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Operating Instructions of Chen Hsong Ai-11 Multi-function Computer

I. Characteristics

- Designed and developed by Japan technology and complying with JIS inspection standards.
- 640×480 color LCD.
- Power range applied: AC110V～AC280V 50/60HZ.
- The light source of luminescence pipe has a high brightness with a long service life.
- The electronic components and production technique adopt the most advanced SMT technology with highest stability and reliability.
- Data can be stored for over 5 years safely.
- Freely choose from Chinese, English and another language for the convenience of study and operation.
- Intelligent fault detection and auxiliary operation instructions.
- Fully support the wireless network system – iChen.

II. Basic Features

- Effective storage capacity of 150 groups of forming data (like time, times, pressure, speed, stroke, metering, mould thickness, mould name, selection condition, temperature of raw materials, etc.)
- Detailed tips on online operation.
- Lock the software data by stage encryption.
- Mistake-proof tips when inputting data in case of unsuitable modification.
- Data modification can be stored in the central server online through iChen System.
- Most advanced SMT electric plate assembling technology with a high reliability.
- 32 bit high speed CPU.
- Automatic setting of high pressure clamping position.
- Proportional temperature control of nozzle (standard), supporting additional nozzle thermometer (optional).
- 8 groups of PID temperature control, adjustment between 30℃ and 500℃ with a high degree of accuracy.
- Cold material startup prevention, automatic temperature-keeping setting, nozzle block and material overflow detection.
- High and low temperature deviation setting and temperature sensor line break detection in operation.
- Injection 10 stage speed, 10 stage pressure and 10 stage pressure holding setting.
- Plasticizing 10 stage speed, 10 stage pressure and 10 stage back pressure setting.
- Support the function of 3 groups of blowing and 6 groups of core pulling (or 6 groups of unscrewing).
- Clamping, injection and ejector all adopt high precision optics encoder (standard) or potentiometer (optional).
- Storage of alarms historical records, convenient for the technique debugging and maintenance.
- Production quantity and batch setting, auto stop as per production quantity.
- Cooperate with iChen order arrangement system.
- Auto toggle lubrication setting. Oil starvation alarm.
- Figure display of operation actions, convenient for the supervision of injection moulding machine operation.
- Monitor of the cycle operation time, convenient for adjustment to shorten the cycle time.
- Injection speed and pressure standard graph and current graph comparison. Injection terminal statistics.
- Online monitor of the program running condition and all the status of inputs, outputs, timers and counters, convenient for debugging and maintenance.
- Support the monitor of 56 outputs, 56 inputs, 100 timers and 20 counters status.
- Free selection, duplication and erasion of mould data. The setting time can be saved by using the preset mould data inside the computer. Data can also be inputted through external SD card.
- Intelligent fault detection and auxiliary operation instructions.
- Support the temperature control of at most 60 groups of heat channels.
- Fully support the iChen network workshop management system.
- Fully support the iChen Wireless Network.

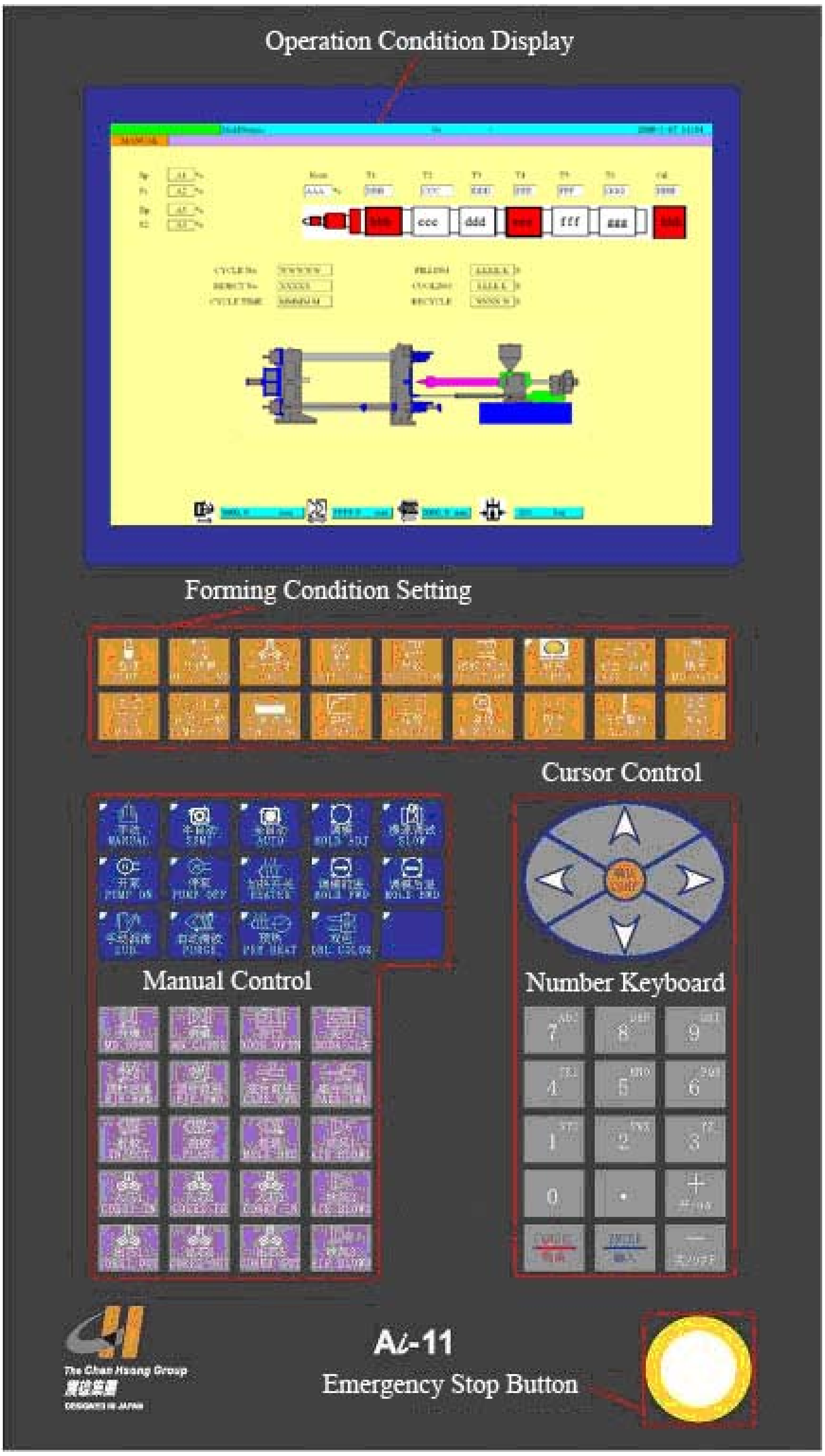
III. Function Comparison

Ai-11 Multi-function computer is the function enhancing edition of Ai-01 computer. The added functions include two stage of ejector, synchronizing core pulling and plasticizing, three groups of blowing, etc. The detailed comparison is as follows:

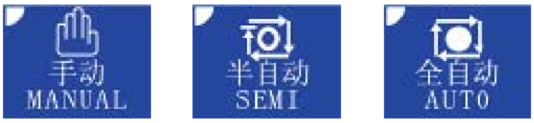
Function	CHAi-01	CHAi-11
Display	6 inch (320*240 points) Color screen	10.4 inch (640*480 points) Color screen
Input/Output	32 points	56 points
Injection control	5 stage	10 stage
Pressure holding control	5 stage	10 stage
Core pulling/Unscrewing	3 groups of core pulling, 1 group of unscrewing	6 groups of core pulling, or 6 groups of unscrewing
Heat channel	40 groups	60 groups

IV. Introduction to the Computer Panel

4.1 Computer Panel

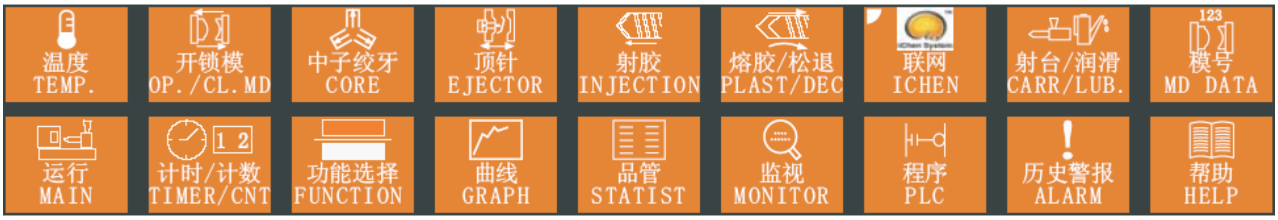

Operation Condition Display
Forming Condition Setting
Cursor Control
MANUAL
SEMI
AUTO
HOLD ADJ
SLOW
PUMP ON
PUMP OFF
HEATER
HOLD FWD
HOLD BWD
PURGE
PRE HEAT
DBL COLOR
Manual Control
Number Keyboard
7
8
9
4
5
6
1
2
3
0
.
+
−
ENTER
The Chen Hsong Group
震雄集團
DESIGNED IN JAPAN
Ai-11
Emergency Stop Button

4.2 Keys for Operation Mode Control


手动
MANUAL
半自动
SEMI
全自动
AUTO

This keyboard is responsible for the switch of forming operation mode.

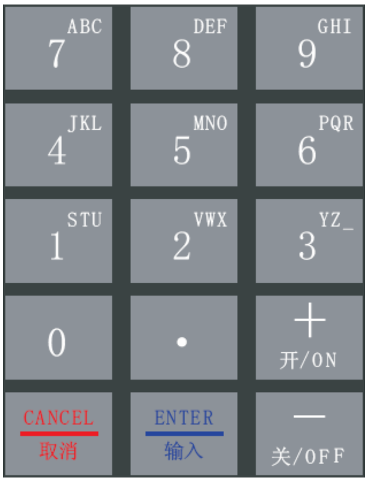
4.3 Keys for Forming Conditions Setting

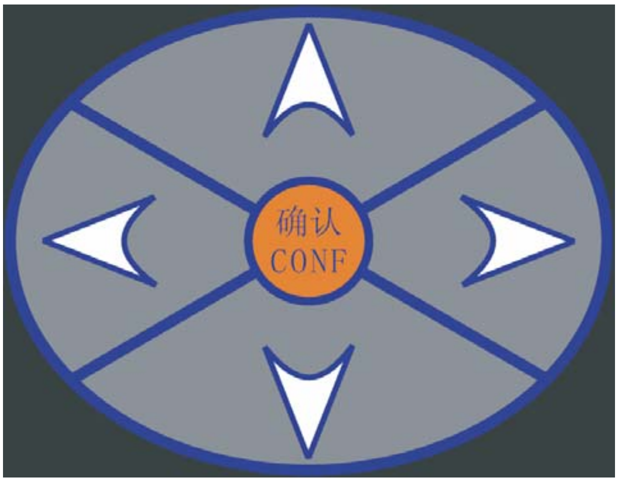

温度
TEMP.
开锁模
OP./CL.MD
中子绞牙
CORE
顶针
EJECTOR
射胶
INJECTION
熔胶/松退
PLAST/DEC
联网
ICHEN
射台/润滑
CARR/LUB.
123
模号
MD DATA
运行
MAIN
1 2
计时/计数
TIMER/CNT
功能选择
FUNCTION
曲线
GRAPH
品管
STATIST
监视
MONITOR
程序
PLC
历史警报
ALARM
帮助
HELP

This keyboard has the following functions:

1) Set the forming conditions like position, speed, pressure, time, counter, temperature, etc.
2) Change and rewrite the mould data.
3) According to the requirements of finished products and mould design, choose the forming functions or actions.
4) Under any operation interface, the cursor can be moved to the expected position for changing data.

4.4 Number Keyboard, Cursor Keys and Auxiliary Operation Function

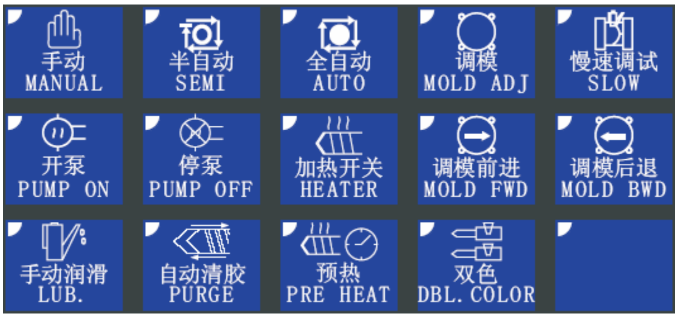

ABC
7
DEF
8
GHI
9
JKL
4
MNO
5
PQR
6
STU
1
VWX
2
YZ_
3
0
•
+
开/ON
CANCEL
取消
ENTER
输入
—
关/OFF

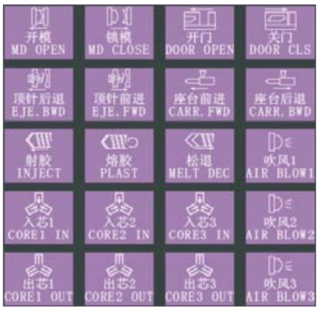


This keyboard has the following functions:

1) If press CANCEL 取消 + ENTER 输入 + 确认 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.
2) When operating the computer, press CANCEL 取消 and △ simultaneously, the function of pageup can be realized; press CANCEL 取消 and ▽ simultaneously, the function of pagedown can be realized.
3) 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 0～999.9 mm.
4) Inspection of the keyboard function.
5) Monitor of the operation status of all inputs, outputs, timers and counters.
6) Injection graph display.
7) Help information search.

4.5 Keys and Instructions for Manual Operation


手动 MANUAL
半自动 SEMI
全自动 AUTO
调模 MOLD ADJ
慢速调试 SLOW
开泵 PUMP ON
停泵 PUMP OFF
加热开关 HEATER
调模前进 MOLD FWD
调模后退 MOLD BWD
手动润滑 LUB.
自动清胶 PURGE
预热 PRE HEAT
双色 DBL. COLOR


开模 MD OPEN
锁模 MD CLOSE
开门 DOOR OPEN
关门 DOOR CLS
顶针后退 EJE.BWD
顶针前进 EJE.FWD
座台前进 CARR.FWD
座台后退 CARR.BWD
射胶 INJECT
熔胶 PLAST
松退 MELT DEC
吹风1 AIR BLOW1
入芯1 CORE1 IN
入芯2 CORE2 IN
入芯3 CORE3 IN
吹风2 AIR BLOW2
出芯1 CORE1 OUT
出芯2 CORE2 OUT
出芯3 CORE3 OUT
吹风3 AIR BLOW3

The keyboard for manual operation can individually operate some certain actions of entire action cycle.

4.6 Power 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

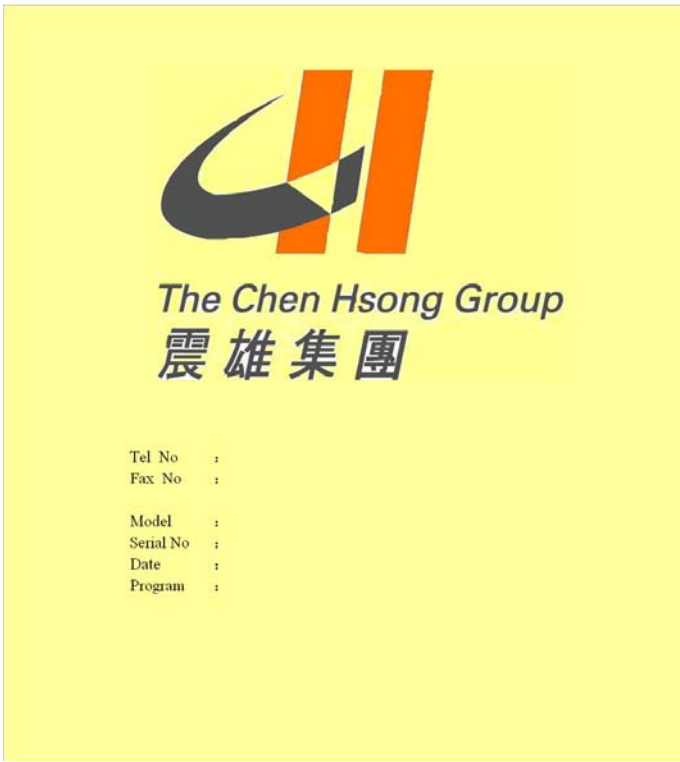
   The Start Button ● locates on the right under the computer operation panel. If the Emergency Stop Button has been released, the power of the machine can be switched on by pressing the Start Button. This function can effectively protect the control system.

3) A high-powered voltage regulation apparatus in the controller can bear the power supply of AC90V – AC265V 50/60HZ.

V. Operational Instructions for Computer Interfaces

5.1 Starting the Computer

Computer Startup Screen (01)

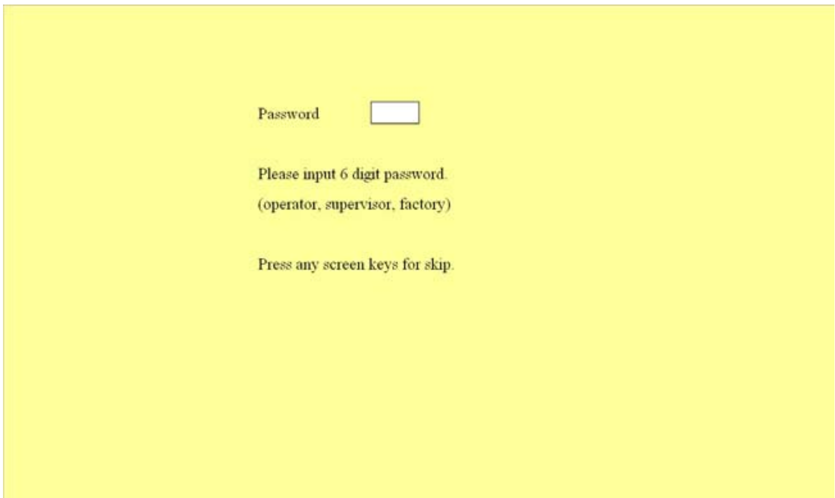


The Chen Hsong Group
震雄集團

Tel No :
Fax No :

Model :
Serial No :
Date :
Program :

Computer Startup Screen (02)



Password

Please input 6 digit password.
(operator, supervisor, factory)

Press any screen keys for skip.

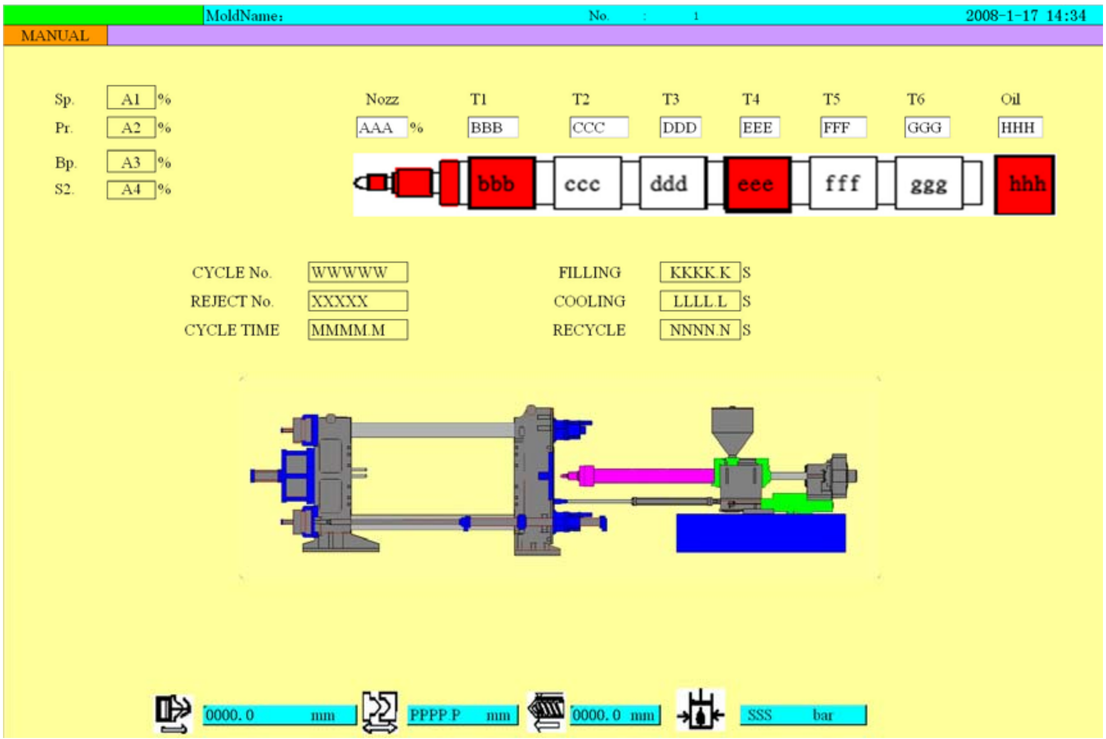
1) After turning on the computer, the system is under automatic inspection.If press CANCEL 取消 , the interface (01), which shows the machine type, machine model, serial number and program, will appear. If the machine needs maintenance or technical inquiry, please inform this information to the customer service department of our company for instant service.

2) If no action is conducted, the system will automatically switch to the interface (02) after about 3 seconds, which reminds you to input the 6 digits password or press any screen keys for skip. The password is classified into 3 levels of authorities: Operator, Supervisor and Factory. Each password will allow you to login the corresponding level of screens without inputting the password again. It will switch into operation interface (03) automatically after 3 seconds.

5.2 Normal Operation Setting

5.2.1 Normal Operation Screen

Normal Operation Screen (03)


MoldName:
No. : 1
2008-1-17 14:34
MANUAL
Sp. A1 %
Pr. A2 %
Bp. A3 %
S2. A4 %
Nozz
T1
T2
T3
T4
T5
T6
Oil
AAA %
BBB
CCC
DDD
EEE
FFF
GGG
HHH
bbb
ccc
ddd
eee
fff
ggg
hhh
CYCLE No. WWWWW
REJECT No. XXXXX
CYCLE TIME MMMM.M
FILLING KKKK.K S
COOLING LLLL.L S
RECYCLE NNNN.N S
0000.0 mm
PPPP.P mm
0000.0 mm
SSS bar

Press 运行 MAIN 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).

To modify the set value of temperature (Nozzle, T1~T6、Oil), use to select the temperature stage to be set, input the numerical value and press ENTER 输入, then the setting is complete.

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

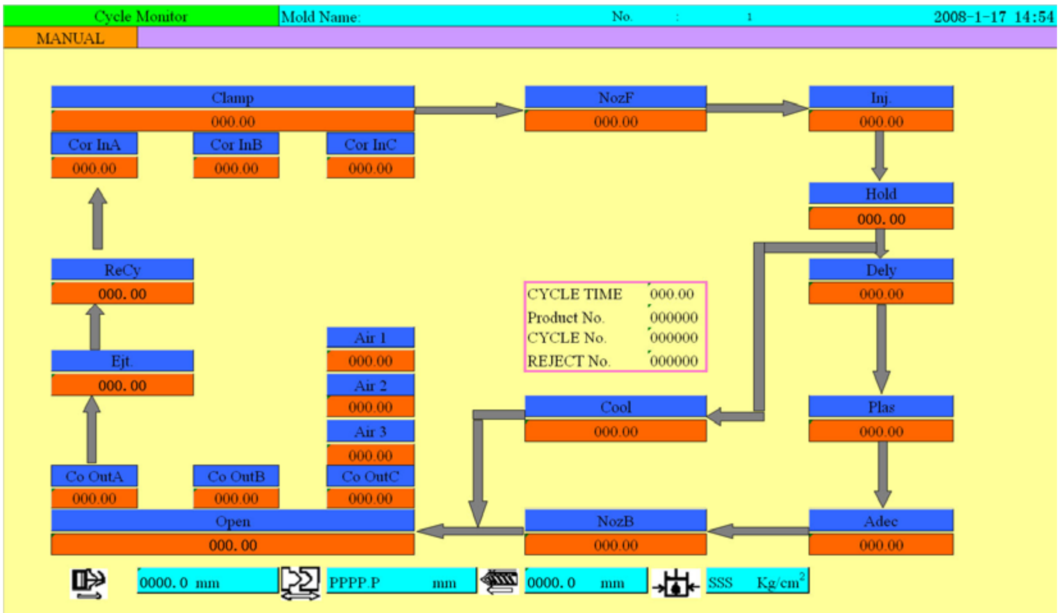
Of which:
"AAA": Nozzle heating proportional value setting
"BBB": Stage 1 temperature setting
"CCC": Stage 2 temperature setting
"DDD": Stage 3 temperature setting
"EEE": Stage 4 temperature setting

"FFF": Stage 5 temperature setting (depends on the machine capacity)
"GGG": Stage 6 temperature setting (depends on the machine capacity)
"HHH": Oil temperature setting
"W": No. of moulding produced display
"X": No. of rejected parts display
"K": Injection filling time display
"M": Cycle time display
"L": Cooling time display
"N": Recycle time display

"A1": Corresponding operation stage speed display
"A2": Corresponding operation stage pressure display
"A3": Corresponding operation stage back pressure display
"A4": Corresponding operation stage speed B display

5.2.2 Cycle Monitor

Cycle Monitor Screen (04)


Cycle Monitor
Mold Name:
No.
2008-1-17 14:54
MANUAL
Clamp
000.00
Cor InA
000.00
Cor InB
000.00
Cor InC
000.00
NozF
000.00
Inj.
000.00
Hold
000. 00
ReCy
000. 00
Dely
000.00
CYCLE TIME
000.00
Product No.
000000
CYCLE No.
000000
REJECT No.
000000
Air 1
000.00
Air 2
000.00
Air 3
000.00
Ejt.
000. 00
Cool
000.00
Plas
000.00
Co OutA
000.00
Co OutB
000.00
Co OutC
000.00
Open
000. 00
NozB
000.00
Adec
000.00
0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

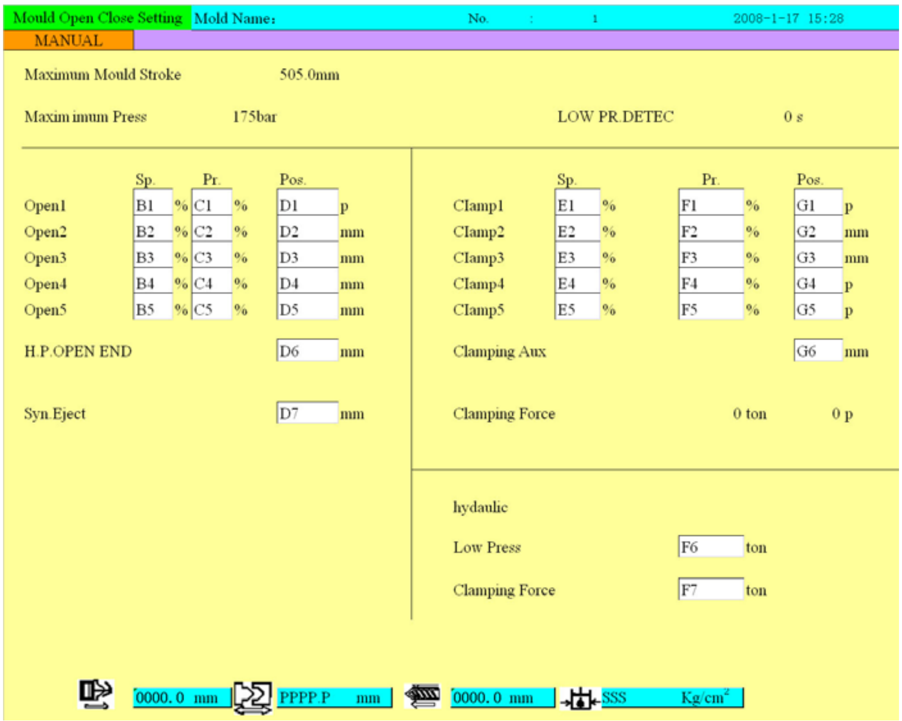
Press 运行 MAIN twice to enter the cycle monitor screen (04), which shows the entire action cycle:

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.

5.2.3 Mould Opening Setting

Mould Opening Setting Screen (05)



Mould Open Close Setting　Mold Name:　No. : 1　2008-1-17 15:28

MANUAL

Maximum Mould Stroke　505.0mm

Maxim imum Press　175bar　LOW PR.DETEC　0 s

	Sp.		Pr.		Pos.	
Open1	B1	%	C1	%	D1	p
Open2	B2	%	C2	%	D2	mm
Open3	B3	%	C3	%	D3	mm
Open4	B4	%	C4	%	D4	mm
Open5	B5	%	C5	%	D5	mm
H.P.OPEN END					D6	mm
Syn.Eject					D7	mm

	Sp.		Pr.		Pos.	
Clamp1	E1	%	F1	%	G1	p
Clamp2	E2	%	F2	%	G2	mm
Clamp3	E3	%	F3	%	G3	mm
Clamp4	E4	%	F4	%	G4	p
Clamp5	E5	%	F5	%	G5	p
Clamping Aux					G6	mm
Clamping Force			0 ton		0 p	

hydaulic

Low Press　F6 ton

Clamping Force　F7 ton

0000.0 mm　PPPP.P mm　0000.0 mm　SSS Kg/cm²

Press 开锁模 OP./CL.MD to enter mould opening setting screen (05).

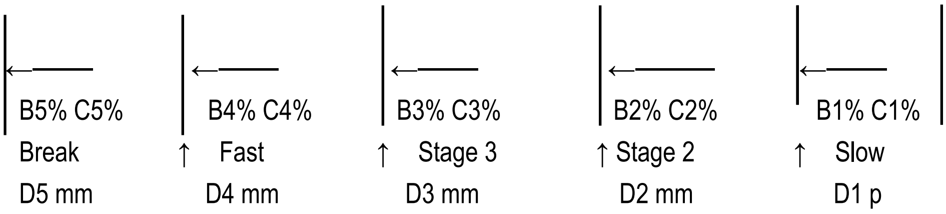
Use ▲▼◀▶ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

Adjustment of speed, pressure and position of mould opening and display of relevant parameters can be achieved in this screen.

Of which,

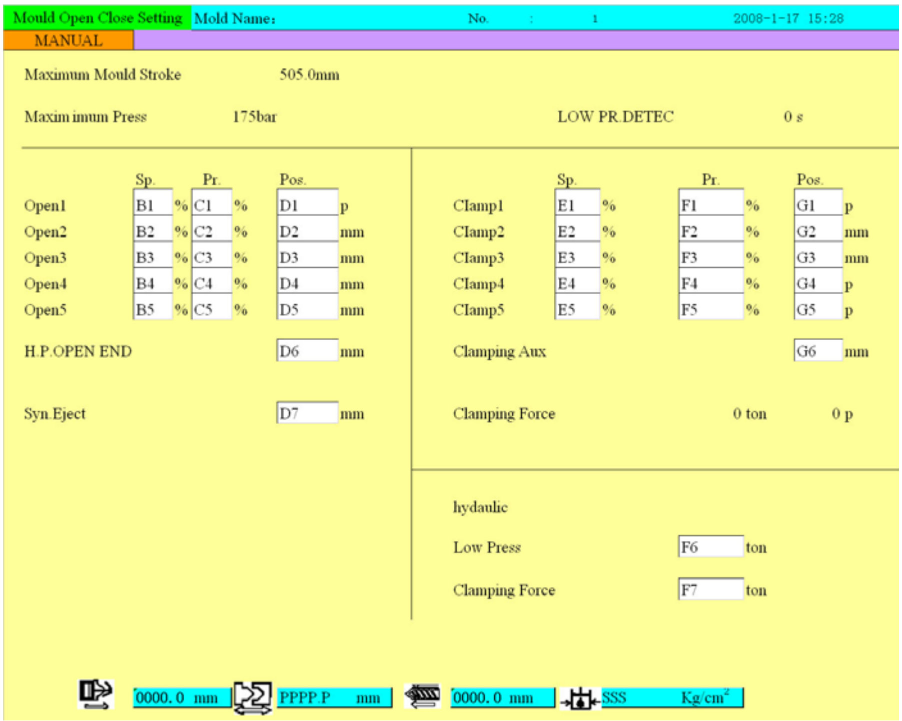
"B1": Slow mould open speed setting
"C1": Slow mould open pressure setting
"D1": Slow mould open end position setting
"B2": Stage 2 mould open speed setting
"C2": Stage 2 mould open pressure setting
"D2": Stage 2 mould open end position setting

"B3 ": Stage 3 mould open speed setting
"C3": Stage 3 mould open pressure setting
"D3": Stage 3 mould open end position setting
"B4": Fast mould open speed setting
"C4": Fast mould open pressure setting
"D4": Fast mould open end position setting
"B5": Break speed setting
"C5": Break pressure setting
"D5": Break end position setting
"D6": High pressure mould open end position setting
"D7": Mould open synchronized ejector setting


B5% C5%
Break
D5 mm
B4% C4%
Fast
D4 mm
B3% C3%
Stage 3
D3 mm
B2% C2%
Stage 2
D2 mm
B1% C1%
Slow
D1 p

5.2.4 Mould Clamping Setting

Mould Clamping Setting Screen (06)



Mould Open Close Setting | Mold Name: | No. : 1 | 2008-1-17 15:28

MANUAL

Maximum Mould Stroke 505.0mm

Maxim imum Press 175bar

LOW PR.DETEC 0 s

	Sp.		Pr.		Pos.	
Open1	B1	%	C1	%	D1	p
Open2	B2	%	C2	%	D2	mm
Open3	B3	%	C3	%	D3	mm
Open4	B4	%	C4	%	D4	mm
Open5	B5	%	C5	%	D5	mm
H.P.OPEN END					D6	mm
Syn.Eject					D7	mm

	Sp.		Pr.		Pos.	
Clamp1	E1	%	F1	%	G1	p
Clamp2	E2	%	F2	%	G2	mm
Clamp3	E3	%	F3	%	G3	mm
Clamp4	E4	%	F4	%	G4	p
Clamp5	E5	%	F5	%	G5	p
Clamping Aux					G6	mm
Clamping Force			0 ton		0 p	

hydaulic

Low Press F6 ton

Clamping Force F7 ton

Press 开锁模 OP./CL.MD to enter the mould clamping setting screen (06).

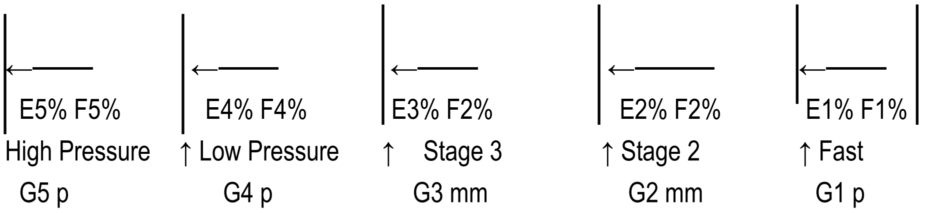
Use ◆ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

Adjustment of speed, pressure and position of mould clamping, setting of clamping force and system pressure for mould opening and clamping and display of relevant parameters can be achieved in this screen.

Of which,

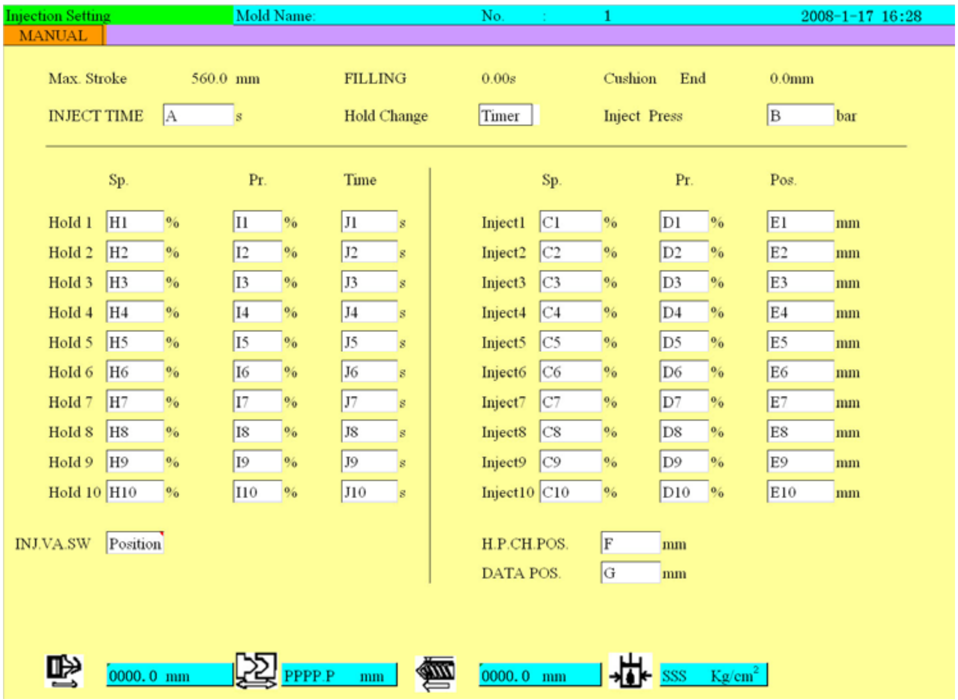
"E1": Mould clamp speed setting
"F1": Mould clamp pressure setting
"G1": Mould clamp end position setting
"E2": Stage 2 mould clamp speed setting
"F2": Stage 2 mould clamp pressure setting
"G2": Stage 2 mould clamp end position setting
"E3 ": Stage 3 mould clamp speed setting
"F3": Stage 3 mould clamp pressure setting
"G3": Stage 3 mould clamp end position setting
"E4": Low pressure mould clamp speed setting
"F4": Low pressure mould clamp pressure setting

"G4": Low pressure mould clamp end position setting
"E5": High pressure mould clamp speed setting
"F5": High pressure mould clamp pressure setting
"G5": High pressure mould clamp end position setting
"F6": Hydraulic mould clamp low pressure setting
"F7": Hydraulic mould clamp clamping force setting
"G6": Auxiliary mould clamp setting


E5% F5%
High Pressure
G5 p
E4% F4%
↑ Low Pressure
G4 p
E3% F2%
↑ Stage 3
G3 mm
E2% F2%
↑ Stage 2
G2 mm
E1% F1%
↑ Fast
G1 p

5.2.5 Injection Setting

Injection Setting Screen (07)



Injection Setting | Mold Name: | No. : 1 | 2008-1-17 16:28

MANUAL

Max. Stroke 560.0 mm | FILLING 0.00s | Cushion End 0.0mm

INJECT TIME A s | Hold Change Timer | Inject Press B bar

	Sp.	Pr.	Time		Sp.	Pr.	Pos.
Hold 1	H1 %	I1 %	J1 s	Inject1	C1 %	D1 %	E1 mm
Hold 2	H2 %	I2 %	J2 s	Inject2	C2 %	D2 %	E2 mm
Hold 3	H3 %	I3 %	J3 s	Inject3	C3 %	D3 %	E3 mm
Hold 4	H4 %	I4 %	J4 s	Inject4	C4 %	D4 %	E4 mm
Hold 5	H5 %	I5 %	J5 s	Inject5	C5 %	D5 %	E5 mm
Hold 6	H6 %	I6 %	J6 s	Inject6	C6 %	D6 %	E6 mm
Hold 7	H7 %	I7 %	J7 s	Inject7	C7 %	D7 %	E7 mm
Hold 8	H8 %	I8 %	J8 s	Inject8	C8 %	D8 %	E8 mm
Hold 9	H9 %	I9 %	J9 s	Inject9	C9 %	D9 %	E9 mm
Hold 10	H10 %	I10 %	J10 s	Inject10	C10 %	D10 %	E10 mm

INJ.VA.SW Position

H.P.CH.POS. F mm

DATA POS. G mm

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

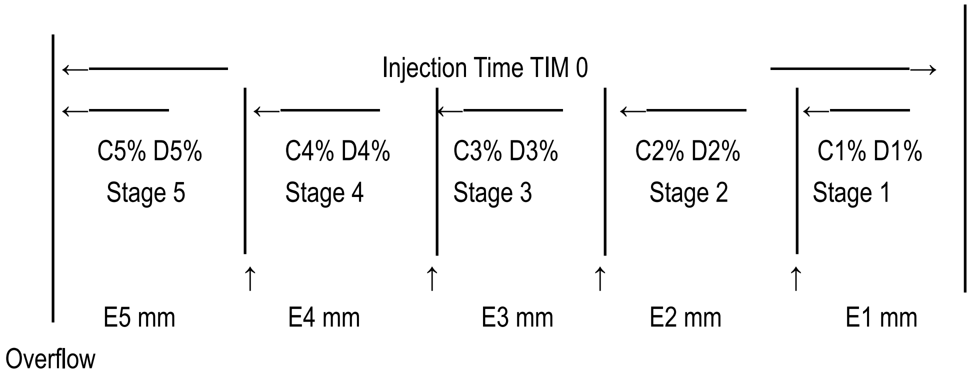
Press 射胶 INJECTION to enter the injection setting screen (07).

Use to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

Selection of pressure holding change mode (position, time and pressure), setting of injection time and pressure and proportion of each stage, setting of the position of pressure holding change and material overflow and display of relevant parameters can be achieved in this screen.

Of which,

"A": Injection time setting
"B": Injection pressure setting
"C": Stage 1~10 injection speed setting
"D": Stage 1~10 injection pressure setting
"E": Stage 1~10 injection end position setting



Tips: The low start speed of injection can prevent the crystalloid plastic fused mass from entering the nozzle, making it leave the sprue and inject into the injection unit cylinders.

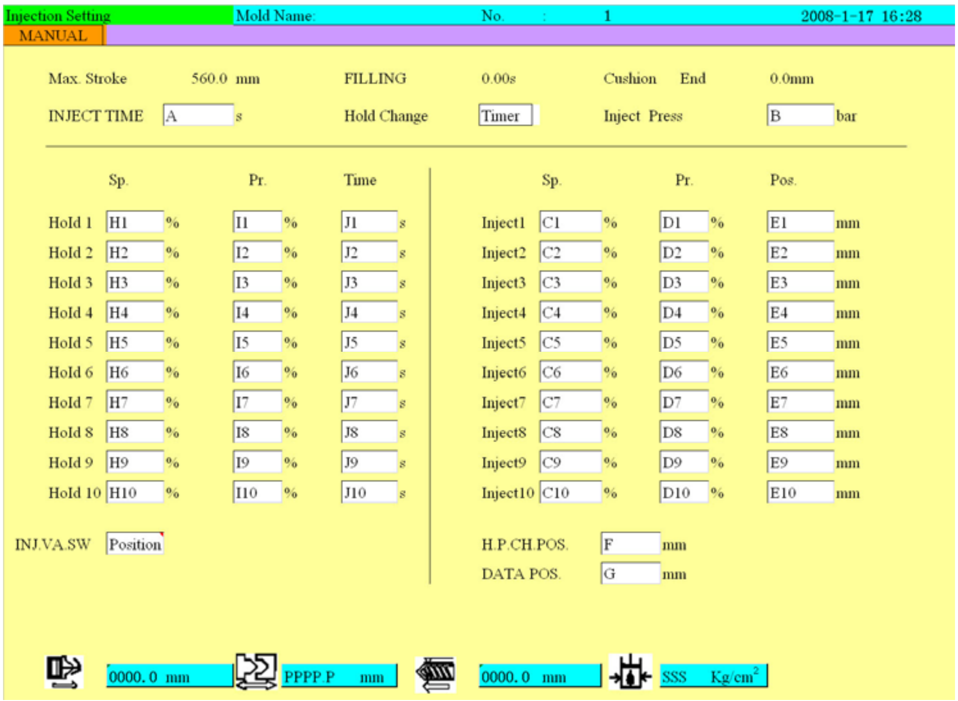
If the injection speed is too low, the shear heat will be insufficient and the crystallization in the runner will increase. This must be compensated by increasing the sprue temperature.

The sprue temperature can be decreased by increasing the injection speed. If the injection speed increases the shear heat in the machine and heat channel, the formation of acetaldehyde will speed up.

Note: A too high injection speed will shorten the ventilation time, so that increase the air resistance in the mould cavity. The following consequences will occur:
Injection is not stable with remarkable shrinks;
Eddy flow at the mould parting line;
Shear heat in the nozzle and sprue will increase and the temperature in the surface of ventilation and product will increase;
Deposited materials will increase due to the increase of gas generated;
Formation of acetaldehyde will increase.

5.2.6 Pressure Holding Setting

Pressure Holding Setting Screen (08)



Injection Setting Mold Name: No. : 1 2008-1-17 16:28

MANUAL

Max. Stroke 560.0 mm FILLING 0.00s Cushion End 0.0mm

INJECT TIME A s Hold Change Timer Inject Press B bar

	Sp.	Pr.	Time		Sp.	Pr.	Pos.
Hold 1	H1 %	I1 %	J1 s	Inject1	C1 %	D1 %	E1 mm
Hold 2	H2 %	I2 %	J2 s	Inject2	C2 %	D2 %	E2 mm
Hold 3	H3 %	I3 %	J3 s	Inject3	C3 %	D3 %	E3 mm
Hold 4	H4 %	I4 %	J4 s	Inject4	C4 %	D4 %	E4 mm
Hold 5	H5 %	I5 %	J5 s	Inject5	C5 %	D5 %	E5 mm
Hold 6	H6 %	I6 %	J6 s	Inject6	C6 %	D6 %	E6 mm
Hold 7	H7 %	I7 %	J7 s	Inject7	C7 %	D7 %	E7 mm
Hold 8	H8 %	I8 %	J8 s	Inject8	C8 %	D8 %	E8 mm
Hold 9	H9 %	I9 %	J9 s	Inject9	C9 %	D9 %	E9 mm
Hold 10	H10 %	I10 %	J10 s	Inject10	C10 %	D10 %	E10 mm

INJ.VA.SW Position

H.P.CH.POS. F mm

DATA POS. G mm

0000.0 mm PPPP.P mm 0000.0 mm SSS Kg/cm²

Press 射胶 INJECTION to enter the pressure holding setting screen (08).

Use to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

To choose the mode, use to find the parameters to be selected, and use + 开/ON or − 关/OFF to select.

Setting of the speed, pressure and position of pressure holding, selection of needle valve switch mode (position and time) and pressure holding change mode (time, pressure and position) and display of relevant parameters can be achieved in this screen.

