc Charge
Core B Out
Core B In
Core A Out
Core A In
Boost Clamp
Eject Backward
Eject Forward
Mold Open
Carriage Bwd
Melt Decomp
Plasticization
Injection
Carriage Fwd
Clamping
Mold Adj.1 Bwd
Mold Adj1 FWD
TB6
TB4
TB1
TB15
TB14
TB12
TB10
TB16
TB8
TB17
TB18
TB3
TB2
TB5
TB7
TB9
TB11
TB13
F1
AC250V/2A
Inject Preset
Eject Preset
Clamp Preset
Door Close Sldown
Door Closed
Manual Door Open
Filter
Core C Out LS
00(0V)
00(0V)
00(0V)
00(0V)
00(0V)
RPM
201
402
Motor Delta
Motor Star
Motor Start
AC Common
AC Common Fuse
Lubrication
Alarm
Aux
Nozzle Heating
Heating Zone1
Heating Zone2
Heating Zone3
Heating Zone4
Heating Zone5
Heating Zone6
Heating Zone7
Heating Zone8
Heating Zone9
Heating Common
AC220V
DC+50V
0V
PWM of Speed
PWM of Pressure
PWM of Backpressure
PWM of Speed2
Actual System Press
Actual Clamp Force
Actual Inj.Pressure
DC+24V
0V
Speed Analog Output
Pressure Analog Output
BP.Analog Output
Speed 2 Analog Output
Ground
Eject Linear
Eject Linear+
Injection Linear−
Injection Linear+
Clamp Linear−
Clamp Linear +
0V (200)
+10V (212)
Potentiometer
Carriage Linear−
Carriage Linear+
Heating Zone 9 Thermocouple−
Heating Zone 9 Thermocouple+
Heating Zone 8 Thermocouple−
Heating Zone 8 Thermocouple+
Oil Thermocouple−
Oil Thermocouple+
Heating Zone 6 Thermocouple−
Heating Zone6 Thermocouple+
Heating Zone 5 Thermocouple−
Heating Zone 5 Thermocouple+
Heating Zone4 Thermocouple−
Heating Zone 4 Thermocouple+
Heating Zone 3Thermocouple−
Heating Zone3 Thermocouple+
Heating Zone 2 Thermocouple−
Heating Zone 2 Thermocouple+
Heating Zone 1 Thermocouple−
Heating Zone 1 Thermocouple+
Nozzle Thermocouple−
Nozzle Thermocouple +
K type thermocouple
绘图 Drawing
JianBo Chen
日期 Date
10/10/2011
检查 Checking
JianBo Chen
日期 Date
10/10/2011
批核 Approve
S.T.Li
日期 Date
10/10/2011
名 称: Title:
I/OBoard(POT)
震雄机械厂有限公司
ChenHsong Machinery Co.,Ltd.
用户 Applications
Ai02(12)
图号 Drawing
Ai02-CE-02B1
页码 Page
2
更改记录 Modify Rec.
From 从
To 至
A
B
C
D
E
F
1
2
3
4
5
6
7
8

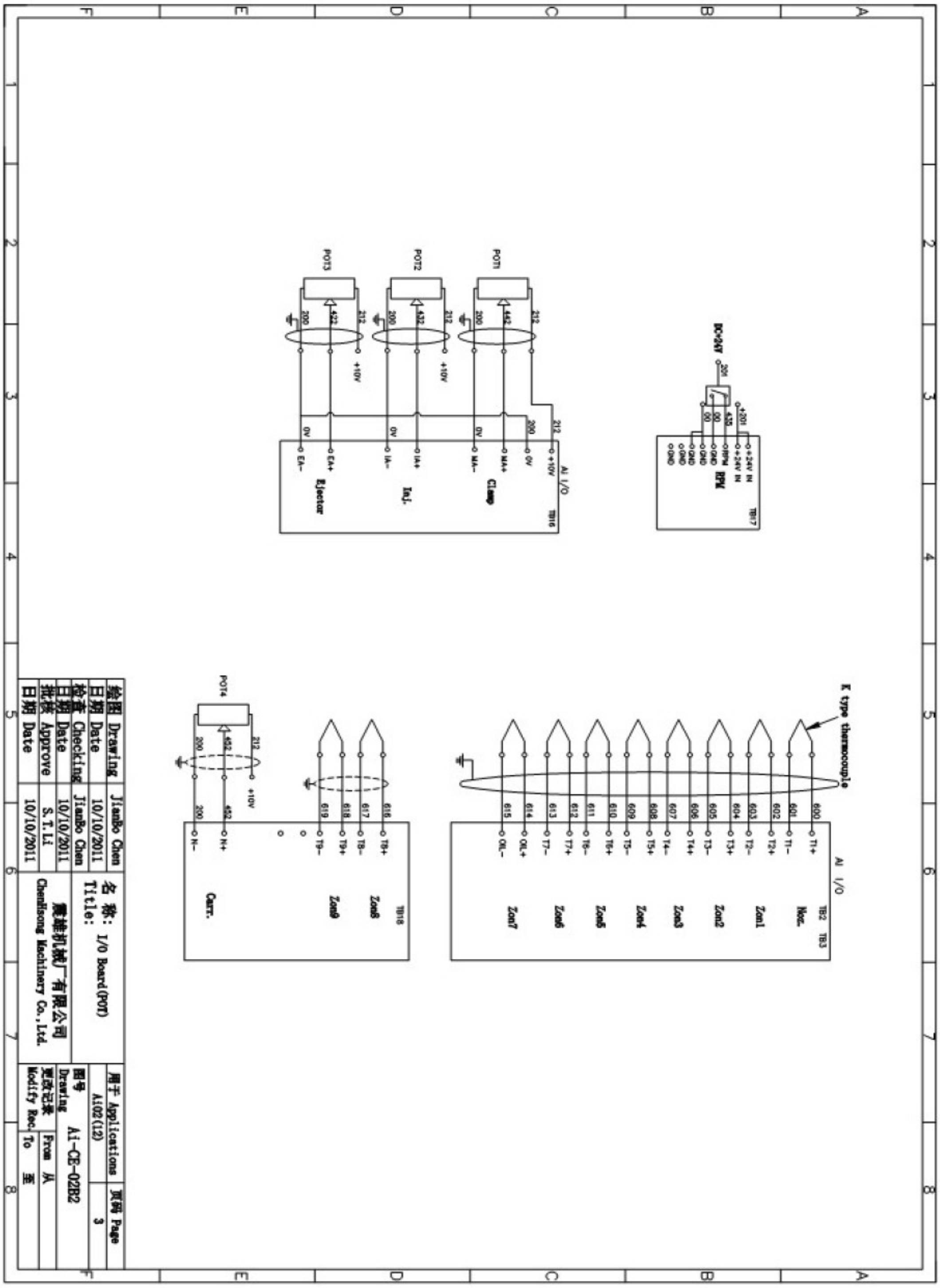
6.4.3 Ai-02 Motor & Power Control Circuit Diagram(piston pump)