Of which,

"H": Stage 1~10 pressure holding speed setting

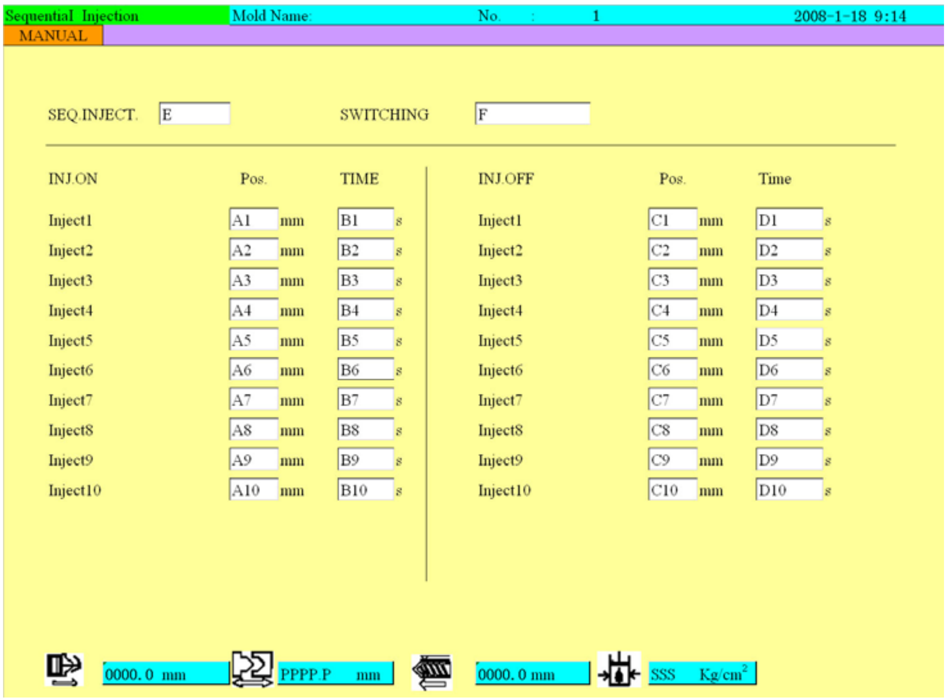
"I": Stage 1~10 pressure holding pressure setting

"J": Stage 1~10 pressure holding time setting

J10 s	J9 s	……s	J2 s	J1 s
←———	←————	←————	←————	←——
H10% I10%	H9% I9%	**% **%	H2%I2%	H1% I1%
Stage 10	Stage 9	Stage **	Stage 2	Stage 1

5.2.7 Sequential Injection Control (Heat Channel Needle Valve Control) Setting

Sequential Injection Control Setting Screen (09)



Sequential Injection | Mold Name: | No. : 1 | 2008-1-18 9:14

MANUAL

SEQ.INJECT. E

SWITCHING F

INJ.ON	Pos.	TIME	INJ.OFF	Pos.	Time
Inject1	A1 mm	B1 s	Inject1	C1 mm	D1 s
Inject2	A2 mm	B2 s	Inject2	C2 mm	D2 s
Inject3	A3 mm	B3 s	Inject3	C3 mm	D3 s
Inject4	A4 mm	B4 s	Inject4	C4 mm	D4 s
Inject5	A5 mm	B5 s	Inject5	C5 mm	D5 s
Inject6	A6 mm	B6 s	Inject6	C6 mm	D6 s
Inject7	A7 mm	B7 s	Inject7	C7 mm	D7 s
Inject8	A8 mm	B8 s	Inject8	C8 mm	D8 s
Inject9	A9 mm	B9 s	Inject9	C9 mm	D9 s
Inject10	A10 mm	B10 s	Inject10	C10 mm	D10 s

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

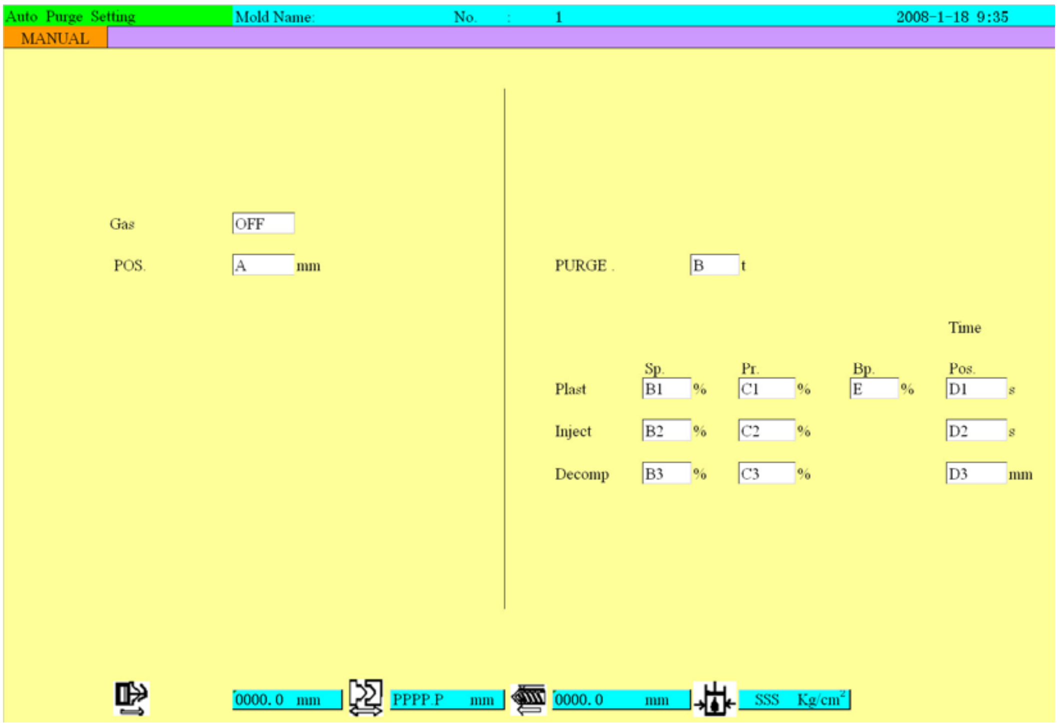
Press 射胶 INJECTION two times to enter the sequential injection control setting screen (09).

Use ▲▼◄► to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

This interface is used to control the injection sequence of each mould cavity (position and time control). (Optional function)

5.2.8 Automatic Purge Setting

Automatic Purge Setting Screen (10)



Auto Purge Setting Mold Name: No. : 1 2008-1-18 9:35

MANUAL

Gas OFF

POS. A mm

PURGE . B t

	Sp.	Pr.	Bp.	Time Pos.
Plast	B1 %	C1 %	E %	D1 s
Inject	B2 %	C2 %		D2 s
Decomp	B3 %	C3 %		D3 mm

0000. 0 mm PPPP.P mm 0000. 0 mm SSS Kg/cm²

Press 射胶 INJECTION three times to enter the automatic purge setting screen (10).

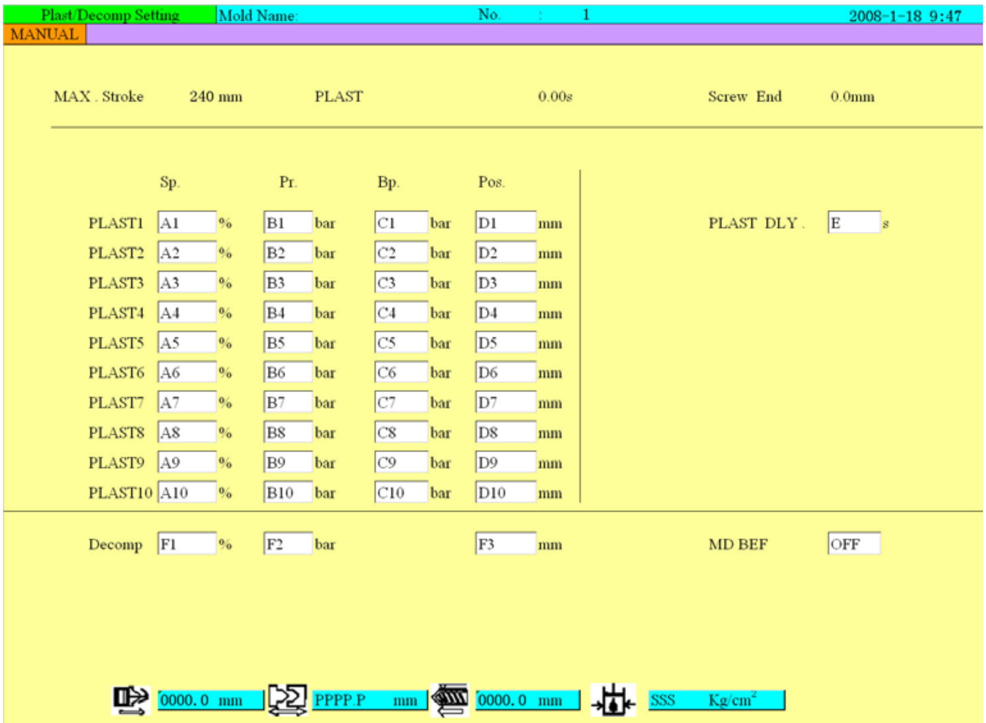
Use to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

To choose the mode, use to find the parameters to be selected, and use + 开/ON or — 关/OFF to select.

The function of automatic purge is used when changing plastics and offers the setting of relevant parameters during the purge. The purge times is the number that the plastics being injected from the barrel. (Optional function)

5.2.9 Plasticization/Decompression Setting

Plasticization/Decompression Setting Screen (11)



Plast/Decomp Setting | Mold Name: | No. : 1 | 2008-1-18 9:47

MANUAL

MAX. Stroke 240 mm | PLAST 0.00s | Screw End 0.0mm

	Sp.		Pr.		Bp.		Pos.	
PLAST1	A1	%	B1	bar	C1	bar	D1	mm
PLAST2	A2	%	B2	bar	C2	bar	D2	mm
PLAST3	A3	%	B3	bar	C3	bar	D3	mm
PLAST4	A4	%	B4	bar	C4	bar	D4	mm
PLAST5	A5	%	B5	bar	C5	bar	D5	mm
PLAST6	A6	%	B6	bar	C6	bar	D6	mm
PLAST7	A7	%	B7	bar	C7	bar	D7	mm
PLAST8	A8	%	B8	bar	C8	bar	D8	mm
PLAST9	A9	%	B9	bar	C9	bar	D9	mm
PLAST10	A10	%	B10	bar	C10	bar	D10	mm
Decomp	F1	%	F2	bar			F3	mm

PLAST DLY. E s

MD BEF OFF

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

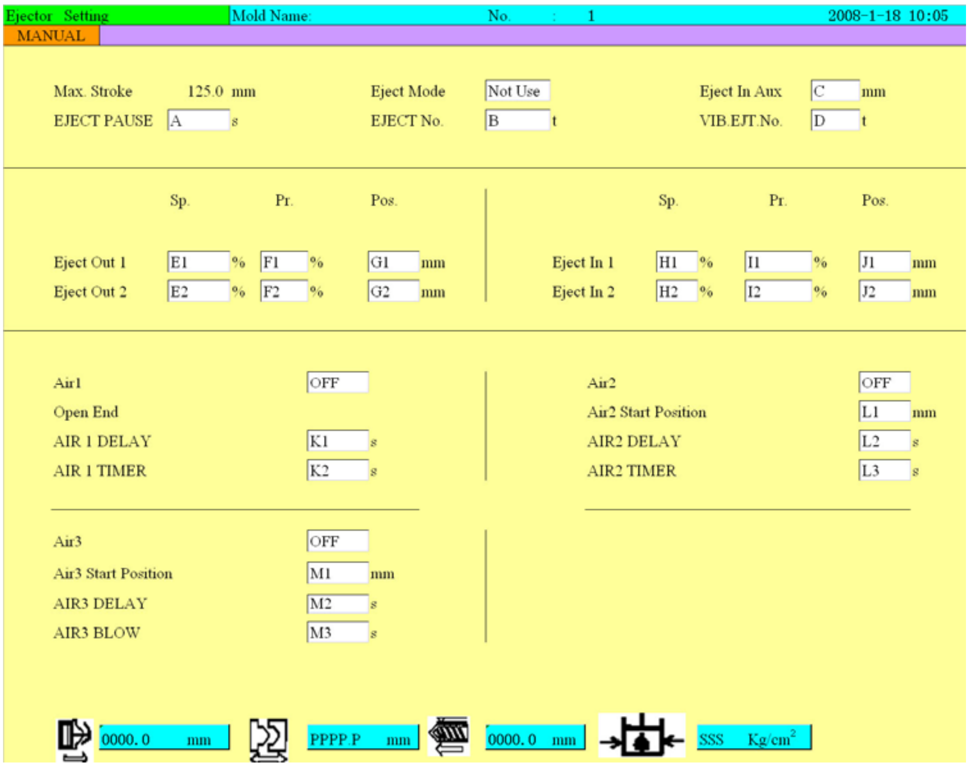
Press 熔胶/松退 PLAST/DEC to enter the plasticization/decompression setting screen (11).

Use ▲▼◀▶ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

This interface can be used to set the speed, pressure, back pressure and position of plasticizing, to control the speed, pressure and position of decompression, to set the time delay of plasticizing and to inspect relevant parameters.

5.2.10 Ejector Setting

Ejector Setting Screen (12)



Ejector Setting | Mold Name: | No. : 1 | 2008-1-18 10:05

MANUAL

Max. Stroke 125.0 mm | Eject Mode: Not Use | Eject In Aux: C mm

EJECT PAUSE: A s | EJECT No.: B t | VIB.EJT.No.: D t

	Sp.	Pr.	Pos.		Sp.	Pr.	Pos.
Eject Out 1	E1 %	F1 %	G1 mm	Eject In 1	H1 %	I1 %	J1 mm
Eject Out 2	E2 %	F2 %	G2 mm	Eject In 2	H2 %	I2 %	J2 mm

Air1: OFF
Open End
AIR 1 DELAY: K1 s
AIR 1 TIMER: K2 s

Air2: OFF
Air2 Start Position: L1 mm
AIR2 DELAY: L2 s
AIR2 TIMER: L3 s

Air3: OFF
Air3 Start Position: M1 mm
AIR3 DELAY: M2 s
AIR3 BLOW: M3 s

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Press 顶针 EJECTOR to enter the ejector setting screen (12).

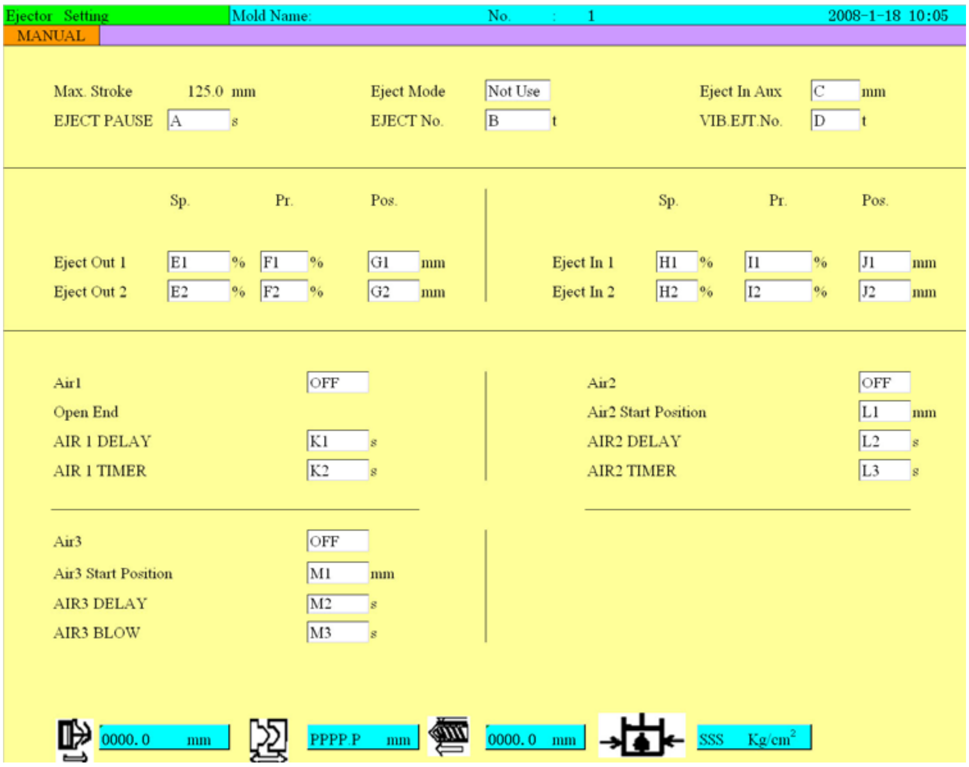
Use ◀▲▼▶ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

To choose the mode, use ◀▲▼▶ to find the parameters to be selected, and use ＋ 开/ON or － 关/OFF to select.

The interface is used to set the parameters of speed, pressure and position in each stage of ejector and other advanced parameters, including 3 kinds of ejector modes (Not Use, Stop and Multi), auxiliary ejector, ejector pause, eject number and vibration ejector.

5.2.11 Blowing Setting

Blowing Setting Screen (13)



Ejector Setting | Mold Name: | No. : 1 | 2008-1-18 10:05

MANUAL

Max. Stroke 125.0 mm
EJECT PAUSE A s
Eject Mode Not Use
EJECT No. B t
Eject In Aux C mm
VIB.EJT.No. D t

	Sp.	Pr.	Pos.
Eject Out 1	E1 %	F1 %	G1 mm
Eject Out 2	E2 %	F2 %	G2 mm
Eject In 1	H1 %	I1 %	J1 mm
Eject In 2	H2 %	I2 %	J2 mm

Air1 OFF
Open End
AIR 1 DELAY K1 s
AIR 1 TIMER K2 s

Air2 OFF
Air2 Start Position L1 mm
AIR2 DELAY L2 s
AIR2 TIMER L3 s

Air3 OFF
Air3 Start Position M1 mm
AIR3 DELAY M2 s
AIR3 BLOW M3 s

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Press 顶针 EJECTOR to enter the blowing setting screen (13).

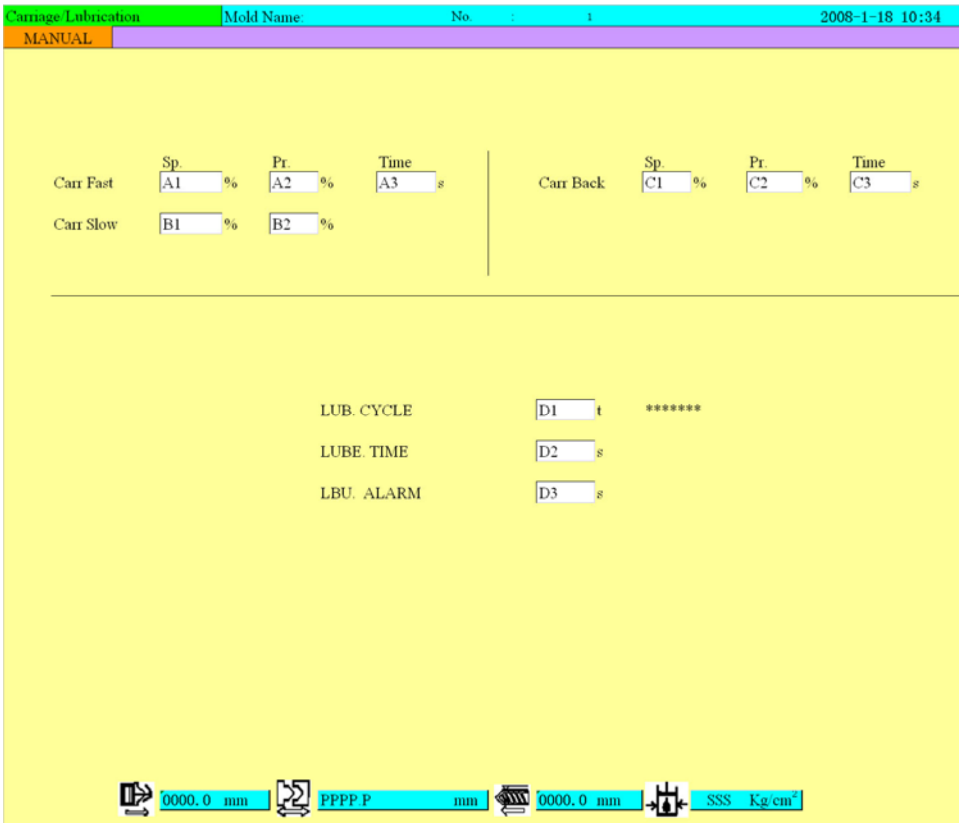
Use ◀▲▼▶ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

To choose the mode, use ◀▲▼▶ to find the parameters to be selected, and use + 开/ON or − 关/OFF to select.

This interface is used to completely control 3 groups of blowing device (including the start of blowing in groups, starting position, time delay of action and the duration of action).

5.2.12 Carriage Setting

Carriage Setting Screen (14)



Carriage/Lubrication | Mold Name: | No. : 1 | 2008-1-18 10:34

MANUAL

	Sp.		Pr.		Time	
Carr Fast	A1	%	A2	%	A3	s
Carr Slow	B1	%	B2	%		
Carr Back	C1	%	C2	%	C3	s

LUB. CYCLE D1 t *******

LUBE. TIME D2 s

LBU. ALARM D3 s

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

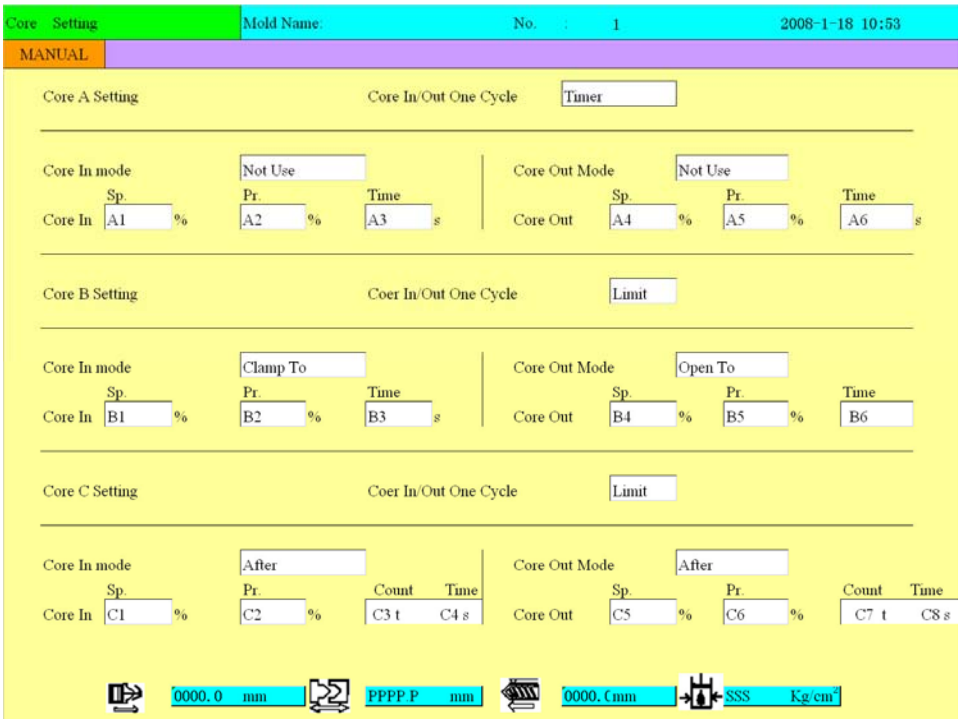
Press 射台/润滑 CARR/LUB. to enter the carriage setting screen (14).

Use ▲▼◀▶ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

This interface is used to control the advance or retraction of the carriage, using the parameters of speed, pressure and time to set (for example, carriage fast forward: advance for A3 seconds with the speed of A1% and the pressure of A2%, then advance with the parameters of carriage slow forward).

5.2.13 Core Pulling Setting

Core Pulling 1 Setting Screen (15)



Core Setting | Mold Name: | No. : 1 | 2008-1-18 10:53

MANUAL

Core A Setting — Core In/Out One Cycle: Timer

Core In mode: Not Use — Core Out Mode: Not Use

Core In: Sp. A1 % Pr. A2 % Time A3 s — Core Out: Sp. A4 % Pr. A5 % Time A6 s

Core B Setting — Coer In/Out One Cycle: Limit

Core In mode: Clamp To — Core Out Mode: Open To

Core In: Sp. B1 % Pr. B2 % Time B3 s — Core Out: Sp. B4 % Pr. B5 % Time B6

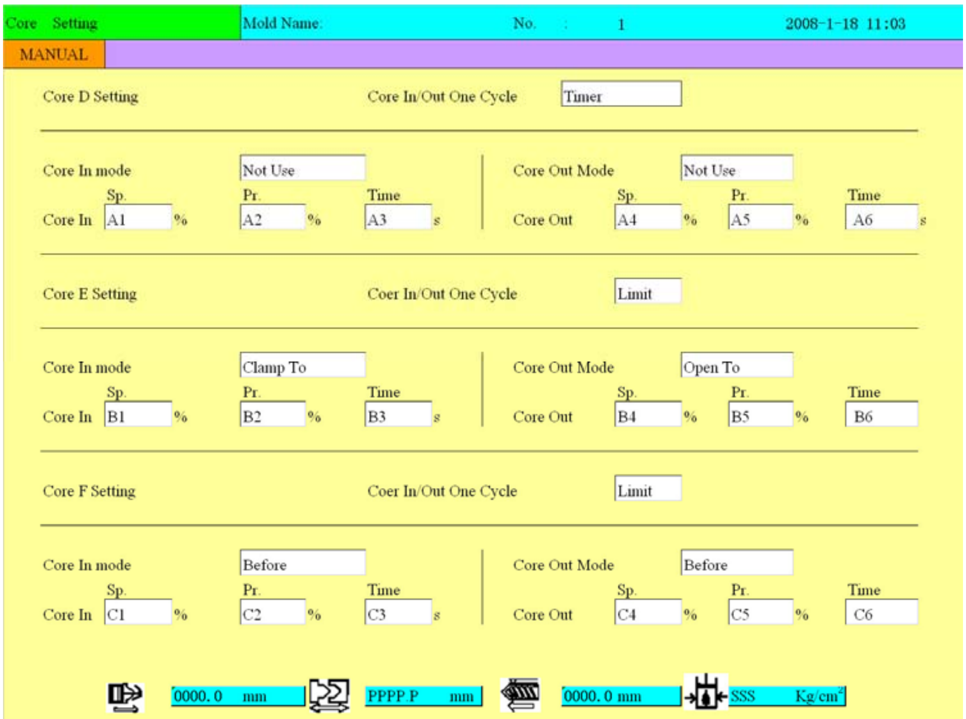
Core C Setting — Coer In/Out One Cycle: Limit

Core In mode: After — Core Out Mode: After

Core In: Sp. C1 % Pr. C2 % Count C3 t Time C4 s — Core Out: Sp. C5 % Pr. C6 % Count C7 t Time C8 s

0000.0 mm | PPPP.P mm | 0000.(mm | SSS Kg/cm²

Core Pulling 2 Setting Screen (16)



Core Setting | Mold Name: | No. : 1 | 2008-1-18 11:03

MANUAL

Core D Setting — Core In/Out One Cycle: Timer

Core In mode: Not Use — Core Out Mode: Not Use

Core In: Sp. A1 % Pr. A2 % Time A3 s — Core Out: Sp. A4 % Pr. A5 % Time A6 s

Core E Setting — Coer In/Out One Cycle: Limit

Core In mode: Clamp To — Core Out Mode: Open To

Core In: Sp. B1 % Pr. B2 % Time B3 s — Core Out: Sp. B4 % Pr. B5 % Time B6

Core F Setting — Coer In/Out One Cycle: Limit

Core In mode: Before — Core Out Mode: Before

Core In: Sp. C1 % Pr. C2 % Time C3 s — Core Out: Sp. C4 % Pr. C5 % Time C6

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Press 中子绞牙 CORE one time or two times, then the core pulling 1 setting screen (15) or core pulling 2 setting screen (16) will appear.

Use ▲▼◀▶ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

To choose the mode, use ▲▼◀▶ to find the parameters to be selected, and use + 开/ON or — 关/OFF to select.

Core is the action of pulling and inserting cores, that is, during mould clamping, use the oil cylinder to insert the core into the mould for injection; while during mould opening, pull back the core to the original position. This function mostly applies to moulds whose finished products are hollow.

Unscrewing is the revolving positioning control on the finished products with unscrewing by the oil hydraulic motor.

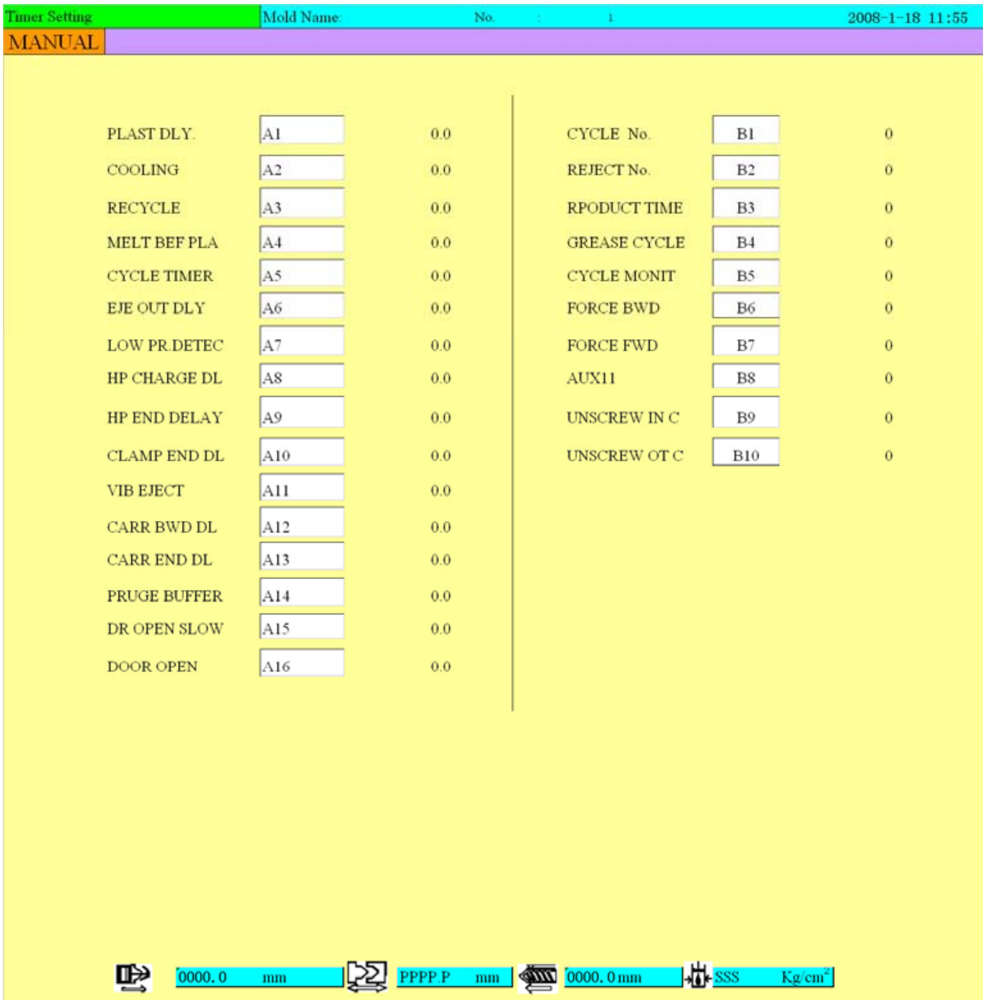
Please check if the machine has relevant configurations before using the functions above.

Setting of Core/Unscrewing: Computer can offer at most 6 groups of Core/Unscrewing control, subject to the configuration of the machine. Each Core/Unscrewing can individually set the pressure, speed and action time according to requirements.

Note: In the automatic mode, the injection and core are approaching at the same time in case that the core will contract due to injection, so the Core and Unscrewing cannot be used simultaneously. When using the function of unscrewing, the mode of Core In/Out One Cycle shall be selected as Timer.

5.2.14 Timer Setting

Timer Setting Screen (17)



Timer Setting | Mold Name: | No. : 1 | 2008-1-18 11:55

MANUAL

PLAST DLY	A1	0.0	CYCLE No.	B1	0
COOLING	A2	0.0	REJECT No.	B2	0
RECYCLE	A3	0.0	RPODUCT TIME	B3	0
MELT BEF PLA	A4	0.0	GREASE CYCLE	B4	0
CYCLE TIMER	A5	0.0	CYCLE MONIT	B5	0
EJE OUT DLY	A6	0.0	FORCE BWD	B6	0
LOW PR.DETEC	A7	0.0	FORCE FWD	B7	0
HP CHARGE DL	A8	0.0	AUX11	B8	0
HP END DELAY	A9	0.0	UNSCREW IN C	B9	0
CLAMP END DL	A10	0.0	UNSCREW OT C	B10	0
VIB EJECT	A11	0.0			
CARR BWD DL	A12	0.0			
CARR END DL	A13	0.0			
PRUGE BUFFER	A14	0.0			
DR OPEN SLOW	A15	0.0			
DOOR OPEN	A16	0.0			

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

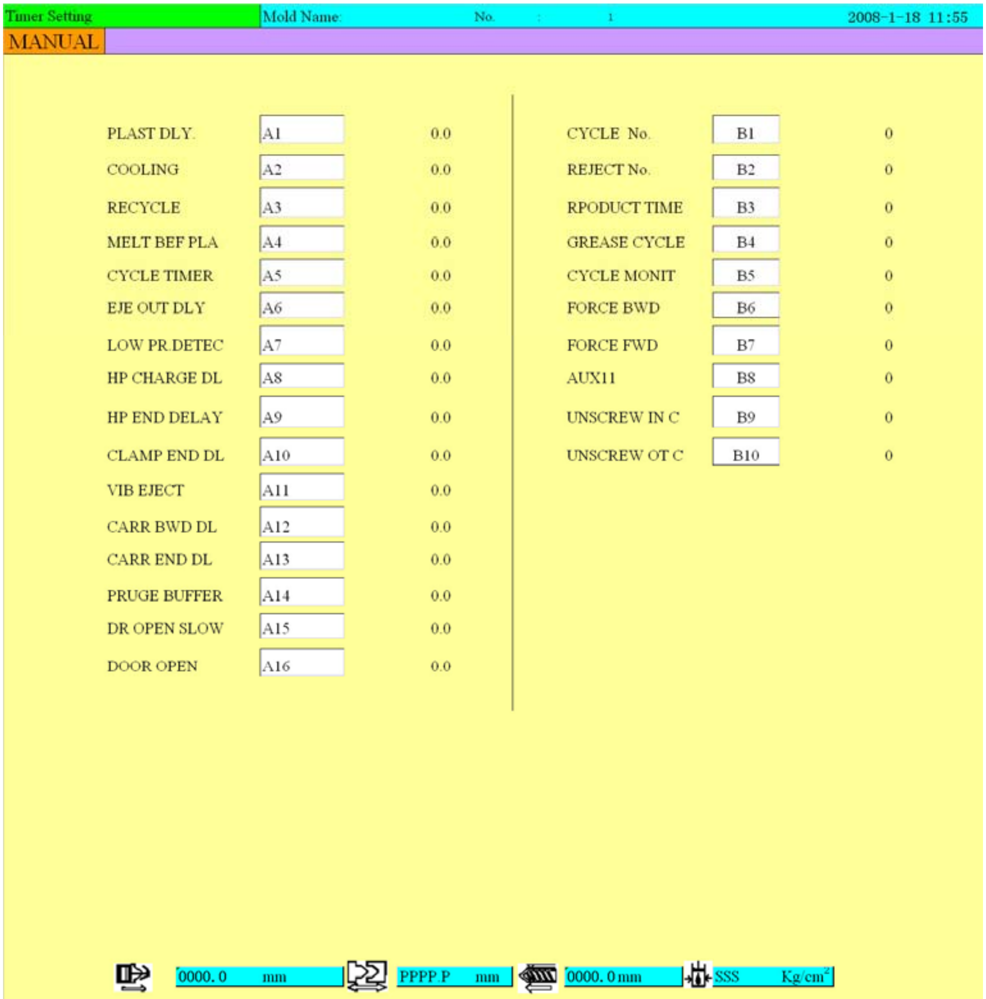
Press 1 2 计时/计数 TIMER/CNT one time to enter the timer setting screen (17).

Use ▲▼◀▶ to select the parameters be set, input the numerical value and press ENTER 输入, then the setting is complete.

This interface is used to set the parameters of relevant timers inside the controller (including the following time relay: plasticizing delay, cooling time, recycle, decompression before plasticizing, cycle alarm, eject out delay, low pressure clamping detection, high pressure charge delay, high pressure end delay, clamping end delay, vibration ejection, carriage backward delay, carriage end delay, purge buffer, slow door open and door open time).

5.2.15 Counter Setting

Counter Setting Screen (18)



Timer Setting | Mold Name: | No. : 1 | 2008-1-18 11:55

MANUAL

PLAST DLY	A1	0.0	CYCLE No.	B1	0
COOLING	A2	0.0	REJECT No.	B2	0
RECYCLE	A3	0.0	RPODUCT TIME	B3	0
MELT BEF PLA	A4	0.0	GREASE CYCLE	B4	0
CYCLE TIMER	A5	0.0	CYCLE MONIT	B5	0
EJE OUT DLY	A6	0.0	FORCE BWD	B6	0
LOW PR DETEC	A7	0.0	FORCE FWD	B7	0
HP CHARGE DL	A8	0.0	AUX11	B8	0
HP END DELAY	A9	0.0	UNSCREW IN C	B9	0
CLAMP END DL	A10	0.0	UNSCREW OT C	B10	0
VIB EJECT	A11	0.0			
CARR BWD DL	A12	0.0			
CARR END DL	A13	0.0			
PRUGE BUFFER	A14	0.0			
DR OPEN SLOW	A15	0.0			
DOOR OPEN	A16	0.0			

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

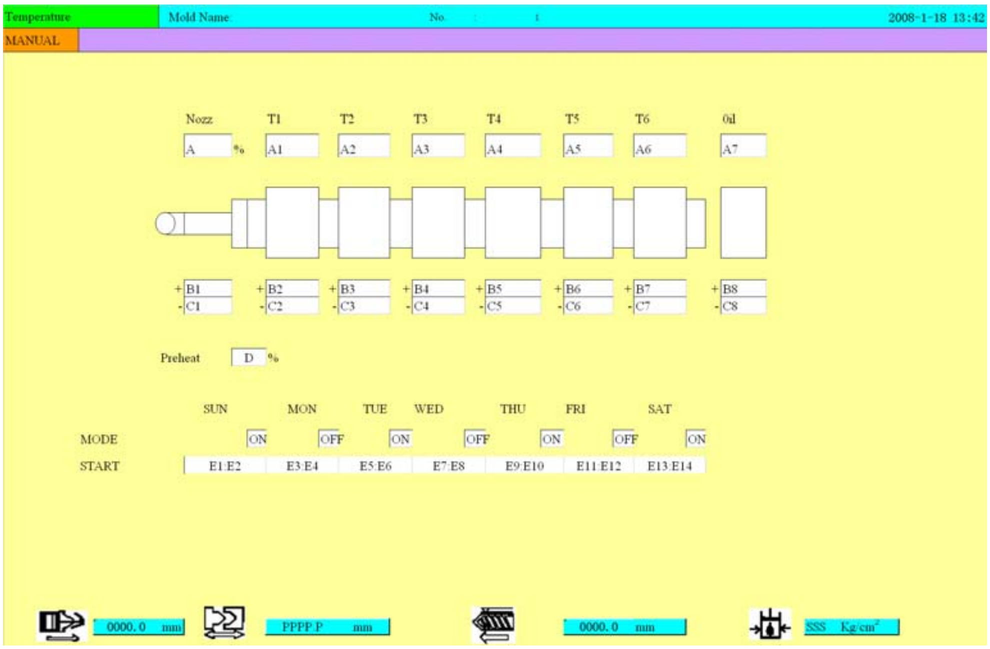
Press 计时/计数 TIMER/CNT, then the counter setting screen (18) will appear.

Use ✥ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

This interface can be used to set the parameters of relevant counters inside the controller (including the following counter relay: cycle number, rejected part number, production time, grease cycle, cycle monitor, force backward, force forward, auxiliary 11, unscrew in C count and unscrew out C count).

5.2.16 Temperature Deviation Alarm Setting

Temperature Deviation Alarm Setting Screen (19)


Temperature
Mold Name:
No.
2008-1-18 13:42
MANUAL
Nozz
T1
T2
T3
T4
T5
T6
Oil
A %
A1
A2
A3
A4
A5
A6
A7
+B1
-C1
+B2
-C2
+B3
-C3
+B4
-C4
+B5
-C5
+B6
-C6
+B7
-C7
+B8
-C8
Preheat
D %
SUN
MON
TUE
WED
THU
FRI
SAT
MODE
ON
OFF
ON
OFF
ON
OFF
ON
START
E1:E2
E3:E4
E5:E6
E7:E8
E9:E10
E11:E12
E13:E14
0000.0 mm
PPPP.P mm
0000.0 mm
SSS Kg/cm²

Press 温度 TEMP., then the temperature deviation alarm setting screen (19) will appear.

Use ▲▼◀▶ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

This interface is used to control the temperature of each stage of the barrel. The “A” values are the set temperature of each stage, generally working in combination with parameter “B”, “C” (if A=200, B=10, C=10, thus the temperature is controlled between “A - C” and “A + B”, that is 190^0C~210^0C).

Alarm will ring if the temperature exceeds the range: “AL03: Barrel Temperature Not Reach” or “AL43: Barrel Temperature Too High”.

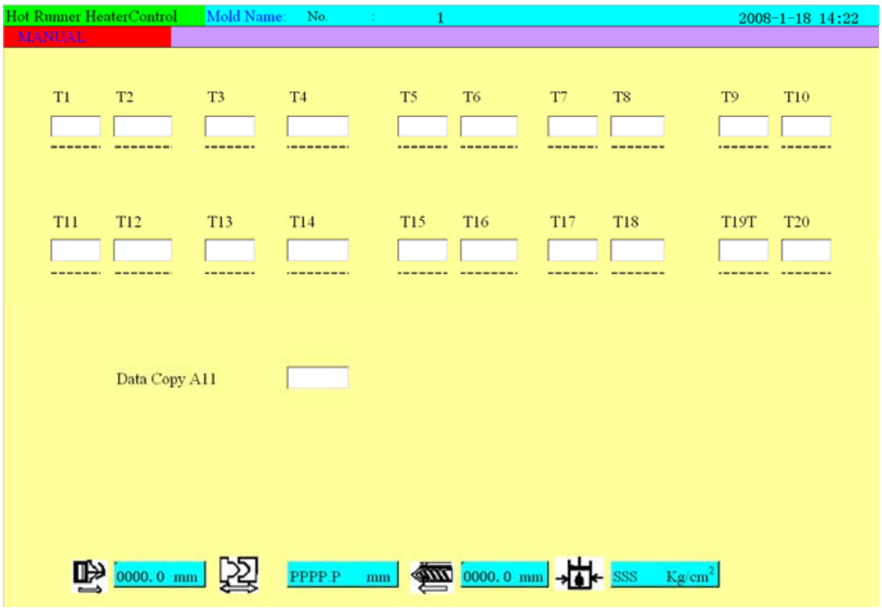
Preheat Function: control the current temperature of each stage of barrel as A×D%.

The parameters “E” and “F” are used to achieve the automatic operation, which is convenient for the customization of production schedule.

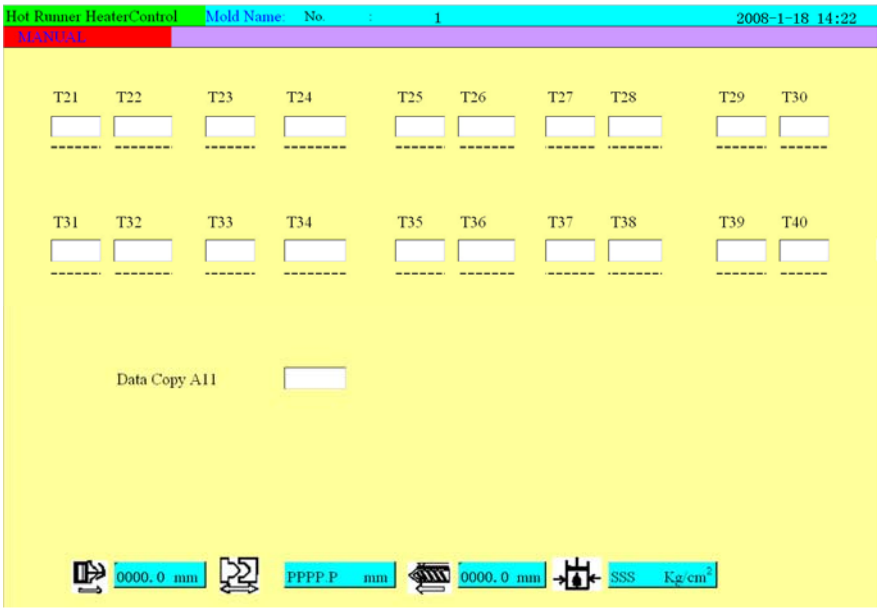
The blue digit on the barrel is the actual temperature of current barrel.

5.2.17 Heat Channel Setting

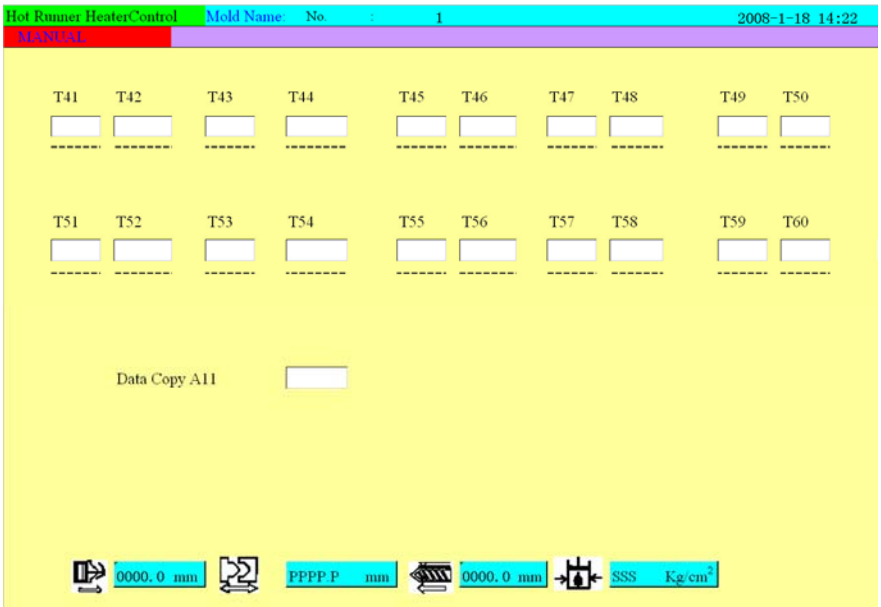
Heat Channel Setting Screen (20)


Hot Runner HeaterControl
Mold Name:
No.
:
1
2008-1-18 14:22
MANUAL
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T13
T14
T15
T16
T17
T18
T19T
T20
Data Copy All
0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

Heat Channel Setting Screen (21)


Hot Runner HeaterControl
Mold Name:
No.
:
1
2008-1-18 14:22
MANUAL
T21
T22
T23
T24
T25
T26
T27
T28
T29
T30
T31
T32
T33
T34
T35
T36
T37
T38
T39
T40
Data Copy All
0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

Heat Channel Setting Screen (22)


Hot Runner HeaterControl
Mold Name:
No.
1
2008-1-18 14:22
MANUAL
T41
T42
T43
T44
T45
T46
T47
T48
T49
T50
T51
T52
T53
T54
T55
T56
T57
T58
T59
T60
Data Copy A11
0000.0 mm
PPPP.P mm
0000.0 mm
SSS Kg/cm²

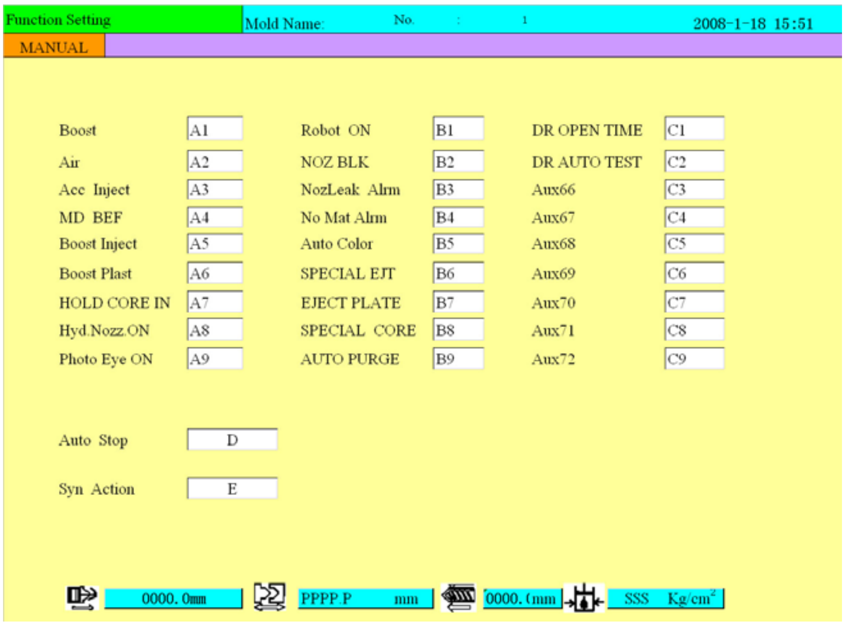
Press 温度 TEMP. 2, 3 or 4 times, then the heat channel setting screen (20), (21) or (22) will appear separately.