MCCB1-3 3 PHASE MCCB
MCB1-7 SINGLE PHASE MCB
H1-H5 HEATER BAND
KM1-KM3 PUMP CONTACTOR
HC1-HC5 HEATER CONTACTOR
RJ,RK MOULD ADJUST RELAY
OL1,OL2 OVERLOAD RELAY
TB1
U V W N PE
380/420 V. 50HZ
3 PHASE POWER MCCB
MCCB1
M2
Mould Adjust Motor
OL2
RJ
RK
U3 V3 W3
1U 1V 1W
M1
Pump Motor
OL1
KM1
KM2
KM3
U1 V1 W1
U2 V2 W2
HEATER BAND
MCB5 MCB4 MCB3 MCB2
16A 16A 16A 6A
HC4 HC3 HC2 HC1
H4 H3 H2 H1
Zone4 Zone3 Zone2 Nozz.
MCB1
6A
70
80
TB2-1,2
TB2-3,4
STABILIZER
L in
N in
72
81
FAN
Ai controller
PowerSupply
AC 220V
+24V +24V 0V
402 201 00
MCB6 16A 2V
MCB7 16A 2W
MCCB2 16A 3U 3V 3W
MCCB3 32A 4U 4V 4W
Electrical Outlet
绘图 Drawing 陈剑波
日期 Date 11/01/2013
检查 Checking 陈剑波
日期 Date 11/01/2013
批核 Approve S.T.Li
日期 Date 11/01/2013
名称 Title: Motor & Power
震雄机械厂有限公司
ChenHsong Machinery Co., Ltd.
用于 Applications
Ai Series CE mark
数量 Qty
1 of sheets
图号 Drawing AI-CE-01b
更改记录 Modify Rec.
From 从
To 至
A B C D E F
1 2 3 4 5 6 7 8

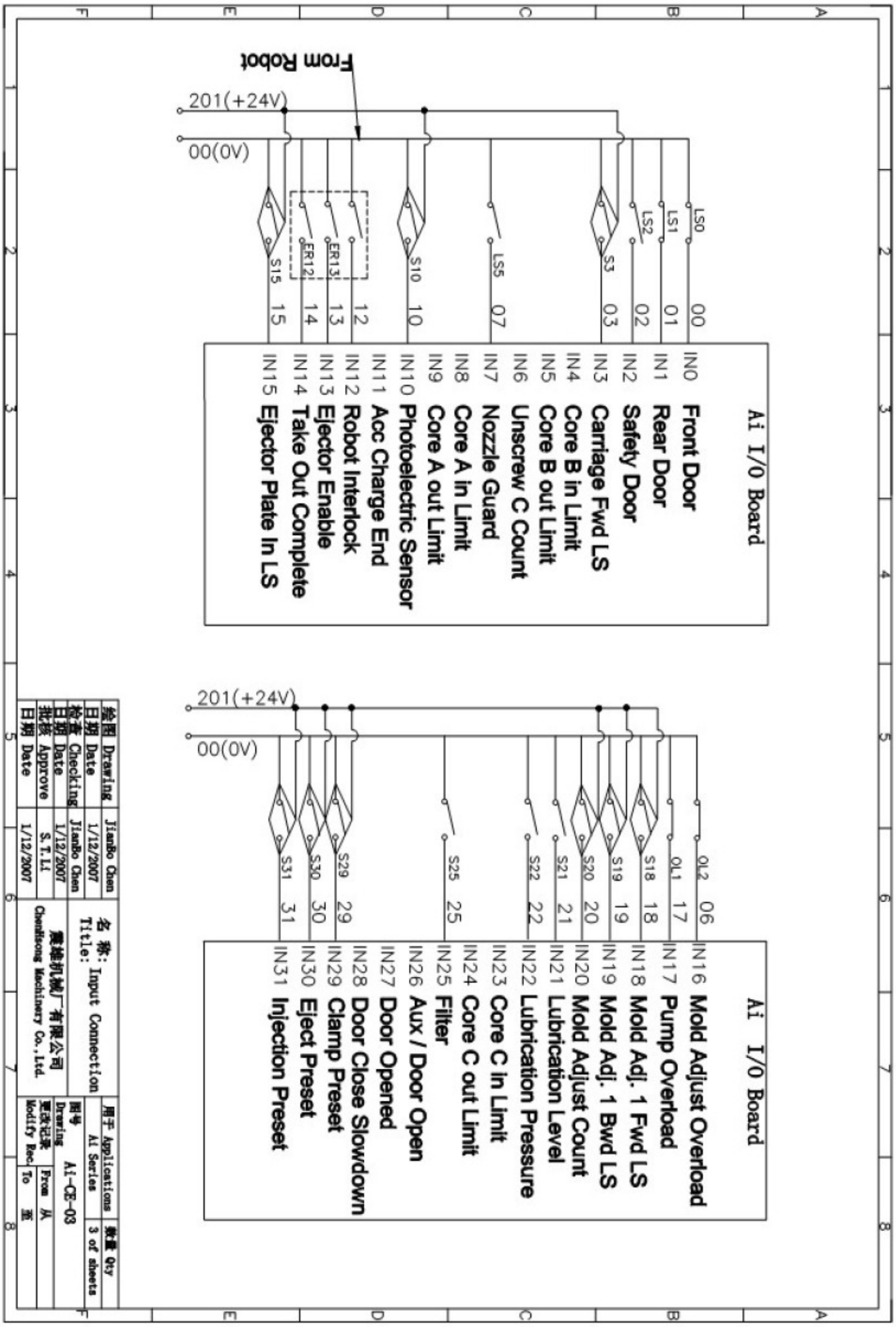
6.4.4 Ai-02 Motor & Power Control Circuit (SVP)


MCCB1–3 3 PHASE MCCB
MCB1–7 SINGLE PHASE MCB
H1–H5 HEATER BAND
MC1–MC3 PUMP CONTACTOR
HC1–HC5 HEATER CONTACTOR
RJ,RK MOLD ADJUST RELAY
OL2 OVERLOAD RELAY
TB1
U V W N G
380/420 V. 50HZ
3 PHASE POWER MCCB
MCCB1
1U 1V 1W
RJ RK
OL2
U3 V3 W3
M2
Mold Adj.Motor
MC1
L1 L2 L3
Servo Driver
M1
Servo Motor
MCB5 MCB4 MCB3 MCB2
16A
HC4 HC3 HC2 HC1
1U1 1W1 1V1
H4 H3 H2 H1
Zone 4 Zone 3 Zone 2 Noz.
HEATER BAND
MCB1 6A
70
80
TB2–1,2
STABILIZER
L in N in
TB2–3,4
81
72
FAN
Ai controller
AC 220V
PowerSupply
+24V +24V 0V
402 201 00
MCB6 16A
MCB7 16A
MCCB2 16A
MCCB3 32A
Electrical Outlet
A B C D E F
1 2 3 4 5 6 7 8
绘图 Drawing 陈剑波
日期 Date 11/01/2013
检查 Checking 陈剑波
日期 Date 11/01/2013
批核 Approve S.T.Li
日期 Date 11/01/2013
名称 Title: Ai系列CE机 主控电路
震雄机械厂有限公司
ChenHsong Machinery Co., Ltd.
用于 Applications Ai-CE_Servo Machine
图号 Drawing Ai-CE-01C-SVP
更改记录 Modify Rec.
From 从 To 至
数量 Qty 1 of sheets