Use ▲◀▶▼ to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

This interface can realize the independent control of the temperature of each mould heat channel, making the temperature control more flexible and accurate (optional function).

5.2.18 Function Setting

Function Setting Screen (23)



Function Setting | Mold Name: No. : 1 | 2008-1-18 15:51

MANUAL

Boost	A1	Robot ON	B1	DR OPEN TIME	C1
Air	A2	NOZ BLK	B2	DR AUTO TEST	C2
Acc Inject	A3	NozLeak Alrm	B3	Aux66	C3
MD BEF	A4	No Mat Alrm	B4	Aux67	C4
Boost Inject	A5	Auto Color	B5	Aux68	C5
Boost Plast	A6	SPECIAL EJT	B6	Aux69	C6
HOLD CORE IN	A7	EJECT PLATE	B7	Aux70	C7
Hyd.Nozz.ON	A8	SPECIAL CORE	B8	Aux71	C8
Photo Eye ON	A9	AUTO PURGE	B9	Aux72	C9

Auto Stop D

Syn Action E

Press 功能选择 FUNCTION then the function setting screen (23) will appear.

Use to move the cursor to the function to be set, press + 开/ON to select “ON”; press − 关/OFF to select “OFF”, then the setting is complete.

1) Auto Stop: use + 开/ON or − 关/OFF to select the following four modes, which are used with forming numbers, production batch setting and fault stop.
   (i) Not Use
   (ii) Pump
   (iii) Heater
   (iv) Pump&Heater

2) Syn Action:
   (i) Eject: When choosing Eject, the mould opening and ejection can be processed at the same time, and the position of mould opening when the ejection is started can be set.
   (ii) Plast: When choosing Plast, the mould opening and ejection can be processed while plasticizing.
   (iii) Core: When choosing Core, the action of core inserting and pulling can be processed while mould opening and clamping.
   (iv) Not Use

3) Acc Inject: When choosing “ON”, the nitrogen injection device can be used (User has to order this device separately).

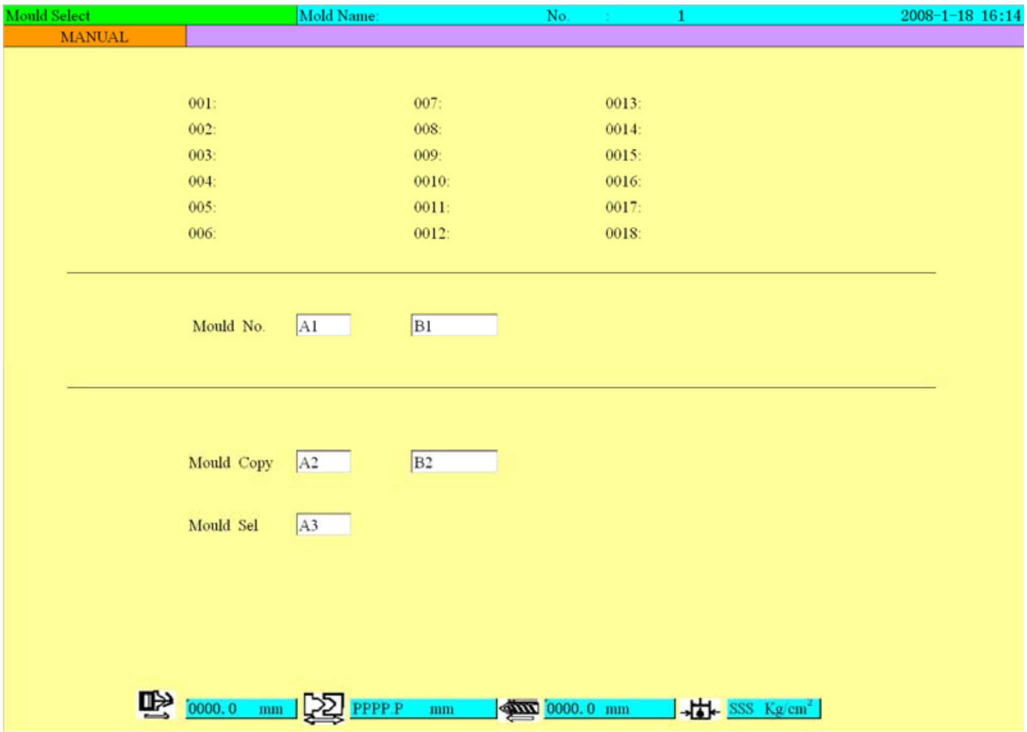
4) NozLeak Alrm: When choosing “ON”, alarm will ring if the nozzle leaks (optional device).

5) No Mat Alrm: When choosing “ON”, alarm will ring if there is no material in the hopper; when choosing “OFF”, no alarm will be given even if the plasticizing is not completed when the cooling time ends.

6) The meanings of other functions can be understood literally, so no further descriptions will be given hereby.

5.2.19 Mould Data Selection

Mould Data Selection Screen (24)



Mould Select | Mold Name: | No. : 1 | 2008-1-18 16:14

MANUAL

001: 007: 0013:
002: 008: 0014:
003: 009: 0015:
004: 0010: 0016:
005: 0011: 0017:
006: 0012: 0018:

Mould No. A1 B1

Mould Copy A2 B2

Mould Sel A3

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm^2

Press MD DATA and the mould data selection screen (24) will appear.

The procedure of mould data operation:

1) Move the cursor to the position of mould number A1, input the number and press ENTER, thus complete the setting of mould number.

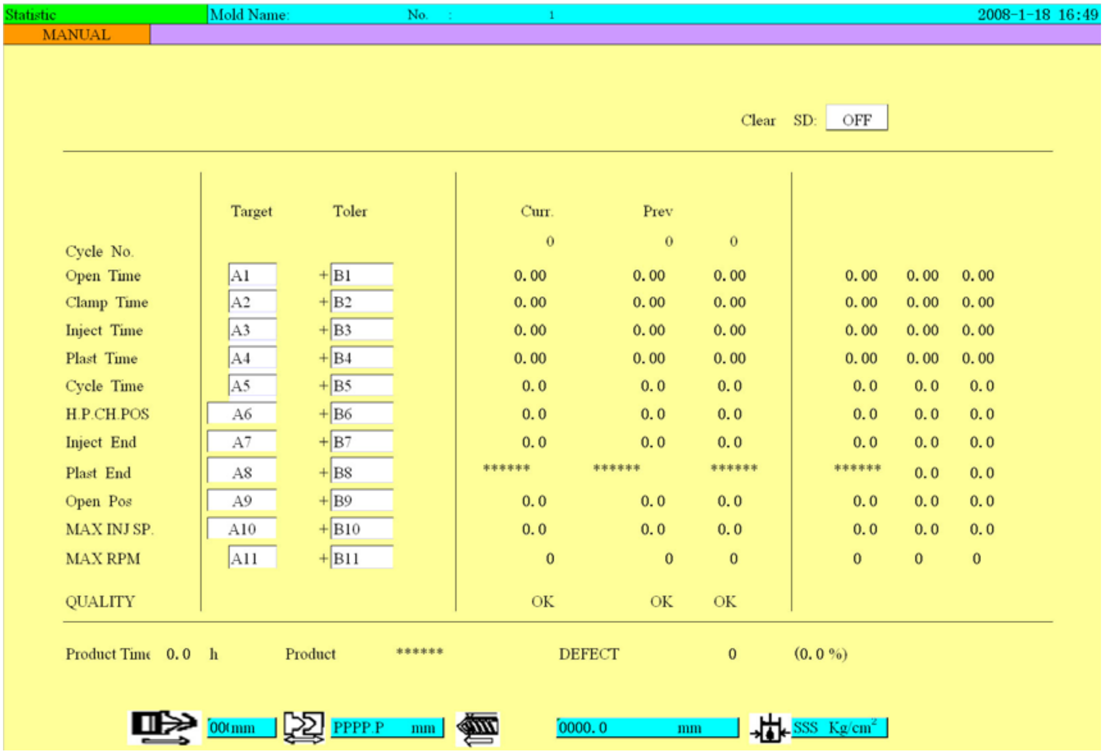
2) Use ▲▼◀▶ to move the cursor to the position of B1, input the letters or digits use ▲▼◀▶ to input the next letter. Then press ENTER to complete the setting of mould data remark.

3) If changing the mould number 01 to 02 is required, move the cursor to the position of mould selection A3, input 02 and press ENTER. For confirmation, press CONF; or else press CANCEL.

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 not make free with the mould data 100.

5.2.20 Statistic Value

Quality Statistics Screen (25)



Statistic　Mold Name:　No. : 1　2008-1-18 16:49

MANUAL

Clear SD: OFF

	Target	Toler	Curr.	Prev				
Cycle No.			0	0	0			
Open Time	A1	+B1	0.00	0.00	0.00	0.00	0.00	0.00
Clamp Time	A2	+B2	0.00	0.00	0.00	0.00	0.00	0.00
Inject Time	A3	+B3	0.00	0.00	0.00	0.00	0.00	0.00
Plast Time	A4	+B4	0.00	0.00	0.00	0.00	0.00	0.00
Cycle Time	A5	+B5	0.0	0.0	0.0	0.0	0.0	0.0
H.P.CH.POS	A6	+B6	0.0	0.0	0.0	0.0	0.0	0.0
Inject End	A7	+B7	0.0	0.0	0.0	0.0	0.0	0.0
Plast End	A8	+B8	******	******	******	******	0.0	0.0
Open Pos	A9	+B9	0.0	0.0	0.0	0.0	0.0	0.0
MAX INJ SP.	A10	+B10	0.0	0.0	0.0	0.0	0.0	0.0
MAX RPM	A11	+B11	0	0	0	0	0	0
QUALITY			OK	OK	OK			

Product Time 0.0 h　Product ******　DEFECT 0 (0.0 %)

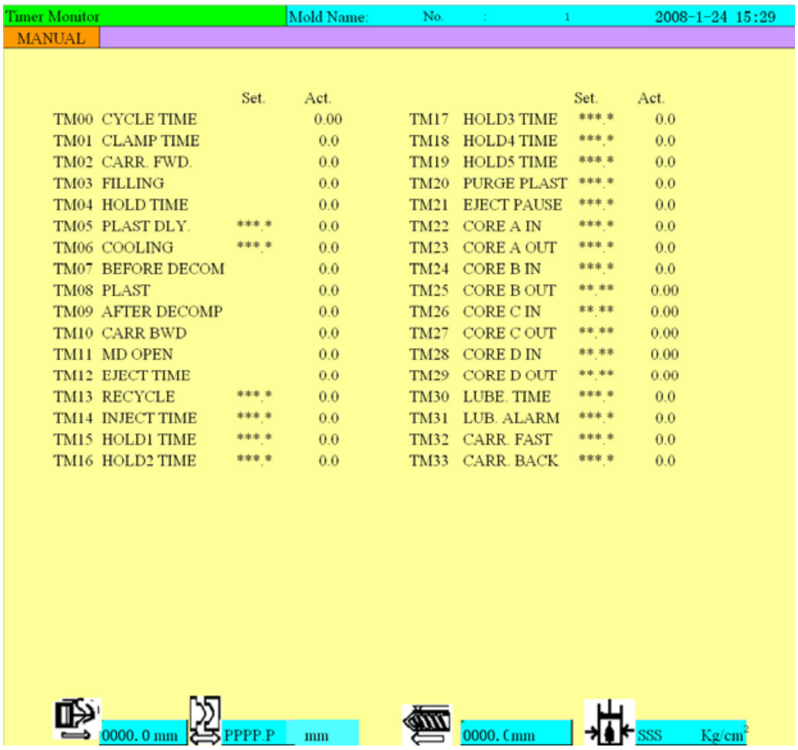
Press 品管 STATIST to enter the quality statistics screen (25).

Use ▲▼◄► to select the parameters to be set, input the numerical value and press ENTER 输入, then the setting is complete.

The interface is mainly used to display the statistics of the products quality. In which, product qualification parameter may be set, i.e. the tolerance.

5.2.21 Timer Monitor

Timer Monitor Screen (26)

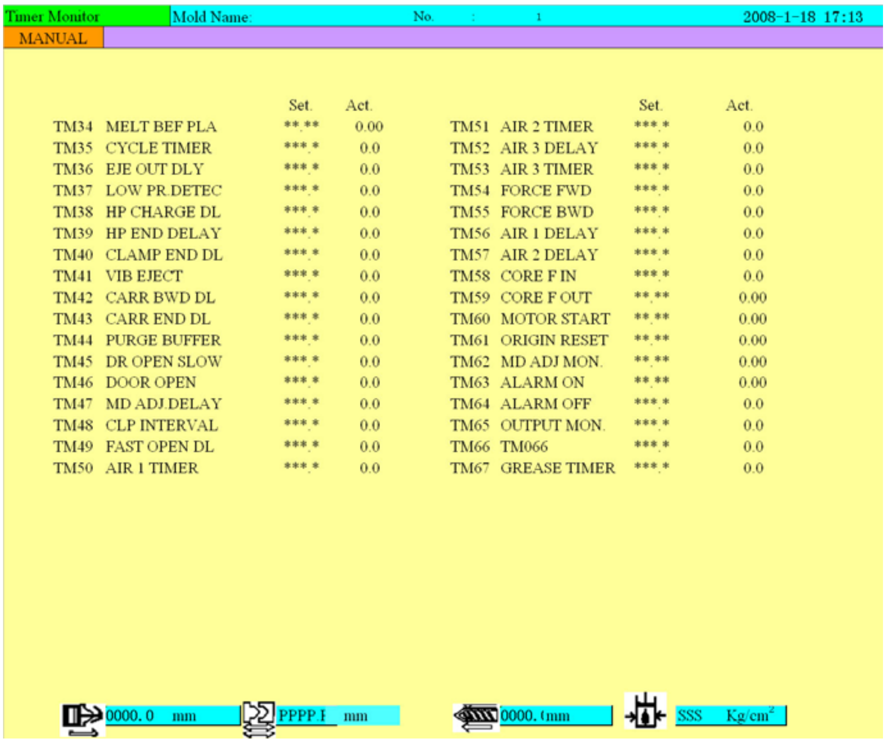


Timer Monitor | Mold Name: | No. : 1 | 2008-1-24 15:29

MANUAL

		Set.	Act.			Set.	Act.
TM00	CYCLE TIME		0.00	TM17	HOLD3 TIME	***.*	0.0
TM01	CLAMP TIME		0.0	TM18	HOLD4 TIME	***.*	0.0
TM02	CARR. FWD.		0.0	TM19	HOLD5 TIME	***.*	0.0
TM03	FILLING		0.0	TM20	PURGE PLAST	***.*	0.0
TM04	HOLD TIME		0.0	TM21	EJECT PAUSE	***.*	0.0
TM05	PLAST DLY.	***.*	0.0	TM22	CORE A IN	***.*	0.0
TM06	COOLING	***.*	0.0	TM23	CORE A OUT	***.*	0.0
TM07	BEFORE DECOM		0.0	TM24	CORE B IN	***.*	0.0
TM08	PLAST		0.0	TM25	CORE B OUT	**.**	0.00
TM09	AFTER DECOMP		0.0	TM26	CORE C IN	**.**	0.00
TM10	CARR BWD		0.0	TM27	CORE C OUT	**.**	0.00
TM11	MD OPEN		0.0	TM28	CORE D IN	**.**	0.00
TM12	EJECT TIME		0.0	TM29	CORE D OUT	**.**	0.00
TM13	RECYCLE	***.*	0.0	TM30	LUBE. TIME	***.*	0.0
TM14	INJECT TIME	***.*	0.0	TM31	LUB. ALARM	***.*	0.0
TM15	HOLD1 TIME	***.*	0.0	TM32	CARR. FAST	***.*	0.0
TM16	HOLD2 TIME	***.*	0.0	TM33	CARR. BACK	***.*	0.0

Timer Monitor Screen (27)

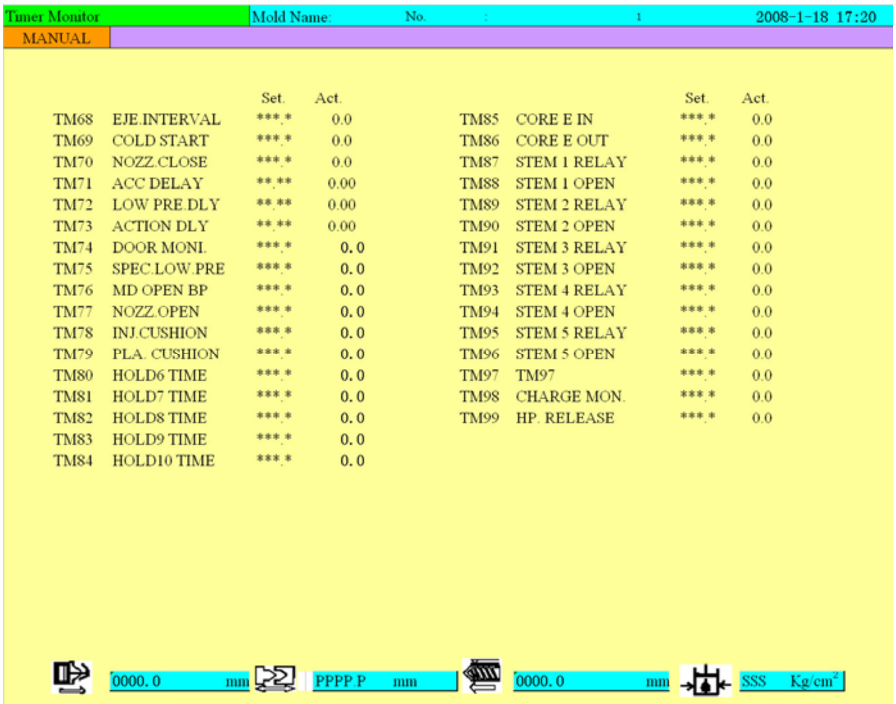


Timer Monitor | Mold Name: | No. : 1 | 2008-1-18 17:13

MANUAL

		Set.	Act.			Set.	Act.
TM34	MELT BEF PLA	**.**	0.00	TM51	AIR 2 TIMER	***.*	0.0
TM35	CYCLE TIMER	***.*	0.0	TM52	AIR 3 DELAY	***.*	0.0
TM36	EJE OUT DLY	***.*	0.0	TM53	AIR 3 TIMER	***.*	0.0
TM37	LOW PR.DETEC	***.*	0.0	TM54	FORCE FWD	***.*	0.0
TM38	HP CHARGE DL	***.*	0.0	TM55	FORCE BWD	***.*	0.0
TM39	HP END DELAY	***.*	0.0	TM56	AIR 1 DELAY	***.*	0.0
TM40	CLAMP END DL	***.*	0.0	TM57	AIR 2 DELAY	***.*	0.0
TM41	VIB EJECT	***.*	0.0	TM58	CORE F IN	***.*	0.0
TM42	CARR BWD DL	***.*	0.0	TM59	CORE F OUT	**.**	0.00
TM43	CARR END DL	***.*	0.0	TM60	MOTOR START	**.**	0.00
TM44	PURGE BUFFER	***.*	0.0	TM61	ORIGIN RESET	**.**	0.00
TM45	DR OPEN SLOW	***.*	0.0	TM62	MD ADJ MON.	**.**	0.00
TM46	DOOR OPEN	***.*	0.0	TM63	ALARM ON	**.**	0.00
TM47	MD ADJ.DELAY	***.*	0.0	TM64	ALARM OFF	***.*	0.0
TM48	CLP INTERVAL	***.*	0.0	TM65	OUTPUT MON.	***.*	0.0
TM49	FAST OPEN DL	***.*	0.0	TM66	TM066	***.*	0.0
TM50	AIR 1 TIMER	***.*	0.0	TM67	GREASE TIMER	***.*	0.0

Timer Monitor Screen (28)



Timer Monitor
Mold Name: No. : 1 2008-1-18 17:20
MANUAL

		Set.	Act.			Set.	Act.
TM68	EJE.INTERVAL	***.*	0.0	TM85	CORE E IN	***.*	0.0
TM69	COLD START	***.*	0.0	TM86	CORE E OUT	***.*	0.0
TM70	NOZZ.CLOSE	***.*	0.0	TM87	STEM 1 RELAY	***.*	0.0
TM71	ACC DELAY	**.**	0.00	TM88	STEM 1 OPEN	***.*	0.0
TM72	LOW PRE.DLY	**.**	0.00	TM89	STEM 2 RELAY	***.*	0.0
TM73	ACTION DLY	**.**	0.00	TM90	STEM 2 OPEN	***.*	0.0
TM74	DOOR MONI.	***.*	0. 0	TM91	STEM 3 RELAY	***.*	0.0
TM75	SPEC.LOW.PRE	***.*	0. 0	TM92	STEM 3 OPEN	***.*	0.0
TM76	MD OPEN BP	***.*	0. 0	TM93	STEM 4 RELAY	***.*	0.0
TM77	NOZZ.OPEN	***.*	0. 0	TM94	STEM 4 OPEN	***.*	0.0
TM78	INJ.CUSHION	***.*	0. 0	TM95	STEM 5 RELAY	***.*	0.0
TM79	PLA. CUSHION	***.*	0. 0	TM96	STEM 5 OPEN	***.*	0.0
TM80	HOLD6 TIME	***.*	0. 0	TM97	TM97	***.*	0.0
TM81	HOLD7 TIME	***.*	0. 0	TM98	CHARGE MON.	***.*	0.0
TM82	HOLD8 TIME	***.*	0. 0	TM99	HP. RELEASE	***.*	0.0
TM83	HOLD9 TIME	***.*	0. 0				
TM84	HOLD10 TIME	***.*	0. 0				

0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

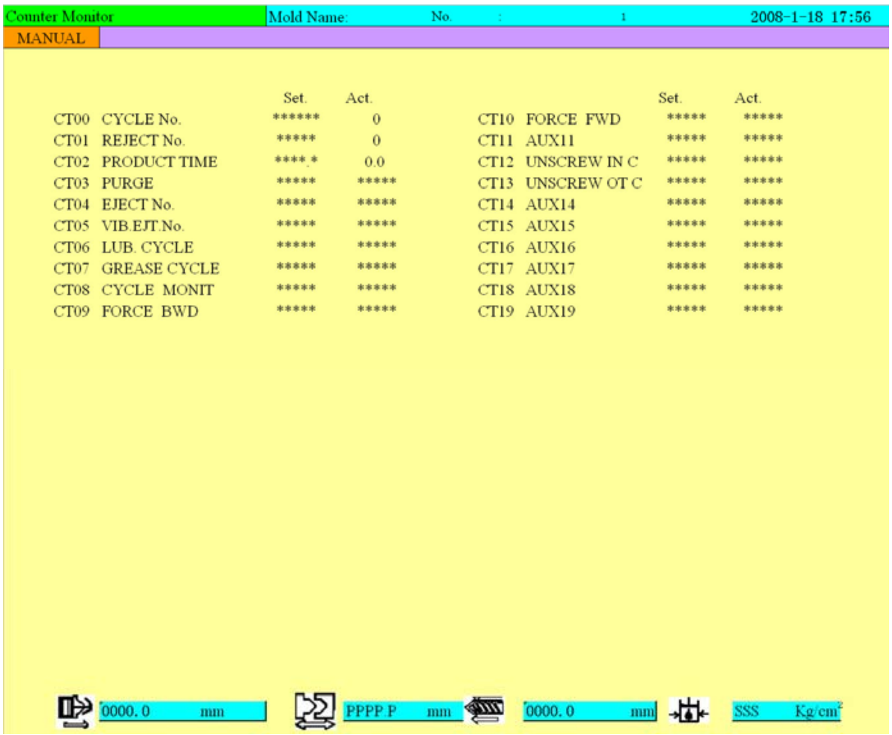
Press 监视 MONITOR once to enter the time monitor screen (26).

In this interface, the setting and operation status of timers can be monitored, in case of monitoring other timers, simultaneously press CANCEL 取消 + ∧ (or ∨)keys, and switch among the interface(26) to interface(28).

This interface is mainly used for inspection of relevant time relay setting and working status of the system.

5.2.22 Counter Monitor

Counter Monitor Screen (29)



Counter Monitor | Mold Name: | No. : 1 | 2008-1-18 17:56

MANUAL

		Set.	Act.			Set.	Act.
CT00	CYCLE No.	******	0	CT10	FORCE FWD	*****	*****
CT01	REJECT No.	*****	0	CT11	AUX11	*****	*****
CT02	PRODUCT TIME	****.*	0.0	CT12	UNSCREW IN C	*****	*****
CT03	PURGE	*****	*****	CT13	UNSCREW OT C	*****	*****
CT04	EJECT No.	*****	*****	CT14	AUX14	*****	*****
CT05	VIB.EJT.No.	*****	*****	CT15	AUX15	*****	*****
CT06	LUB. CYCLE	*****	*****	CT16	AUX16	*****	*****
CT07	GREASE CYCLE	*****	*****	CT17	AUX17	*****	*****
CT08	CYCLE MONIT	*****	*****	CT18	AUX18	*****	*****
CT09	FORCE BWD	*****	*****	CT19	AUX19	*****	*****

0000. 0 mm

PPPP.P mm

0000. 0 mm

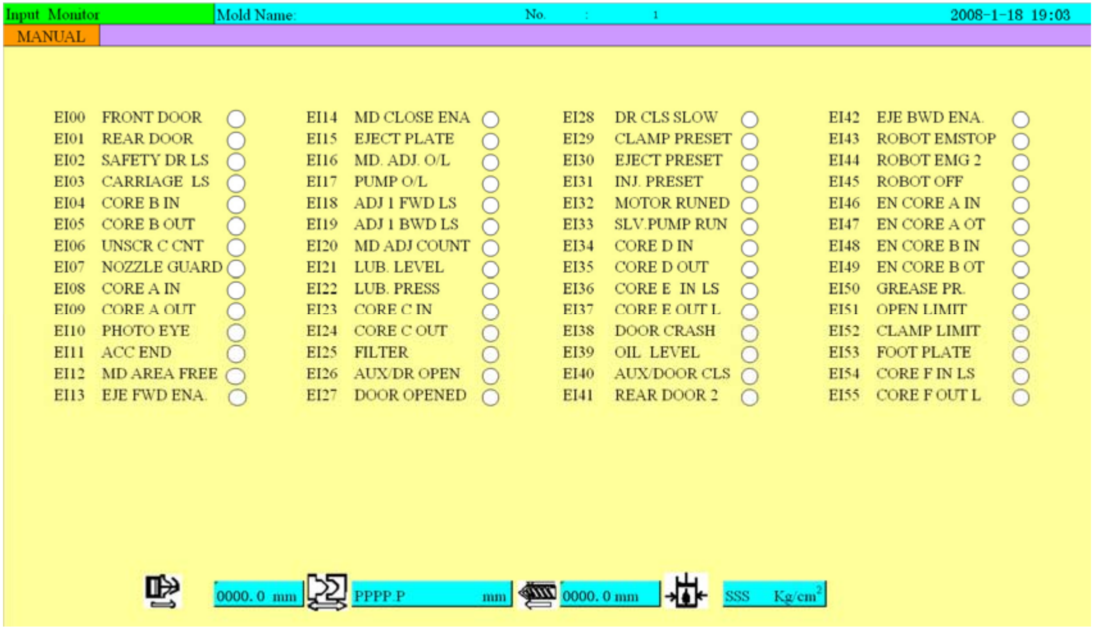
SSS Kg/cm²

Press 监视 MONITOR key twice to enter the counter monitor screen (29).

The interface is mainly used for monitoring the setting and working status of counters.

5.2.23 Input Monitor

Input Monitor Screen (30)



Input Monitor | Mold Name: | No. : 1 | 2008-1-18 19:03

MANUAL

EI00 FRONT DOOR ○
EI01 REAR DOOR ○
EI02 SAFETY DR LS ○
EI03 CARRIAGE LS ○
EI04 CORE B IN ○
EI05 CORE B OUT ○
EI06 UNSCR C CNT ○
EI07 NOZZLE GUARD ○
EI08 CORE A IN ○
EI09 CORE A OUT ○
EI10 PHOTO EYE ○
EI11 ACC END ○
EI12 MD AREA FREE ○
EI13 EJE FWD ENA. ○

EI14 MD CLOSE ENA ○
EI15 EJECT PLATE ○
EI16 MD. ADJ. O/L ○
EI17 PUMP O/L ○
EI18 ADJ 1 FWD LS ○
EI19 ADJ 1 BWD LS ○
EI20 MD ADJ COUNT ○
EI21 LUB. LEVEL ○
EI22 LUB. PRESS ○
EI23 CORE C IN ○
EI24 CORE C OUT ○
EI25 FILTER ○
EI26 AUX/DR OPEN ○
EI27 DOOR OPENED ○

EI28 DR CLS SLOW ○
EI29 CLAMP PRESET ○
EI30 EJECT PRESET ○
EI31 INJ. PRESET ○
EI32 MOTOR RUNED ○
EI33 SLV.PUMP RUN ○
EI34 CORE D IN ○
EI35 CORE D OUT ○
EI36 CORE E IN LS ○
EI37 CORE E OUT L ○
EI38 DOOR CRASH ○
EI39 OIL LEVEL ○
EI40 AUX/DOOR CLS ○
EI41 REAR DOOR 2 ○

EI42 EJE BWD ENA. ○
EI43 ROBOT EMSTOP ○
EI44 ROBOT EMG 2 ○
EI45 ROBOT OFF ○
EI46 EN CORE A IN ○
EI47 EN CORE A OT ○
EI48 EN CORE B IN ○
EI49 EN CORE B OT ○
EI50 GREASE PR. ○
EI51 OPEN LIMIT ○
EI52 CLAMP LIMIT ○
EI53 FOOT PLATE ○
EI54 CORE F IN LS ○
EI55 CORE F OUT L ○

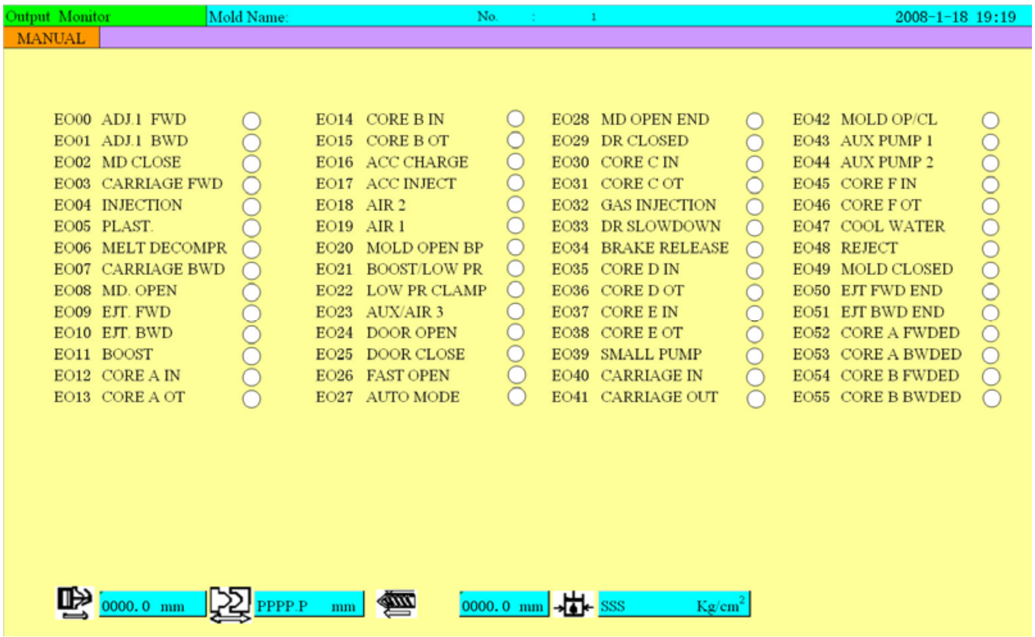
0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

Press 监视 MONITOR three times to enter the input monitor screen (30).

Through inspection of the relevant inputs status, to confirm whether the input 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.

5.2.24 Output Monitor

Output Monitor Screen (31)



Output Monitor | Mold Name: | No. : 1 | 2008-1-18 19:19

MANUAL

- EO00 ADJ.1 FWD ○
- EO01 ADJ.1 BWD ○
- EO02 MD CLOSE ○
- EO03 CARRIAGE FWD ○
- EO04 INJECTION ○
- EO05 PLAST. ○
- EO06 MELT DECOMPR ○
- EO07 CARRIAGE BWD ○
- EO08 MD. OPEN ○
- EO09 EJT. FWD ○
- EO10 EJT. BWD ○
- EO11 BOOST ○
- EO12 CORE A IN ○
- EO13 CORE A OT ○

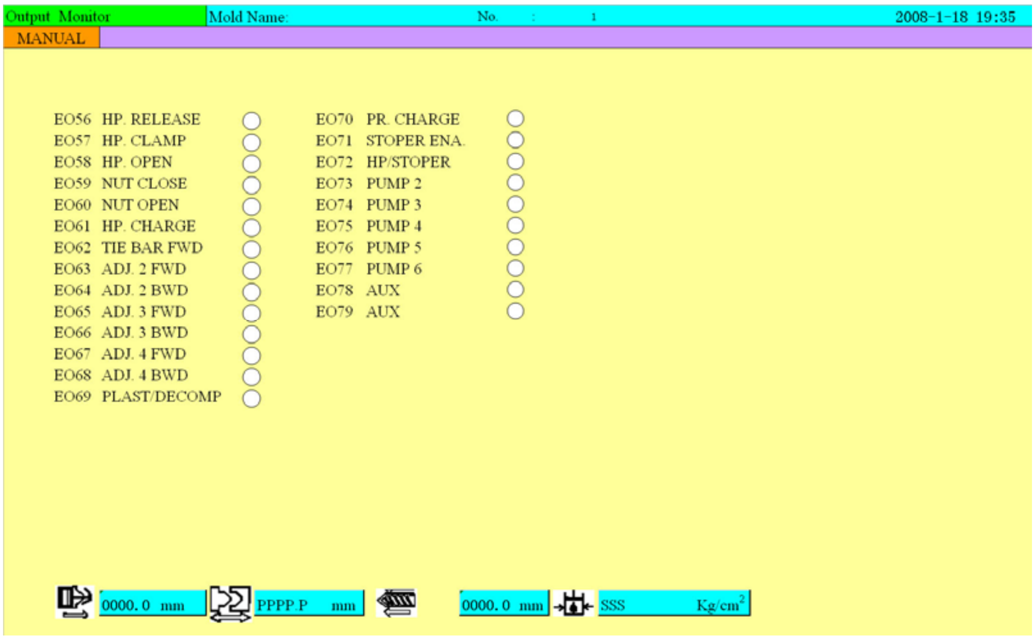
- EO14 CORE B IN ○
- EO15 CORE B OT ○
- EO16 ACC CHARGE ○
- EO17 ACC INJECT ○
- EO18 AIR 2 ○
- EO19 AIR 1 ○
- EO20 MOLD OPEN BP ○
- EO21 BOOST/LOW PR ○
- EO22 LOW PR CLAMP ○
- EO23 AUX/AIR 3 ○
- EO24 DOOR OPEN ○
- EO25 DOOR CLOSE ○
- EO26 FAST OPEN ○
- EO27 AUTO MODE ○

- EO28 MD OPEN END ○
- EO29 DR CLOSED ○
- EO30 CORE C IN ○
- EO31 CORE C OT ○
- EO32 GAS INJECTION ○
- EO33 DR SLOWDOWN ○
- EO34 BRAKE RELEASE ○
- EO35 CORE D IN ○
- EO36 CORE D OT ○
- EO37 CORE E IN ○
- EO38 CORE E OT ○
- EO39 SMALL PUMP ○
- EO40 CARRIAGE IN ○
- EO41 CARRIAGE OUT ○

- EO42 MOLD OP/CL ○
- EO43 AUX PUMP 1 ○
- EO44 AUX PUMP 2 ○
- EO45 CORE F IN ○
- EO46 CORE F OT ○
- EO47 COOL WATER ○
- EO48 REJECT ○
- EO49 MOLD CLOSED ○
- EO50 EJT FWD END ○
- EO51 EJT BWD END ○
- EO52 CORE A FWDED ○
- EO53 CORE A BWDED ○
- EO54 CORE B FWDED ○
- EO55 CORE B BWDED ○

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Output monitor Screen (32)



Output Monitor | Mold Name: | No. : 1 | 2008-1-18 19:35

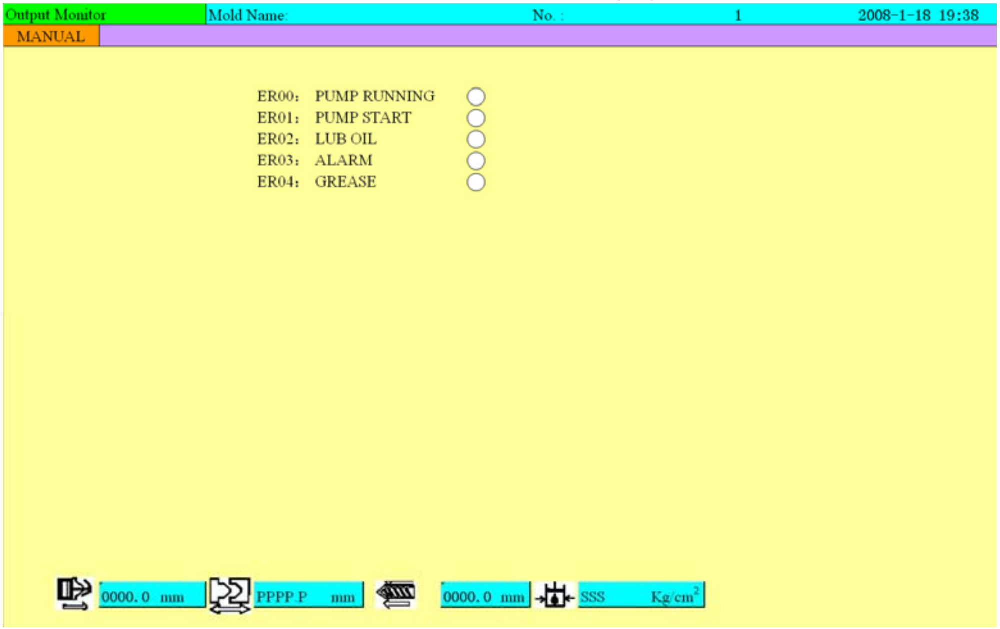
MANUAL

- EO56 HP. RELEASE ○
- EO57 HP. CLAMP ○
- EO58 HP. OPEN ○
- EO59 NUT CLOSE ○
- EO60 NUT OPEN ○
- EO61 HP. CHARGE ○
- EO62 TIE BAR FWD ○
- EO63 ADJ. 2 FWD ○
- EO64 ADJ. 2 BWD ○
- EO65 ADJ. 3 FWD ○
- EO66 ADJ. 3 BWD ○
- EO67 ADJ. 4 FWD ○
- EO68 ADJ. 4 BWD ○
- EO69 PLAST/DECOMP ○

- EO70 PR. CHARGE ○
- EO71 STOPER ENA. ○
- EO72 HP/STOPER ○
- EO73 PUMP 2 ○
- EO74 PUMP 3 ○
- EO75 PUMP 4 ○
- EO76 PUMP 5 ○
- EO77 PUMP 6 ○
- EO78 AUX ○
- EO79 AUX ○

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Output monitor Screen (33)



Output Monitor | Mold Name: | No.: 1 | 2008-1-18 19:38

MANUAL

ER00: PUMP RUNNING ○
ER01: PUMP START ○
ER02: LUB OIL ○
ER03: ALARM ○
ER04: GREASE ○

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

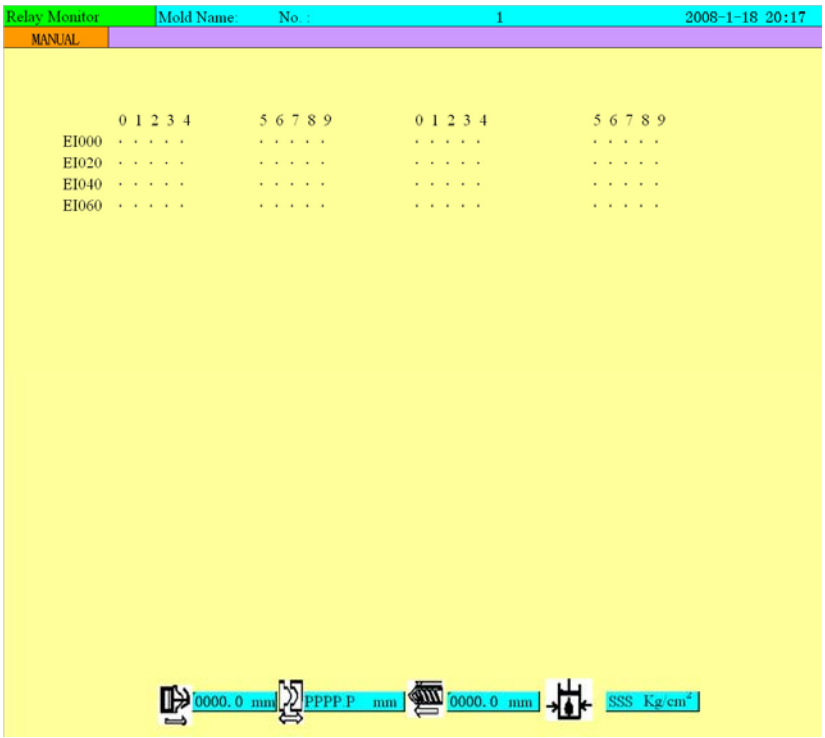
Press 监视 MONITOR four times to enter the output monitor screen (31).

In this interface, the setting and operation status of outputs can be monitored, in case of monitoring other outputs status, simultaneously press CANCEL 取消 + △(or ▽)keys, and switch among the interface (31) to interface (33).

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.

5.2.25 Relay Monitor

EI Relay Monitor Screen (34)

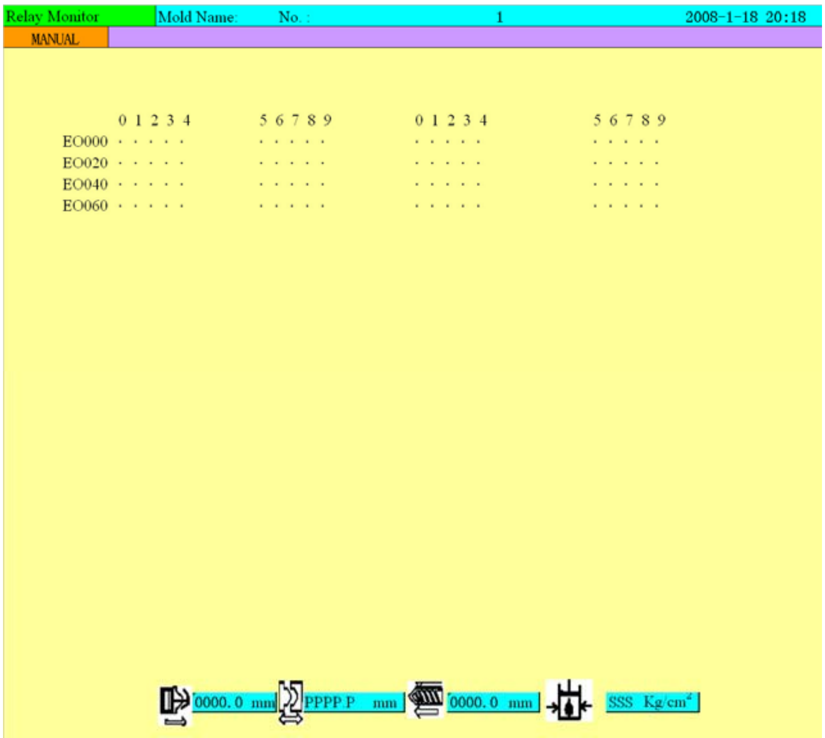


```
Relay Monitor   Mold Name:    No. :          1                2008-1-18 20:17
MANUAL

          0 1 2 3 4      5 6 7 8 9      0 1 2 3 4        5 6 7 8 9
EI000     · · · · ·      · · · · ·      · · · · ·        · · · · ·
EI020     · · · · ·      · · · · ·      · · · · ·        · · · · ·
EI040     · · · · ·      · · · · ·      · · · · ·        · · · · ·
EI060     · · · · ·      · · · · ·      · · · · ·        · · · · ·

0000. 0 mm    PPPP.P  mm    0000. 0 mm    SSS  Kg/cm²
```

EO Relay Monitor Screen (35)

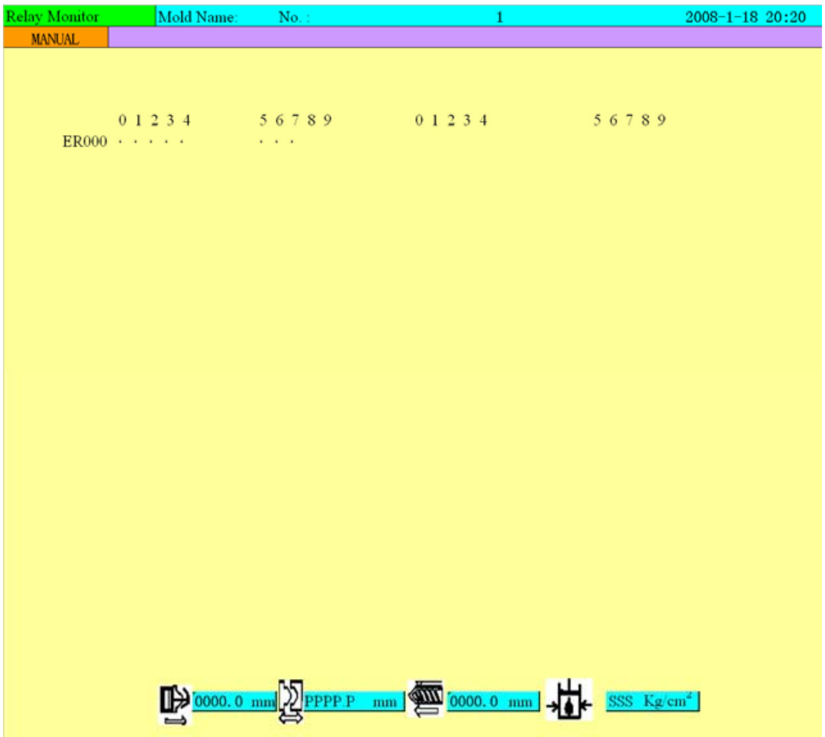


```
Relay Monitor   Mold Name:    No. :          1                2008-1-18 20:18
MANUAL

          0 1 2 3 4      5 6 7 8 9      0 1 2 3 4        5 6 7 8 9
EO000     · · · · ·      · · · · ·      · · · · ·        · · · · ·
EO020     · · · · ·      · · · · ·      · · · · ·        · · · · ·
EO040     · · · · ·      · · · · ·      · · · · ·        · · · · ·
EO060     · · · · ·      · · · · ·      · · · · ·        · · · · ·

0000. 0 mm    PPPP.P  mm    0000. 0 mm    SSS  Kg/cm²
```

ER Relay Monitor Screen (36)

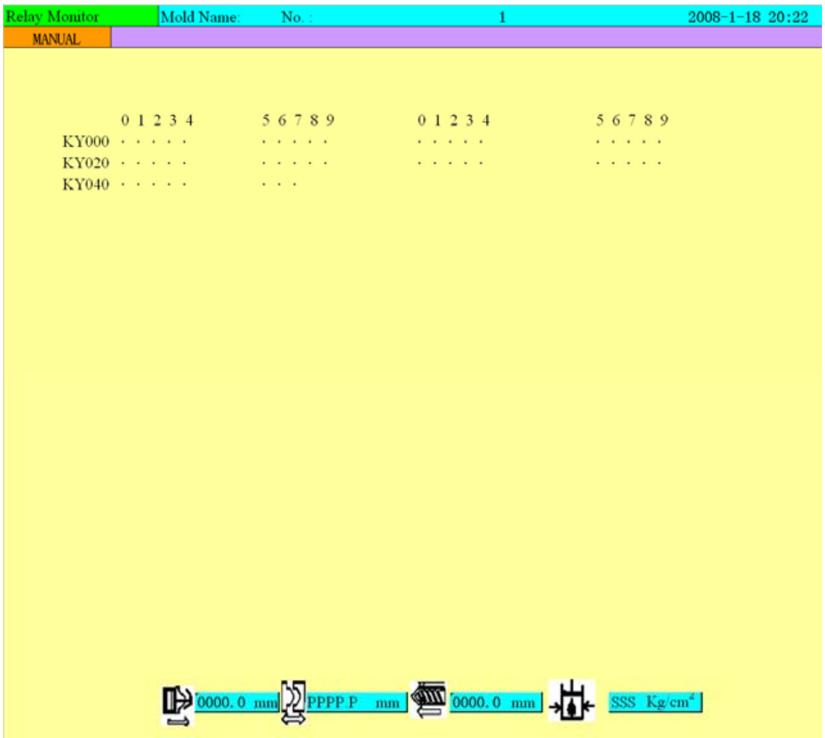


```
Relay Monitor   Mold Name:     No. :              1                2008-1-18  20:20
MANUAL

            0 1 2 3 4        5 6 7 8 9        0 1 2 3 4          5 6 7 8 9
     ER000  · · · · ·        · · ·

      0000. 0  mm   PPPP.P   mm   0000. 0  mm   SSS  Kg/cm²
```

KY Relay Monitor Screen (37)

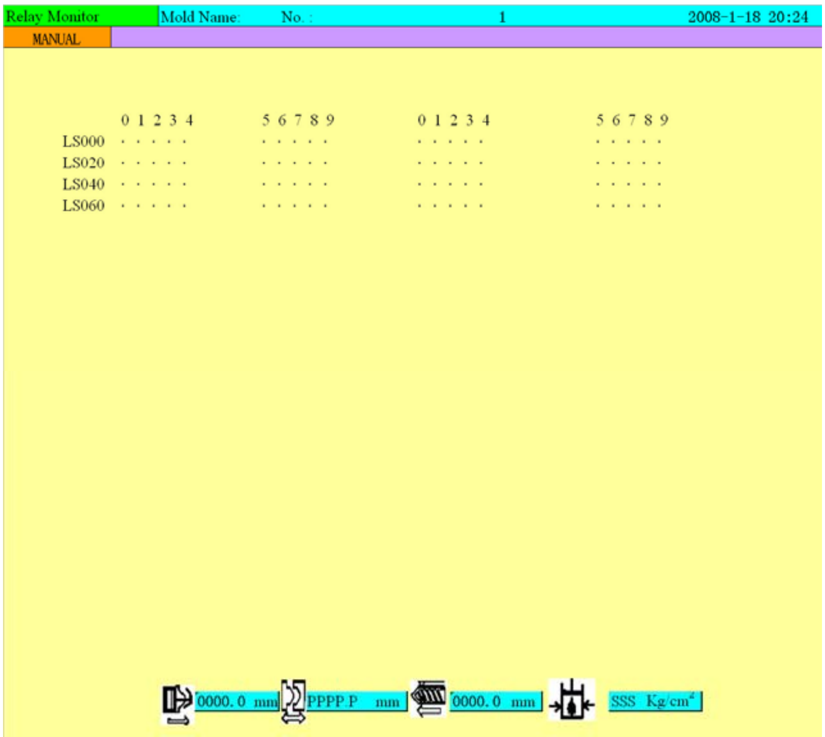


```
Relay Monitor   Mold Name:     No. :              1                2008-1-18  20:22
MANUAL

            0 1 2 3 4        5 6 7 8 9        0 1 2 3 4          5 6 7 8 9
     KY000  · · · · ·        · · · · ·        · · · · ·          · · · · ·
     KY020  · · · · ·        · · · · ·        · · · · ·          · · · · ·
     KY040  · · · · ·        · · ·

      0000. 0  mm   PPPP.P   mm   0000. 0  mm   SSS  Kg/cm²
```

LS Relay Monitor Screen (38)



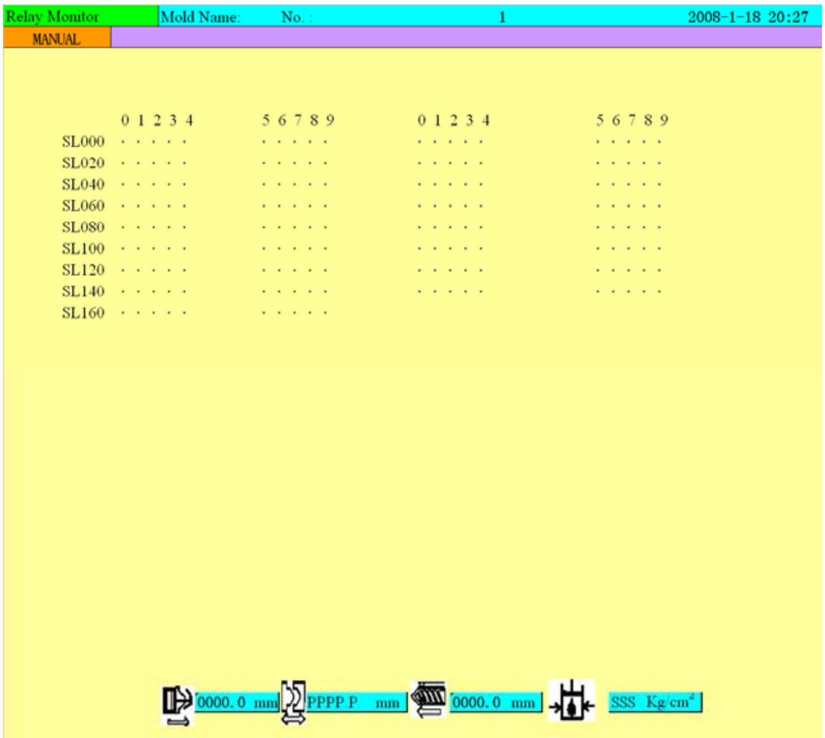
Relay Monitor | Mold Name: | No. : | 1 | 2008-1-18 20:24

MANUAL

	0 1 2 3 4	5 6 7 8 9	0 1 2 3 4	5 6 7 8 9
LS000	. . . . .	. . . . .	. . . . .	. . . . .
LS020	. . . . .	. . . . .	. . . . .	. . . . .
LS040	. . . . .	. . . . .	. . . . .	. . . . .
LS060	. . . . .	. . . . .	. . . . .	. . . . .

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

SL Relay Monitor Screen (39)



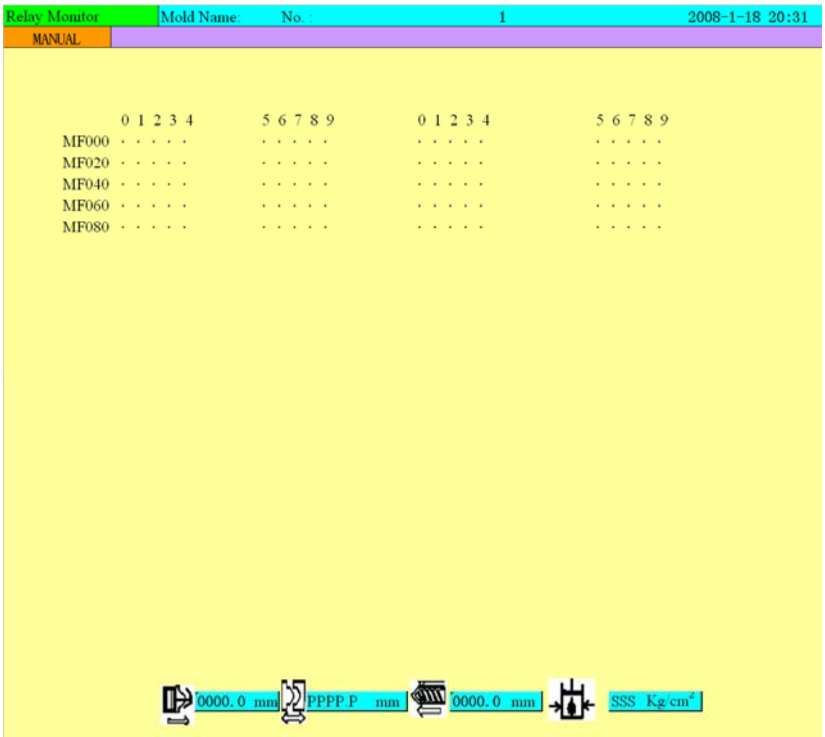
Relay Monitor | Mold Name: | No. : | 1 | 2008-1-18 20:27

MANUAL

	0 1 2 3 4	5 6 7 8 9	0 1 2 3 4	5 6 7 8 9
SL000	. . . . .	. . . . .	. . . . .	. . . . .
SL020	. . . . .	. . . . .	. . . . .	. . . . .
SL040	. . . . .	. . . . .	. . . . .	. . . . .
SL060	. . . . .	. . . . .	. . . . .	. . . . .
SL080	. . . . .	. . . . .	. . . . .	. . . . .
SL100	. . . . .	. . . . .	. . . . .	. . . . .
SL120	. . . . .	. . . . .	. . . . .	. . . . .
SL140	. . . . .	. . . . .	. . . . .	. . . . .
SL160	. . . . .	. . . . .		

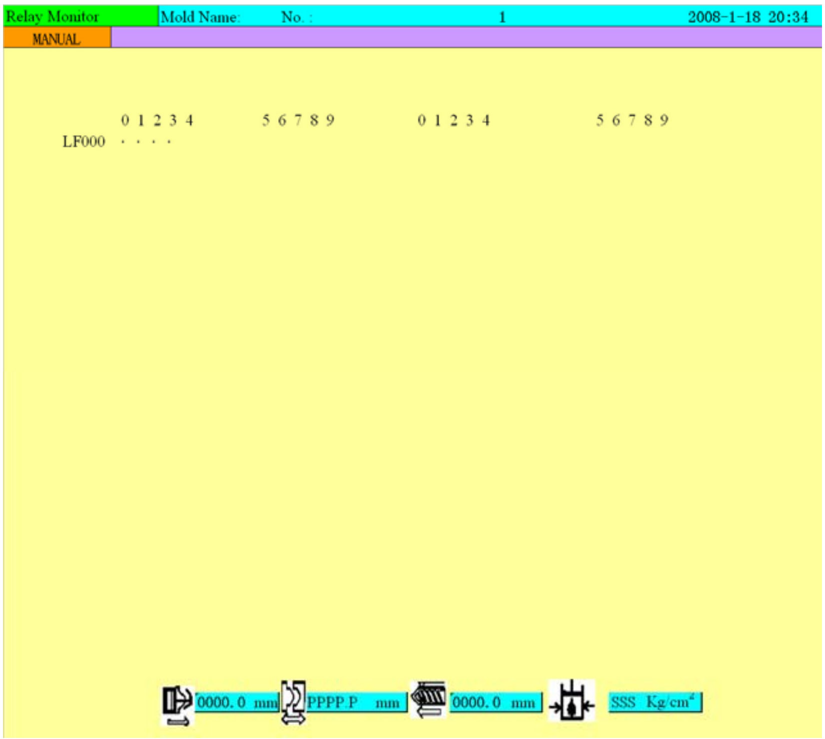
0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

MF Relay Monitor Screen (40)


Relay Monitor
Mold Name:
No. :
1
2008-1-18 20:31
MANUAL
0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

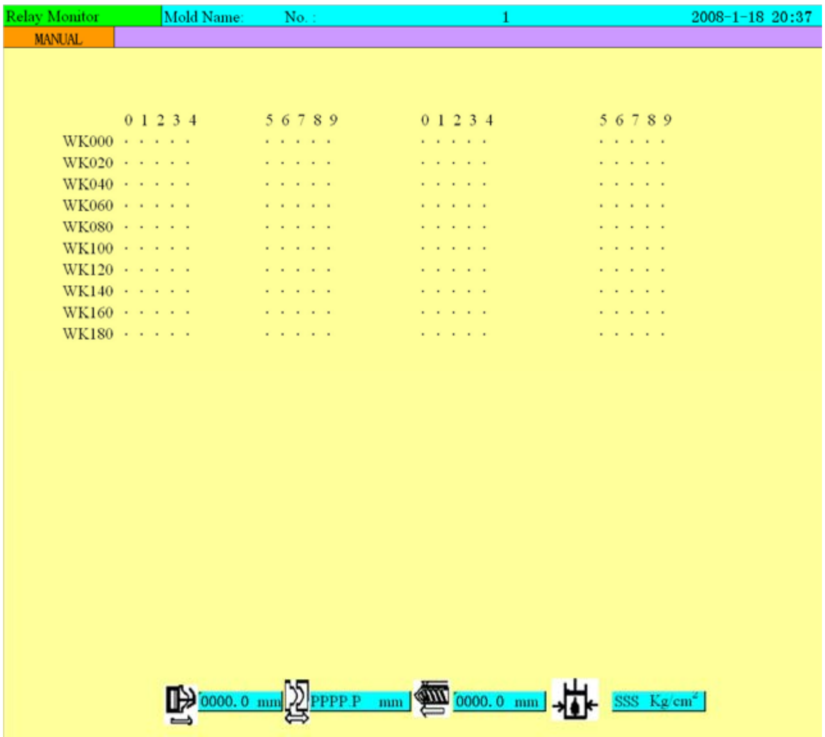
```
        0 1 2 3 4      5 6 7 8 9      0 1 2 3 4        5 6 7 8 9
MF000   . . . . .      . . . . .      . . . . .        . . . . .
MF020   . . . . .      . . . . .      . . . . .        . . . . .
MF040   . . . . .      . . . . .      . . . . .        . . . . .
MF060   . . . . .      . . . . .      . . . . .        . . . . .
MF080   . . . . .      . . . . .      . . . . .        . . . . .
```

LF Relay Monitor Screen (41)


Relay Monitor
Mold Name:
No. :
1
2008-1-18 20:34
MANUAL
0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

```
        0 1 2 3 4      5 6 7 8 9      0 1 2 3 4        5 6 7 8 9
LF000   . . . .
```

WK Relay Monitor Screen (42)

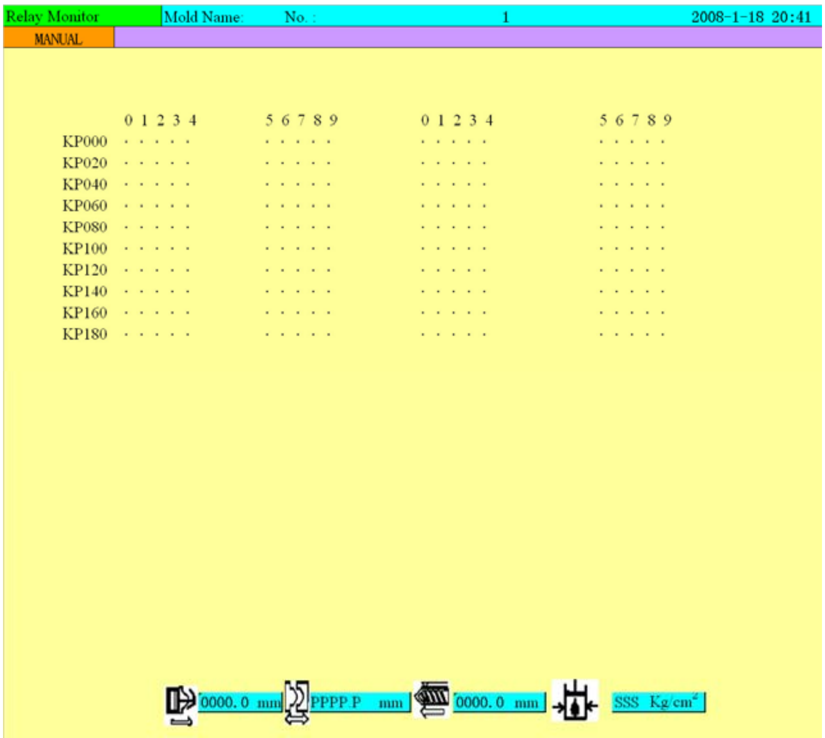


```
Relay Monitor   Mold Name:   No.:          1              2008-1-18 20:37
MANUAL

          0 1 2 3 4    5 6 7 8 9    0 1 2 3 4    5 6 7 8 9
WK000     · · · · ·    · · · · ·    · · · · ·    · · · · ·
WK020     · · · · ·    · · · · ·    · · · · ·    · · · · ·
WK040     · · · · ·    · · · · ·    · · · · ·    · · · · ·
WK060     · · · · ·    · · · · ·    · · · · ·    · · · · ·
WK080     · · · · ·    · · · · ·    · · · · ·    · · · · ·
WK100     · · · · ·    · · · · ·    · · · · ·    · · · · ·
WK120     · · · · ·    · · · · ·    · · · · ·    · · · · ·
WK140     · · · · ·    · · · · ·    · · · · ·    · · · · ·
WK160     · · · · ·    · · · · ·    · · · · ·    · · · · ·
WK180     · · · · ·    · · · · ·    · · · · ·    · · · · ·

0000.0 mm   PPPP.P mm   0000.0 mm   SSS Kg/cm²
```

KP Relay Monitor Screen (43)

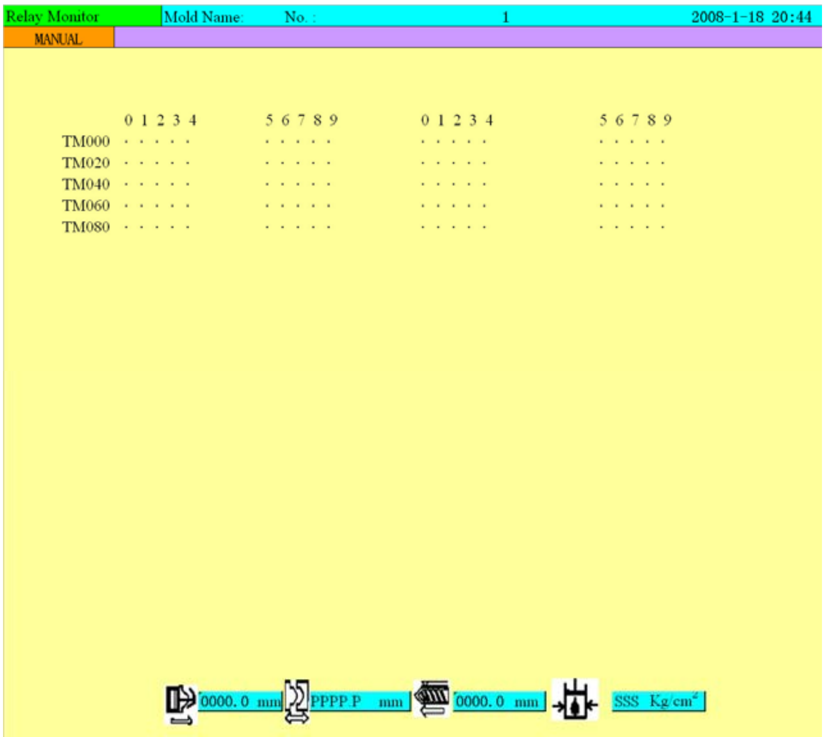


```
Relay Monitor   Mold Name:   No.:          1              2008-1-18 20:41
MANUAL

          0 1 2 3 4    5 6 7 8 9    0 1 2 3 4    5 6 7 8 9
KP000     · · · · ·    · · · · ·    · · · · ·    · · · · ·
KP020     · · · · ·    · · · · ·    · · · · ·    · · · · ·
KP040     · · · · ·    · · · · ·    · · · · ·    · · · · ·
KP060     · · · · ·    · · · · ·    · · · · ·    · · · · ·
KP080     · · · · ·    · · · · ·    · · · · ·    · · · · ·
KP100     · · · · ·    · · · · ·    · · · · ·    · · · · ·
KP120     · · · · ·    · · · · ·    · · · · ·    · · · · ·
KP140     · · · · ·    · · · · ·    · · · · ·    · · · · ·
KP160     · · · · ·    · · · · ·    · · · · ·    · · · · ·
KP180     · · · · ·    · · · · ·    · · · · ·    · · · · ·

0000.0 mm   PPPP.P mm   0000.0 mm   SSS Kg/cm²
```

TM Relay Monitor Screen (44)



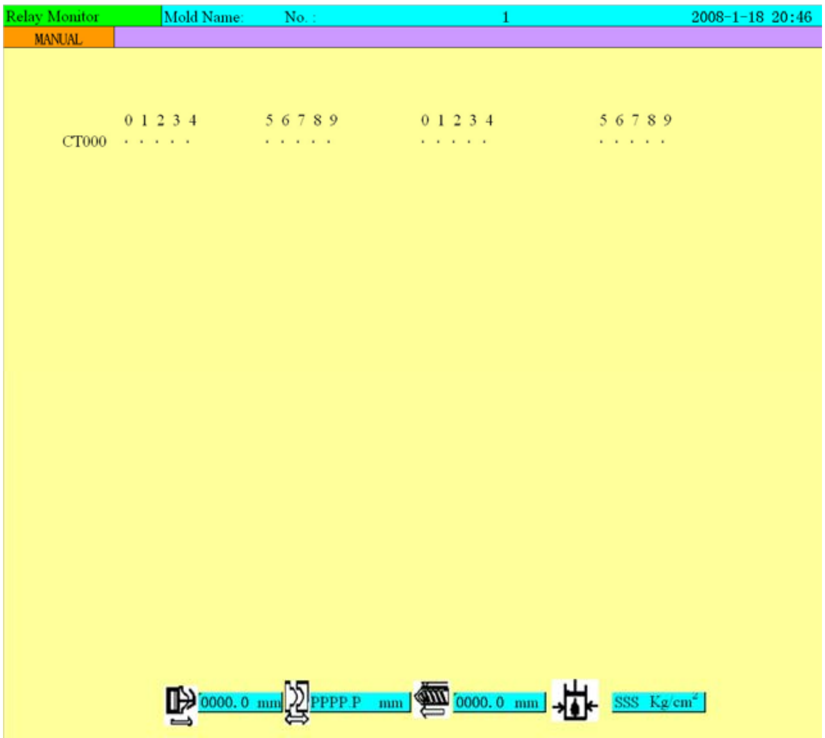
Relay Monitor | Mold Name: No. : 1 | 2008-1-18 20:44

MANUAL

	0 1 2 3 4	5 6 7 8 9	0 1 2 3 4	5 6 7 8 9
TM000	· · · · ·	· · · · ·	· · · · ·	· · · · ·
TM020	· · · · ·	· · · · ·	· · · · ·	· · · · ·
TM040	· · · · ·	· · · · ·	· · · · ·	· · · · ·
TM060	· · · · ·	· · · · ·	· · · · ·	· · · · ·
TM080	· · · · ·	· · · · ·	· · · · ·	· · · · ·

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

CT Relay Monitor Screen (45)



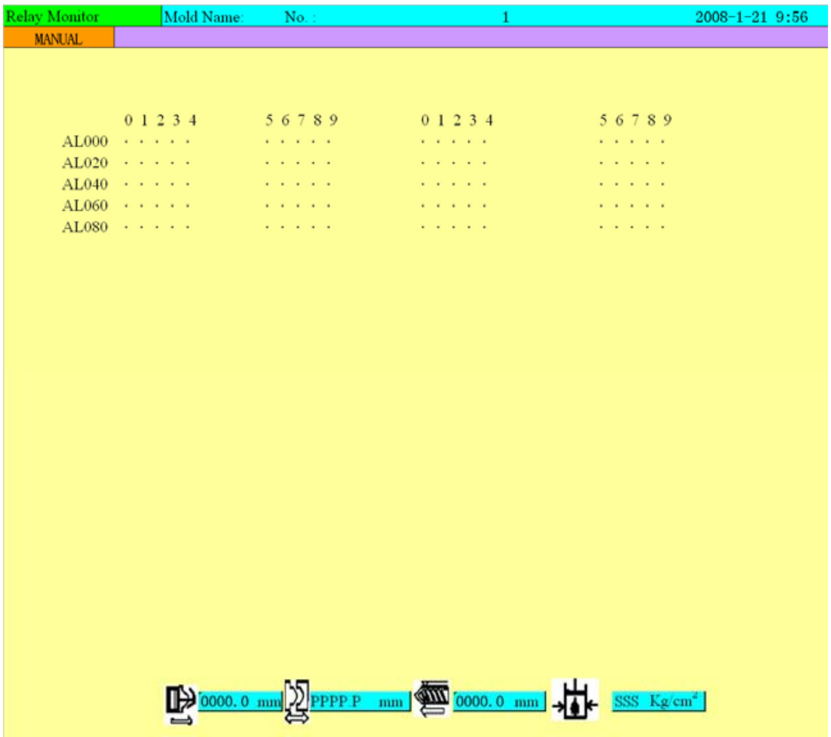
Relay Monitor | Mold Name: No. : 1 | 2008-1-18 20:46

MANUAL

	0 1 2 3 4	5 6 7 8 9	0 1 2 3 4	5 6 7 8 9
CT000	· · · · ·	· · · · ·	· · · · ·	· · · · ·

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

AL Relay Monitor Screen (46)



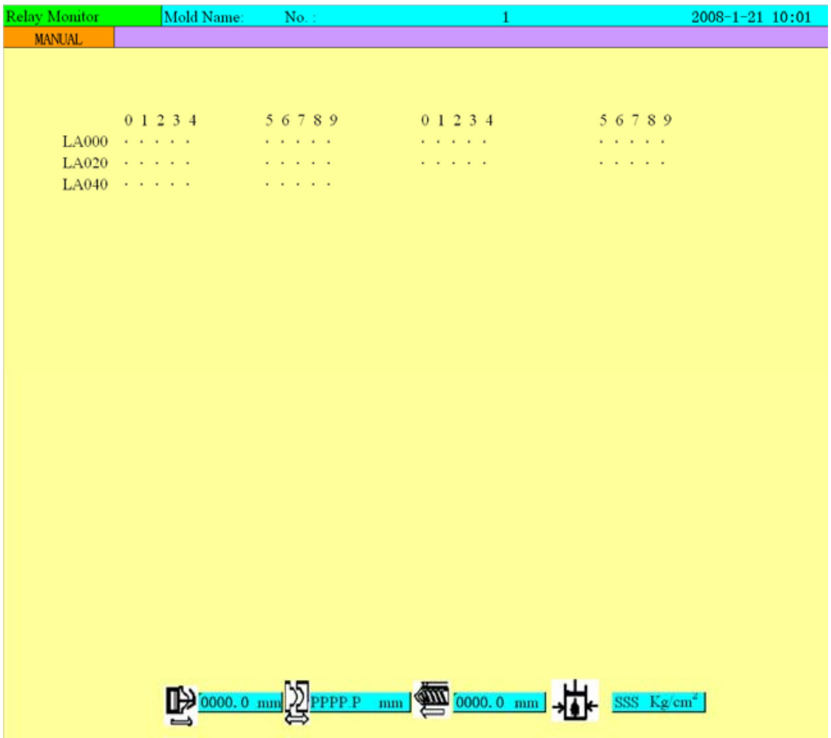
Relay Monitor | Mold Name: | No. : | 1 | 2008-1-21 9:56

MANUAL

	0 1 2 3 4	5 6 7 8 9	0 1 2 3 4	5 6 7 8 9
AL000	· · · · ·	· · · · ·	· · · · ·	· · · · ·
AL020	· · · · ·	· · · · ·	· · · · ·	· · · · ·
AL040	· · · · ·	· · · · ·	· · · · ·	· · · · ·
AL060	· · · · ·	· · · · ·	· · · · ·	· · · · ·
AL080	· · · · ·	· · · · ·	· · · · ·	· · · · ·

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

LA Relay Monitor Screen (47)



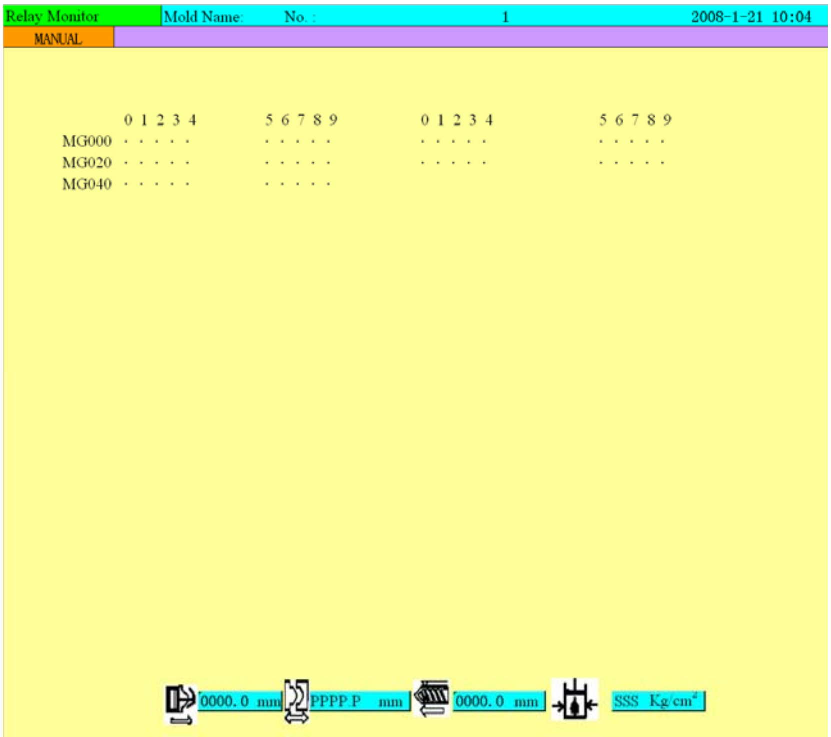
Relay Monitor | Mold Name: | No. : | 1 | 2008-1-21 10:01

MANUAL

	0 1 2 3 4	5 6 7 8 9	0 1 2 3 4	5 6 7 8 9
LA000	· · · · ·	· · · · ·	· · · · ·	· · · · ·
LA020	· · · · ·	· · · · ·	· · · · ·	· · · · ·
LA040	· · · · ·	· · · · ·		

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

MG Relay Monitor Screen (48)



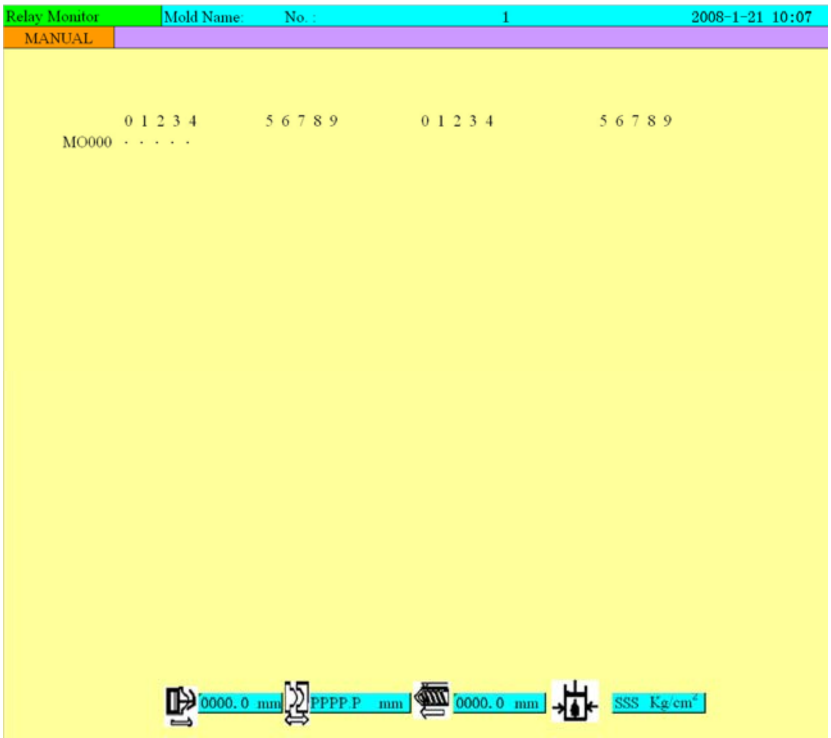
Relay Monitor | Mold Name: No. : 1 2008-1-21 10:04

MANUAL

```
        0 1 2 3 4     5 6 7 8 9     0 1 2 3 4     5 6 7 8 9
MG000   · · · · ·     · · · · ·     · · · · ·     · · · · ·
MG020   · · · · ·     · · · · ·     · · · · ·     · · · · ·
MG040   · · · · ·     · · · · ·
```

0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

MO Relay Monitor Screen (49)



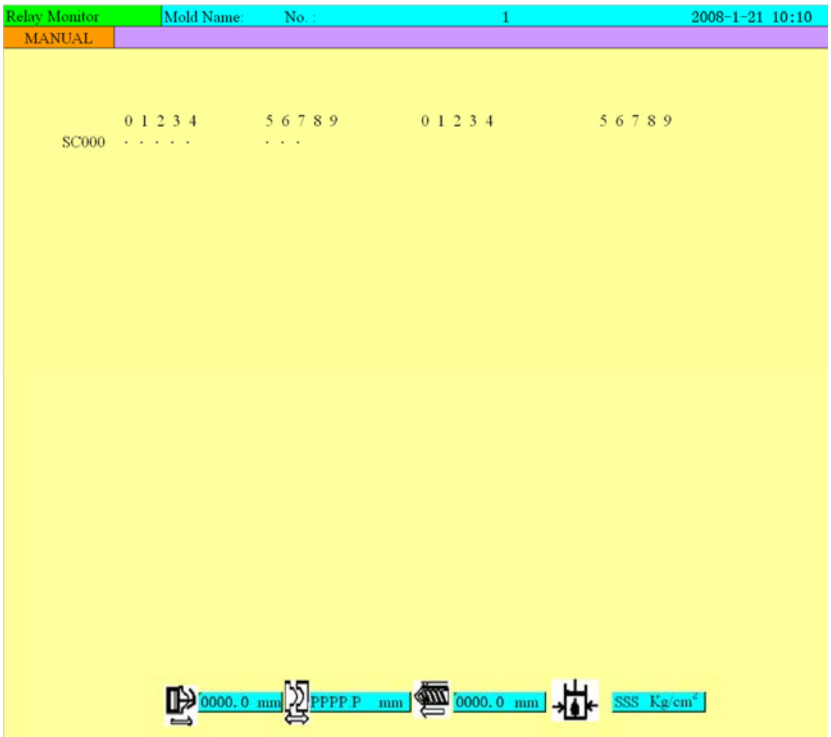
Relay Monitor | Mold Name: No. : 1 2008-1-21 10:07

MANUAL

```
        0 1 2 3 4     5 6 7 8 9     0 1 2 3 4     5 6 7 8 9
MO000   · · · · ·
```

0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

SC Relay Monitor Screen (50)



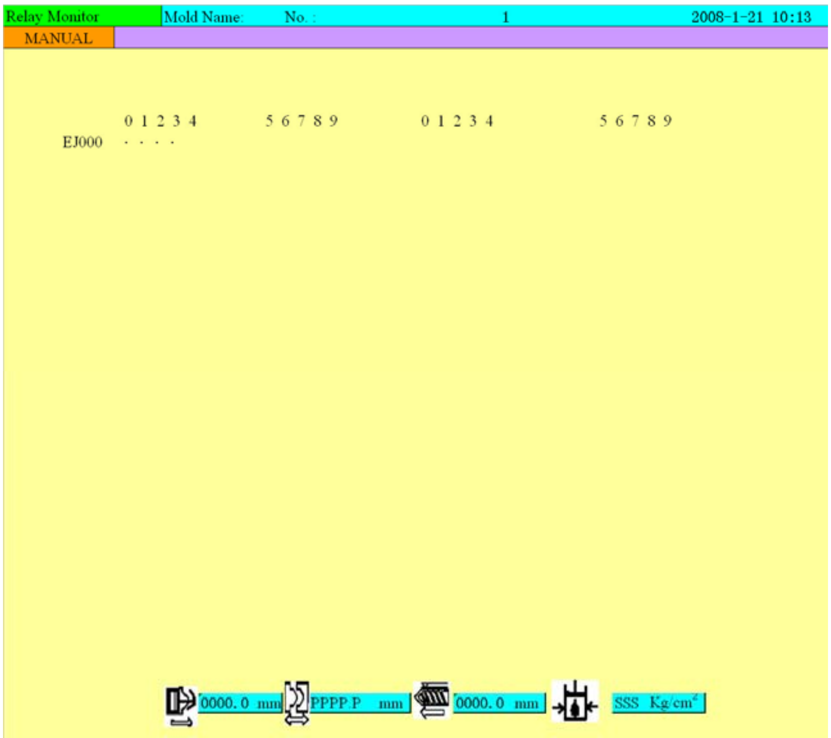
Relay Monitor | Mold Name: | No. : 1 | 2008-1-21 10:10

MANUAL

```
        0 1 2 3 4     5 6 7 8 9     0 1 2 3 4     5 6 7 8 9
SC000   · · · · ·     · · ·
```

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

EJ Relay Monitor Screen (51)



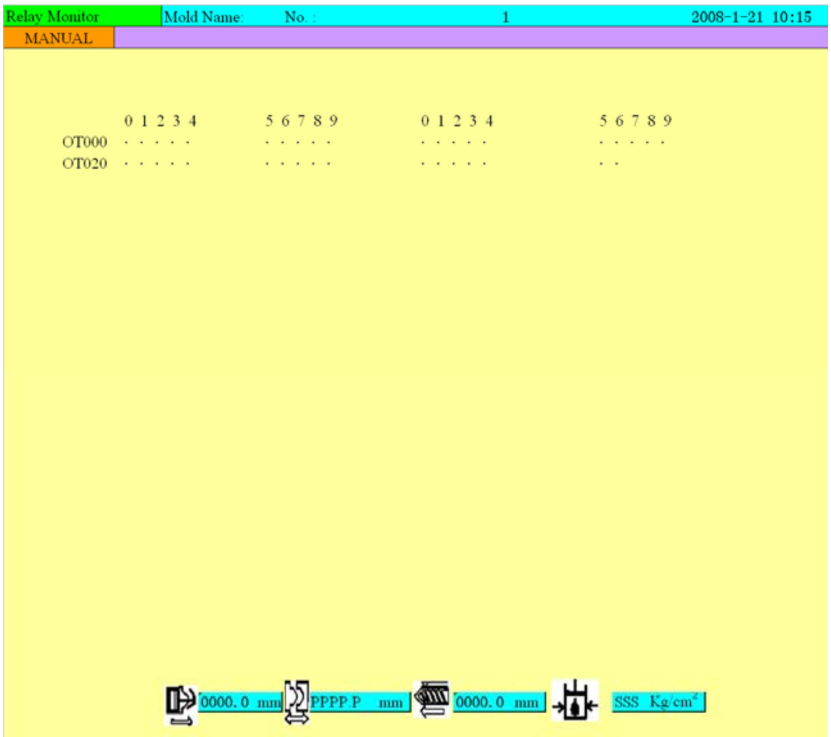
Relay Monitor | Mold Name: | No. : 1 | 2008-1-21 10:13

MANUAL

```
        0 1 2 3 4     5 6 7 8 9     0 1 2 3 4     5 6 7 8 9
EJ000   · · · ·
```

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

OT Relay Monitor Screen (52)



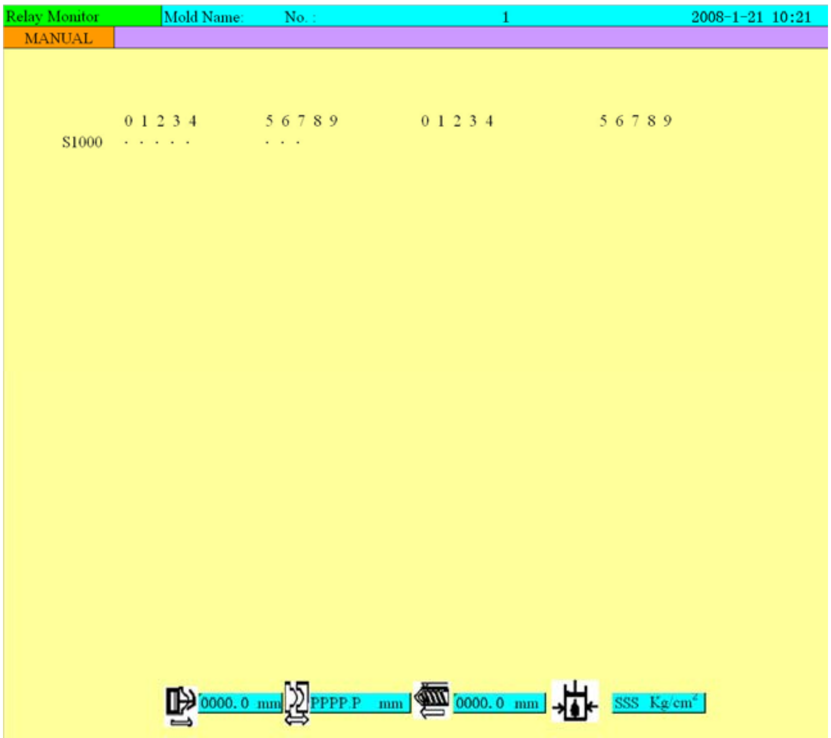
Relay Monitor　Mold Name:　No. :　1　2008-1-21 10:15

MANUAL

```
        0 1 2 3 4    5 6 7 8 9    0 1 2 3 4    5 6 7 8 9
OT000   . . . . .    . . . . .    . . . . .    . . . . .
OT020   . . . . .    . . . . .    . . . . .    . .
```

0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

S1 Relay Monitor Screen (53)



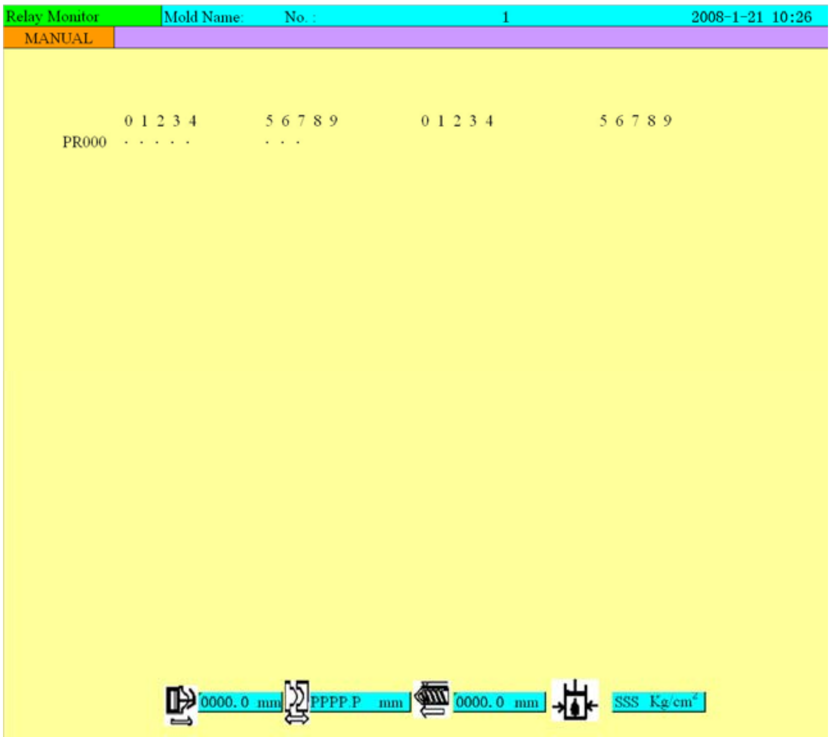
Relay Monitor　Mold Name:　No. :　1　2008-1-21 10:21

MANUAL

```
        0 1 2 3 4    5 6 7 8 9    0 1 2 3 4    5 6 7 8 9
S1000   . . . . .    . . .
```

0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

PR Relay Monitor Screen (54)

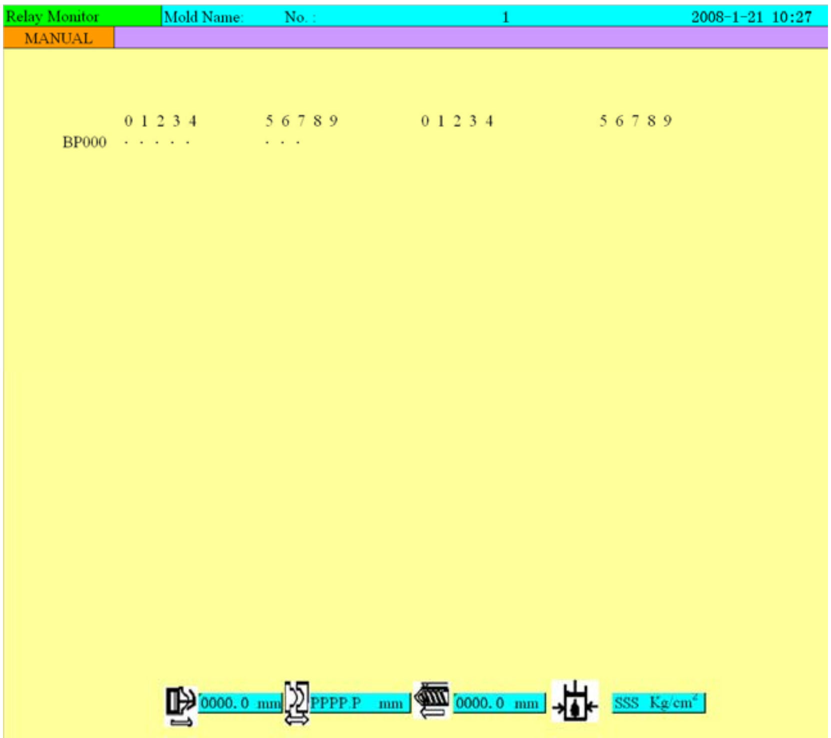


Relay Monitor
Mold Name: No. : 1 2008-1-21 10:26
MANUAL

```
        0 1 2 3 4      5 6 7 8 9      0 1 2 3 4      5 6 7 8 9
PR000   . . . . .      . . .
```

0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

BP Relay Monitor Screen (55)

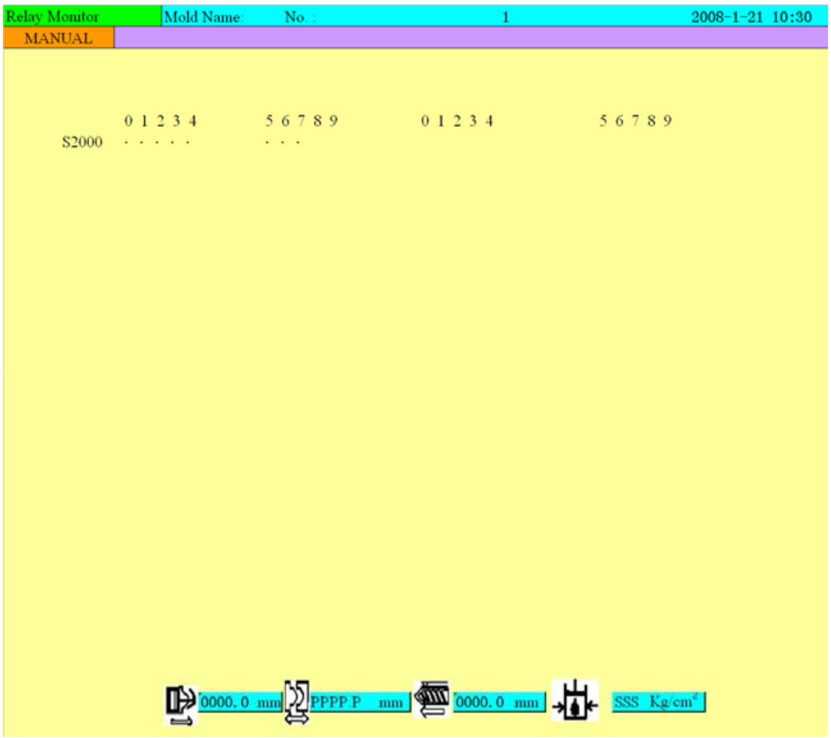


Relay Monitor
Mold Name: No. : 1 2008-1-21 10:27
MANUAL

```
        0 1 2 3 4      5 6 7 8 9      0 1 2 3 4      5 6 7 8 9
BP000   . . . . .      . . .
```

0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

S2 Relay Monitor Screen (56)


Relay Monitor
Mold Name:
No. :
1
2008-1-21 10:30
MANUAL
0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

```
         0 1 2 3 4    5 6 7 8 9    0 1 2 3 4    5 6 7 8 9
S2000    · · · · ·    · · ·
```

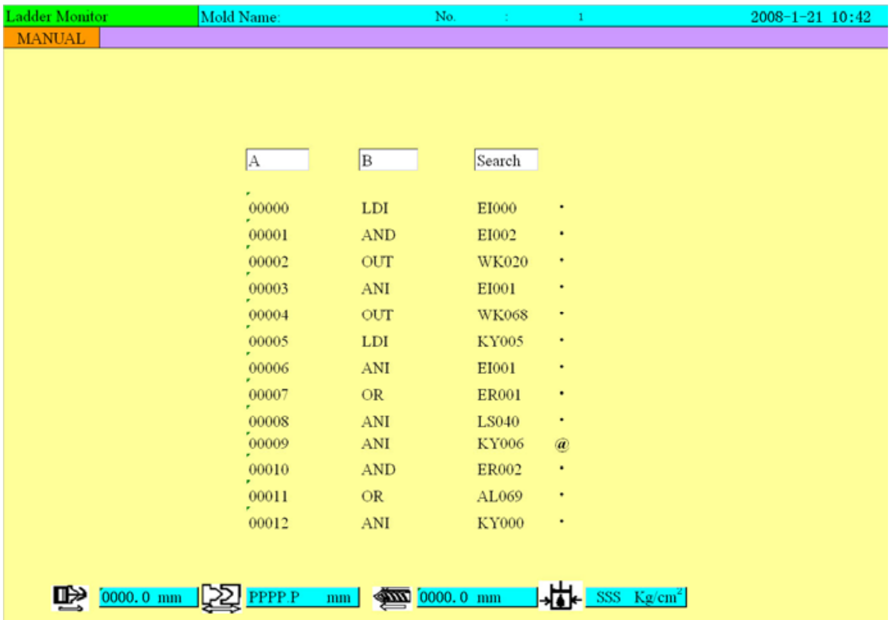
Press 监视 MONITOR five times to enter the relay monitor screen (34).