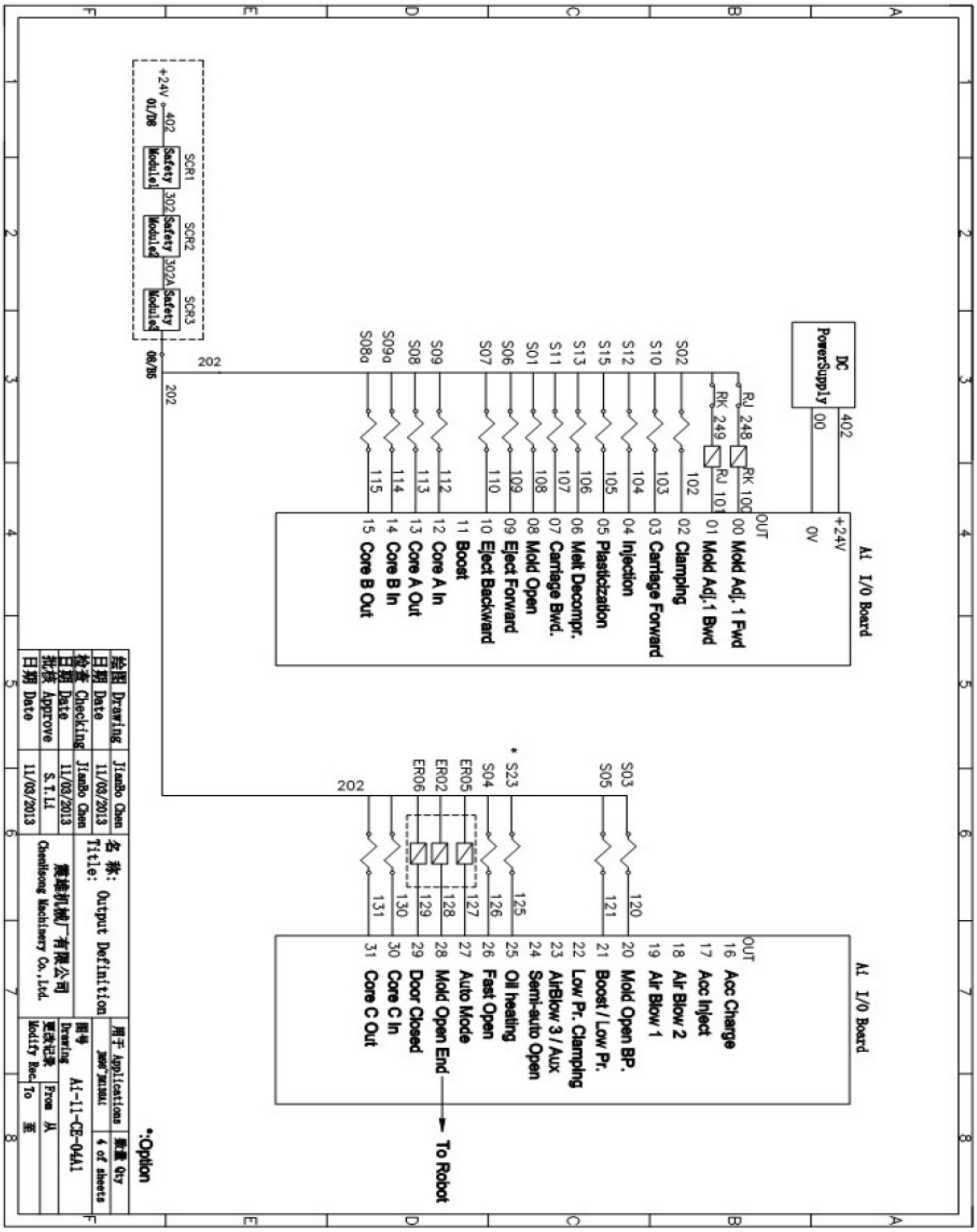
6.4.5 Ai-02 Input Point Connection Diagram of Computer I/O Board (potentiometer)


POT1
POT2
POT3
POT4
DC+24V
Ai I/O
TB16
TB17
TB18
TB2
TB3
Clamp
Inj.
Ejector
RPM
K type thermocouple
Noz.
Zon1
Zon2
Zon3
Zon4
Zon5
Zon6
Zon7
Zon8
Zon9
Carr.
+10V
0V
绘图 Drawing
JianBo Chen
日期 Date
10/10/2011
检查 Checking
JianBo Chen
日期 Date
10/10/2011
批准 Approve
S.T.Li
日期 Date
10/10/2011
名 称:
Title:
I/O Board(POT)
震雄机械厂有限公司
ChenHsong Machinery Co.,Ltd.
用于 Applications
Ai02(12)
页码 Page
3
图号 Drawing
Ai-CE-02B2
更改记录 Modify Rec.
From 从
To 至