In this interface, internal relays status can be monitored, in case of monitoring other relays status, press CANCEL 取消 + △ (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).

5.2.26 Program Monitor

Program Monitor Screen (57)



A	B	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	@
00010	AND	ER002	·
00011	OR	AL069	·
00012	ANI	KY000	·

Press 监视 MONITOR six times, or press 程序 PLC, it will show program monitor screen (57).

"A": Input position of internal relay types, press 开/ON or 关/OFF key to switch internal relay types, then press ENTER 输入 key to confirm.

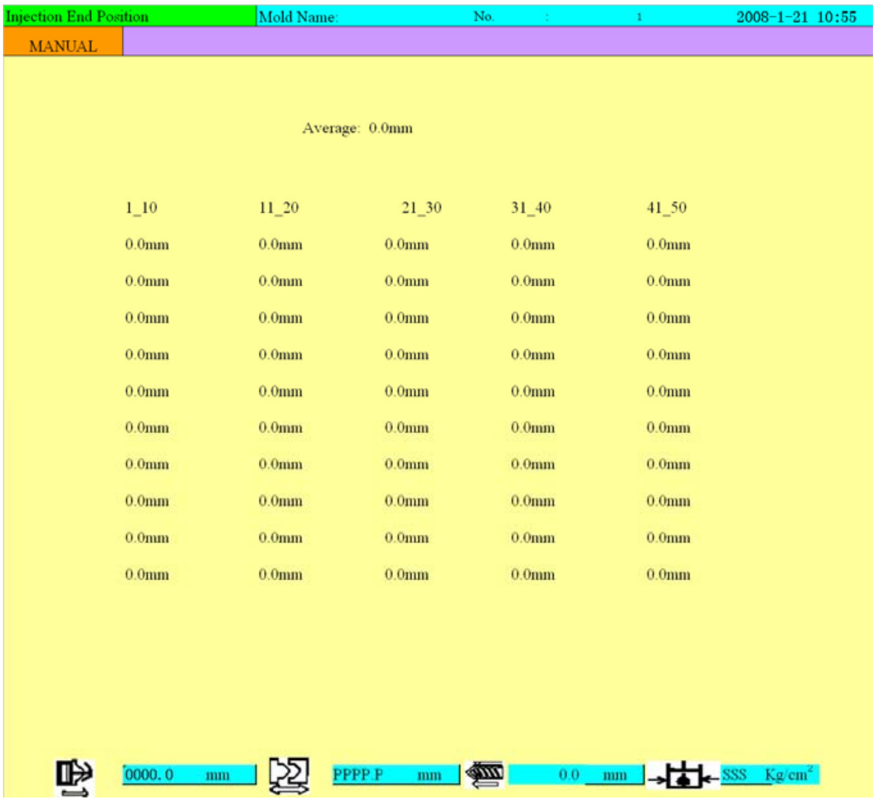
"B": Input position of internal relay serial number, input the serial number, and then press ENTER 输入 key to confirm.

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

This interface is mainly used for inspection of controller program, and understanding the operation principle of the machine. It is convenient for operation and maintenance.

5.2.27 Injection End Position

Injection End Position Screen (58)



Injection End Position

Mold Name:

No. : 1

2008-1-21 10:55

MANUAL

Average: 0.0mm

1_10	11_20	21_30	31_40	41_50
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm
0.0mm	0.0mm	0.0mm	0.0mm	0.0mm

0000. 0 mm

PPPP.P mm

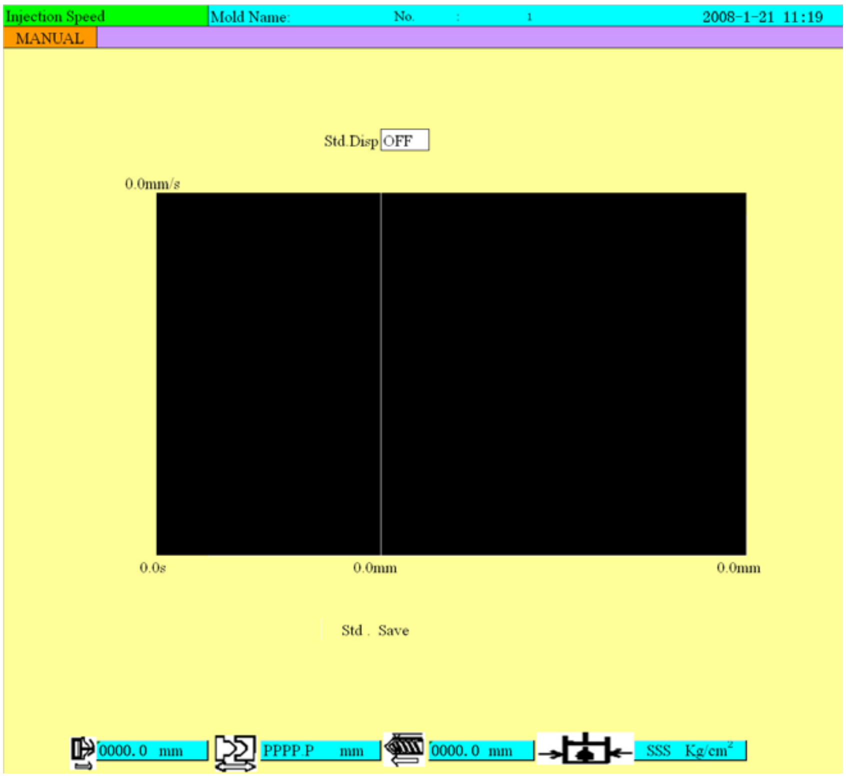
0.0 mm

SSS Kg/cm²

Press 曲线 GRAPH once to enter the injection end position screen (58). This interface displays the injection end positions and the average values of 50 products produced.

5.2.28 Injection Speed Curve

Injection Speed Curve Screen (59)


Injection Speed
Mold Name:
No.
1
2008-1-21 11:19
MANUAL
0.0mm/s
0.0s
0.0mm
0.0mm
Std . Save
0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

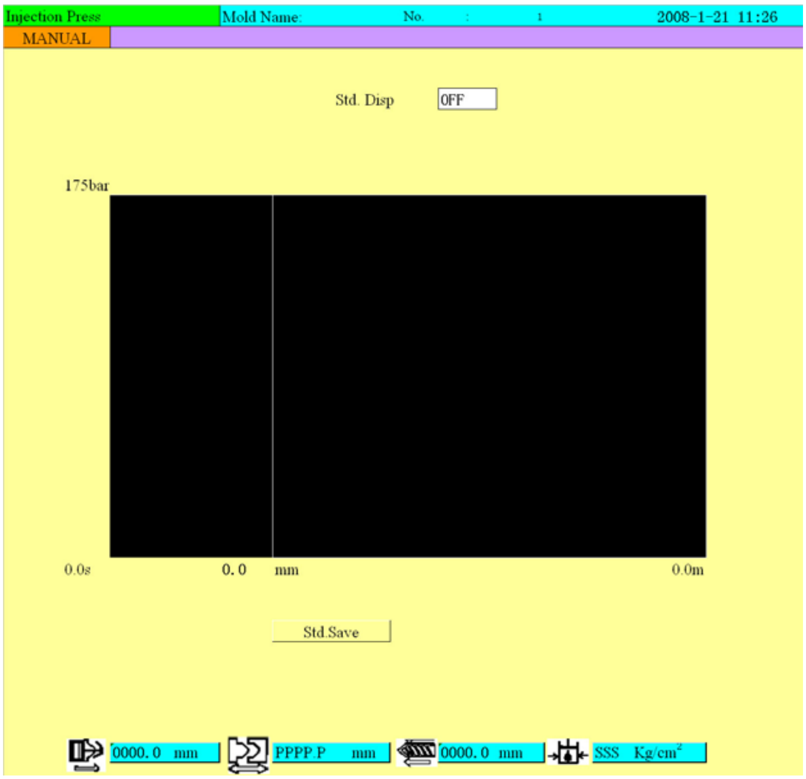
Std.Disp OFF

Press 曲线 GRAPH twice to enter the injection speed curve screen (59).

Press ◁▷ key to move the cursor and press + 开/ON or − 关/OFF key to select ON or OFF, press ENTER 输入 key, to complete the setting.

5.2.29 Injection Pressure Curve

Injection Pressure Curve Screen (60)



Injection Press | Mold Name: | No. : 1 | 2008-1-21 11:26

MANUAL

Std. Disp: OFF

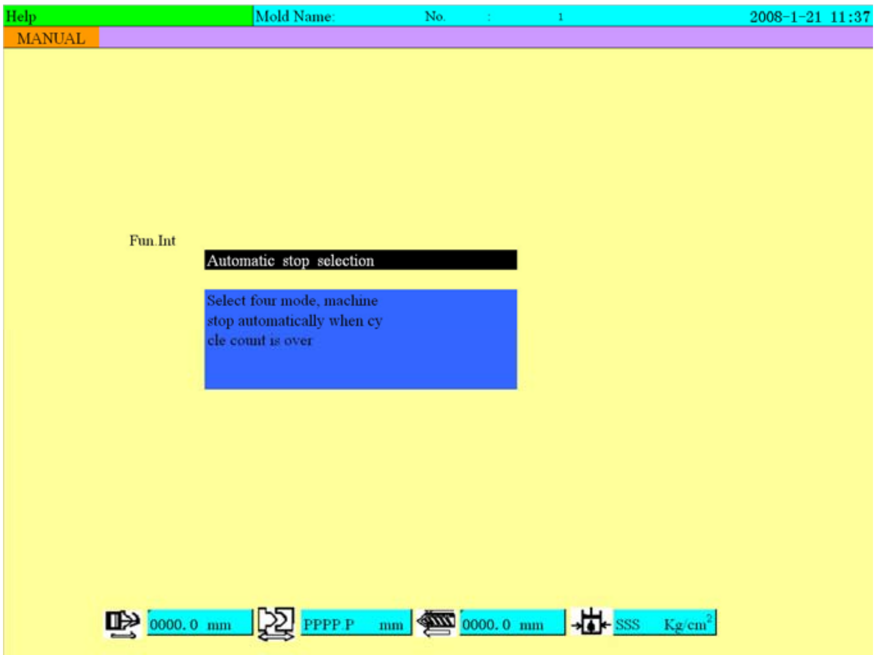
175bar
0.0s
0.0
mm
0.0m
Std.Save
0000.0 mm
PPPP.P mm
0000.0 mm
SSS Kg/cm²

Press 曲线 GRAPH three times to enter the injection pressure curve screen (60).

Press ENTER 输入 key, at this time, the computer will adapt to the machine to perform automatic linear adjustment of pressure, and automatically show the linear values on the screen.

5.2.30 Help

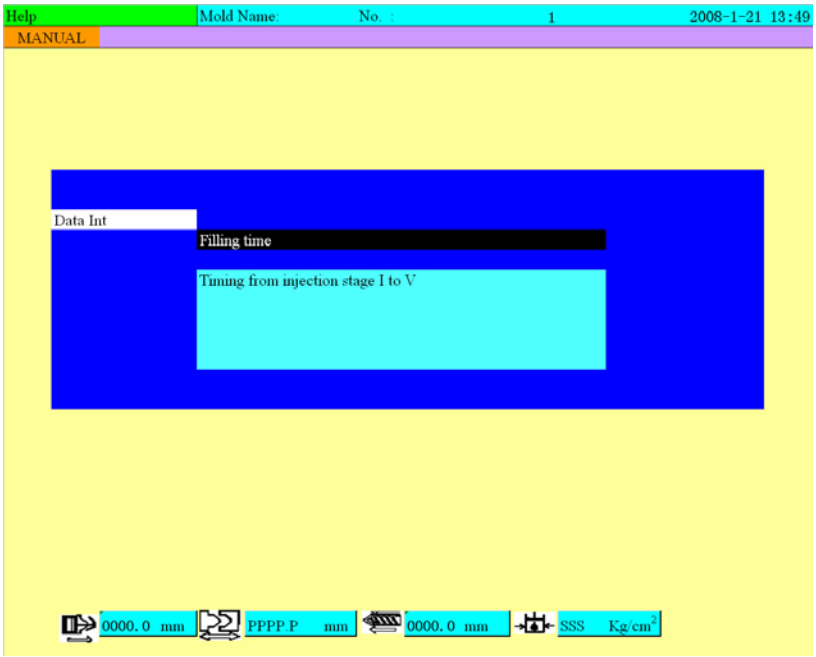
Help Screen (61)


Help
Mold Name:
No.
:
1
2008-1-21 11:37
MANUAL
Fun.Int
0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

Automatic stop selection

Select four mode, machine stop automatically when cy cle count is over

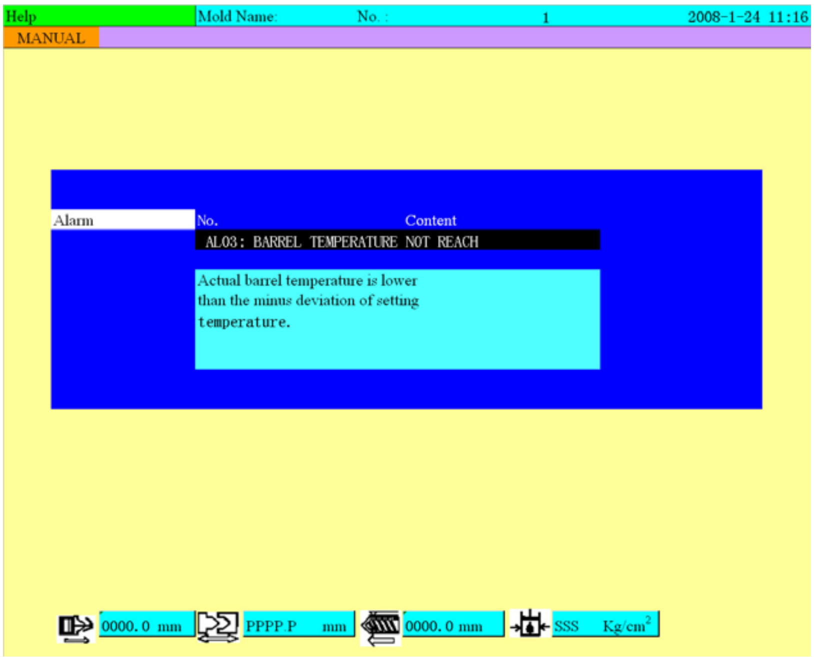
Help Screen (62)


Help
Mold Name:
No. :
1
2008-1-21 13:49
MANUAL
Data Int
0000. 0 mm
PPPP.P mm
0000. 0 mm
SSS Kg/cm²

Filling time

Timing from injection stage I to V

Help Screen (63)


Help
Mold Name:
No.:
1
2008-1-24 11:16
MANUAL
0000.0 mm
PPPP.P mm
0000.0 mm
SSS Kg/cm²

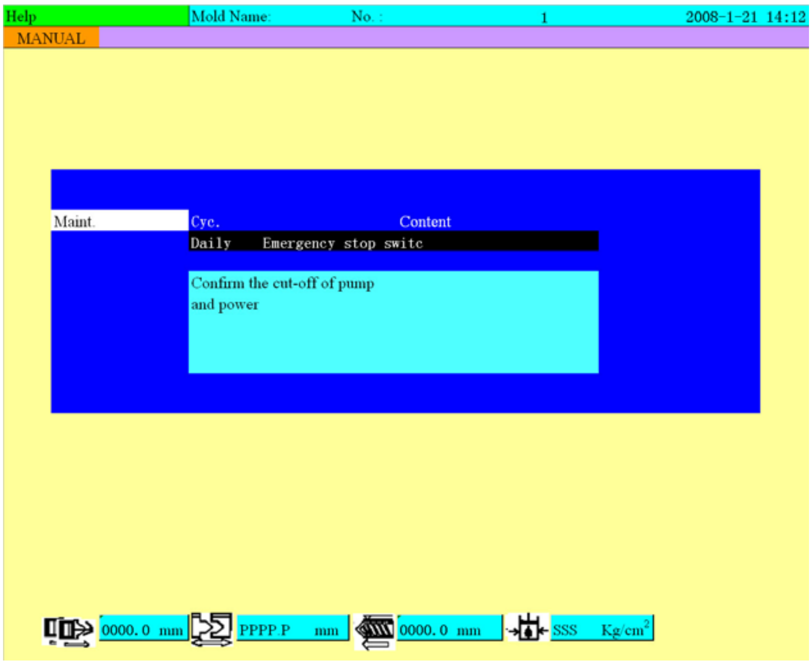
Alarm

No. Content

AL03: BARREL TEMPERATURE NOT REACH

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

Help Screen (64)


Help
Mold Name:
No.:
1
2008-1-21 14:12
MANUAL
0000.0 mm
PPPP.P mm
0000.0 mm
SSS Kg/cm²

Maint.

Cyc. Content

Daily Emergency stop switc

Confirm the cut-off of pump and power

Press 帮助 HELP once to enter the help screen (61).

Press + 开/ON or − 关/OFF, to select help types.

Help interfaces from (61) ~ (64), 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.

Function Introduction:

Automatic stop selection—Select four mode, machine stop automatically when cycle count is over.

Switching from filling to hold—Switch by injection timer; Switch by injection position Ⅴ; Switch by pressure setting.

Hydraulic nozzle—Turn ON for hydraulic nozzle (option).

Holding pressure alarm—Alarm comes when holding pressure is over (option).

Synchronise movement—Ejecting during open; Plasticization during open; Core pulling dring mold movement.

Other function—Meaning can be understood by wordings.

Data Introduction:

Filling time—Timing from injection stage Ⅰ to Ⅴ.

Injection end point—Display of injection end point.

Injection time—Setting of injection time.

Plasticization end point—Setting of plasticization end point.

Injection stage Ⅰ—Setting of injection stage Ⅰ.

Holding pressure stage Ⅰ—Setting of holding pressure stage Ⅰ.

Plasticization time—Display of plasticization time.

Plasticization delay—Setting of plasticization delay time.

Low temperature alarm—Low temperature alarm function.

Plasticization stage Ⅰ—Setting of plasticization stage Ⅰ.

Plasticization stage Ⅱ—Setting of plasticization stage Ⅱ.

Melt Decompression—Setting of Melt Decompression.

Fast speed clamp—Setting of fast speed clamp.

Low pressure clamp—Setting of low pressure clamp.

High pressure clamp—Setting of high pressure clamp.

Display of clamping force—Display of clamping force.

Boost clamp—Boost the speed of clamping.

Low pressure clamp protection—Low pressure clamping for mold protection.

High pressure clamp—Ensure enough clamping pressure.

Alarm:

AL03: Barrel Temperature Not Reach—Actual barrel temperature is lower than the minus deviation of setting temperature.

AL04: Lubrication Oil Level Too Low—The oil level of lubrication oil is too low.

AL06: Pump O/L Alm—Check the overload of oil pump motor.

AL07: Md Adj O/L Alm—Check the overload of mould-adjust motor.

AL08: Rear Door Alm—Close the rear safety door and check the limit switch.

AL09: Front Door Alm—Close the front safety door and check the limit switch.

AL10: Md Adj-Limit Alm—The mold thickness is less than the minimum thickness or check safety limit switch for mold-adjusting.

AL11: Md Adj+Limit Alm—The mold thickness exceeds the maximum thickness or check the safety limit switch for mold-adjusting.

AL19: Nozz Fwd LS Alm—The limit switch for carriage forward has not been triggered during automatic operation.
AL20: Nozz Guard Open—The purge guard fails to be closed during injection.
AL21: Nozz Block Alm—The nozzle is blocked by foreign matters. Check the injection position setting or nozzle.
AL22: Short Shot or Over Shot—Injection end position has gone beyond the tolerance setting. Adjust the tolerance setting or check ring.
AL23: No Material Alm—During automatic operation, plasticization time exceeds cooling time setting. Check for hopper blocking.
AL24: Cyc Completed Alm—The actual cycle counter has reached the production counter setting under automatic operation.
AL25: Cyc Time Long Al—The production cycle time exceeds the alarm setting of the cyclic time.
AL26: Md Protect Alm—There are plastics in mold or the high-press clamp position and low-press time setting are not correct.
AL29: Photo Cut Alm—When photo cell is used for recycle, please clean off the products or foreign matters on the slide way.
AL48: Oil Filter Clog—Check and clean oil filter.
AL30: Oil Temp Low Alm—The actual temp of the hydraulic oil is lower than the setting for the minus allowed deviation.
AL31: Oil Temp High Alm—The actual temp of the hydraulic oil is higher than the setting for the plus allowed deviation.
AL32: Core LS Alm—During automatic operation the core-pulling time exceeds the setting of the limit alarm time of the core.
AL33: Eje LS Alm—During automatic operation the ejection time exceeds the setting of the limit alarm time of the ejector.
AL49: Robot Alarm—Check robot device.
AL35: Acc Charge Alm—When ACC injection is ON, charging time exceeds cooling time. Please check the charging pressure switch.
AL61: Oil Level Too Low—Check oil volume.
AL36: Md Adj Sensor Alm—During mold-adjustment the mold adjustment sensor is found to be faulty. Please check the mold-adjustment.
AL38: Barrel Preheat—Preheat function turn ON.
AL39: Check Unscrew Counting Sensor—During automatic operation, the unscrewing time exceeds the setting of the limit alarm time.
AL05: Low Lub Press—Lubrication pressure too low. Oil pipe break or oil pump damage.
AL50: Pump Motor Not Start—Check whether each phase voltage and 10A fuse are normal and AC 3A switch has tripped.

Maintenance:

Daily: Emergency stop switch—Confirm the cut-off of pump and power.
Central lubrication—Check lubrication status, any block or leakage in the circuit.
Cleaning—Keep clean.
Heating barrel—Check heater and thermocouple.
Safety door—Check door safety under manual and semi-auto mode.
Oil pressure&tempera—Check oil pressure and temperature. Temperature should below 50 degree.
Weekly: Lubrication oil—lubricate all moving parts.
Check all switch&con—Check the control cabinet.

Check hydraulic circ－If leakage, tighten the joints or replace oil seal.

Annually: Check hydraulic oil－Check hydraulic oil quality.

Check cable－Check the hardening of cables due to oil.

Check nozzle－Check wear of nozzle, centre with the fix platen.

Check mold platen－Check the parallel of fixed platen, moving platen and rear platen.

Check hydraulic motor－Check the noise of coupling. Apply grease or replace bearing.

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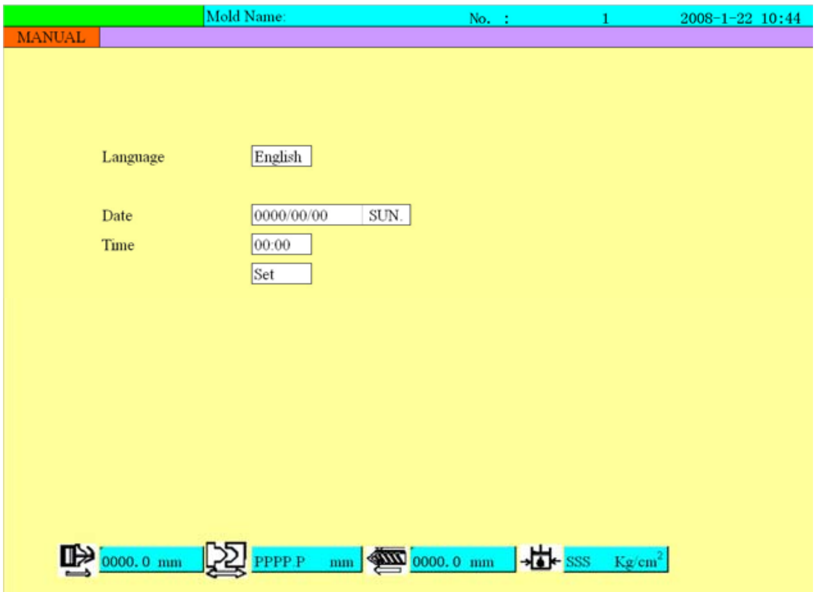
5.2.31 System Time and Language Setting

System Time and Language Setting Screen (65)



Mold Name: No. : 1 2008-1-22 10:44

MANUAL

Language English

Date 0000/00/00 SUN.

Time 00:00

Set

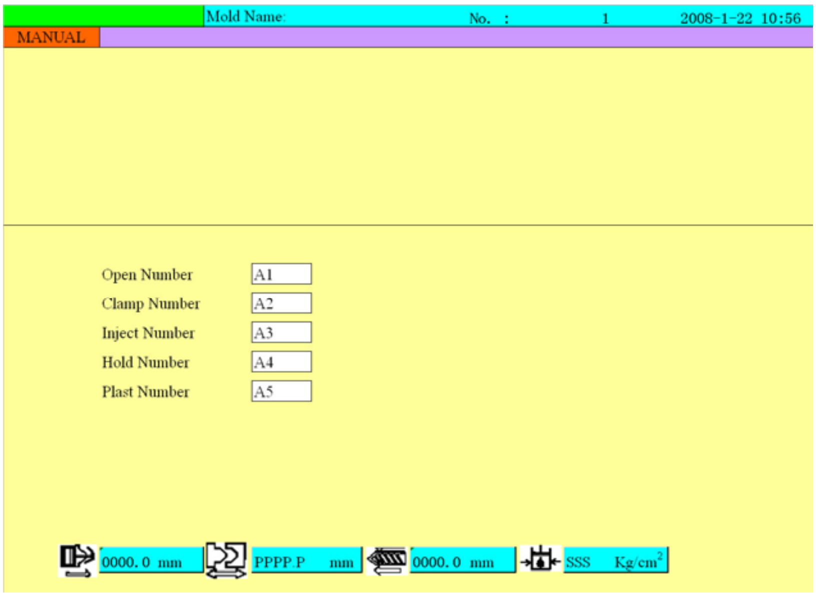
Firstly, press CANCEL 取消 + 运行 MAIN keys, then press CANCEL 取消 + △ (or ▽) to turn over the page, enter the system time and language setting screen (65).

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.

5.2.32 Action Stroke Stage Number Selection

Action Stroke Stage Number Selection Screen (66)



Open Number A1
Clamp Number A2
Inject Number A3
Hold Number A4
Plast Number A5

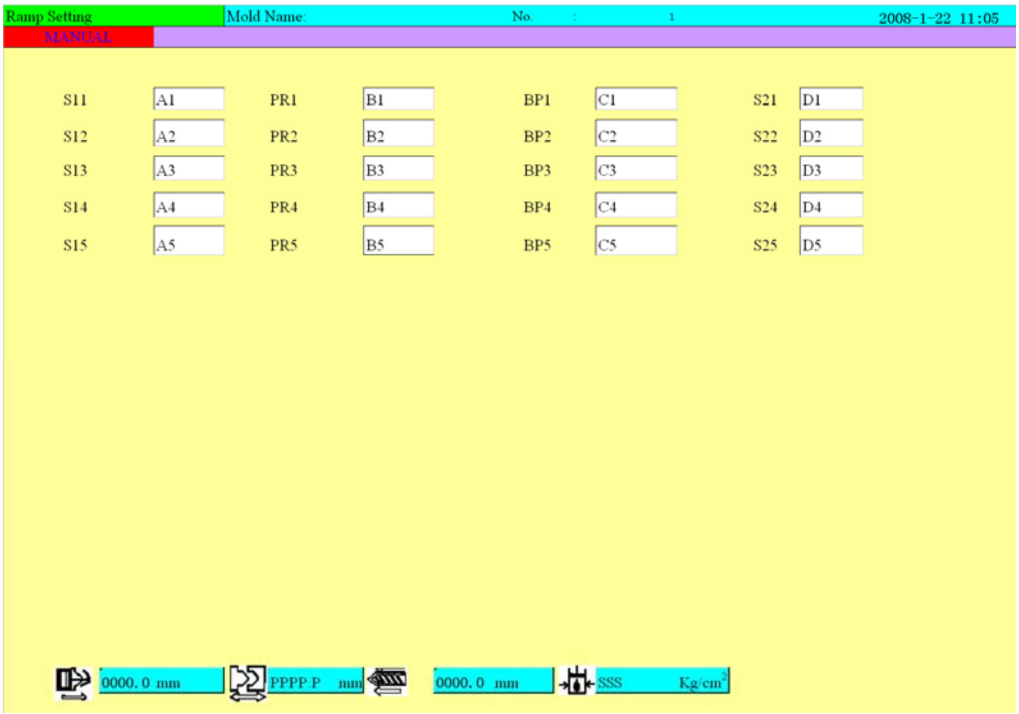
Firstly, press CANCEL 取消 + 运行 MAIN keys, then press CANCEL 取消 + ∧ (or ∨) to turn over the page, enter the action stroke stage number selection screen (66). Press ✥ to move the cursor to the position required for alteration.

To change the stage number, it is only required to input the value directly, then press ENTER 输入 to complete the setting.

In which: "A1"~"A5" are respective the stage numbers setting value of mould opening, mould clamping, injection, pressure holding and plasticizing.

5.2.33 Ramp Setting

Ramp Setting Screen (67)



Ramp Setting | Mold Name: | No. : 1 | 2008-1-22 11:05

MANUAL

S11	A1	PR1	B1	BP1	C1	S21	D1
S12	A2	PR2	B2	BP2	C2	S22	D2
S13	A3	PR3	B3	BP3	C3	S23	D3
S14	A4	PR4	B4	BP4	C4	S24	D4
S15	A5	PR5	B5	BP5	C5	S25	D5

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Press CANCEL 取消 + MD DATA 模号 to enter the ramp setting screen (67).

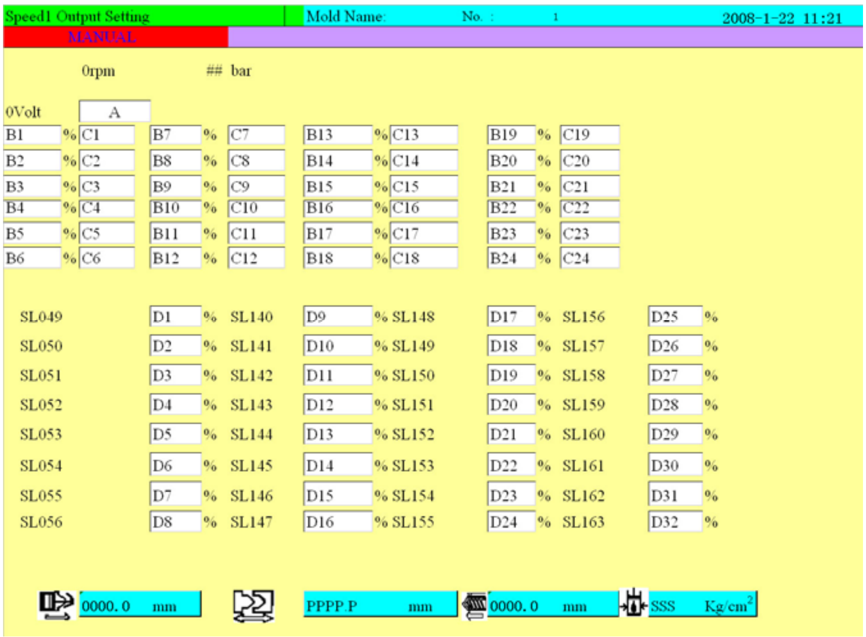
Press ▲▼◄► to choose slope, and input corresponding slope, then press ENTER 输入 to complete the setting.

In which: "S", "PR", "BP" are respective abbreviation of Speed, Press and 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: Speed slope of melt decompression;
S15: Speed slope of mould clamping while adjusting mould clamping force;
PR1: Pressure slope of fast mould clamping;
PR2: Pressure slope of mould opening;
PR3: Pressure slope of injection and plasticizing;
PR4: Pressure slope of melt decompression;
PR5: Pressure slope of mould clamping while adjusting mould clamping force.

5.2.34 Speed 1 Output Setting

Speed 1 Output Setting Screen (68)



Speed1 Output Setting | Mold Name: | No. : 1 | 2008-1-22 11:21

MANUAL

0rpm ## bar

0Volt A

B1	%	C1	B7	%	C7	B13	%	C13	B19	%	C19
B2	%	C2	B8	%	C8	B14	%	C14	B20	%	C20
B3	%	C3	B9	%	C9	B15	%	C15	B21	%	C21
B4	%	C4	B10	%	C10	B16	%	C16	B22	%	C22
B5	%	C5	B11	%	C11	B17	%	C17	B23	%	C23
B6	%	C6	B12	%	C12	B18	%	C18	B24	%	C24

SL049	D1	%	SL140	D9	%	SL148	D17	%	SL156	D25	%
SL050	D2	%	SL141	D10	%	SL149	D18	%	SL157	D26	%
SL051	D3	%	SL142	D11	%	SL150	D19	%	SL158	D27	%
SL052	D4	%	SL143	D12	%	SL151	D20	%	SL159	D28	%
SL053	D5	%	SL144	D13	%	SL152	D21	%	SL160	D29	%
SL054	D6	%	SL145	D14	%	SL153	D22	%	SL161	D30	%
SL055	D7	%	SL146	D15	%	SL154	D23	%	SL162	D31	%
SL056	D8	%	SL147	D16	%	SL155	D24	%	SL163	D32	%

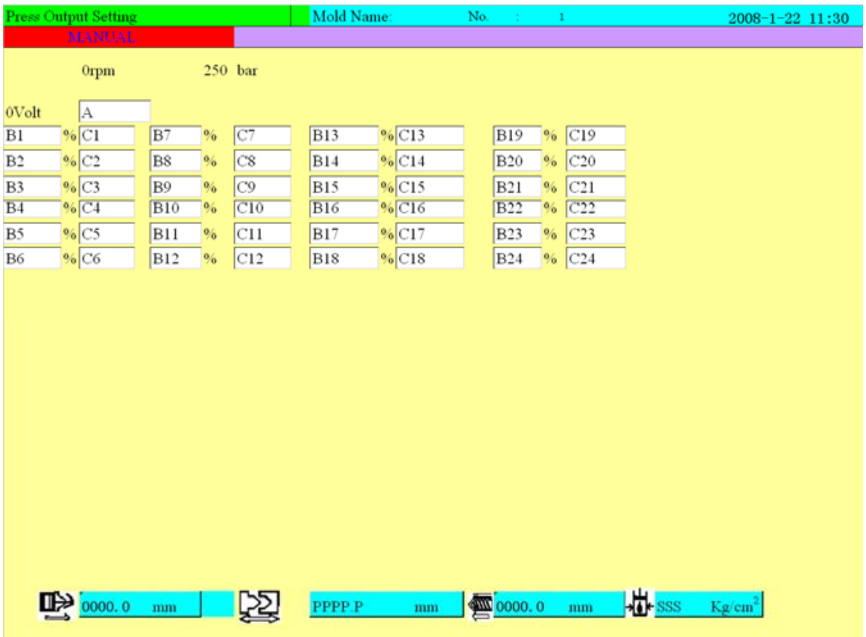
0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Press CANCEL 取消 + MD DATA 模号 to enter the speed 1 output setting screen (68).

Press to choose the speed, and input corresponding speed, then press ENTER 输入 key, to complete the setting.

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.

5.2.35 Pressure Output Setting



Press Output Setting | Mold Name: | No. : 1 | 2008-1-22 11:30

MANUAL

0rpm 250 bar

0Volt A

B1	%	C1	B7	%	C7	B13	%	C13	B19	%	C19
B2	%	C2	B8	%	C8	B14	%	C14	B20	%	C20
B3	%	C3	B9	%	C9	B15	%	C15	B21	%	C21
B4	%	C4	B10	%	C10	B16	%	C16	B22	%	C22
B5	%	C5	B11	%	C11	B17	%	C17	B23	%	C23
B6	%	C6	B12	%	C12	B18	%	C18	B24	%	C24

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Pressure Output Setting Screen (69)

Press CANCEL 取消 + MD DATA 模号 three times to enter the pressure output setting screen (69).

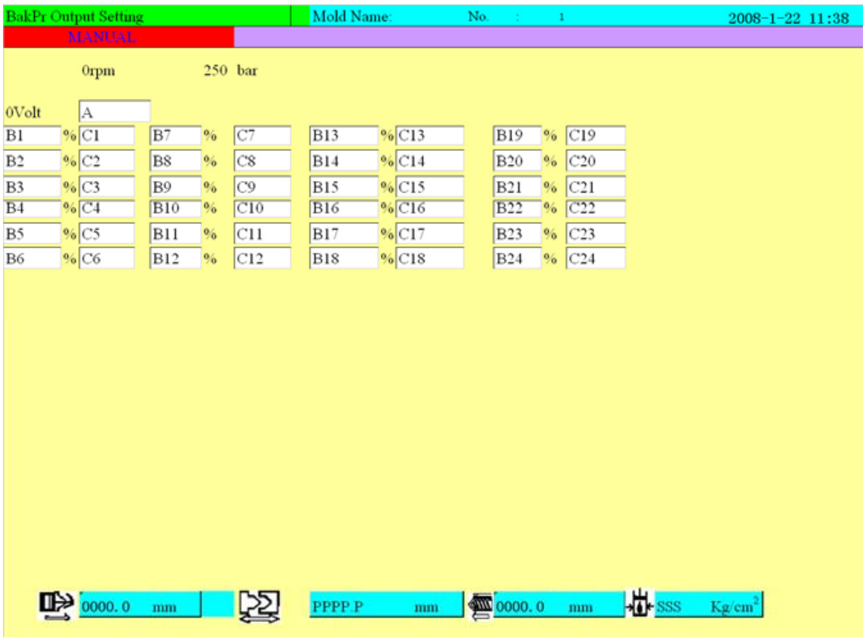
Press ✥ to choose pressure, and input the corresponding pressure, then press ENTER 输入, to complete the setting.

In which, four groups and two rows respective are: pressure percentage and pressure output analog value.

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.

5.2.36 Back Pressure Output Setting

Back Pressure Output Setting Screen (70)



BakPr Output Setting | Mold Name: | No. : 1 | 2008-1-22 11:38

MANUAL

0rpm 250 bar

0Volt A

B1	%	C1	B7	%	C7	B13	%	C13	B19	%	C19
B2	%	C2	B8	%	C8	B14	%	C14	B20	%	C20
B3	%	C3	B9	%	C9	B15	%	C15	B21	%	C21
B4	%	C4	B10	%	C10	B16	%	C16	B22	%	C22
B5	%	C5	B11	%	C11	B17	%	C17	B23	%	C23
B6	%	C6	B12	%	C12	B18	%	C18	B24	%	C24

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Press CANCEL 取消 + 123 模号 MD DATA four times to enter the back pressure output setting screen (70).

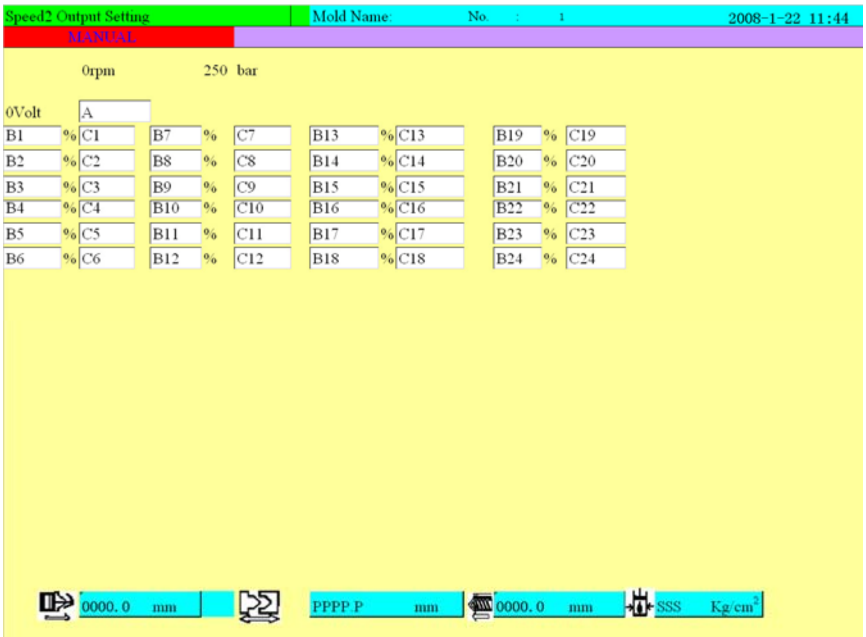
Press to choose back pressure, and input the corresponding value, then press ENTER 输入, to complete the setting.

In which, four groups and two rows respective are: pressure percentage and pressure output analog value.

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.