6.4.6 Ai-02 Input Point Connection Diagram of Computer I/O Board

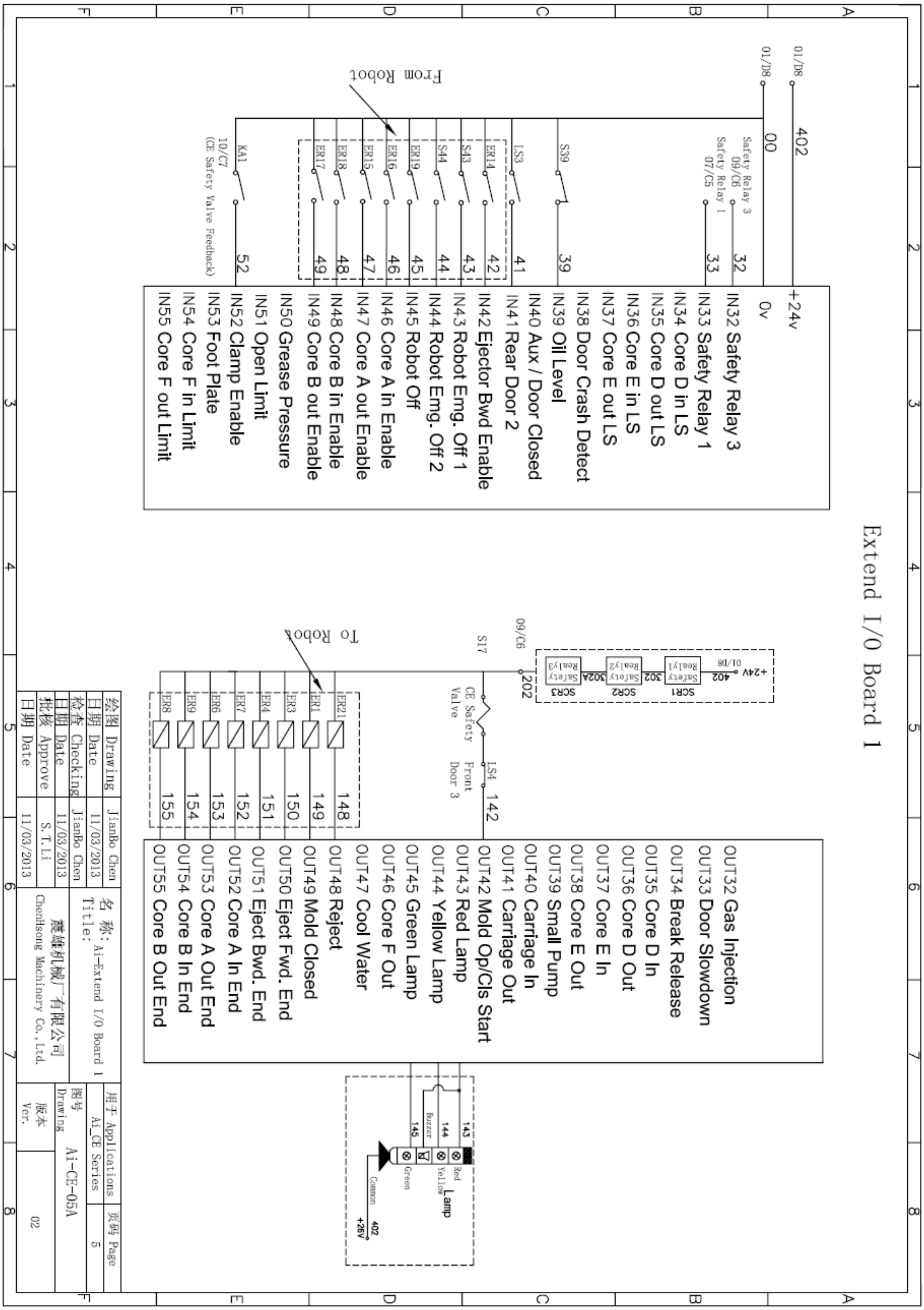

From Robot
201(+24V)
00(0V)
LS0
LS1
LS2
S3
LS5
S10
ER13
ER12
S15
00
01
02
03
07
10
12
13
14
15
Ai I/O Board
IN0 Front Door
IN1 Rear Door
IN2 Safety Door
IN3 Carriage Fwd LS
IN4 Core B in Limit
IN5 Core B out Limit
IN6 Unscrew C Count
IN7 Nozzle Guard
IN8 Core A in Limit
IN9 Core A out Limit
IN10 Photoelectric Sensor
IN11 Acc Charge End
IN12 Robot Interlock
IN13 Ejector Enable
IN14 Take Out Complete
IN15 Ejector Plate In LS
201(+24V)
00(0V)
OL2
OL1
S18
S19
S20
S21
S22
S25
S29
S30
S31
06
17
18
19
20
21
22
25
29
30
31
Ai I/O Board
IN16 Mold Adjust Overload
IN17 Pump Overload
IN18 Mold Adj. 1 Fwd LS
IN19 Mold Adj. 1 Bwd LS
IN20 Mold Adjust Count
IN21 Lubrication Level
IN22 Lubrication Pressure
IN23 Core C in Limit
IN24 Core C out Limit
IN25 Filter
IN26 Aux / Door Open
IN27 Door Opened
IN28 Door Close Slowdown
IN29 Clamp Preset
IN30 Eject Preset
IN31 Injection Preset
绘图 Drawing JianBo Chen
日期 Date 1/12/2007
检查 Checking JianBo Chen
日期 Date 1/12/2007
批核 Approve S.T.Li
日期 Date 1/12/2007
名 称: Title: Input Connection
震雄机械厂有限公司
Chenhsong Machinery Co.,Ltd.
用于 Applications AI Series
数量 Qty 3 of sheets
图号 Drawing AI-CE-03
更改记录 Modify Rec.
From 从
To 至
A
B
C
D
E
F
1
2
3
4
5
6
7
8

6.4.7 Ai-02 Output Point Connection Diagram of Computer I/O Board

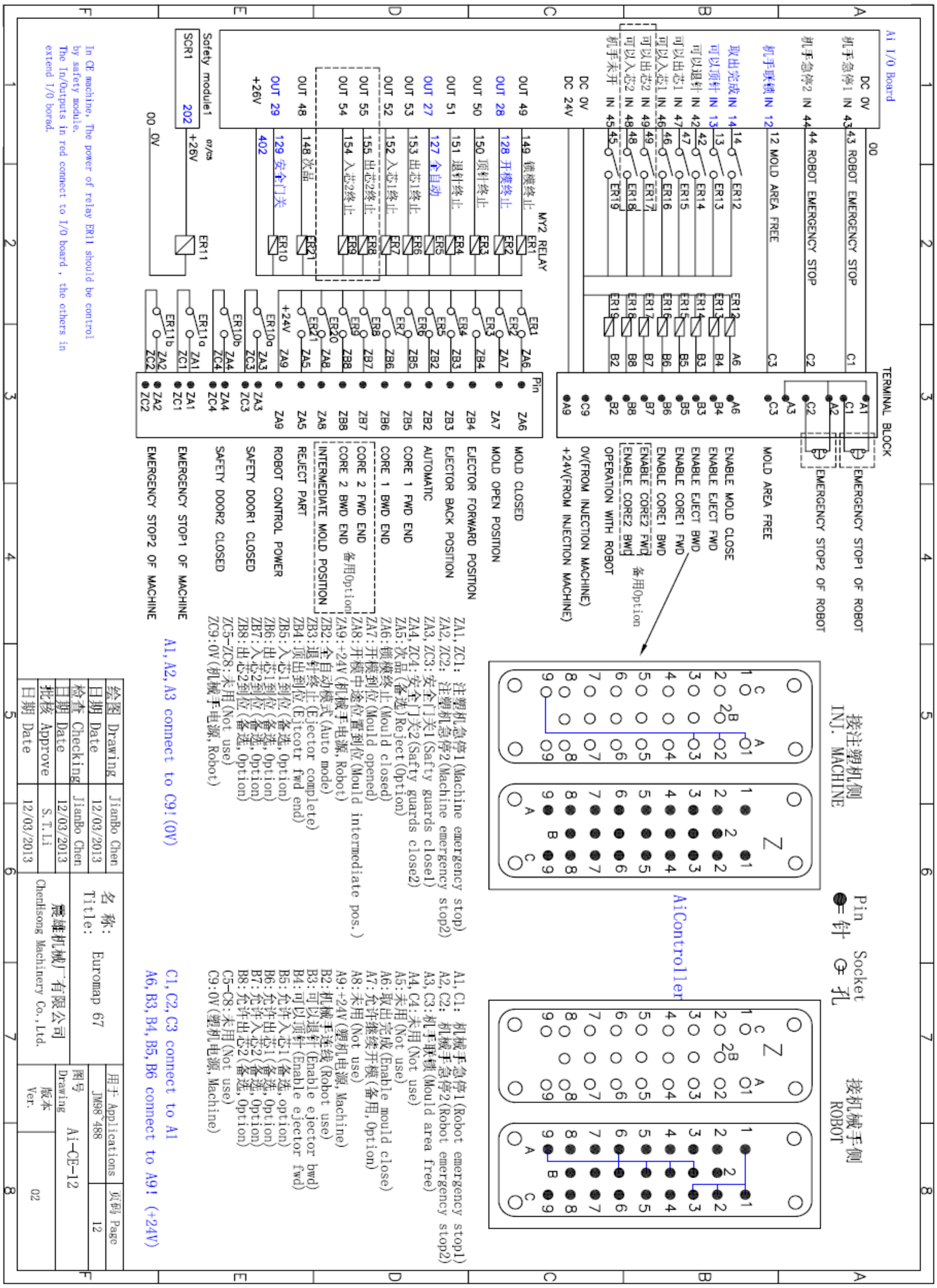


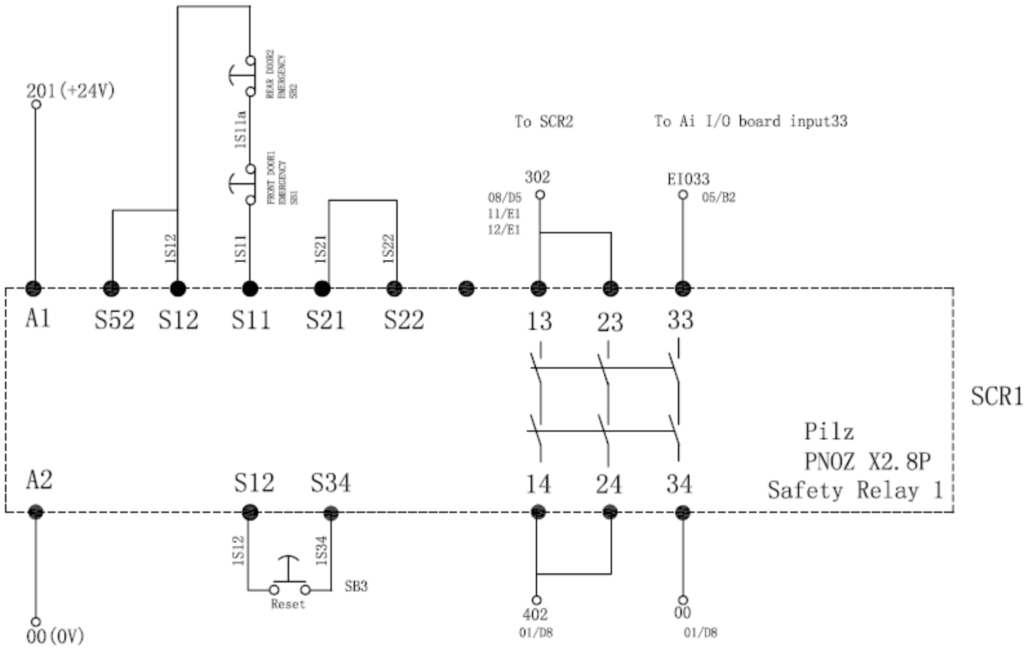
DC PowerSupply
402
00
+24V
0V
OUT
AI I/O Board
00 Mold Adj. 1 Fwd
01 Mold Adj.1 Bwd
02 Clamping
03 Carriage Forward
04 Injection
05 Plasticization
06 Melt Decompr.
07 Carriage Bwd.
08 Mold Open
09 Eject Forward
10 Eject Backward
11 Boost
12 Core A In
13 Core A Out
14 Core B In
15 Core B Out
RJ 248
RK 249
RK 100
RJ 101
S02
S10
S12
S15
S13
S11
S01
S06
S07
S09
S08
S09a
S08a
102
103
104
105
106
107
108
109
110
112
113
114
115
202
SCR1
SCR2
SCR3
Safety Module1
Safety Module2
Safety Module3
+24V
402
302
302A
01/D8
08/B5
16 Acc Charge
17 Acc Inject
18 Air Blow 2
19 Air Blow 1
20 Mold Open BP.
21 Boost / Low Pr.
22 Low Pr. Clamping
23 AirBlow 3 / Aux
24 Semi-auto Open
25 Oil heating
26 Fast Open
27 Auto Mode
28 Mold Open End
29 Door Closed
30 Core C In
31 Core C Out
To Robot
S03
S05
* S23
S04
ER05
ER02
ER06
120
121
125
126
127
128
129
130
131
*:Option
绘图 Drawing
日期 Date
检查 Checking
日期 Date
批准 Approve
日期 Date
JianBo Chen
11/03/2013
JianBo Chen
11/03/2013
S.T.Li
11/03/2013
名 称: Title: Output Definition
震雄机械厂有限公司
ChenHsong Machinery Co.,Ltd.
用于 Applications
数量 Qty
4 of sheets
图号 Drawing
AI-11-CE-04A1
更改记录 Modify Rec.
From 从
To 至
A B C D E F
1 2 3 4 5 6 7 8

6.4.8 Ai-02 extension I/O board Connection Diagram

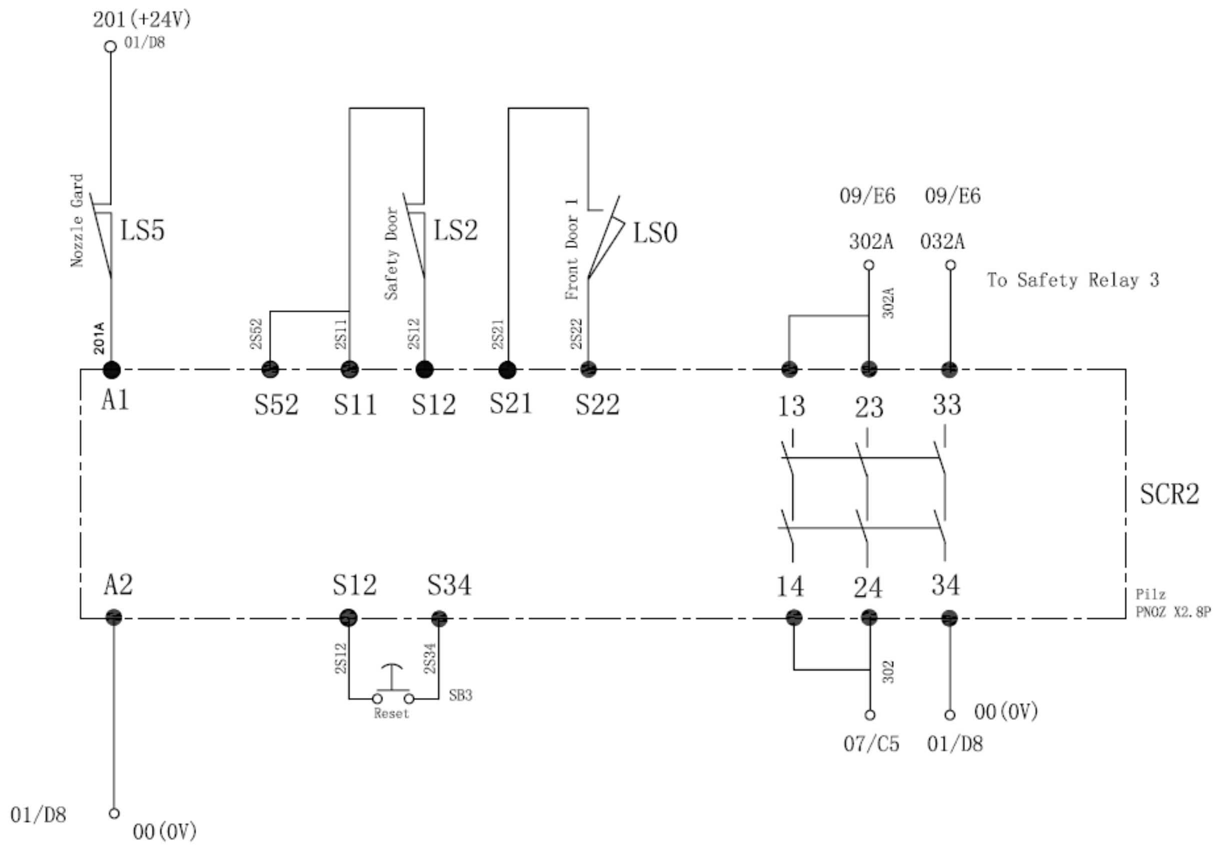

Extend I/O Board 1
+24v
0v
402
00
01/D8
Safety Relay 3 09/C6
Safety Relay 1 07/C5
From Robot
S39
LS3
ER14
S43
S44
ER19
ER16
ER15
ER18
ER17
KA1
10/C7 (CE Safety Valve Feedback)
32
33
39
41
42
43
44
45
46
47
48
49
52
IN32 Safety Relay 3
IN33 Safety Relay 1
IN34 Core D in LS
IN35 Core D out LS
IN36 Core E in LS
IN37 Core E out LS
IN38 Door Crash Detect
IN39 Oil Level
IN40 Aux / Door Closed
IN41 Rear Door 2
IN42 Ejector Bwd Enable
IN43 Robot Emg. Off 1
IN44 Robot Emg. Off 2
IN45 Robot Off
IN46 Core A in Enable
IN47 Core A out Enable
IN48 Core B in Enable
IN49 Core B out Enable
IN50 Grease Pressure
IN51 Open Limit
IN52 Clamp Enable
IN53 Foot Plate
IN54 Core F in Limit
IN55 Core F out Limit
+24V
402
01/D8
Safety Realy1
SCR1
302
Safety Realy2
SCR2
302A
Safety Realy3
SCR3
09/C6
202
S17
CE Safety Valve
LS4
Front Door 3
142
To Robot
ER21
ER1
ER3
ER4
ER7
ER6
ER9
ER8
148
149
150
151
152
153
154
155
OUT32 Gas Injection
OUT33 Door Slowdown
OUT34 Break Release
OUT35 Core D In
OUT36 Core D Out
OUT37 Core E In
OUT38 Core E Out
OUT39 Small Pump
OUT40 Carriage In
OUT41 Carriage Out
OUT42 Mold Op/Cls Start
OUT43 Red Lamp
OUT44 Yellow Lamp
OUT45 Green Lamp
OUT46 Core F Out
OUT47 Cool Water
OUT48 Reject
OUT49 Mold Closed
OUT50 Eject Fwd. End
OUT51 Eject Bwd. End
OUT52 Core A In End
OUT53 Core A Out End
OUT54 Core B In End
OUT55 Core B Out End
143
144
145
Buzzer
Red
Yellow
Green
Lamp
Common
402
+26V
绘图 Drawing JianBo Chen
日期 Date 11/03/2013
检查 Checking JianBo Chen
日期 Date 11/03/2013
批准 Approve S.T.Li
日期 Date 11/03/2013
名 称: Title: Ai-Extend I/O Board 1
晨雄机械厂有限公司
ChenHsong Machinery Co.,Ltd.
用于 Applications Ai_CE Series
页码 Page 5
图号 Drawing Ai-CE-05A
版本 Ver. 02
A
B
C
D
E
F
1
2
3
4
5
6
7
8