5.2.37 Speed 2 output setting

Speed 2 output setting (71)



Speed2 Output Setting | Mold Name: | No. : 1 | 2008-1-22 11:44

MANUAL

0rpm 250 bar

0Volt		A									
B1	%	C1	B7	%	C7	B13	%	C13	B19	%	C19
B2	%	C2	B8	%	C8	B14	%	C14	B20	%	C20
B3	%	C3	B9	%	C9	B15	%	C15	B21	%	C21
B4	%	C4	B10	%	C10	B16	%	C16	B22	%	C22
B5	%	C5	B11	%	C11	B17	%	C17	B23	%	C23
B6	%	C6	B12	%	C12	B18	%	C18	B24	%	C24

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

Press CANCEL 取消 + 123 模号 MD DATA five times to enter the speed 2 output setting screen (71).

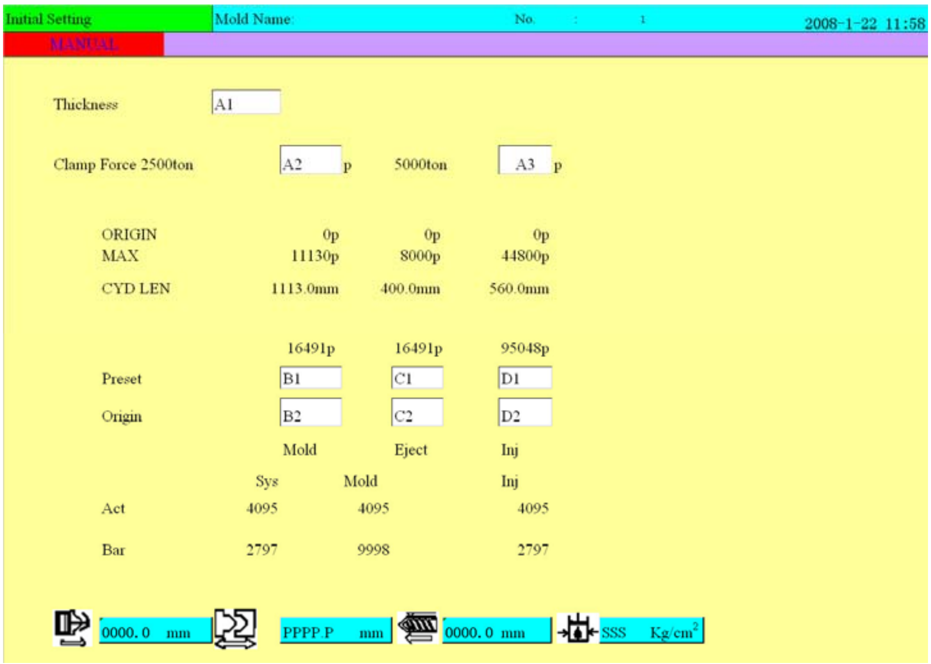
Press ◀▲▼▶ to choose speed, and input the corresponding speed, then press ENTER 输入, to complete the setting.

In which, four groups and two rows respective are: speed percentage and speed output analog value.

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.

5.2.38 Initial Setting (Origin setting for decoder)

Initial Setting Screen (72)



Initial Setting | Mold Name: | No. : 1 | 2008-1-22 11:58

MANUAL

Thickness A1

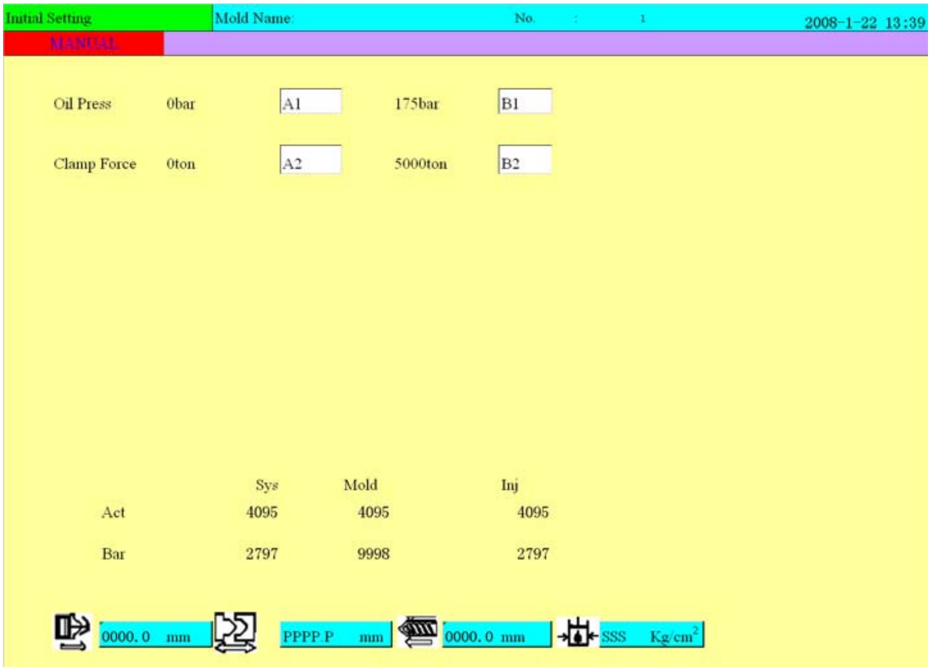
Clamp Force 2500ton A2 p 5000ton A3 p

ORIGIN	0p	0p	0p
MAX	11130p	8000p	44800p
CYD LEN	1113.0mm	400.0mm	560.0mm
	16491p	16491p	95048p
Preset	B1	C1	D1
Origin	B2	C2	D2
	Mold	Eject	Inj

	Sys	Mold	Inj
Act	4095	4095	4095
Bar	2797	9998	2797

0000. 0 mm | PPPP P mm | 0000. 0 mm | SSS Kg/cm²

Initial Setting Screen (73)



Initial Setting | Mold Name: | No. : 1 | 2008-1-22 13:39

MANUAL

Oil Press	0bar	A1	175bar	B1
Clamp Force	0ton	A2	5000ton	B2

	Sys	Mold	Inj
Act	4095	4095	4095
Bar	2797	9998	2797

0000. 0 mm | PPPP P mm | 0000. 0 mm | SSS Kg/cm²

Press CANCEL 取消 + 123 模号 MD DATA 6 and 7 times to enter the initial setting screen (72) and (73).

Press ✥ to select the item to be set, input the corresponding value, and press ENTER 输入 to complete the setting.

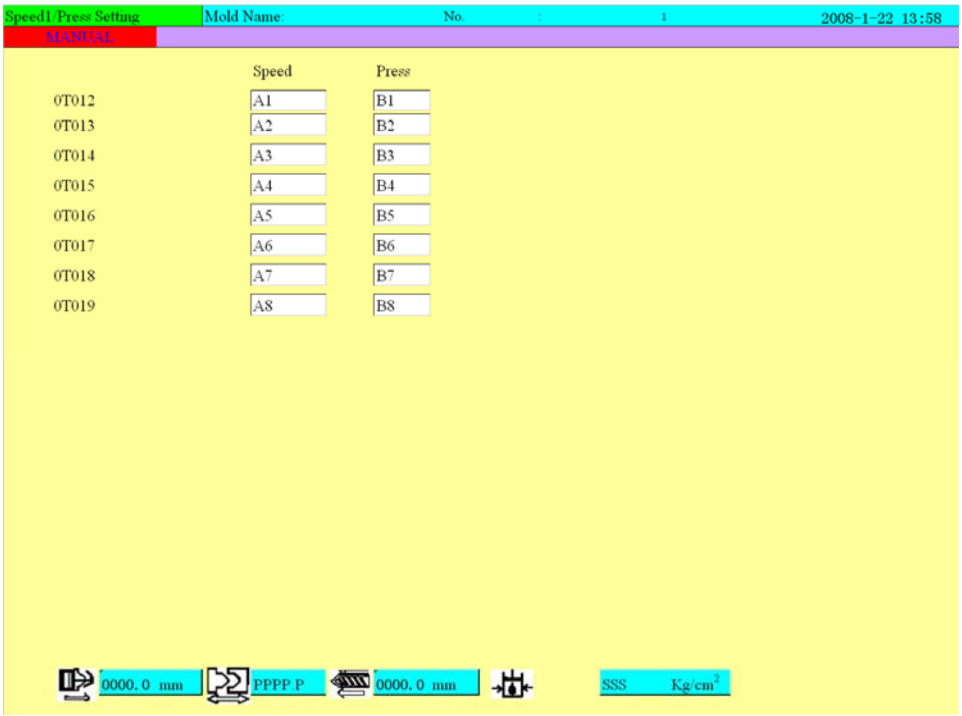
In this screen:

"A1": Lower limit setting of oil pressure
"A2": Upper limit setting of oil pressure
"B1": Lower limit setting of mould clamping force
"B2": Upper limit setting of mould clamping force

This screen is used for the setting of system origins, oil pressure and mould clamping force related parameters. Since these settings are related to the stability of the whole machine, they have been set by the manufacturer prior to delivery, and do no need modification if there is no special requirement. If necessary, please contact the customer service department for assistance.

5.2.39 Auxiliary Speed and Pressure Setting

Auxiliary Speed and Pressure Setting Screen (74)



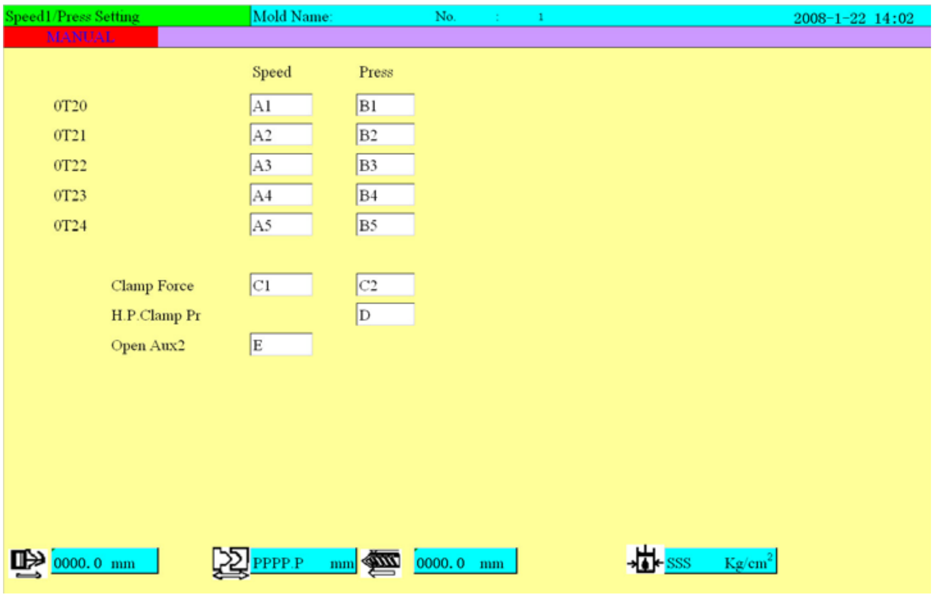
Speed1/Press Setting Mold Name: No. : 1 2008-1-22 13:58

MANUAL

	Speed	Press
0T012	A1	B1
0T013	A2	B2
0T014	A3	B3
0T015	A4	B4
0T016	A5	B5
0T017	A6	B6
0T018	A7	B7
0T019	A8	B8

0000. 0 mm PPPP.P 0000. 0 mm SSS Kg/cm²

Auxiliary Speed and Pressure Setting Screen (75)



Speed1/Press Setting Mold Name: No. : 1 2008-1-22 14:02

MANUAL

	Speed	Press
0T20	A1	B1
0T21	A2	B2
0T22	A3	B3
0T23	A4	B4
0T24	A5	B5
Clamp Force	C1	C2
H.P.Clamp Pr		D
Open Aux2	E	

0000. 0 mm PPPP.P mm 0000. 0 mm SSS Kg/cm²

Press CANCEL 取消 + 123 模号 MD DATA 8 and 9 times to enter the auxiliary speed and pressure setting screen (74) and (75).

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

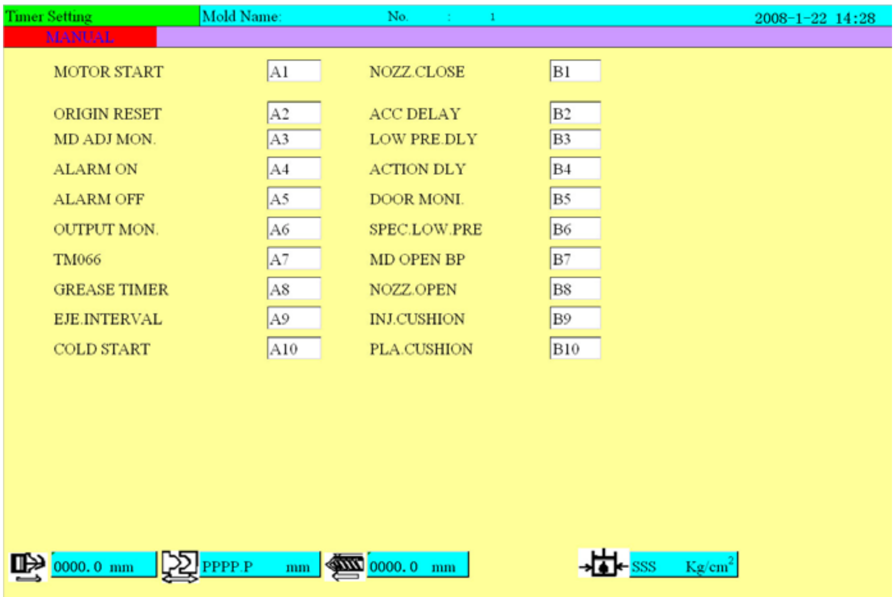
"A": Auxiliary Speed；
"B": Auxiliary pressure；
"C1": Mould clamping force speed setting while automatic mould adjusting；
"C2": Mould clamping force pressure setting while automatic mould adjusting；
"D": Pressure setting for high-pressure mould clamping；
"E": Auxiliary position setting for mould opening；

OT012: Speed and pressure settings for mould clamping, injection and ejector decoder origins resetting;
OT016: Speed and pressure settings for special low pressure mould clamping.

Other settings are not used yet.

5.2.40 Timer Setting

Timer Setting Screen (76)



Timer Setting | Mold Name: | No. : 1 | 2008-1-22 14:28

MANUAL

MOTOR START	A1	NOZZ.CLOSE	B1
ORIGIN RESET	A2	ACC DELAY	B2
MD ADJ MON.	A3	LOW PRE.DLY	B3
ALARM ON	A4	ACTION DLY	B4
ALARM OFF	A5	DOOR MONI.	B5
OUTPUT MON.	A6	SPEC.LOW.PRE	B6
TM066	A7	MD OPEN BP	B7
GREASE TIMER	A8	NOZZ.OPEN	B8
EJE.INTERVAL	A9	INJ.CUSHION	B9
COLD START	A10	PLA.CUSHION	B10

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

Press CANCEL 取消 + MD DATA 模号 10 times to enter the timer setting screen (76).

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

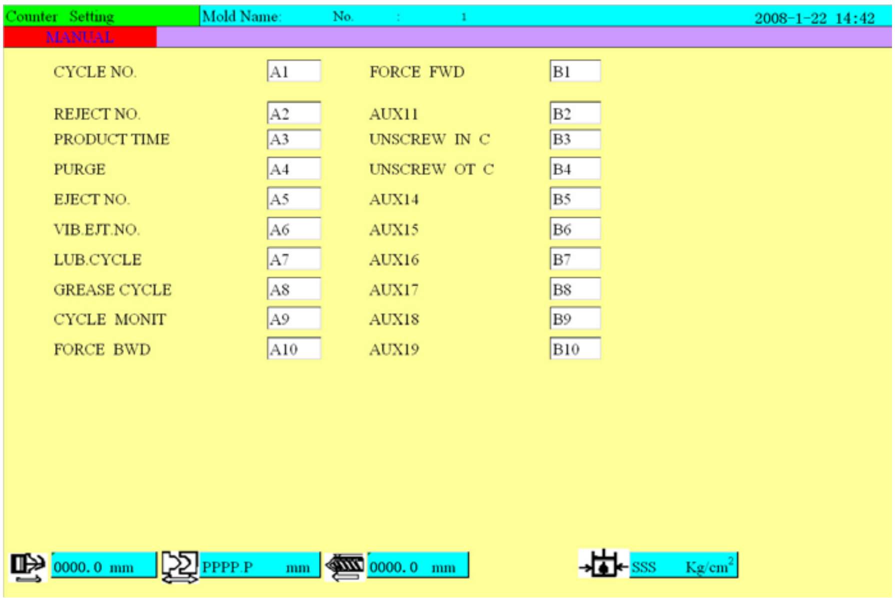
In this screen:

"A1": Setting of motor start time
"A2": Setting of origin reset time
"A3": Setting of mould adjustment monitor time
"A4": Setting of alarm duration time
"A5": Setting of alarm pause time
"A6": Setting of action monitor time
"A7": Auxiliary 66
"A8": Setting of grease lubrication time
"A9": Setting of ejector interval time
"A10": Setting of cold start proof time
"B1": Setting of nozzle closing time
"B2": Setting of nitrogen ending time
"B3": Setting of low pressure delay time
"B4": Setting of action delay time
"B5": Setting of safety door monitor time
"B6": Setting of special low pressure time
"B7": Setting of mould opening back pressure time
"B8": Setting of nozzle open time

"B9": Setting of injection cushion time
"B10": Setting of plasticizing cushion time

5.2.41 Counter Setting

Counter Setting Screen (77)



Counter Setting | Mold Name: | No. : 1 | 2008-1-22 14:42

MANUAL

CYCLE NO.	A1	FORCE FWD	B1
REJECT NO.	A2	AUX11	B2
PRODUCT TIME	A3	UNSCREW IN C	B3
PURGE	A4	UNSCREW OT C	B4
EJECT NO.	A5	AUX14	B5
VIB.EJT.NO.	A6	AUX15	B6
LUB.CYCLE	A7	AUX16	B7
GREASE CYCLE	A8	AUX17	B8
CYCLE MONIT	A9	AUX18	B9
FORCE BWD	A10	AUX19	B10

0000.0 mm | PPPP.P mm | 0000.0 mm | SSS Kg/cm²

Press CANCEL 取消 + MD DATA 模号 11 times to enter the counter setting screen (77).

Press ◁▷ to select the item to be set, input the corresponding value, and press ENTER 输入 to complete the setting.

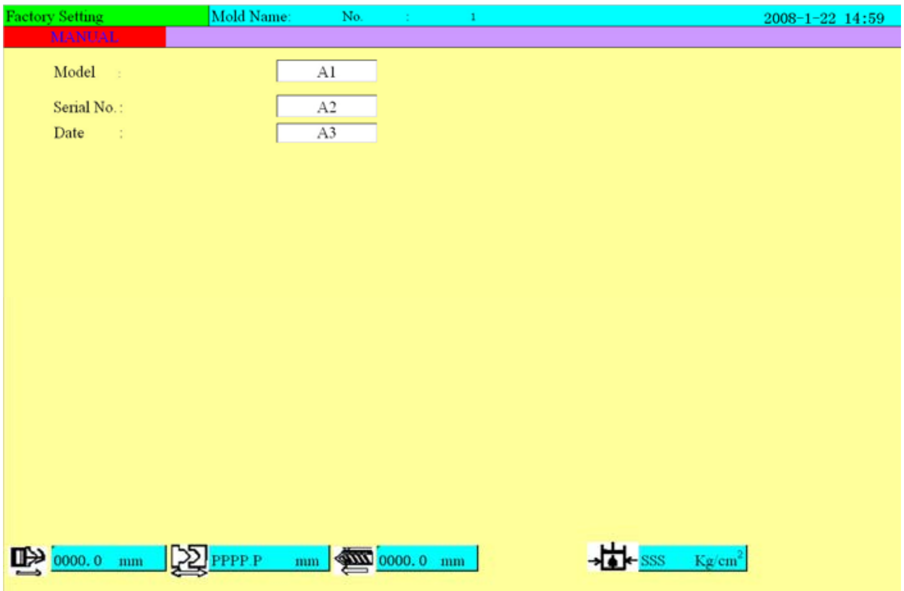
In this screen:

"A1": Setting of cycle number
"A2": Setting of rejected parts number
"A3": Setting of production time
"A4": Setting of purge number
"A5": Setting of ejection number
"A6": Setting of vibration ejection number
"A7": Setting of lubrication cycle counting
"A8": Setting of grease cycle counting
"A9": Setting of cycle monitor counting
"A10": Setting of force backward counting
"B1": Setting of force forward counting
"B2": Auxiliary 11
"B3": Setting of unscrew in C counting
"B4": Setting of unscrew out C counting
"B5": Auxiliary 14
"B6": Auxiliary15
"B7": Auxiliary 16

"B8": Auxiliary 17
"B9": Auxiliary 18
"B10": Auxiliary 19

5.2.42 Factory Setting

Factory Setting Screen (78)



Factory Setting   Mold Name: No.   :   1   2008-1-22 14:59

MANUAL

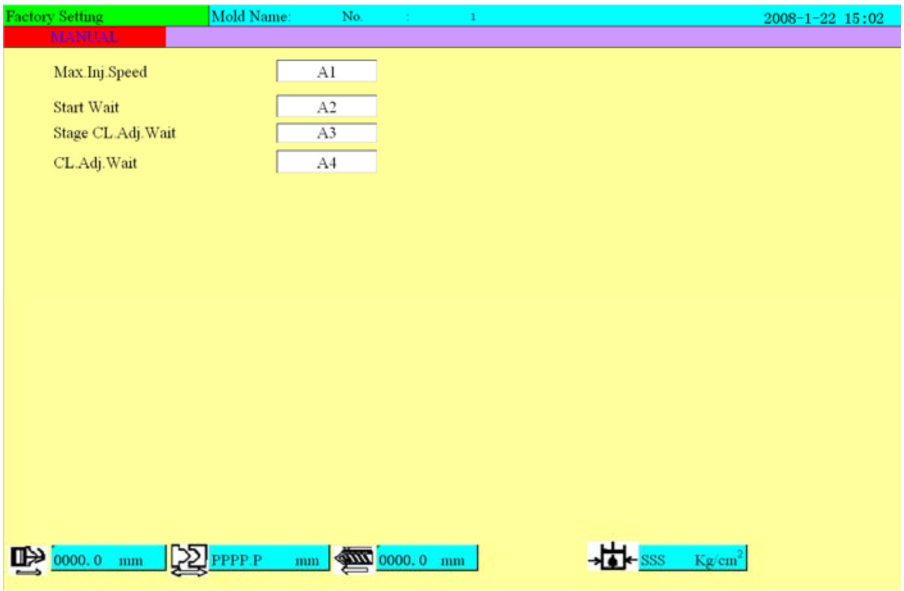
Model : A1

Serial No. : A2

Date : A3

0000.0 mm   PPPP.P mm   0000.0 mm   SSS Kg/cm^2

Factory Setting Screen (79)



Factory Setting   Mold Name: No.   :   1   2008-1-22 15:02

MANUAL

Max.Inj.Speed A1

Start Wait A2

Stage CL.Adj.Wait A3

CL.Adj.Wait A4

0000.0 mm   PPPP.P mm   0000.0 mm   SSS Kg/cm^2

Press CANCEL 取消 + 123 模号 MD DATA 12 and 13 times to enter the factory setting screen (78) and (79).

Press to select the item to be set, input the corresponding value, and press ENTER 输入 to complete the setting.

These screens are used for modifying the original information of the system (like machine model, serial number, date of delivery etc).

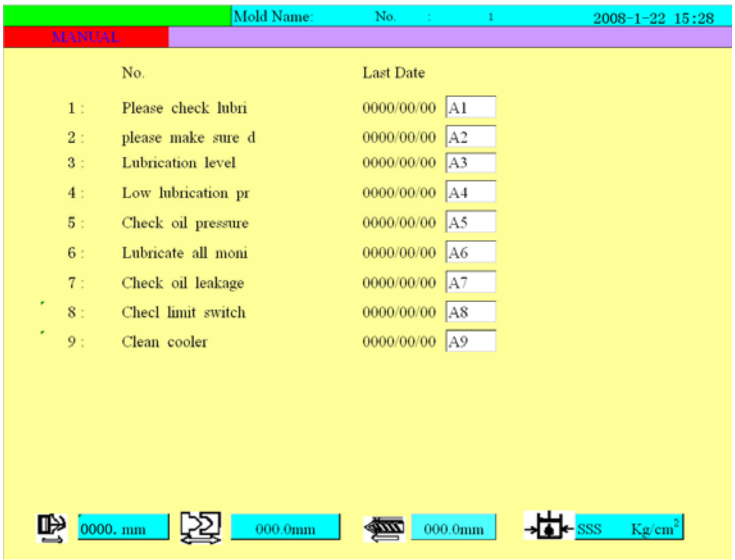
Since the settings in screen (79) are related to the stability of the whole machine, they have been set by the manufacturer prior to delivery, and do no need modification if there is no special requirement. If necessary, please contact the customer service department for assistance.

In the screen (78):
"A1": Setting of machine model
"A2": Setting of machine serial number
"A3": Setting of date of delivery

In the screen (79):
"A1": Setting of maximum injection speed
"A2": Setting of start delay
"A3": Setting of each stage closed loop adjustment delay
"A4": Setting of closed loop adjustment delay

5.2.43 Maintenance Setting

Maintenance Setting Screen (80)

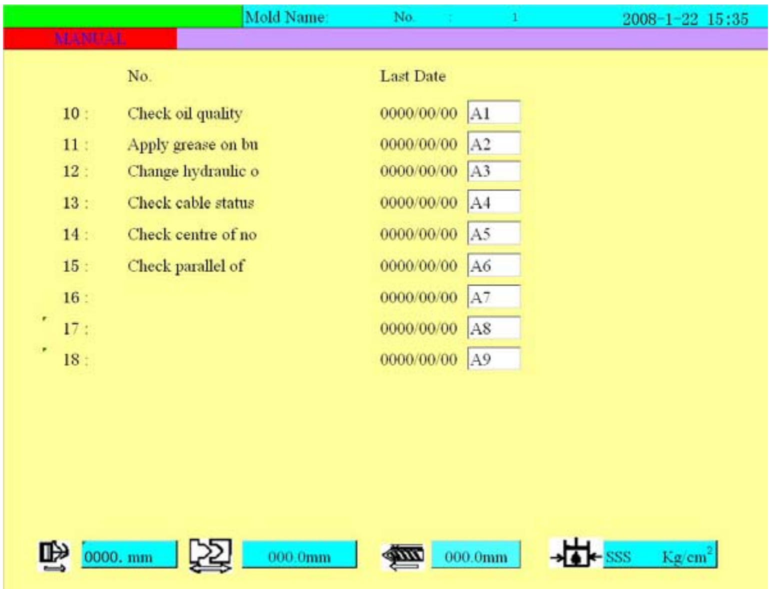


Mold Name: No. : 1 2008-1-22 15:28

MANUAL

No.		Last Date	
1 :	Please check lubri	0000/00/00	A1
2 :	please make sure d	0000/00/00	A2
3 :	Lubrication level	0000/00/00	A3
4 :	Low lubrication pr	0000/00/00	A4
5 :	Check oil pressure	0000/00/00	A5
6 :	Lubricate all moni	0000/00/00	A6
7 :	Check oil leakage	0000/00/00	A7
8 :	Checl limit switch	0000/00/00	A8
9 :	Clean cooler	0000/00/00	A9

Maintenance Setting Screen (81)



Mold Name: No. : 1 2008-1-22 15:35

MANUAL

No.		Last Date	
10 :	Check oil quality	0000/00/00	A1
11 :	Apply grease on bu	0000/00/00	A2
12 :	Change hydraulic o	0000/00/00	A3
13 :	Check cable status	0000/00/00	A4
14 :	Check centre of no	0000/00/00	A5
15 :	Check parallel of	0000/00/00	A6
16 :		0000/00/00	A7
17 :		0000/00/00	A8
18 :		0000/00/00	A9

Press CANCEL 取消 ＋ 123 模号 MD DATA 15, 16 times to enter the maintenance setting screen (80) and (81).

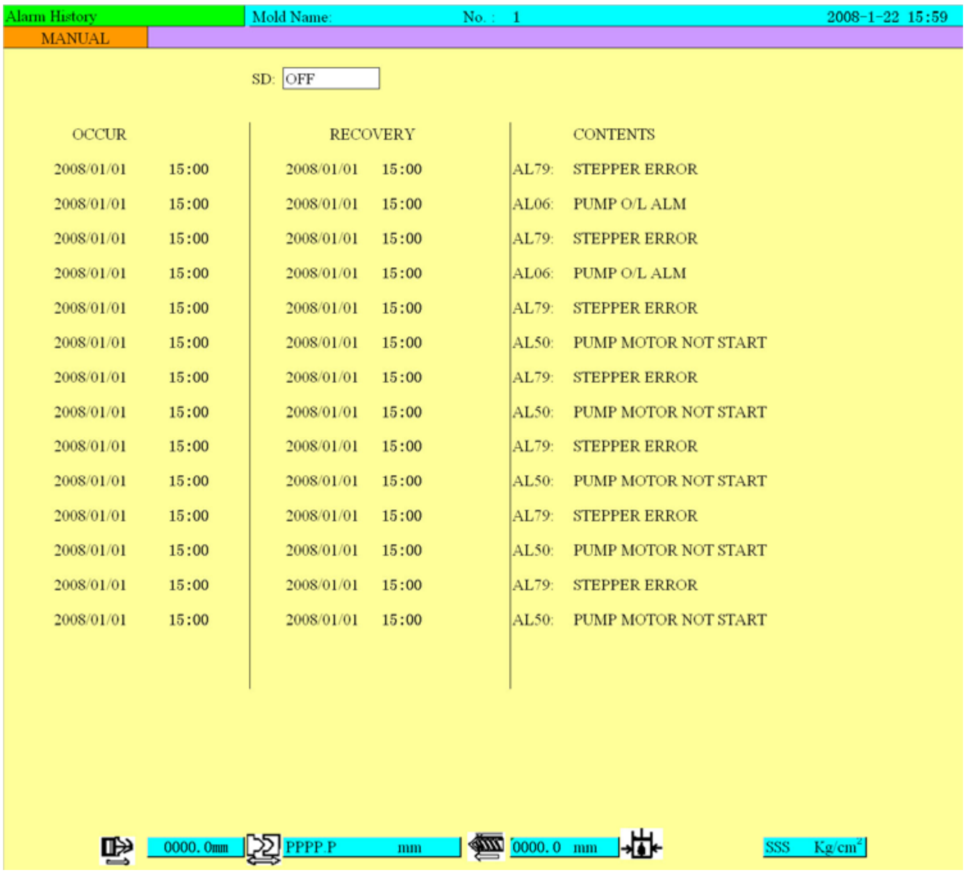
Press ◈ to move the cursor to "Last Date" position, and press ENTER 输入 key, a "?" appears after the "Last Date", then press 确认 CONF key to confirm and initialize the "Last Date" to the current date of the system, then the maintenance reminding time will be counted from current time of the system.

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.

5.2.44 Alarm History

Alarm History Screen (82)



Mold Name: No. : 1 2008-1-22 15:59

SD: OFF

OCCUR		RECOVERY		CONTENTS	
2008/01/01	15:00	2008/01/01	15:00	AL79:	STEPPER ERROR
2008/01/01	15:00	2008/01/01	15:00	AL06:	PUMP O/L ALM
2008/01/01	15:00	2008/01/01	15:00	AL79:	STEPPER ERROR
2008/01/01	15:00	2008/01/01	15:00	AL06:	PUMP O/L ALM
2008/01/01	15:00	2008/01/01	15:00	AL79:	STEPPER ERROR
2008/01/01	15:00	2008/01/01	15:00	AL50:	PUMP MOTOR NOT START
2008/01/01	15:00	2008/01/01	15:00	AL79:	STEPPER ERROR
2008/01/01	15:00	2008/01/01	15:00	AL50:	PUMP MOTOR NOT START
2008/01/01	15:00	2008/01/01	15:00	AL79:	STEPPER ERROR
2008/01/01	15:00	2008/01/01	15:00	AL50:	PUMP MOTOR NOT START
2008/01/01	15:00	2008/01/01	15:00	AL79:	STEPPER ERROR
2008/01/01	15:00	2008/01/01	15:00	AL50:	PUMP MOTOR NOT START
2008/01/01	15:00	2008/01/01	15:00	AL79:	STEPPER ERROR
2008/01/01	15:00	2008/01/01	15:00	AL50:	PUMP MOTOR NOT START

0000. 0mm

PPPP P mm

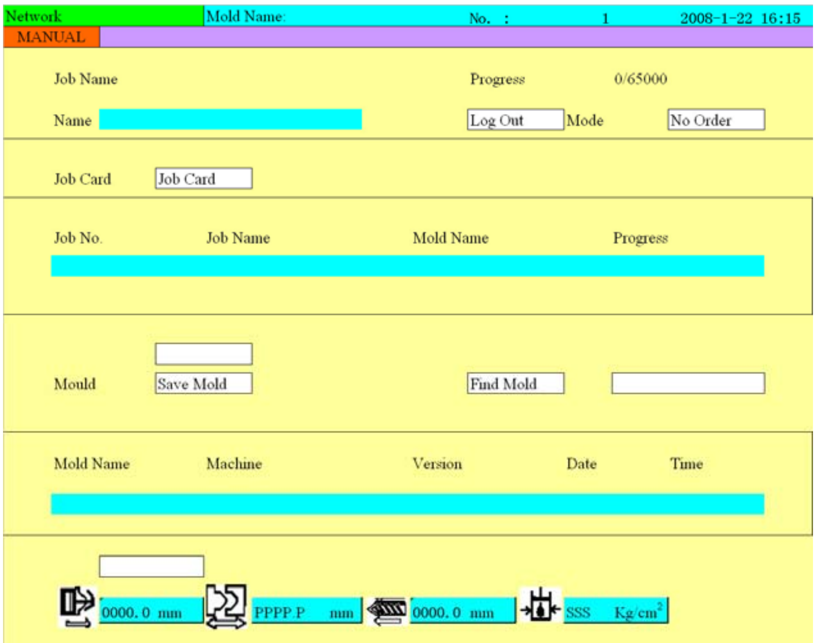
0000. 0 mm

SSS Kg/cm²

Press 历史警报 ALARM to display the alarm history screen (82), and then press ◇ to switch pages.

5.2.45 Network

Network Screen (83)



Network | Mold Name: | No. : 1 | 2008-1-22 16:15

MANUAL

Job Name | Progress 0/65000

Name | Log Out | Mode | No Order

Job Card | Job Card

Job No.	Job Name	Mold Name	Progress

Mould | Save Mold | Find Mold

Mold Name	Machine	Version	Date	Time

0000. 0 mm | PPPP.P mm | 0000. 0 mm | SSS Kg/cm²

Press 联网 ICHEN to enter the network screen (83) (which is only available when you have bought the iCHEN network system of Chen Hsong Group).

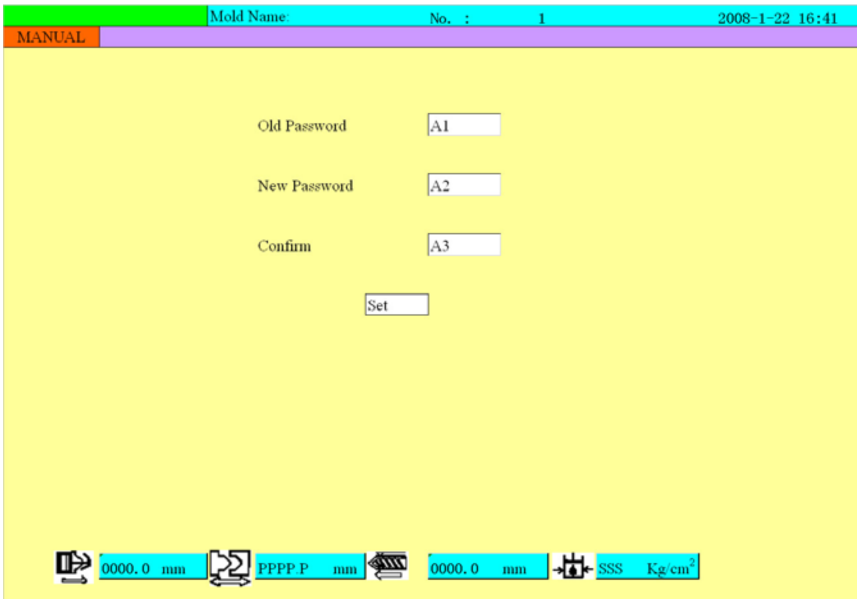
Press ◀▲▼▶ to select the item to be set, input the corresponding value, and press ENTER 输入 to complete the setting.

This function is utilized in industrial automation and automatic orders scheduling and production data logging (wire and wireless), and it guarantees the safety of the technical parameters and the extension of the production scale.

In this screen: Press + 开/ON or − 关/OFF to select the following 13 modes,
(1) Changed (2) Suspended (3) Out of Servi (4) Waiting Mold (5) Waiting Mate
(6) Change Mater (7) Replace Mold (8) Test Mold (9) Fix Mold (10) Adjust Color
(11) Production (12) No Order (13) Other3.

5.2.46 Change Password

Change Password Screen (84)



Mold Name:　No. : 1　2008-1-22 16:41

MANUAL

Old Password　A1

New Password　A2

Confirm　A3

Set

Press CANCEL 取消 and 帮助 HELP keys for over 5 seconds to enter the change password screen (84) (This password is used system operator and supervisor).

Press △▽◁▷ to select the item to be set, input the corresponding value, and press ENTER 输入 to complete the setting.

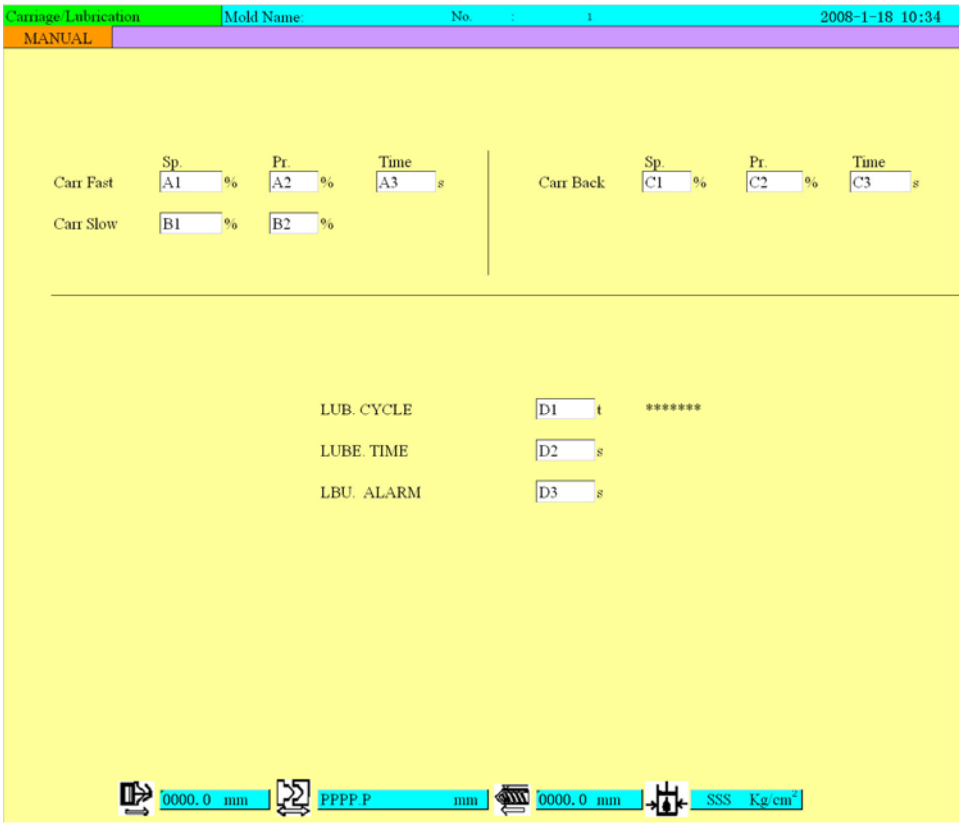
To facilitate the operation and management of the machine, every controller has an initial password when delivery. In this screen, it is suggested to change the class 1 and 2 passwords immediately for better use.

Of which:

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

5.2.47 Manual Lubrication Setting

Manual Lubrication Setting Screen (85)



Carriage/Lubrication Mold Name: No. : 1 2008-1-18 10:34

MANUAL

	Sp.	Pr.	Time
Carr Fast	A1 %	A2 %	A3 s
Carr Slow	B1 %	B2 %	

	Sp.	Pr.	Time
Carr Back	C1 %	C2 %	C3 s

LUB. CYCLE D1 t *******
LUBE. TIME D2 s
LBU. ALARM D3 s

Press 射台/润滑 CARR/LUB. to enter the manual lubrication setting screen (85).

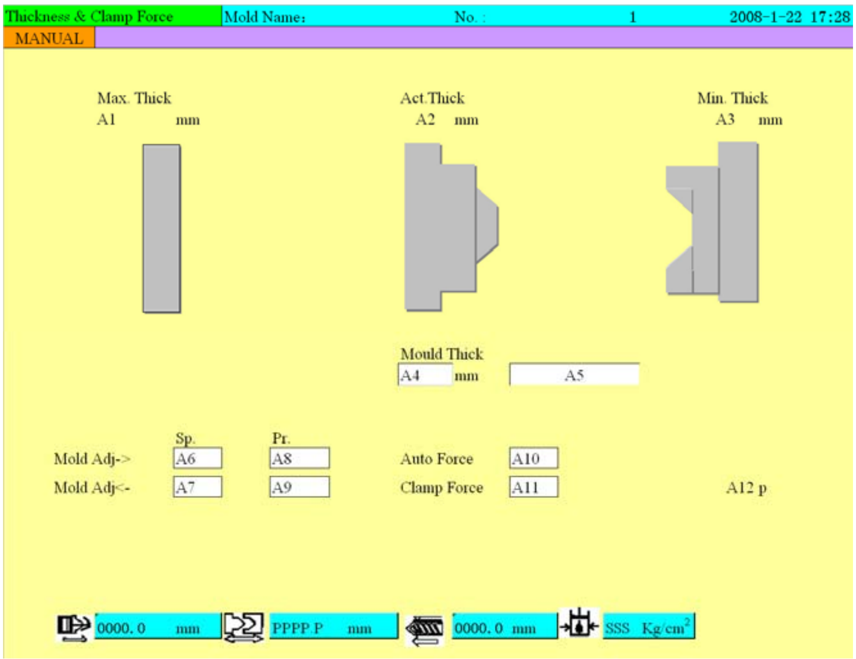
Press key to select the parameters to be set, input the value and press ENTER 输入 to complete the setting.

In this screen:

"D1": Setting of lubrication cycle.
"D2": Setting of lubrication time.
"D3": Setting of lubrication alarm time.

5.2.48 Mould Adjustment Setting

Mould Adjustment Setting Screen (86)



Thickness & Clamp Force Mold Name: No.: 1 2008-1-22 17:28

MANUAL

Max. Thick A1 mm

Act.Thick A2 mm

Min. Thick A3 mm

Mould Thick A4 mm A5

	Sp.	Pr.			
Mold Adj->	A6	A8	Auto Force	A10	
Mold Adj<-	A7	A9	Clamp Force	A11	A12 p

0000. 0 mm PPPP.P mm 0000. 0 mm SSS Kg/cm²

Press 调模 MOLD ADJ to enter the mould adjustment setting screen (86).

Press ▲▼◀▶ key to select the parameters to be set, input the value and press ENTER 输入 to complete the setting.

Manual mould thickness adjustment procedure is as follows:

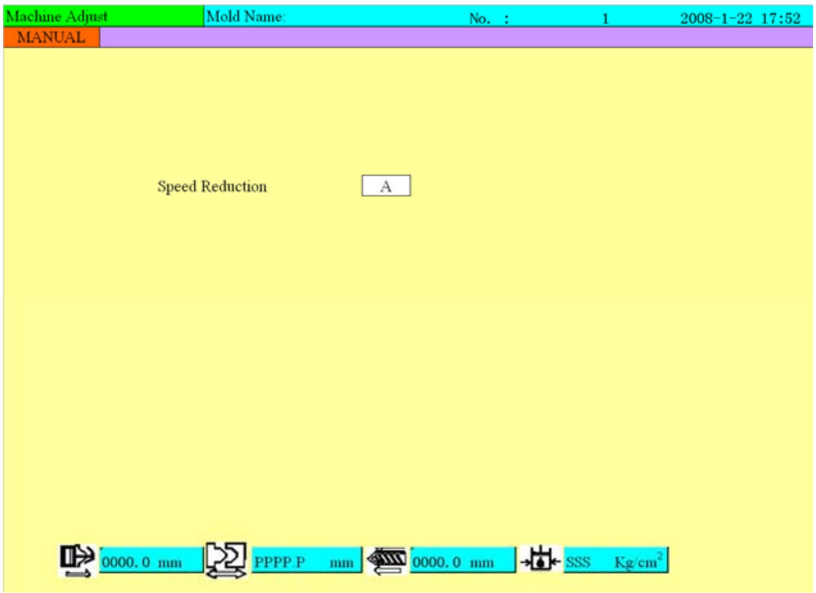
Press 调模前进 MCLD FWD key, the mould moves forward and its capacity is reduced; press 调模后退 MOLD BWD key, the mould moves backward and its capacity is increased; press again the 调模 MOLD ADJ key to stop it.

In this screen:

"A1": Maximum mould thickness
"A2": Actual mould thickness
"A3": Minimum mould thickness
"A4": Setting of mould thickness
"A5": Mould adjustment mode selection (Auto, Manual)
"A10": Switch for automatic mould clamping force regulation (ON、OFF)
"A11": Setting of mould clamping force
"A12": Mould adjustment position.

5.2.49 Machine Adjustment

Machine Adjustment Screen (87)



Machine Adjust | Mold Name: | No. : 1 | 2008-1-22 17:52

MANUAL

Speed Reduction A

Press 慢速调试 SLOW to enter the machine adjustment screen (87).

Press ◁▷ key to switch to A, input the value and press ENTER 输入 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%).

VI. Advanced Computer Operation

6.1 Initial Position Reset Procedure

The power supply to the computer may be suddenly cut off during machine operation. When the computer is restarted, a warning message is shown on the screen reminding the operator to reset the initial position.

Before resetting the initial position, check the setting as following:

(i) Settings of the origin speed and pressure
Speed = 50%   Pressure = 99%
(ii) Origin reset timer TIM20 = 4 sec
(iii) Initial setting screen (72)
Mould preset position: B1=1p
Ejector preset position: C1=0.5mm
Injection preset position: D1=0.5mm

6.1.1 Clamping

If the power supply to the computer is suddenly cut off during mould clamping or mould opening, the warning message "Reset origin clamp until no alarm" is shown on the screen when the computer is switched on.

The method of resetting the initial position for mould clamping is as follows:

Press 锁模 MD CLOSE key after an interval of 4 seconds on the setting of timer TIM20 and the toggles are straightened, and the clamping position is automatically changed into mould clamping preset position B1=1p. The warning message disappears and the origin resetting is complete.