6.4.9 Ai-02 Robot Interface (Euromap 67)

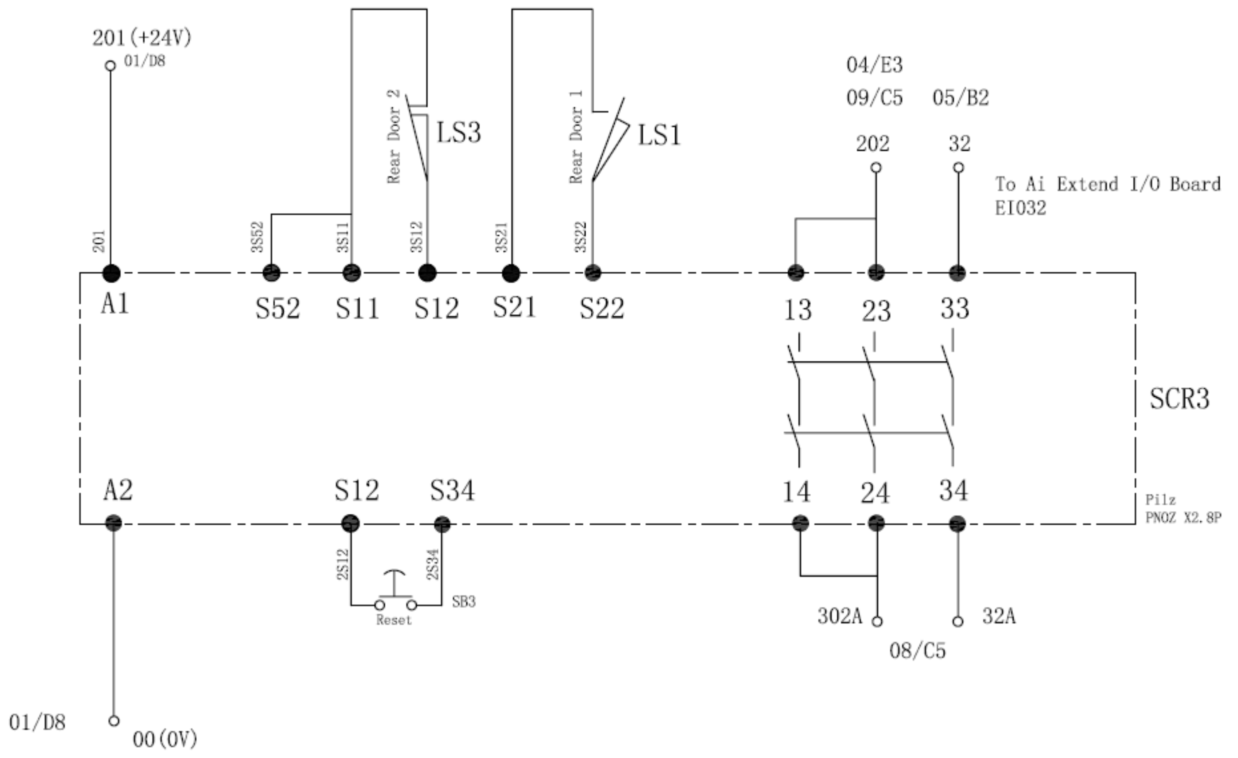

Ai I/O Board
DC 0V
机手急停1 IN 43
机手急停2 IN 44
机手联锁 IN 12
取出完成 IN 14
可以顶针 IN 13
可以退针 IN 42
可以出芯1 IN 47
可以入芯1 IN 46
可以出芯2 IN 49
可以入芯2 IN 48
机手未开 IN 45
DC 0V
DC 24V
OUT 49
OUT 28
OUT 50
OUT 51
OUT 27
OUT 53
OUT 52
OUT 55
OUT 54
OUT 48
OUT 29
+26V
Safety module1
SCR1
202
+26V
00_0V
MY2 RELAY
149 锁模终止
128 开模终止
150 顶针终止
151 退针终止
127 全自动
153 出芯1终止
152 入芯1终止
155 出芯2终止
154 入芯2终止
148 次品
129 安全门关
402
43 ROBOT EMERGENCY STOP
44 ROBOT EMERGENCY STOP
12 MOLD AREA FREE
TERMINAL BLOCK
EMERGENCY STOP1 OF ROBOT
EMERGENCY STOP2 OF ROBOT
MOLD AREA FREE
ENABLE MOLD CLOSE
ENABLE EJECT FWD
ENABLE EJECT BWD
ENABLE CORE1 FWD
ENABLE CORE1 BWD
ENABLE CORE2 FWD
ENABLE CORE2 BWD
备用Option
OPERATION WITH ROBOT
0V(FROM INJECTION MACHINE)
+24V(FROM INJECTION MACHINE)
MOLD CLOSED
MOLD OPEN POSITION
EJECTOR FORWARD POSITION
EJECTOR BACK POSITION
AUTOMATIC
CORE 1 FWD END
CORE 1 BWD END
CORE 2 FWD END
CORE 2 BWD END
备用Option
INTERMEDIATE MOLD POSITION
REJECT PART
ROBOT CONTROL POWER
SAFETY DOOR1 CLOSED
SAFETY DOOR2 CLOSED
EMERGENCY STOP1 OF MACHINE
EMERGENCY STOP2 OF MACHINE
ZA1,ZC1: 注塑机急停1(Machine emergency stop)
ZA2,ZC2: 注塑机急停2(Machine emergency stop2)
ZA3,ZC3: 安全门关1(Safty guards close1)
ZA4,ZC4: 安全门关2(Safty guards close2)
ZA5: 次品(备选)Reject(Option)
ZA6: 锁模终止(Mould closed)
ZA7: 开模到位(Mould opened)
ZA8: 开模中途位置到位(Mould intermediate pos.)
ZA9: +24V(机械手电源,Robot)
ZB2: 全自动模式(Auto mode)
ZB3: 退针到位(Ejector complete)
ZB4: 顶出到位(Ejcotor fwd end)
ZB5: 入芯1到位(备选,Option)
ZB6: 出芯1到位(备选,Option)
ZB7: 入芯2到位(备选,Option)
ZB8: 出芯2到位(备选,Option)
ZC5-ZC8: 未用(Not use)
ZC9: 0V(机械手电源,Robot)
A1,A2,A3 connect to C9!(0V)
A1,C1: 机械手急停1(Robot emergency stop1)
A2,C2: 机械手急停2(Robot emergency stop2)
A3,C3: 机手联锁(Mould area free)
A4,C4: 未用(Not use)
A5: 未用(Not use)
A6: 取出完成(Enable mould close)
A7: 允许锁模开模(备用,Option)
A8: 未用(Not use)
A9: +24V(塑机电源,Machine)
B2: 机械手连线(Robot use)
B3: 可以退针(Enable ejector bwd)
B4: 可以顶针(Enable ejector fwd)
B5: 允许入芯1(备选,Option)
B6: 允许出芯1(备选,Option)
B7: 允许入芯2(备选,Option)
B8: 允许出芯2(备选,Option)
C5-C8: 未用(Not use)
C9: 0V(塑机电源,Machine)
C1,C2,C3 connect to A1
A6,B3,B4,B5,B6 connect to A9! (+24V)
In CE machine, The power of relay ER11 should be control by safety module. The In/Outputs in red connect to I/O board, the others in extend I/O borad.
接注塑机侧 INJ. MACHINE
AiController
Pin ● 针 Socket ○ 孔
接机械手侧 ROBOT
绘图 Drawing JianBo Chen
日期 Date 12/03/2013
检查 Checking JianBo Chen
日期 Date 12/03/2013
批核 Approve S.T.Li
日期 Date 12/03/2013
名称: Title: Euromap 67
震雄机械厂有限公司 ChenHsong Machinery Co.,Ltd.
用于 Applications JM98~488
页码 Page 12
图号 Drawing Ai-CE-12
版本 Ver. 02


201(+24V)
REAR DOOR2
EMERGENCY
SB2
1S11a
FRONT DOOR1
EMERGENCY
SB1
1S12
1S11
1S21
1S22
To SCR2
To Ai I/O board input33
302
08/D5
11/E1
12/E1
EI033
05/B2
A1
S52
S12
S11
S21
S22
13
23
33
SCR1
Pilz
PNOZ X2.8P
Safety Relay 1
A2
S12
S34
14
24
34
1S12
1S34
SB3
Reset
402
01/D8
00
01/D8
00(0V)

绘图 Drawing	JianBo Chen	名 称: Title: Safety Relay 1	用于 Applications	页码 Page
日期 Date	13/03/2013		Ai_CE Series	07
检查 Checking	JianBo Chen		图号 Drawing	Ai-CE-07A2
日期 Date	13/03/2013	震雄机械厂有限公司 ChenHsong Machinery Co.,Ltd.		
批核 Approve	S.T.Li		版本 Ver.	02
日期 Date	13/03/2013			


201(+24V)
01/D8
Nozzle Gard
LS5
201A
A1
2S52
S52
2S11
S11
Safety Door
LS2
2S12
S12
2S21
S21
Front Door 1
LS0
2S22
S22
09/E6
302A
09/E6
032A
To Safety Relay 3
302A
13
23
33
SCR2
Pilz
PNOZ X2.8P
A2
S12
S34
2S12
2S34
Reset
SB3
14
24
34
302
00(0V)
07/C5
01/D8
01/D8
00(0V)

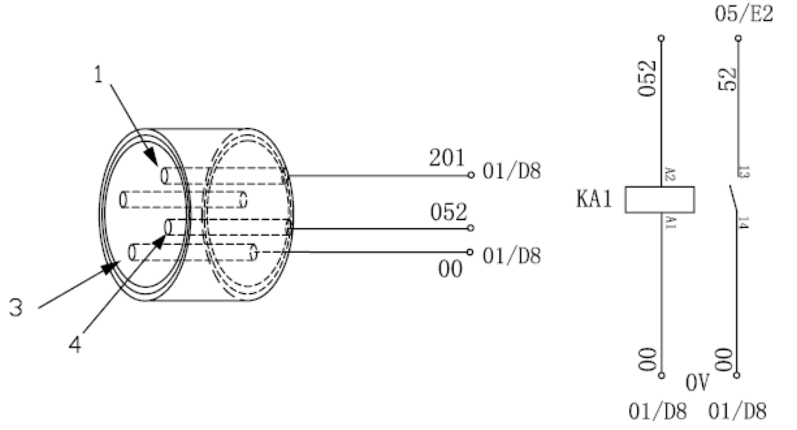
绘图 Drawing	JianBo Chen	名 称: Title: Safety Relay 2	用于 Applications	页码 Page
日期 Date	12/03/2013		Ai_CE Series	8
检查 Checking	JianBo Chen	震雄机械厂有限公司 ChenHsong Machinery Co.,Ltd.	图号 Drawing	Ai-CE-8A2
日期 Date	12/03/2013			
批核 Approve	S.T.Li		版本 Ver.	02
日期 Date	12/03/2013			


201(+24V)
01/D8
201
A1
3S52
S52
3S11
S11
3S12
S12
3S21
S21
3S22
S22
Rear Door 2
LS3
Rear Door 1
LS1
04/E3
09/C5
05/B2
202
32
To Ai Extend I/O Board
EIO32
13
23
33
SCR3
14
24
34
Pilz
PNOZ X2.8P
A2
S12
S34
2S12
2S34
Reset
SB3
302A
32A
08/C5
01/D8
00(0V)

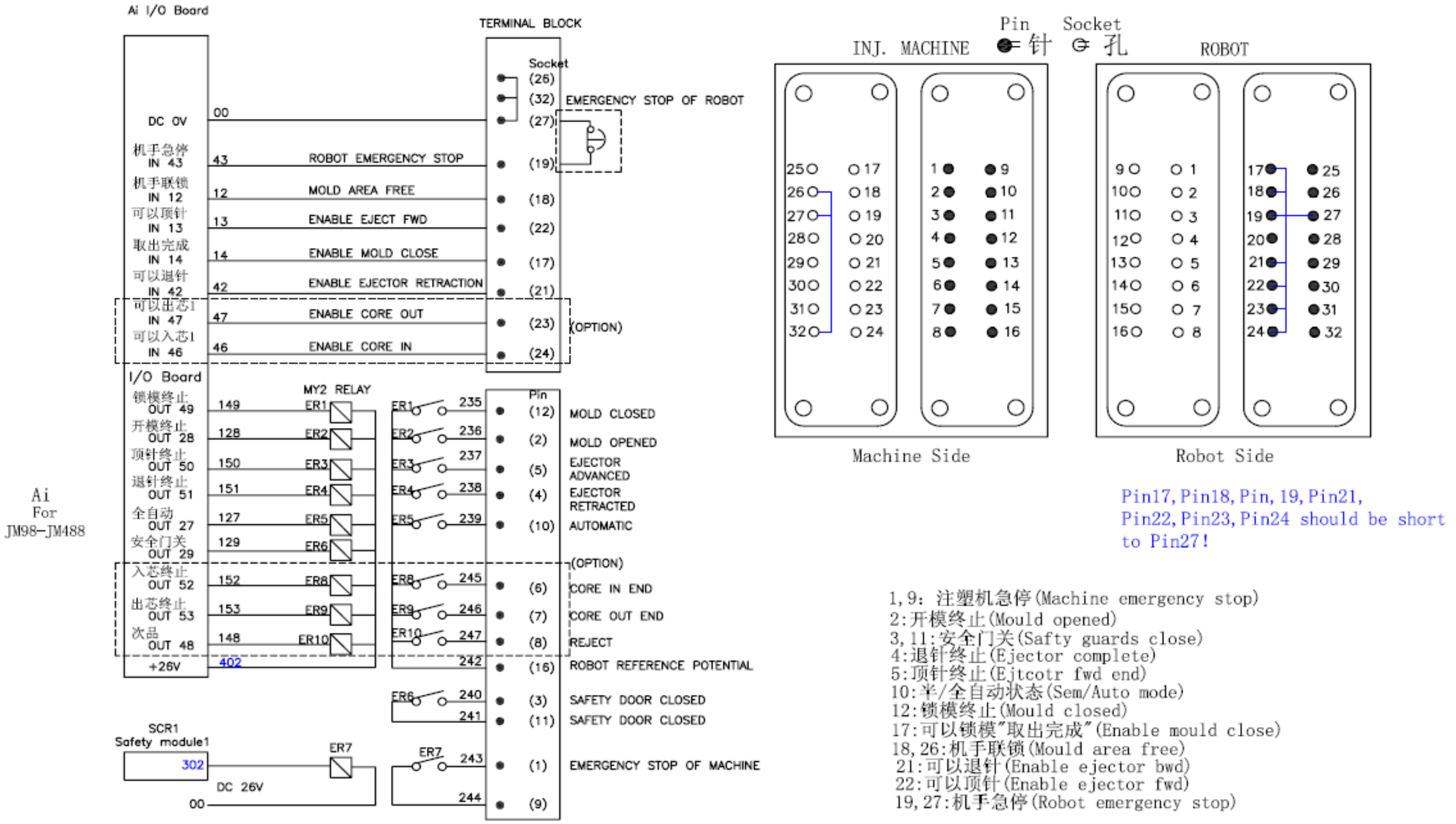
绘图 Drawing	JianBo Chen	名 称: Title: Safety Relay 2	用于 Applications	页码 Page
日期 Date	12/03/2013		Ai_CE Series	9
检查 Checking	JianBo Chen	震雄机械厂有限公司 ChenHsong Machinery Co.,Ltd.	图号 Drawing	Ai-CE-9
日期 Date	12/03/2013			
批核 Approve	S.T.Li		版本 Ver.	02
日期 Date	12/03/2013			