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

(i) Open the mould till the movable platen stops. At the mould clamping preset position in initial setting screen (72), set B1 to 9999p, which shall be greater than the setting value of slow mould open end position D1 in the mould opening screen (05). Press ▲▼◀▶ to move the cursor back to the mould clamping preset position and press ENTER 输入 key. The question mark "?" appears on the screen, press 确认 CONF and the actual clamping position is automatically changed into clamping preset position 9999p and the warning message disappears.

(ii) Press 开模 MD OPEN until the signal “Open Ends” is shown on the screen.

(iii) Press 顶针前进 EJE.FWD to eject out the products.

(iv) Move the cursor back to the clamping preset position and change B1 from 9999p to 1p.

6.1.2 Ejector

If the power supply to the computer is suddenly cut off during ejector movement, the warning message “Reset origin eject until no alarm” is shown on the screen, after the computer is switched on again.

The method of resetting the ejector initial position is as follows:

Press 顶针后退 EJE.BWD key after an interval of 4 seconds on the setting of timer TIM20 and the ejector retracts to its end position and the alarm message disappears. Now the actual position of ejector is automatically changed into ejector preset position 0.5mm, and the origin setting is complete.

If the ejector hasn’t retracted to its end position, carry out ejector origin preset again.

6.1.3 Injection

If the power supply to the computer is suddenly cut off during injection or plasticization, the warning message “Reset origin injection until no alarm” is shown on the screen after the computer is switched on again.

The method of resetting injection initial position is as follows:

Press 射胶 INJECT key after an interval of 4 seconds on the setting of timer TIM20 and the injection operation is carried out to its end position. Then the actual injection position is automatically changed to injection preset position setting 0.5mm and the warning message disappears and the initial position setting is complete.

If the injection hasn’t been carried out to its final end position after 4 seconds, perform the injection initial position resetting once more.

6.2 Decoder Initial Position Setting

(1) In the initial setting screen (72), there are mould clamping preset, mould clamping origin, injection preset, injection origin, ejector preset and ejector origin.

  (i) The functions of preset are to change the current value of the encoder position and manually set the initial position.

  (ii) The function of origin is to reset the encoder positions.

(2) The operation method of preset:

(The method of changing the encoder's actual position)(Clamping)

Move the cursor to B1 position of the clamping preset, input the position setting value and press ENTER 输入. Move the cursor back to the B1 position of preset and press ENTER 输入, the question mark "?" is shown on the screen. Press 确认 CONF to complete the setting. Now the current clamping position is the same as the B1 position of the clamping preset.

(The operation method of injection preset and ejector preset is the same as that of clamping preset described above)

Preset – This is for manually setting the initial position.

During the machine operation, if the initial position changes, the initial position can be reset by means of manually setting the origin.

(3) Method for manually setting the clamping initial position

Before manually resetting the clamping initial position, check the settings as follows::

  (i) The settings of speed and pressure for the origin
  Speed=50%   Pressure=99%

  (ii) Reset origin time: TIM20=4 sec

  (iii) Check clamping preset position B1=1p

Note: (i) There should be no product in the mould. In case there is, the product must be taken out first.

(ii) If the mould is equipped with the core-pulling and core-rotating devices, check their positions and strokes and ensure that the core-pulling and rotating devices are in a safe position to avoid any damage.

Method: Press 锁模 MD CLOSE key to move the toggle forward. After an interval of 4 seconds has expired on the setting of TIM20, the toggle fully extends, and the actual clamping position is automatically changed into B1 position 1p of clamping preset. The manual setting of the initial position is complete.

If the toggle fails to extend fully, manual setting of the initial position shall be carried out again.

(4) Method for manually setting the injection initial position

Caution: The temperature of the barrel must reach the setting point.

Injection preset position D1=0.5mm.

Press 射胶 INJECT key to carry out injection till the end position. The actual position for injection is automatically changed into the D1 position 0.5mm of injection preset. The manual setting of the injection initial position is complete.

(5) Method for manually setting the ejector initial position

Caution: Opening position must be at the end position.

Ejector preset position C1=0.5mm.

Press 顶针后退 EJE. BWD key and the ejector retreats to the end position. The actual position for the ejector is automatically changed to the C1 position 0.5mm of the ejector preset.

The function of origin is to reset the encoder position automatically. Origin position is the position of the proximity switch for resetting the origin sensor. The setting of the origin shall be performed on the basis of the position of that proximity switch.

(6) Method for setting of clamping origin position

Clamping origin position is the position of the clamping reset sensor. During the mould opening, when the reset sensor is actuated, the clamping position origin is reset automatically.

(i) Adjust the mould thickness to ensure the mould parts mounted on the stationary platen and movable platen can not touch each other when the toggle is extended fully. If there is no mould on the platens, this step can be ignored.

(ii) On the initial setting screen (72), input a greater figure (say, 2000p) in the position B2 of clamping origin.

(iii) Change the high pressure mould clamp end position G5 to 0p in the mould clamping setting screen (06).

(iv) Carry out clamping and opening operations 3 times in manual mode. Each time when clamping is carried out, the toggle must be fully extended. Each time when opening is performed, the reset sensor must be actuated.

(v) After performing the mould clamping operation for 3 times, write down the actual position of the clamp (say, 1250p) when the toggle is fully extended.

(vi) The new clamping origin position (the position where the reset sensor is actuated) B2=2000p-1250p=750p.

(vii) Enter the new value 750p into the B2 position of clamping origin.

(viii) Carry out 3 further clamping and opening operations. If each time the actual clamp end position is below 10p, the setting of clamping origin position (the position of the clamping reset sensor) is complete. If it is a two-digit number or above, repeat steps (v)-(viii).

(ix) Enter 100p into the high pressure mould clamp end position G5 in the mould clamping setting screen (06).

(7) Method for setting the injection origin position

The injection origin position is the position of the injection reset sensor. During plasticization, when the reset sensor is actuated, the injection initial position will be reset automatically.

Caution: The temperature of the barrel must reach the set point.

- (i) Enter a comparatively large figure (say, 100mm) into the injection origin position D2 in the initial setting screen (72). This figure must be smaller than the setting of plasticization position.
- (ii) Carry out injection and plasticization operations 3 times in manual mode. Each time when injection is carried out, the stroke must be completed until the end position is reached, and only then plasticization can be started. During plasticization, the reset sensor must be actuated.
- (iii) After performing the injection operation for 3 times and when the injection stroke comes to its end position, record the actual position of injection (say, 68mm).
- (iv) The new injection origin position (the position where the reset sensor is actuated) D2=100mm-68mm=32mm.
- (v) Enter the new figure 32mm into the D2 position of injection origin.
- (vi) Carry out 3 further injection and plasticization operations. If the actual end position of the injection stroke is below 0.5mm, the setting of injection origin position (the position of injection reset sensor) is complete. If such end position is above 0.5mm, steps (iii)-(vi) shall be repeated.

(8) Method for setting the ejector origin position

The ejector origin position is the position of the ejector reset sensor. When the ejector backward is complete and the reset sensor is actuated, the initial position will be reset automatically.

Caution: The mould-opening stroke must reach its end position.

- (i) Enter a comparatively large figure (say, 15mm) into the ejector origin position C2 in the initial setting screen (72).
- (ii) Carry out ejector forward and backward operations 3 times in manual mode. Each time the ejector backward must be carried out to its end position and the ejector reset sensor must be actuated.
- (iii) After performing the ejector forward and backward operations 3 times and the ejector backward has been carried out to the end position, record the actual position of the ejector (say, 8.5mm).
- (iv) The new ejector origin position (the position where the reset sensor is actuated) C2=15mm-8.5mm=6.5mm.
- (v) Enter the new figure 6.5mm into the C2 of ejector origin position.
- (vi) Carry out 3 further ejector forward and backward operations. If each time the ejector backward end position is below 1mm, the setting of ejector origin position (the position of ejector reset sensor) is complete. If such end position is above 1mm, steps (iii)-(vi) shall be repeated.

Caution: The settings on this screen have been tested before delivery. Do not change them willfully so as to avoid impairing machine stability.

6.3 Alarm and Treatment

Description of Computer Alarm Message

No.	Message	Description
AL000	Alarm 1	System alarm 1
AL001	Alarm 2	System alarm 2
AL002	Big Cylinder Not Located	
AL003	Barrel Temperature Not Reach	Actual barrel temperature is lower than the minus deviation of setting temperature.
AL004	Lubrication Oil Level Too Low	The oil level of lubrication oil is too low.
AL005	Low Lub Press	Lubrication pressure too low. Oil pipe break or oil pump damage.
AL006	Pump O/L Alm	Check the overload of oil pump motor.
AL007	Md Adj O/L Alm	Check the overload of mould-adjust motor.
AL008	Rear Door Alm	Close the rear safety door and check the limit switch.
AL009	Front Door Alm	Close the front safety door and check the limit switch.
AL010	Md Adj-Limit Alm	The mold thickness is less than the minimum thickness or check safety limit switch for mold-adjusting.
AL011	Md Adj+Limit Alm	The mold thickness exceeds the maximum thickness or check the safety limit switch for mold-adjusting.
AL012	Safety Door limit Error	
AL013	Safety Door Latch Error	
AL014	Grease Pressure Not Enough	
AL015	Cooling Water Not Open	
AL016	Aux	Not Used
AL017	Aux	Not Used
AL018	Aux	Not Used
AL019	Nozz Fwd LS Alm	The limit switch for carriage forward has not been triggered during automatic operation.
AL020	Nozz Guard Open	The purge guard fails to be closed during injection.
AL021	Nozz Block Alm	The nozzle is blocked by foreign matters. Check the injection position setting or nozzle.
AL022	Short Shot or Over Shot	Injection end position has gone beyond the tolerance setting. Adjust the tolerance setting or check ring.

AL023	No Material Alm	During automatic operation, plasticization time exceeds cooling time setting. Check for hopper blocking.
AL024	Cyc Completed Alm	The actual cycle counter has reached the production counter setting under automatic operation.
AL025	Cyc Time Long Al	The production cycle time exceeds the alarm setting of the cyclic time.
AL026	Md Protect Alm	There are plastics in mold or the high-press clamp position and low-press time setting are not correct.
AL027	Please Check Robot Fixture	
AL028	Take Out Failure	Photo eye is on, but no product is detected.
AL029	Photo Cut Alm	When photo cell is used for recycle, please clean off the products or foreign matters on the slide way.
AL030	Oil Temp Low Alm	The actual temp of the hydraulic oil is lower than the setting for the minus allowed deviation.
AL031	Oil Temp High Alm	The actual temp of the hydraulic oil is higher than the setting for the plus allowed deviation.
AL032	Core LS Alm	During automatic operation the core-pulling time exceeds the setting of the limit alarm time of the core.
AL033	Eje LS Alm	During automatic operation the ejection time exceeds the setting of the limit alarm time of the ejector.
AL034	Check Safety Valve For Door	
AL035	Acc Charge Alm	When ACC injection is ON, charging time exceeds cooling time. Please check the charging pressure switch.
AL036	Md Adj Sensor Alm	During mold-adjustment the mold adjustment sensor is found to be faulty. Please check the mold-adjustment.
AL037	Air Pressure For Robot Too Low	
AL038	Barrel Preheat	Preheat function turn ON.
AL039	Check Unscrew Counting Sensor	During automatic operation, the unscrewing time exceeds the setting of the limit alarm time.
AL040	Auto Md Thick Adj In Progress	
AL041	Auto Md Clp Force Adj In Progress	Appear when using automatic mould clamping force adjustment.
AL042	Auto Md Clp Force Complete	Appear when the automatic mould clamping force adjustment complete.

AL043	Barrel Temperature Too High	Actual barrel temperature is higher than the plus deviation of setting temperature.
AL044	Aux	Not Used
AL045	Door Limit Switch Error	Door limit switch has no signals in the setting time.
AL046	Mold Open/Close Error	During automatic operation the clamping/opening time exceeds the limit alarm time.
AL047	Product Eject Out Error	
AL048	Oil Filter Clog	Check and clean oil filter.
AL049	Robot Alarm	Check robot device.
AL050	Pump Motor Not Start	Check whether each phase voltage and 10A fuse are normal and AC 3A switch has tripped.
AL051	Mold Adjust Too Long	
AL052	Aux	Not Used
AL053	Aux	Not Used
AL054	Oil Screen Clog	Oil screen clogged while using high pressure oil filter.
AL055	Auto Mold Change	
AL056	Nut Closing Not Align	
AL057	Check Gate In/Out Limit	
AL058	Open Pressure Release Trouble	
AL059	Big Cylinder Over Travel	
AL060	Aux	Not Used
AL061	Oil Level Too Low	Check oil volume.
AL062	Mold Adjust Gear Trouble	
AL063	Mold Fitting Position Check	
AL064	Hydraulic Clamp Trouble	
AL065	Clamp Force Not Enough	
AL066	Back Pressure Too High	
AL067	Material Change In Progress	
AL068	AMC Table LS Error	
AL069	Pressure Sensor Detect Error	
AL070	Plast RPM Sensor Detect Error	
AL071	Control Cabinet Door Not Close	
AL072	Change Battery	
AL073	Auto Md Thick Adj Complete	
AL074	Injection Setting Not Good	
AL075	Aux	Not Used
AL076	Table In Rotation	
AL077	Stopper Not Return	
AL078	Auto Mold Adjust Error	
AL079	Stepper Error	

AL080	Aux	Not Used
AL081	Ejector Plate Not Return	
AL082	Safety Valve Error	
AL083	Semi/Auto Mode	
AL084	Door Latch Error	
AL085	Air Pressure Not Enough	
AL086	Aux	Not Used
AL087	Aux	Not Used
AL088	Preform Not Drop	
AL089	Aux	Not Used
AL090	Robot Safety Check Error	
AL091	Robot Not Zero Return	
AL092	Servo Control Alarm	
AL093	Open End Position Error	
AL094	Mold Not Closed	
AL095	Plasticization Not End	
AL096	Clean Up Barrel	
AL097	Adjustment !	
AL098	Gate In Not End	
AL099	Barrel Temperature Too Low	
MG01	Clamp End	In manual mode, mould clamping complete display.
MG02	Open End	In manual mode, mould opening complete display.
MG03	Open Not End	While manual mould adjustment or ejector operation, mould opening stroke does not end display.
MG04	Eject Forward End	In manual mode, ejection complete display.
MG05	Eject Backward End	In manual mode, ejector retraction complete display.
MG06	Plast End	In manual mode, plasticization complete display.
MG07	Melt End	In manual mode, melt decomression complete display.
MG08	Lub In Process	
MG09	Power Off Then On Again	
MG10	Clamp In Process	
MG11	Preheat In Process	Barrel preheat function activated.
MG12	Plast Delay	After injection, perform plasticization when delay time has reached.
MG13	Md Adj In Process	
MG14	Turn On/Off twice	
MG15	Plast In Process	

6.4 Moulding Operation Instruction

6.4.1 Setting of Temperature Control

When the power is turned on, the temperature display appears. Refer to screen (03). When the symbol "◢" is shown in the picture, it means that the electric heater is switched on and the temperature control key light shines.

(1) Temperature Setting of Each Stage:

For the temperature setting of Stage 1, press 运行 MAIN, set the temperature at the position of T1 on the screen and a reverse cursor is produced. Enter the required figure and press ENTER 输入 to input the data into the computer. Now the cursor moves to the setting of the next stage. To stop the temperature setting, press any other function key to clear the cursor.

For the temperature setting of Stage 2, except for pressing the other steps are the same as for the temperature setting of Stage 1.

For the temperature setting of Stage 3, except for pressing the other steps are the same as for the temperature setting of Stage 1.

For the temperature setting of Stage 4, except for pressing the other steps are the same as for the temperature setting of Stage 1.

For the temperature setting of Stage 5, except for pressing the other steps are the same as for the temperature setting of Stage 1.

For the temperature setting of Stage 6, except for pressing the other steps are the same as for the temperature setting of Stage 1.

Among all the temperature stages, the settings of Stage 5 and 6 are subject to the machine type and requirements of the customer. When the machine is equipped with the oil temperature control device, the control function will be realized via the temperature of Stage 6. The standard value is normally within the range of 35℃-40℃. TC7 relay output from the I/O board controls the opening and closing of the water gate to make the oil temperature consistent with requirements. Normally the setting of the high-temperature positive deviation of the temperature of Stage 6 is 15℃, and low-temperature negative deviation is 30℃. Thus when the setting of the standard oil temperature is 35℃, its allowable range will be 5℃-50℃. When the oil temperature goes beyond this range, an alarm will be given.

(2) Temperature Setting of the Nozzle
The temperature zone of the nozzle is a constant temperature controlled zone. It is used to achieve the constant temperature requirement of the nozzle. Its setting range is 00% to 99%. If the setting is 99%, 10-30 seconds may be set in the computer as the full-period heating time. If the setting is 20 seconds, it means 20 seconds is one cycle of the thermostatic control.

Example: Nozzle temperature setting: 60%; Constant temperature time: 20 seconds.

That is to say:
20 x 60% = 12 seconds   The heater of the nozzle zone is in “ON” state
20 - 12 = 8 seconds   The heater of the nozzle zone is in “OFF” state

(3) When no temperature control is applied for a certain zone, the temperature of that zone will be set to 0.

6.4.2 Setting of the Temperature Deviation (Alarm)

For the temperature deviation alarm, there are high and low temperature settings. Refer to screen (19). When either of the deviation settings is exceeded, either the high-temperature or low-temperature alarm will be shown on the screen.

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

6.4.3 Setting of the Temperature Preheat Function

For the setting of temperature preheat function, press 预热 PRE HEAT and refer to screen (19). Temperature preheat maintains the temperature settings of all zones at the set preheat temperature percentage.

Example: Setting: 20%; Temperature Setting 250℃
250℃ x (100% - 20%) = 200℃

If the temperature drops from the set point to 200℃, the corresponding zone will be in the temperature control state.

6.4.4 Selection of Fully Automatic, Semi-Automatic or Manual Operation

(1) If manual operation is to be selected, press 手动 MANUAL. When the power is switched on, the computer will be in manual operation state automatically without the requirement of pressing the key again. Then it is required to return to manual operation after operating in any other mode or when the screen is reset, the above key shall be pressed.

(2) If semi-automatic operation is to be selected, press 半自动 SEMI and the machine will

operate in semi-automatic mode. Now, the front safety door may be opened and closed every cycle to confirm the operation of the next cycle. Please note that the power supply of the oil pump will be automatically cut off when the rear safety door is opened.

(3) If fully-automatic operation is to be selected, press 全自动 AUTO and the machine will operate in fully-automatic mode. The operator may confirm the operation of the next cycle by selecting the cycle restart time, photo eye sensor or robot resetting.

Only one of the above three modes may be selected at a time. Before selection, the setting of moulding conditions shall be completed and all operating items of the cycle shall be confirmed. In case that the LED of any of the three keys is flashing, it means the data in the computer is locked and can not be changed. As for the locking and unlocking methods, consult the professional personnel of the client's plant in charge of data modification.

6.4.5 Setting of Position, Speed and Pressure Data

(1) Select the correct screen keys for the required operation. When the key for the required operation is pressed, the corresponding screen is shown for setting or modification at once.

(2) For the setting of the position data, either the optical encoder parameters (p) or the stroke settings (mm) may be used for this purpose. When the stroke is set, the corresponding optical encoder figures may be automatically obtained through conversion by the computer.

(3) When the function screen is shown and no further changes are to be made by the operator, press 手动 MANUAL or 半自动 SEMI or 全自动 AUTO and the normal operation screen will automatically appear. In semi-automatic or fully-automatic operation, if none of the keys are pressed within 30 seconds, the monitor will return to the normal operation screen.

6.4.6 Setting of the Numerical Data for Moulding Conditions

When setting moulding conditions, it is necessary to enter the data of such items as the position, stroke, speed, pressure, timers and counters of the optical encoder. For digital input of this data, move the cursor to the position of the figures requiring change and enter the correct data. If the entered data is not correct, warnings as to the scope of the data to be entered will appear on the screen as well as new data prompts. Now the next data change can be made only after pressing CANCEL 取消.

6.4.7 Adjustment of Proportional Numerical Control

Sophisticated proportional adjustment is applied to control the speed and pressure of operation of the machine. The use of percentage speed and pressure greatly facilitates recording and future readjustment.

Numerical control of the speed and pressure is achieved by the computer, which provides different current values to control the proportional pressure valve and proportional flow valve in the hydraulic circuit for different operations.

When the pressure ranges in 20Kg/cm^2 ~ 145-175Kg/cm^2, the corresponding setting range of the working current of the proportional pressure valve is 200mA ~ 800mA.

The setting of the working current of the proportional flow valve (speed valve) range is 200mA ~ 680mA.

(1) Closed-loop Control

When closed-loop control system IC is used, the machine shall be equipped with system pressure transducer and proximity switches for checking the speed of the screw. In this mode, the computer may automatically linearize the speed and pressure of the machine and record the linearity data.

Linearization of the speed and pressure shall be carried out separately by the methods covered in screen (46) and (47). The computer will carry out the next operation only after such linearization has been completed.

(2) Open-loop Control

In normal cases, open-loop control mode is applied. In such mode, numerical control can only be adjusted manually.

Linearization of the speed and pressure shall be carried out separately by the methods covered in screen (46) and (47).

On the I/O board of the computer, the adjustable potentiometer PRG is for linearizing the maximum pressure output 99% and PR0G is for linearizing the zero pressure output 0%. Similarly, SPIG is for linearizing the maximum speed output 99% and SPI0G is for linearizing the zero speed output 0%.

6.4.8 Description of the Computer Internal Counters

No.	Function	Description
CT00	Cycle No.	No. of moulding setting
CT01	Reject No.	No. of rejected parts setting
CT02	Product Time	Total time required by production Unit: 0.1 hour
CT03	Purge	No. of purge setting
CT04	Eject No.	No. of ejection setting
CT05	Vibration Eject No.	Setting of No. of ejector vibration times, i.e. the back and forth vibration times of the ejector after ejection
CT06	Lubrication Cycle	Setting of No. of moulding cycles in the automatic lubrication interval
CT07	Grease Cycle	No. of grease cycle setting
CT08	Cycle Monitor	No. of cycle monitor setting
CT09	Force Backward	In use while the automatic mould clamping force adjustment
CT10	Force Forward	In use while the automatic mould clamping force adjustment
CT11	Aux 11	Reserved function
CT12	Unscrew In C	Unscrew forward revolution setting
CT13	Unscrew Out C	Unscrew backward revolution setting
CT14	Aux 14	Reserved function
CT15	Aux 15	Reserved function
CT16	Aux 16	Reserved function
CT17	Aux 17	Reserved function
CT18	Aux 18	Reserved function
CT19	Aux 19	Reserved function

6.4.9 Description of the Computer Internal Timer

No.	Function	Description
TM00	Cycle Time	Cycle time
TM01	Clamp Time	Mould clamping time
TM02	Carriage Forward	Carriage forward time
TM03	Filling	Material filling time
TM04	Hold Time	Pressure holding time
TM05	Plasticizing Delay	Under semi/fully automatic mode, the time delay interval between the end of injection and the start of next plasticizing motion
TM06	Cooling	Under auto mode, the time interval between end of injection and mould opening
TM07	Before Decompression	Pre-plasticizing decompression time
TM08	Plasticizing	Plasticizing time
TM09	After Decompression	After plasticizing decompression time
TM10	Carriage Backward	Carriage backward time
TM11	Mould Open	Mould opening time
TM12	Ejection Time	Ejection Time
TM13	Recycle	Under fully-automatic mode, the time interval between end of ejection and the start of next mould clamping
TM14	Injection Time	Total injection time, excluding the time of pressure holding
TM15	Hold 1 Time	Pressure holding stage 1 time
TM16	Hold 2 Time	Pressure holding stage 2 time
TM17	Hold 3 Time	Pressure holding stage 3 time
TM18	Hold 4 Time	Pressure holding stage 4 time
TM19	Hold 5 Time	Pressure holding stage 5 time
TM20	Purge Plasticizing	Plasticizing time during automatic purge
TM21	Ejector Pause	During automatic ejection, the time allowed for the ejector to stop at the forward position before its retraction
TM22	Core A In	Core A in time
TM23	Core A Out	Core A out time
TM24	Core B In	Core B in time
TM25	Core B Out	Core B out time
TM26	Core C In	Core C in time
TM27	Core C Out	Core C out time
TM28	Core D In	Reserved function
TM29	Core D Out	Reserved function

TM30	Lubrication Time	Lubrication oil supply time, over 10 seconds is suggested
TM31	Lubrication Alarm	Reserved function
TM32	Carriage Fast	Duration of fast carriage advance
TM33	Carriage Back	Under semi/fully automatic mode, the duration of carriage retraction. If no need to retract the carriage, set this time to 0
TM34	Melt Before Plasticizing	Reserved function
TM35	Cycle Timer	Allowable longest cycle time. Alarm if it exceeds.
TM36	Eject Out Delay	Time interval between mould opening end and next action
TM37	Low Pressure Detection	The allowed time interval between the start of low pressure clamping and the actuation of high pressure clamping
TM38	HP Charge Delay	Reserved function
TM39	High Press End Delay	Reserved function
TM40	Clamping End Delay	Time interval between clamping end and next action
TM41	Vibration Ejection	Ejector retraction position of vibration ejection
TM42	Carriage Bwd Delay	Delay of carriage retraction after melt decompression
TM43	Carriage End Delay	Reserved function
TM44	Purge Buffer	Reserved function
TM45	Door Open Slow	Reserved function
TM46	Door Open	Reserved function
TM47	Mould Adj Delay	Buffer time of change between advance and retraction of mould adjustment (the time is suggested to set over 0.3 seconds)
TM48	Clamping Interval	Buffer time of change between mould opening and clamping (the time is suggested to set over 0.1 seconds).
TM49	Fast Open Delay	Reserved function
TM50	Air 1 Timer	Duration of blowing 1
TM51	Air 2 Timer	Duration of blowing 2
TM52	Air 3 Delay	Time delay of blowing 3
TM53	Air 3 Timer	Duration of blowing 3
TM54	Force Forward	Automatic mould adjustment force forward time, which is suggested to set 2 seconds
TM55	Fore Backward	Automatic mould adjustment force backward time, which is suggested to set 0.3 seconds
TM56	Air 1 Delay	Reserved function
TM57	Air 2 Delay	Reserved function
TM58	Core F In	Reserved function

TM59	Core F Out	Reserved function
TM60	Motor Start	Motor start Y→△ time
TM61	Origin Reset	Encoder origin reset time, which is suggested to set 3~5 seconds
TM62	Mould Adj Monitor	Mould adjustment sensor monitor time. Alarm if it exceeds
TM63	Alarm On	Alarm (buzzer and signal lamp) duration, which is suggested to set 10 seconds
TM64	Alarm Off	Alarm (buzzer and signal lamp) pause time, which is suggested to set 10 seconds
TM65	Output 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.
TM66	Aux	Reserved function
TM67	Grease Timer	Reserved function
TM68	Ejection Interval	Time interval between ejector forward and ejector backward (the time is suggested to set 0.1 seconds).
TM69	Cold Start	Timing after machine starting. Injection, plasticizing and melt decompression can only be performed after the time out and the barrel temperature reaching the set value. (The time is suggested to set over 50 seconds)
TM70	Nozzle Close	Time of nozzle closing (used by the function of hydraulic nozzle closing)
TM71	Acc Delay	When using accumulator assisted injection, the accumulator discharge delay time during injection
TM72	Low Pressure Delay	Auxiliary oil valve open delay during low pressure clamping (low pressure/fast valve or back pressure valve)
TM73	Action Delay	Buffer time of each action (Opening and clamping, ejector retraction, core pulling and inserting, injection. The time is suggested to set 0.1 seconds.)
TM74	Door Monitor	Max. time allowed by the action of safety door. Alarm if time exceeds, which is suggested to set over 3 seconds.
TM75	Special Low Pressure	Duration of special low pressure after mould clamping starts
TM76	Mould Open Back Press	Duration of synchronous mould opening and back pressure

TM77	Nozzle Open	Action time of opening the nozzle (used by the function of hydraulic nozzle closing)
TM78	Injection Cushion	Buffer time of injection
TM79	Plasticizing Cushion	Buffer time of plasticizing
TM80	Hold 6 Time	Reserved function
TM81	Hold 7 Time	Reserved function
TM82	Hold 8 Time	Reserved function
TM83	Hold 9 Time	Reserved function
TM84	Hold 10 Time	Reserved function
TM85	Core E In	Reserved function
TM86	Core E Out	Reserved function
TM87	Stem 1 Relay	Reserved function
TM88	Stem 1 Open	Reserved function
TM89	Stem 2 Relay	Reserved function
TM90	Stem 2 Open	Reserved function
TM91	Stem 3 Relay	Reserved function
TM92	Stem 3 Open	Reserved function
TM93	Stem 4 Relay	Reserved function
TM94	Stem 4 Open	Reserved function
TM95	Stem 5 Relay	Reserved function
TM96	Stem 5 Open	Reserved function
TM97	Aux	Reserved function
TM98	Charge Monitor	Reserved function
TM99	High Press Release	Reserved function

6.4.10 Description of the Computer Inputs and Outputs

No.	Function	Description
EI00	Input Port	Front Door
EI01	Input Port	Rear Door
EI02	Input Port	Safety Door Limit Switch
EI03	Input Port	Carriage Limit Switch
EI04	Input Port	Core B In
EI05	Input Port	Core B Out
EI06	Input Port	Unscrew C Count
EI07	Input Port	Nozzle Guard
EI08	Input Port	Core A In
EI09	Input Port	Core A Out
EI10	Input Port	Photo Eye
EI11	Input Port	Accumulation End
EI12	Input Port	Mould Area Free
EI13	Input Port	Eject Forward Enabled
EI14	Input Port	Mould Close Enabled
EI15	Input Port	Eject Plate
EI16	Input Port	Mould Adjustment Overload
EI17	Input Port	Pump Overload
EI18	Input Port	Adjustment 1 Forward Limit Switch
EI19	Input Port	Adjustment 1 Backward Limit Switch
EI20	Input Port	Mould Adjustment Count
EI21	Input Port	Lubrication Oil Level
EI22	Input Port	Lubrication Oil Pressure
EI23	Input Port	Core C In
EI24	Input Port	Core C Out
EI25	Input Port	Filter
EI26	Input Port	Aux/Door Open

EI27	Input Port	Door Opened
EI28	Input Port	Door Closing Slow
EI29	Input Port	Clamping Preset
EI30	Input Port	Ejector Preset
EI31	Input Port	Injection Preset
EI32	Input Port	Motor Runned
EI33	Input Port	Auxiliary Pump Run
EI34	Input Port	Core D In
EI35	Input Port	Core D Out
EI36	Input Port	Core E In Limit Switch
EI37	Input Port	Core E Out Limit Switch
EI38	Input Port	Door Crash
EI39	Input Port	Oil Level
EI40	Input Port	Aux/Door Close
EI41	Input Port	Rear Door 2
EI42	Input Port	Ejector Backward Enabled
EI43	Input Port	Robot Emergency Stop
EI44	Input Port	Robot Emergency Stop 2
EI45	Input Port	Robot Off
EI46	Input Port	Enable Core A In
EI47	Input Port	Enable Core A Out
EI48	Input Port	Enable Core B In
EI49	Input Port	Enable Core B Out
EI50	Input Port	Grease Pressure
EI51	Input Port	Open Limit
EI52	Input Port	Clamp Limit
EI53	Input Port	Foot Plate
EI54	Input Port	Core F In Limit Switch
EI55	Input Port	Core F Out Limit Switch

No.	Function	Description
EO00	Output Port	Adjustment 1 Forward
EO01	Output Port	Adjustment 1 Backward
EO02	Output Port	Mould Close
EO03	Output Port	Carriage Forward
EO04	Output Port	Injection
EO05	Output Port	Plasticizing
EO06	Output Port	Melt Decompression
EO07	Output Port	Carriage Backward
EO08	Output Port	Mould Open
EO09	Output Port	Ejector Forward
EO10	Output Port	Ejector Backward
EO11	Output Port	Boost
EO12	Output Port	Core A In
EO13	Output Port	Core A Out
EO14	Output Port	Core B In
EO15	Output Port	Core B Out
EO16	Output Port	Accumulator Charge
EO17	Output Port	Accumulation Inject
EO18	Output Port	Air 2
EO19	Output Port	Air 1
EO20	Output Port	Mould Open Back Pressure
EO21	Output Port	Boost/Low Pressure
EO22	Output Port	Low Pressure Clamp
EO23	Output Port	Aux/Air 3
EO24	Output Port	Door Open
EO25	Output Port	Door Close
EO26	Output Port	Fast Open
EO27	Output Port	Auto Mode
EO28	Output Port	Mould Open End
EO29	Output Port	Door Closed
EO30	Output Port	Core C In
EO31	Output Port	Core C Out
EO32	Output Port	Gas Injection

EO33	Output Port	Door Slowdown
EO34	Output Port	Brake Release
EO35	Output Port	Core D In
EO36	Output Port	Core D Out
EO37	Output Port	Core E In
EO38	Output Port	Core E Out
EO39	Output Port	Small Pump
EO40	Output Port	Carriage In
EO41	Output Port	Carriage Out
EO42	Output Port	Mould Open/Close
EO43	Output Port	Auxiliary Pump 1
EO44	Output Port	Auxiliary Pump 2
EO45	Output Port	Core F In
EO46	Output Port	Core F Out
EO47	Output Port	Cooling Water
EO48	Output Port	Rejected Part
EO49	Output Port	Mould Closed
EO50	Output Port	Ejector Forward End
EO51	Output Port	Ejector Backward End
EO52	Output Port	Core A Forward End
EO53	Output Port	Core A Backward End
EO54	Output Port	Core B Forward End
EO55	Output Port	Core B Backward End
EO56	Output Port	High Pressure Release
EO57	Output Port	High Pressure Clamp
EO58	Output Port	High Pressure Open
EO59	Output Port	Nut Close
EO60	Output Port	Nut Open
EO61	Output Port	High Pressure Charge
EO62	Output Port	Tie Bar Forward
EO63	Output Port	Adjustment 2 Forward
EO64	Output Port	Adjustment 2 Backward
EO65	Output Port	Adjustment 3 Forward
EO66	Output Port	Adjustment 3 Backward

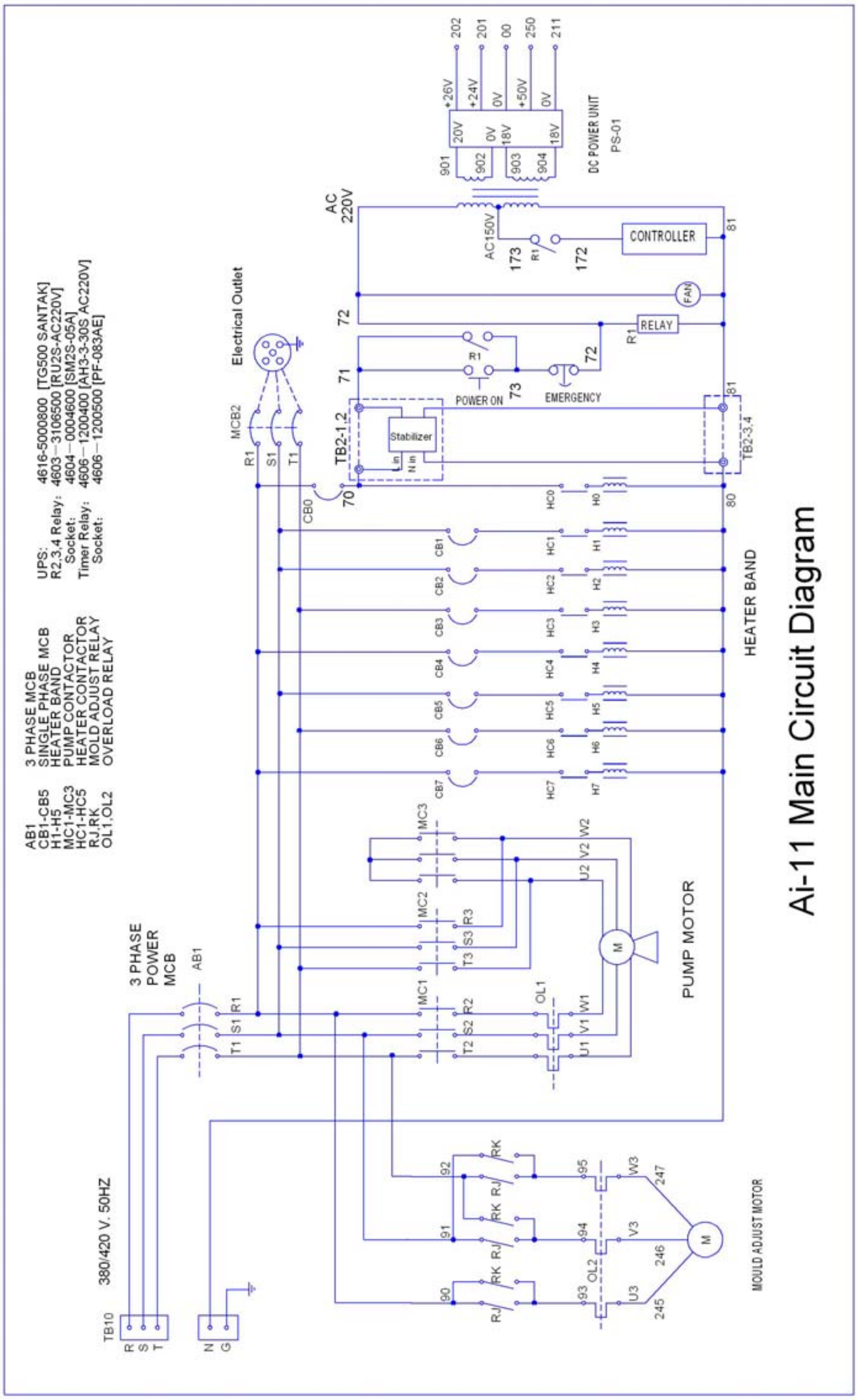
EO67	Output Port	Adjustment 4 Forward
EO68	Output Port	Adjustment 4 Backward
EO69	Output Port	Plasticizing/Decompression
EO70	Output Port	Pressure Charge
EO71	Output Port	Stopper Enabled
EO72	Output Port	High Pressure/Stopper
EO73	Output Port	Pump 2
EO74	Output Port	Pump 3
EO75	Output Port	Pump 4
EO76	Output Port	Pump 5
EO77	Output Port	Pump 6
EO78	Output Port	Aux
EO79	Output Port	Aux

6.5 Ai-11 Special Screen Operation

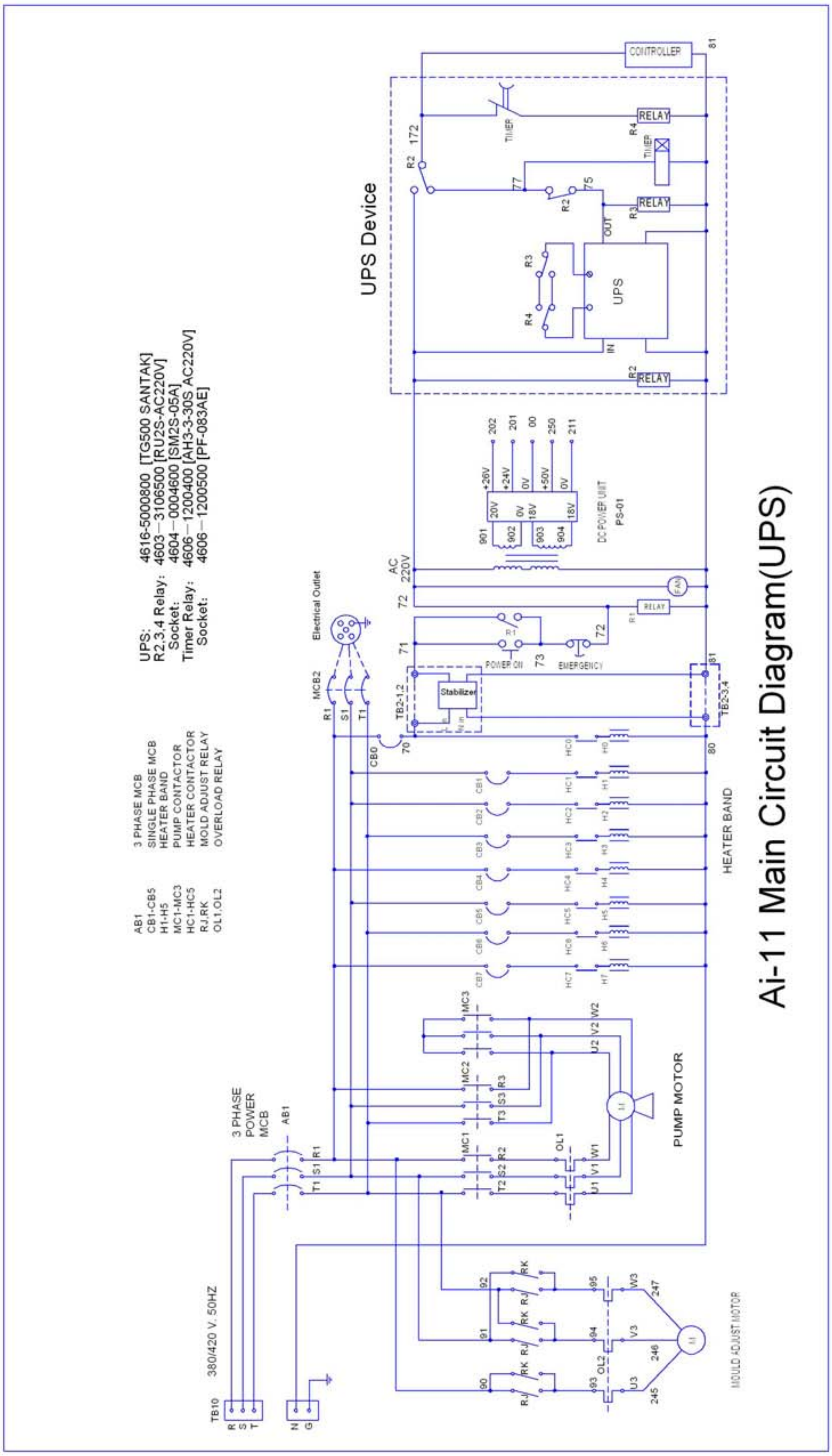
1	Automatic Purge Setting Screen (10)	Press “INJECTION” three times
2	Carriage Setting Screen (14)	Press “CARR/LUB.”
3	Temperature Deviation Alarm Setting Screen (19)	Press “TEMP.”
4	Heat Channel Setting Screen (20~22)	Press “TEMP.” twice
5	Function Setting Screen (23)	Press “FUNCTION”
6	Mould Data Selection Screen (24)	Press “MD DATA”
7	Quality Statistics Screen (25)	Press “STATIST”
8	Timer Monitor Screen (26-28)	Press “MONITOR”
9	Counter Monitor Screen (29)	Press “MONITOR” twice
10	Input Monitor Screen (30)	Press “MONITOR” three times
11	Output Monitor Screen (31-33)	Press “MONITOR” four times
12	Relay Monitor Screen (34~56)	Press “MONITOR” five times
13	Program Monitor Screen (57)	Press “MONITOR” six times
14	Injection Speed Curve Screen (59)	Press “GRAPH” twice
15	Injection Pressure Curve Screen (60)	Press “GRAPH” three times
16	System Time and Language Setting Screen (65)	Press “CANCEL” + “MAIN”
17	Action Stroke Stage Number Selection Screen (66)	Press “CANCEL” + “MAIN” twice
18	Factory Setting Screen (78~79)	Press “CANCEL” and “MD DATA” 12 times
19	Network Screen (83)	Press “ICHEN”
20	Manual Lubrication Setting Screen (85)	Press “CARR/LUB.”
21	Machine Adjustment Screen (87)	Press “SLOW”

VII. Appendix (Ai–11 Electrical Diagram)

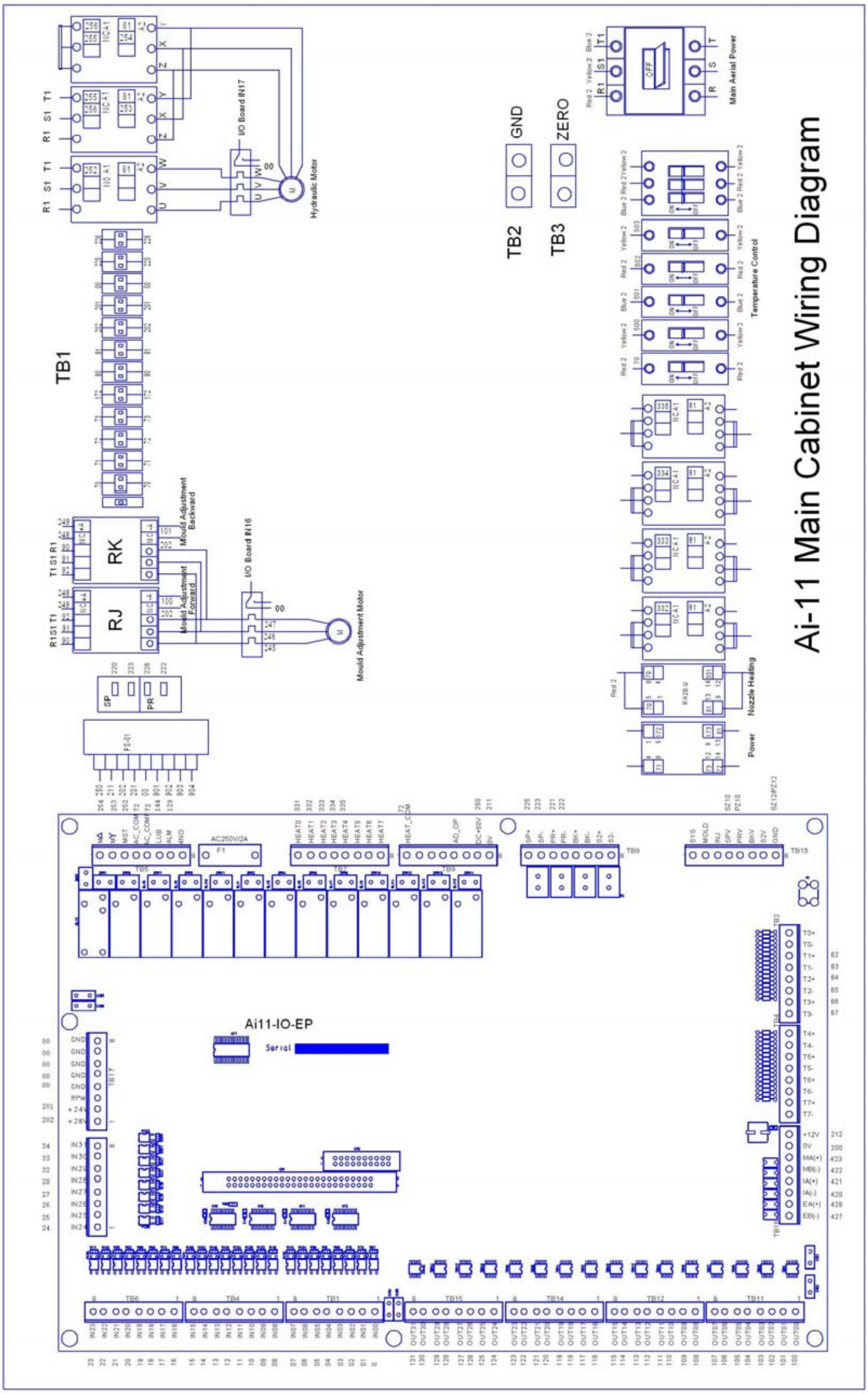
7.1 Ai-11 Main Circuit Diagram


Ai-11 Main Circuit Diagram
AB1 3 PHASE MCB
CB1-CB5 SINGLE PHASE MCB
H1-H5 HEATER BAND
MC1-MC3 PUMP CONTACTOR
HC1-HC5 HEATER CONTACTOR
RJ,RK MOLD ADJUST RELAY
OL1,OL2 OVERLOAD RELAY
UPS: 4616-5000800 [TG500 SANTAK]
R2,3,4 Relay: 4603－3106500 [RU2S-AC220V]
Socket: 4604－0004600 [SM2S-05A]
Timer Relay: 4606－1200400 [AH3-3-30S AC220V]
Socket: 4606－1200500 [PF-083AE]
380/420 V. 50HZ
TB10
R S T
N G
3 PHASE POWER MCB
AB1
R1 S1 T1
MC1 MC2 MC3
R2 S2 T2
R3 S3 T3
OL1
U1 V1 W1
U2 V2 W2
M
PUMP MOTOR
Electrical Outlet
MCB2
CB0
70
TB2-1,2
Stabilizer
L in
N in
71
72
73
POWER ON
EMERGENCY
R1
RELAY
FAN
CONTROLLER
172
173
AC150V
AC 220V
81
80
TB2-3,4
CB1 CB2 CB3 CB4 CB5 CB6 CB7
HC0 HC1 HC2 HC3 HC4 HC5 HC6 HC7
H0 H1 H2 H3 H4 H5 H6 H7
HEATER BAND
901 902 903 904
20V 0V 18V 18V
+26V +24V 0V +50V 0V
202 201 00 250 211
DC POWER UNIT
PS-01
90 91 92
RJ RK
93 94 95
OL2
U3 V3 W3
245 246 247
MOULD ADJUST MOTOR