Open/Clamp Hydraulic Safety Valve Plug

1: +24V Supply
2: Signal Input
3: 0v
4: Signal Input


1
3
4
201
01/D8
052
00
01/D8
05/E2
052
52
KA1
A2
A1
13
14
00
00
0V
01/D8
01/D8

绘图 Drawing	JianBo Chen	名 称: Title: CE Safety Valve		用于 Applications Ai_CE Series	页码 Page 10
日期 Date	12/03/2013				
检查 Checking	JianBo Chen			图号 Drawing	Ai-CE-10
日期 Date	12/03/2013	震雄机械厂有限公司 ChenHsong Machinery Co.,Ltd.			
批核 Approve	S.T.Li			版本 Ver.	
日期 Date	12/03/2013				


Ai I/O Board
TERMINAL BLOCK
Socket
(26)
(32)
EMERGENCY STOP OF ROBOT
(27)
DC 0V
00
机手急停
IN 43
43
ROBOT EMERGENCY STOP
(19)
机手联锁
IN 12
12
MOLD AREA FREE
(18)
可以顶针
IN 13
13
ENABLE EJECT FWD
(22)
取出完成
IN 14
14
ENABLE MOLD CLOSE
(17)
可以退针
IN 42
42
ENABLE EJECTOR RETRACTION
(21)
可以出芯1
IN 47
47
ENABLE CORE OUT
(23)
(OPTION)
可以入芯1
IN 46
46
ENABLE CORE IN
(24)
I/O Board
MY2 RELAY
Pin
锁模终止
OUT 49
149
ER1
235
(12)
MOLD CLOSED
开模终止
OUT 28
128
ER2
236
(2)
MOLD OPENED
顶针终止
OUT 50
150
ER3
237
(5)
EJECTOR ADVANCED
退针终止
OUT 51
151
ER4
238
(4)
EJECTOR RETRACTED
全自动
OUT 27
127
ER5
239
(10)
AUTOMATIC
安全门关
OUT 29
129
ER6
(OPTION)
入芯终止
OUT 52
152
ER8
245
(6)
CORE IN END
出芯终止
OUT 53
153
ER9
246
(7)
CORE OUT END
次品
OUT 48
148
ER10
247
(8)
REJECT
+26V
402
242
(16)
ROBOT REFERENCE POTENTIAL
ER6
240
(3)
SAFETY DOOR CLOSED
241
(11)
SAFETY DOOR CLOSED
SCR1
Safety module1
302
ER7
DC 26V
00
ER7
243
(1)
EMERGENCY STOP OF MACHINE
244
(9)
Ai
For
JM98–JM488
Pin ● 针
Socket ⊖ 孔
INJ. MACHINE
ROBOT
25 26 27 28 29 30 31 32
17 18 19 20 21 22 23 24
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
9 10 11 12 13 14 15 16
1 2 3 4 5 6 7 8
17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32
Machine Side
Robot Side

Pin17, Pin18, Pin, 19, Pin21,
Pin22, Pin23, Pin24 should be short
to Pin27!

1, 9: 注塑机急停(Machine emergency stop)
2:开模终止(Mould opened)
3, 11:安全门关(Safty guards close)
4:退针终止(Ejector complete)
5:顶针终止(Ejtcotr fwd end)
10:半/全自动状态(Sem/Auto mode)
12:锁模终止(Mould closed)
17:可以锁模"取出完成"(Enable mould close)
18, 26:机手联锁(Mould area free)
21:可以退针(Enable ejector bwd)
22:可以顶针(Enable ejector fwd)
19, 27:机手急停(Robot emergency stop)

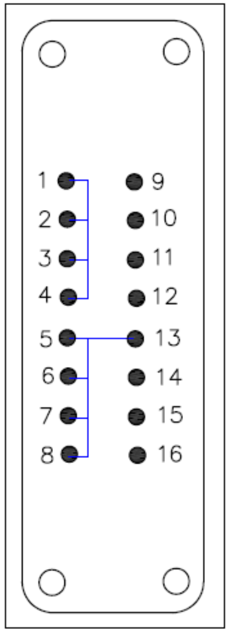
In CE machine, The power of Relay ER7 should be control by
safety module1.
The core pull in the hidden line is option in EUR12.

绘图 Drawing	JianBo Chen	名 称: Title: Euromap 12	用于 Applications	页码 Page
日期 Date	12/03/2013		Ai_CE Series	11
检查 Checking	JianBo Chen		图号 Drawing	Ai-CE-11
日期 Date	12/03/2013	震雄机械厂有限公司 ChenHsong Machinery Co., Ltd.		
批核 Approve	S.T.Li		版本 Ver.	02
日期 Date	12/03/2013			

CE13 Corepull & ejector interface

● = Pin

○ = Socket


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Device(Pin)

1-4:+24V

5-8:0V

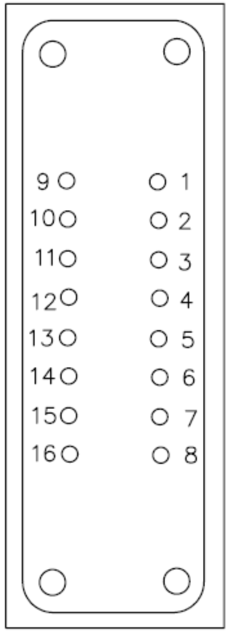
9:Core 1 retracted

10:Core 1 in mould

11:Core 2 retracted

12:Core 2 in mould

13:Ejector back end


9
10
11
12
13
14
15
16
1
2
3
4
5
6
7
8

Machine(Socket)

绘图 Drawing	JianBo Chen	名 称: Title:	Euromap 13	用于 Applications Ai Series	页码 Page 13
日期 Date	12/03/2013				
检查 Checking	JianBo Chen			图号 Drawing	Ai-CE-13
日期 Date	12/03/2013	震雄机械厂有限公司 ChenHsong Machinery Co.,Ltd.			
批核 Approve	S.T.Li			版本 Ver.	01
日期 Date	12/03/2013				