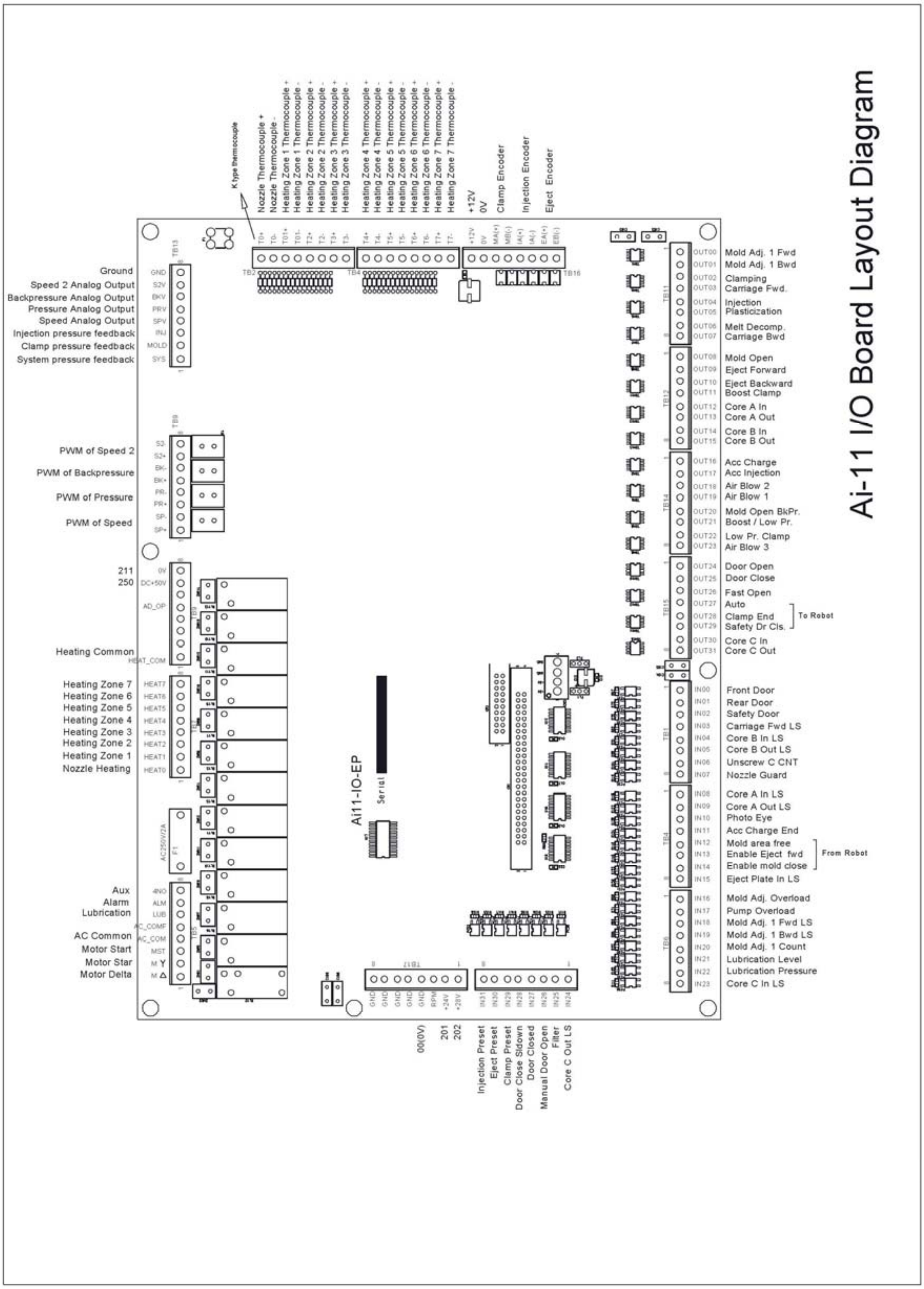
7.2 Ai-11 Main Circuit Diagram (UPS)


Ai-11 Main Circuit Diagram(UPS)
UPS: 4616-5000800 [TG500 SANTAK]
R2,3,4 Relay: 4603－3106500 [RU2S-AC220V]
Socket: 4604－0004600 [SM2S-05A]
Timer Relay: 4606－1200400 [AH3-3-30S AC220V]
Socket: 4606－1200500 [PF-083AE]
AB1 3 PHASE MCB
CB1-CB5 SINGLE PHASE MCB
H1-H5 HEATER BAND
MC1-MC3 PUMP CONTACTOR
HC1-HC5 HEATER CONTACTOR
RJ,RK MOLD ADJUST RELAY
OL1,OL2 OVERLOAD RELAY
UPS Device
CONTROLLER
RELAY
TIMER
UPS
IN
OUT
DC POWER UNIT
PS-01
AC 220V
FAN
POWER ON
EMERGENCY
Stabilizer
TB2-1,2
TB2-3,4
Electrical Outlet
MCB2
HEATER BAND
PUMP MOTOR
3 PHASE POWER MCB
380/420 V. 50HZ
TB10
MOULD ADJUST MOTOR

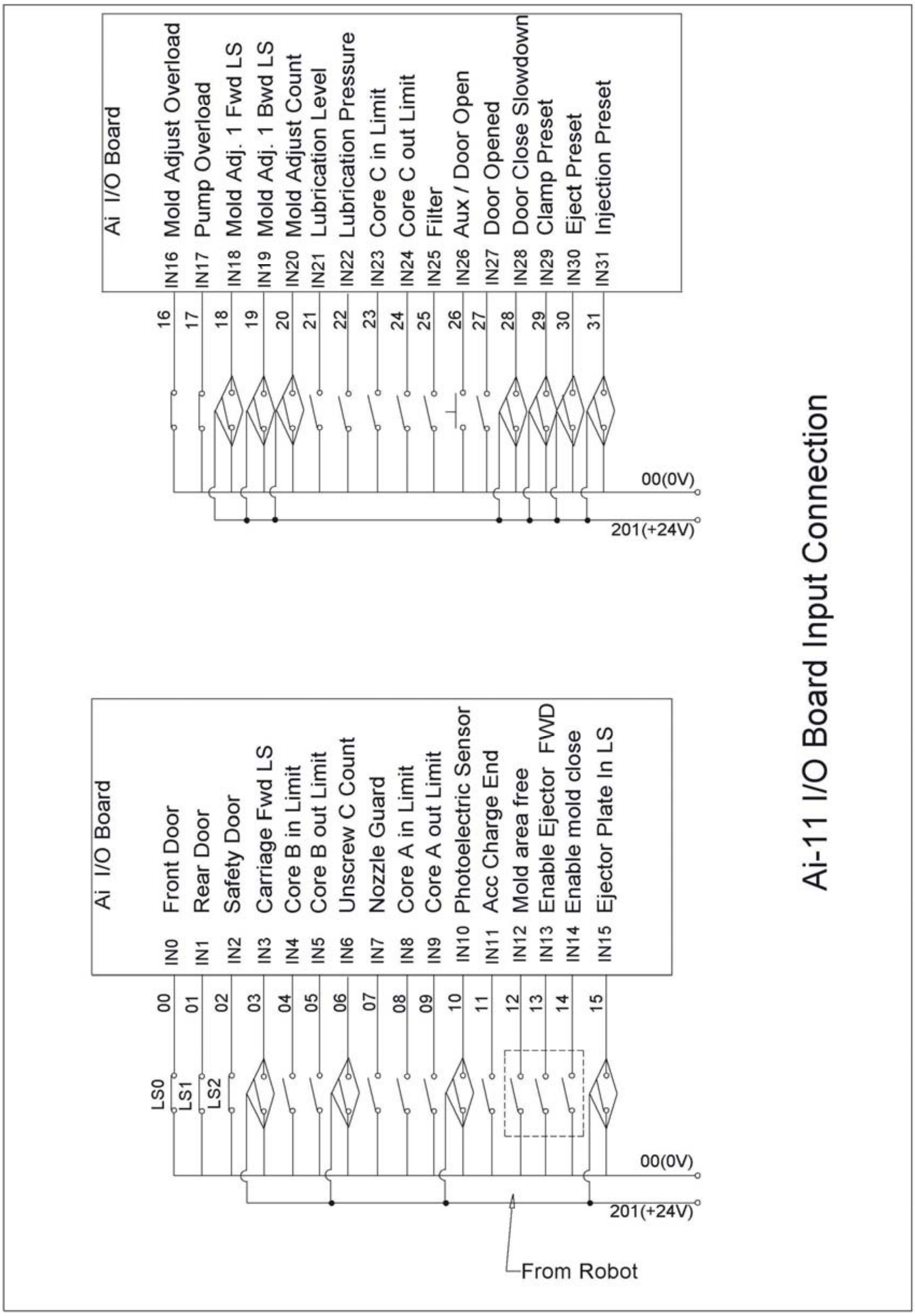
7.3 Ai-11 Main Cabinet Wiring Diagram


Ai-11 Main Cabinet Wiring Diagram
TB1
TB2
TB3
GND
ZERO
RK
RJ
Mould Adjustment Backward
Mould Adjustment Forward
Mould Adjustment Motor
I/O Board IN16
I/O Board IN17
Hydraulic Motor
Main Aerial Power
OFF
Temperature Control
Nozzle Heating
Power
SP
PR
PS-01
AC250V/2A
Ai11-IO-EP
Serial
TB5
TB6
TB4
TB1
TB15
TB14
TB12
TB11
TB9
TB13
TB17
R1 S1 T1
U V W
X Y Z

7.4 Ai-11 I/O Board Layout Diagram

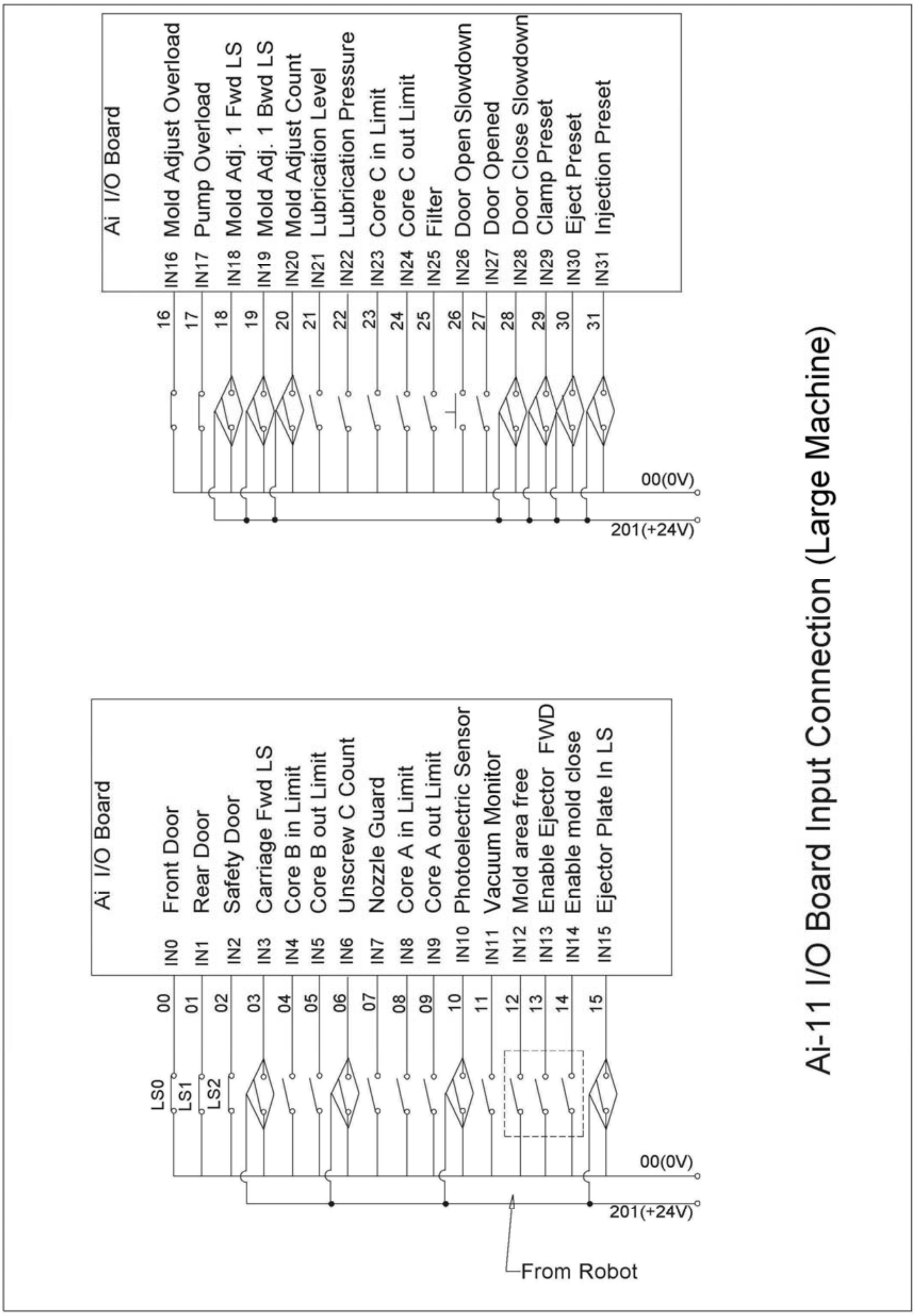

Ai-11 I/O Board Layout Diagram
K type thermocouple
Nozzle Thermocouple +
Nozzle Thermocouple -
Heating Zone 1 Thermocouple +
Heating Zone 1 Thermocouple -
Heating Zone 2 Thermocouple +
Heating Zone 2 Thermocouple -
Heating Zone 3 Thermocouple +
Heating Zone 3 Thermocouple -
Heating Zone 4 Thermocouple +
Heating Zone 4 Thermocouple -
Heating Zone 5 Thermocouple +
Heating Zone 5 Thermocouple -
Heating Zone 6 Thermocouple +
Heating Zone 6 Thermocouple -
Heating Zone 7 Thermocouple +
Heating Zone 7 Thermocouple -
+12V
0V
Clamp Encoder
Injection Encoder
Eject Encoder
TB2
TB4
TB16
TB13
Ground
Speed 2 Analog Output
Backpressure Analog Output
Pressure Analog Output
Speed Analog Output
Injection pressure feedback
Clamp pressure feedback
System pressure feedback
GND
S2V
BKV
PRV
SPV
INJ
MOLD
SYS
TB9
PWM of Speed 2
PWM of Backpressure
PWM of Pressure
PWM of Speed
S2-
S2+
BK-
BK+
PR-
PR+
SP-
SP+
211
250
0V
DC+50V
AD_OP
Heating Common
HEAT_COM
Heating Zone 7
Heating Zone 6
Heating Zone 5
Heating Zone 4
Heating Zone 3
Heating Zone 2
Heating Zone 1
Nozzle Heating
HEAT7
HEAT6
HEAT5
HEAT4
HEAT3
HEAT2
HEAT1
HEAT0
AC250V/2A
F1
Aux
Alarm
Lubrication
AC Common
Motor Start
Motor Star
Motor Delta
4NO
ALM
LUB
AC_COMF
AC_COM
MST
M Y
M Δ
TB5
Ai11-IO-EP
Serial
TB17
GND
GND
GND
GND
GND
RPM
+24V
+28V
00(0V)
201
202
IN31
IN30
IN29
IN28
IN27
IN26
IN25
IN24
Injection Preset
Eject Preset
Clamp Preset
Door Close Sldown
Door Closed
Manual Door Open
Filter
Core C Out LS
TB11
OUT00 Mold Adj. 1 Fwd
OUT01 Mold Adj. 1 Bwd
OUT02 Clamping
OUT03 Carriage Fwd.
OUT04 Injection
OUT05 Plasticization
OUT06 Melt Decomp.
OUT07 Carriage Bwd
TB12
OUT08 Mold Open
OUT09 Eject Forward
OUT10 Eject Backward
OUT11 Boost Clamp
OUT12 Core A In
OUT13 Core A Out
OUT14 Core B In
OUT15 Core B Out
TB14
OUT16 Acc Charge
OUT17 Acc Injection
OUT18 Air Blow 2
OUT19 Air Blow 1
OUT20 Mold Open BkPr.
OUT21 Boost / Low Pr.
OUT22 Low Pr. Clamp
OUT23 Air Blow 3
TB15
OUT24 Door Open
OUT25 Door Close
OUT26 Fast Open
OUT27 Auto
OUT28 Clamp End
OUT29 Safety Dr Cls.
To Robot
OUT30 Core C In
OUT31 Core C Out
TB1
IN00 Front Door
IN01 Rear Door
IN02 Safety Door
IN03 Carriage Fwd LS
IN04 Core B In LS
IN05 Core B Out LS
IN06 Unscrew C CNT
IN07 Nozzle Guard
TB4
IN08 Core A In LS
IN09 Core A Out LS
IN10 Photo Eye
IN11 Acc Charge End
IN12 Mold area free
IN13 Enable Eject fwd
IN14 Enable mold close
From Robot
IN15 Eject Plate In LS
TB6
IN16 Mold Adj. Overload
IN17 Pump Overload
IN18 Mold Adj. 1 Fwd LS
IN19 Mold Adj. 1 Bwd LS
IN20 Mold Adj. 1 Count
IN21 Lubrication Level
IN22 Lubrication Pressure
IN23 Core C In LS

7.5 Ai-11 I/O Board Input Connection


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 Mold area free
IN13 Enable Ejector FWD
IN14 Enable mold close
IN15 Ejector Plate In LS
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
LS0
LS1
LS2
00(0V)
201(+24V)
From Robot
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
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
00(0V)
201(+24V)

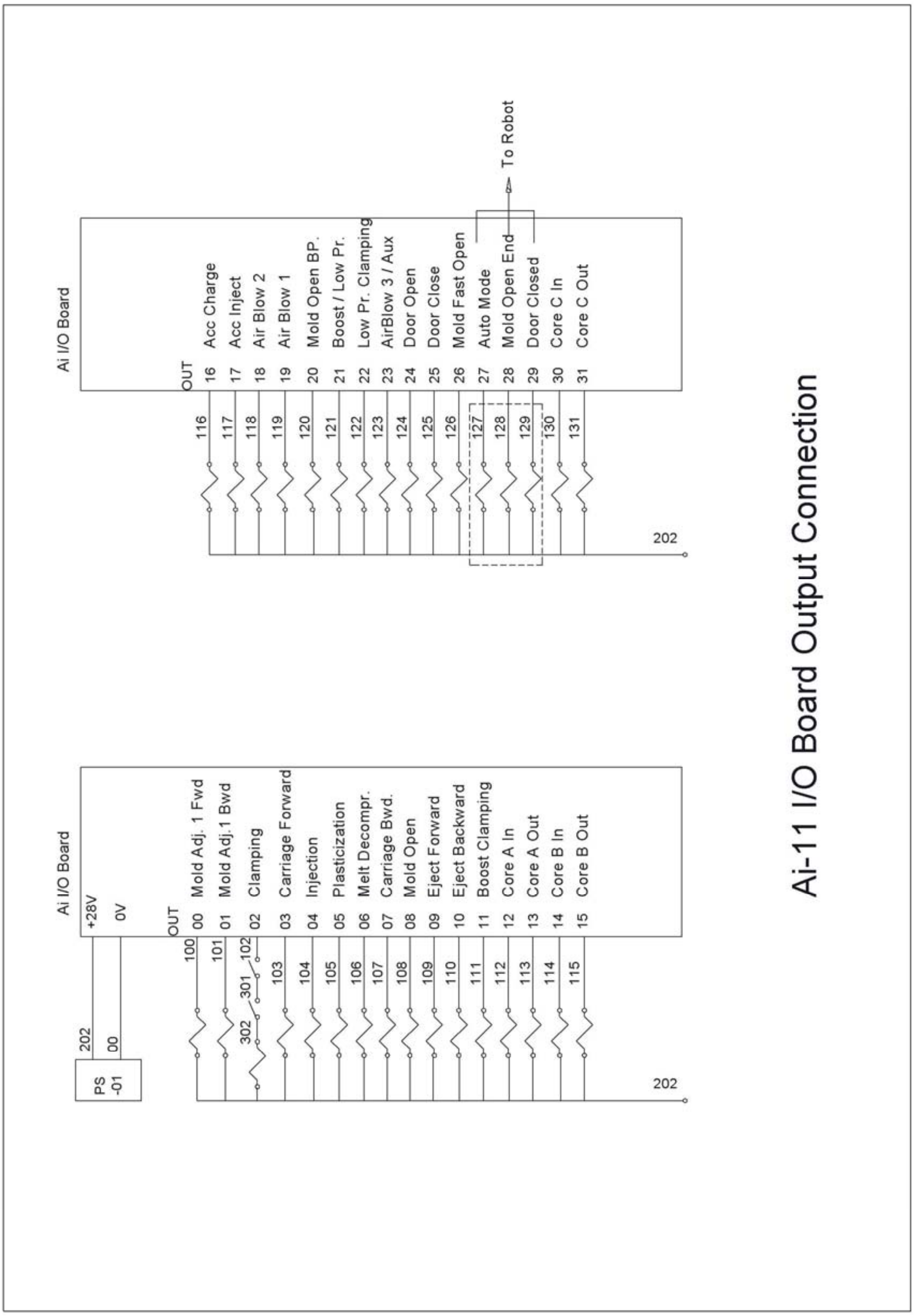
Ai-11 I/O Board Input Connection

7.6 Ai-11 I/O Board Input Connection (Large Machine)

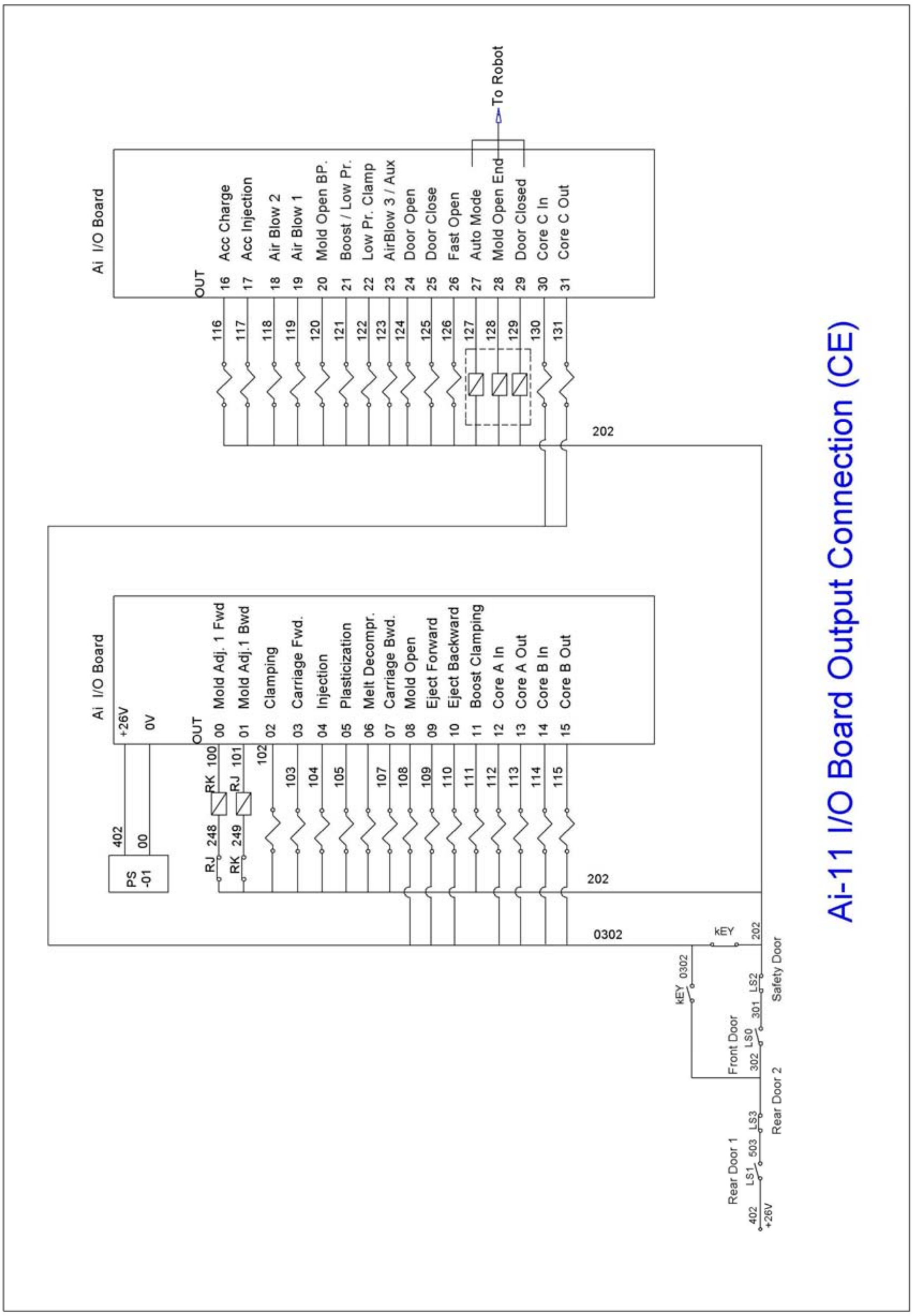

Ai I/O Board
IN0 Front Door
IN1 Rear Door
IN2 Safety Door
IN3 Carriage Fwd LS
IN4 Core B in Limit
IN5 Core B out Limit
IN6 Unscrew C Count
IN7 Nozzle Guard
IN8 Core A in Limit
IN9 Core A out Limit
IN10 Photoelectric Sensor
IN11 Vacuum Monitor
IN12 Mold area free
IN13 Enable Ejector FWD
IN14 Enable mold close
IN15 Ejector Plate In LS
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
LS0
LS1
LS2
00(0V)
201(+24V)
From Robot
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 Door Open Slowdown
IN27 Door Opened
IN28 Door Close Slowdown
IN29 Clamp Preset
IN30 Eject Preset
IN31 Injection Preset
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
00(0V)
201(+24V)

Ai-11 I/O Board Input Connection (Large Machine)

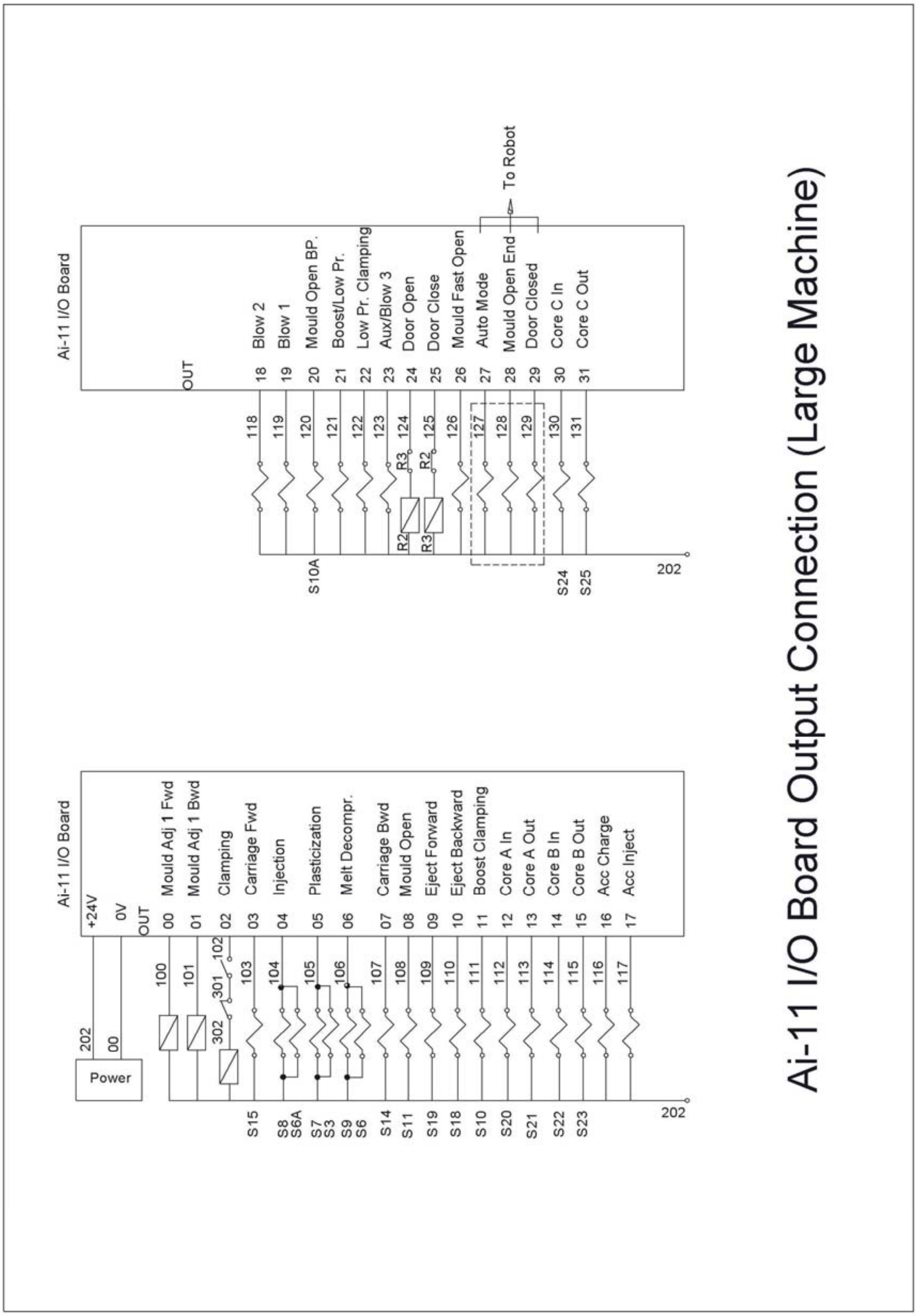
7.7 Ai-11 I/O Board Output Connection


Ai-11 I/O Board Output Connection
Ai I/O Board
+28V
0V
OUT
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 Clamping
12 Core A In
13 Core A Out
14 Core B In
15 Core B Out
PS -01
202
00
100
101
102
301
302
103
104
105
106
107
108
109
110
111
112
113
114
115
202
Ai I/O Board
OUT
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 Door Open
25 Door Close
26 Mold Fast Open
27 Auto Mode
28 Mold Open End
29 Door Closed
30 Core C In
31 Core C Out
To Robot
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
202

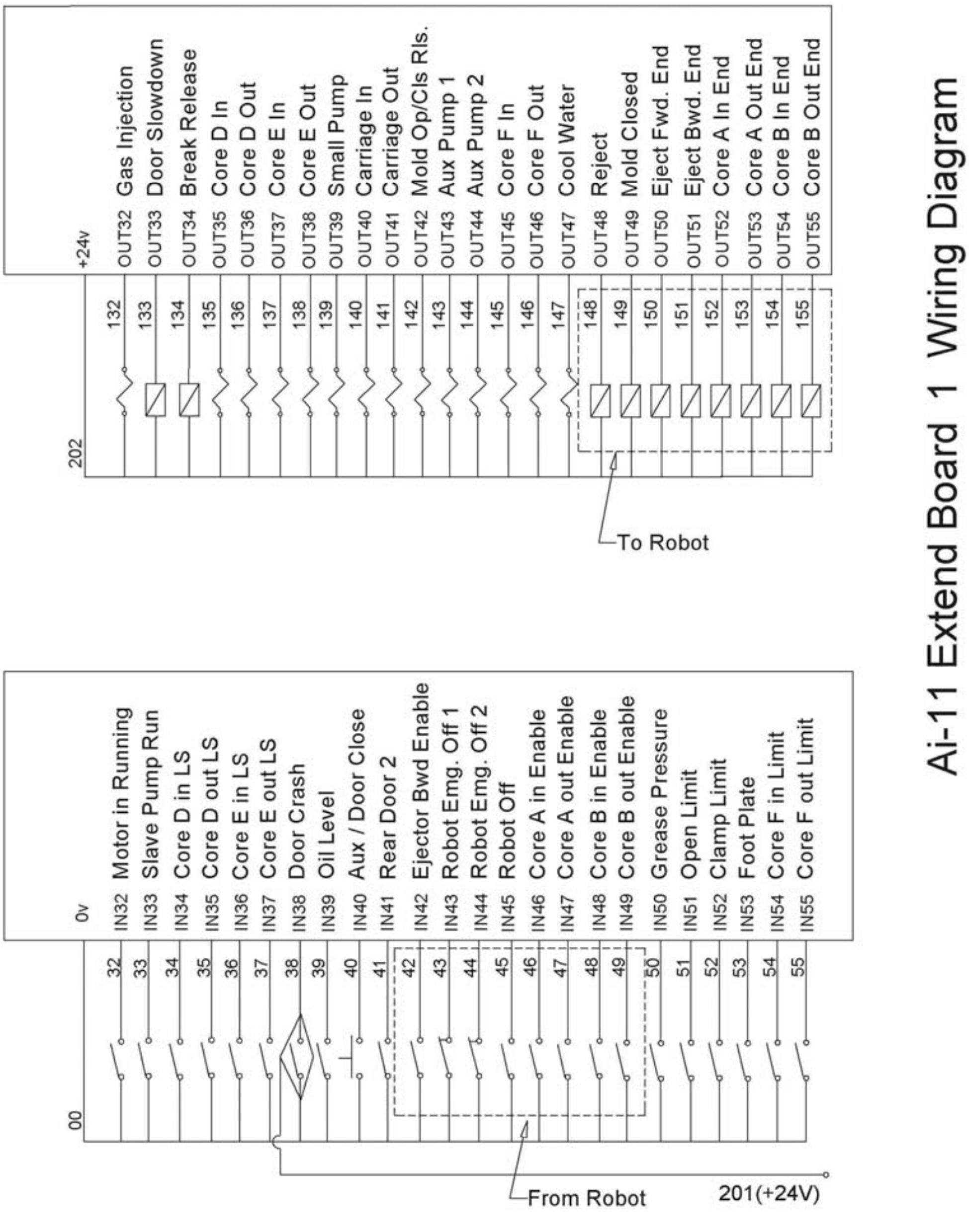
7.8 Ai-11 I/O Board Output Connection (CE)


Ai-11 I/O Board Output Connection (CE)
Ai I/O Board
OUT
16 Acc Charge
17 Acc Injection
18 Air Blow 2
19 Air Blow 1
20 Mold Open BP.
21 Boost / Low Pr.
22 Low Pr. Clamp
23 AirBlow 3 / Aux
24 Door Open
25 Door Close
26 Fast Open
27 Auto Mode
28 Mold Open End
29 Door Closed
30 Core C In
31 Core C Out
To Robot
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
202
Ai I/O Board
+26V
0V
OUT
00 Mold Adj. 1 Fwd
01 Mold Adj.1 Bwd
02 Clamping
03 Carriage Fwd.
04 Injection
05 Plasticization
06 Melt Decompr.
07 Carriage Bwd.
08 Mold Open
09 Eject Forward
10 Eject Backward
11 Boost Clamping
12 Core A In
13 Core A Out
14 Core B In
15 Core B Out
RK 100
RJ 101
102
103
104
105
107
108
109
110
111
112
113
114
115
RJ 248
RK 249
402
00
PS -01
202
0302
kEY
202
kEY 0302
LS2
301
Safety Door
LS0
302
Front Door
LS3
503
Rear Door 2
LS1
Rear Door 1
402
+26V

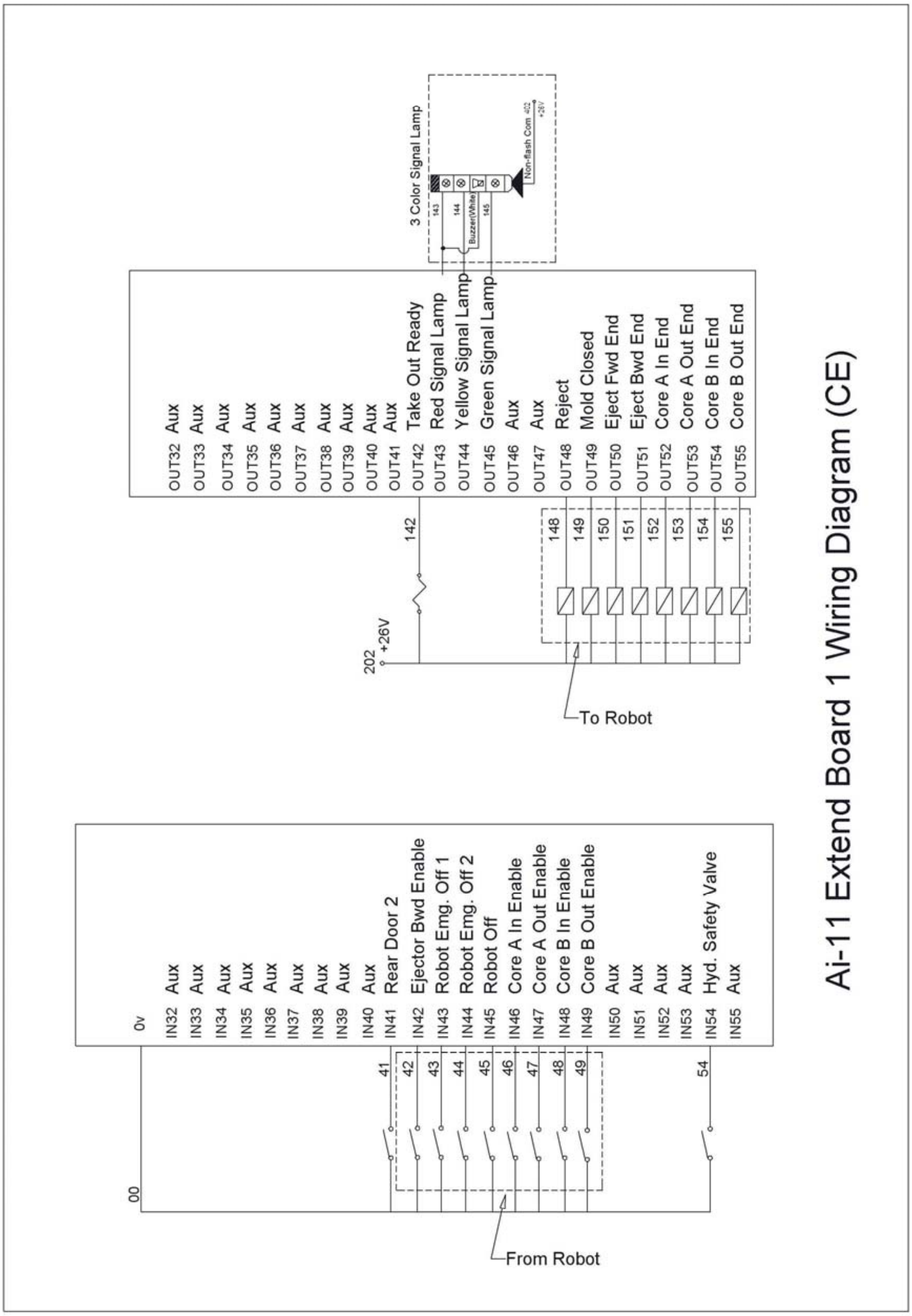
7.9 Ai-11 I/O Board Output Connection (Large Machine)


Ai-11 I/O Board Output Connection (Large Machine)
Ai-11 I/O Board
+24V
0V
OUT
00 Mould Adj 1 Fwd
01 Mould Adj 1 Bwd
02 Clamping
03 Carriage Fwd
04 Injection
05 Plasticization
06 Melt Decompr.
07 Carriage Bwd
08 Mould Open
09 Eject Forward
10 Eject Backward
11 Boost Clamping
12 Core A In
13 Core A Out
14 Core B In
15 Core B Out
16 Acc Charge
17 Acc Inject
Power
202
00
100
101
102
301
302
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
S15
S8
S6A
S7
S3
S9
S6
S14
S11
S19
S18
S10
S20
S21
S22
S23
202
Ai-11 I/O Board
OUT
18 Blow 2
19 Blow 1
20 Mould Open BP.
21 Boost/Low Pr.
22 Low Pr. Clamping
23 Aux/Blow 3
24 Door Open
25 Door Close
26 Mould Fast Open
27 Auto Mode
28 Mould Open End
29 Door Closed
30 Core C In
31 Core C Out
To Robot
118
119
120
121
122
123
124
125
126
127
128
129
130
131
R3
R2
R2
R3
S10A
S24
S25
202

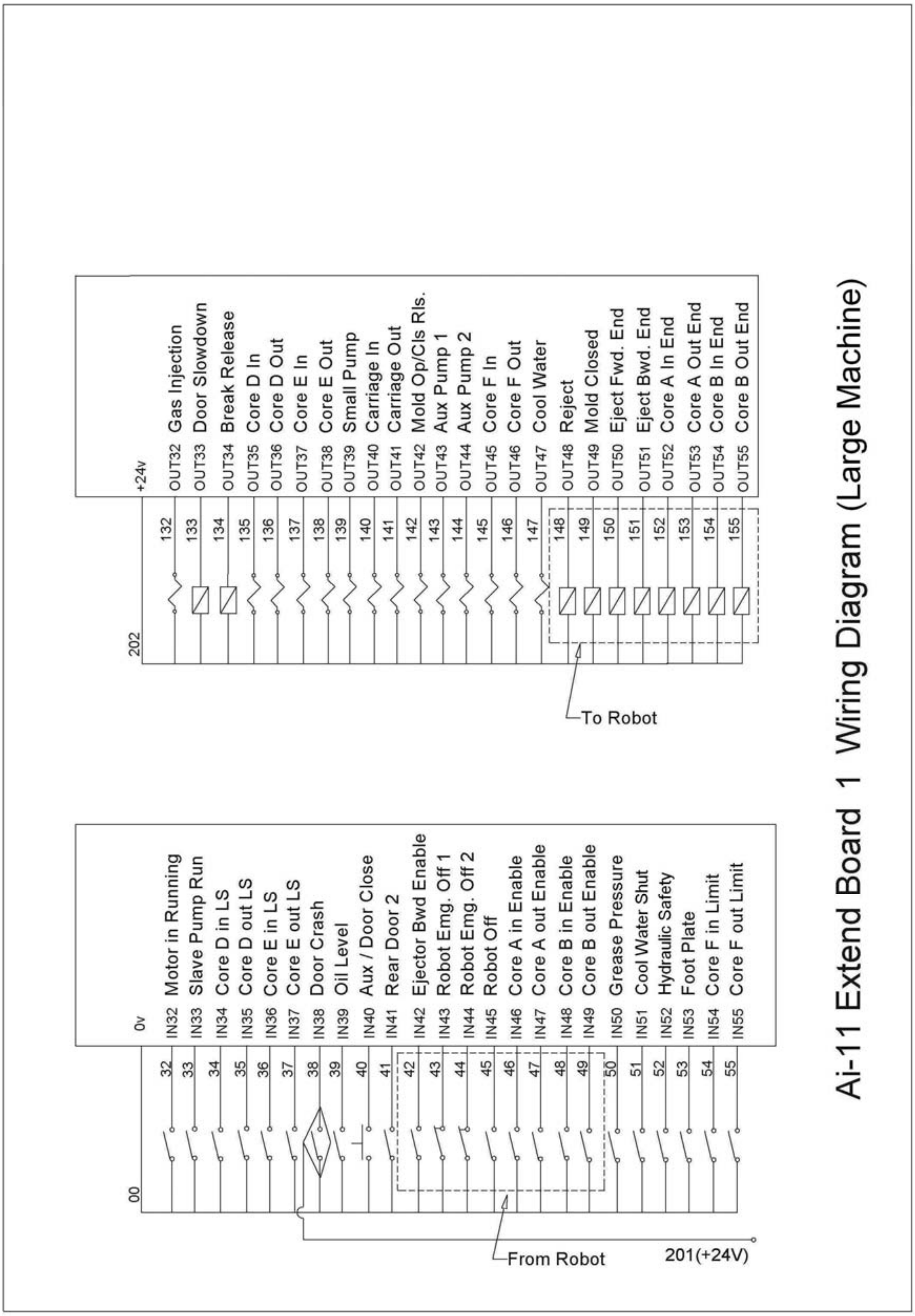
7.10 Ai-11 Extend Board 1 Wiring Diagram


Ai-11 Extend Board 1 Wiring Diagram
+24v
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 Rls.
OUT43 Aux Pump 1
OUT44 Aux Pump 2
OUT45 Core F In
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
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
202
To Robot
0v
IN32 Motor in Running
IN33 Slave Pump Run
IN34 Core D in LS
IN35 Core D out LS
IN36 Core E in LS
IN37 Core E out LS
IN38 Door Crash
IN39 Oil Level
IN40 Aux / Door Close
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 Limit
IN53 Foot Plate
IN54 Core F in Limit
IN55 Core F out Limit
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
00
From Robot
201(+24V)

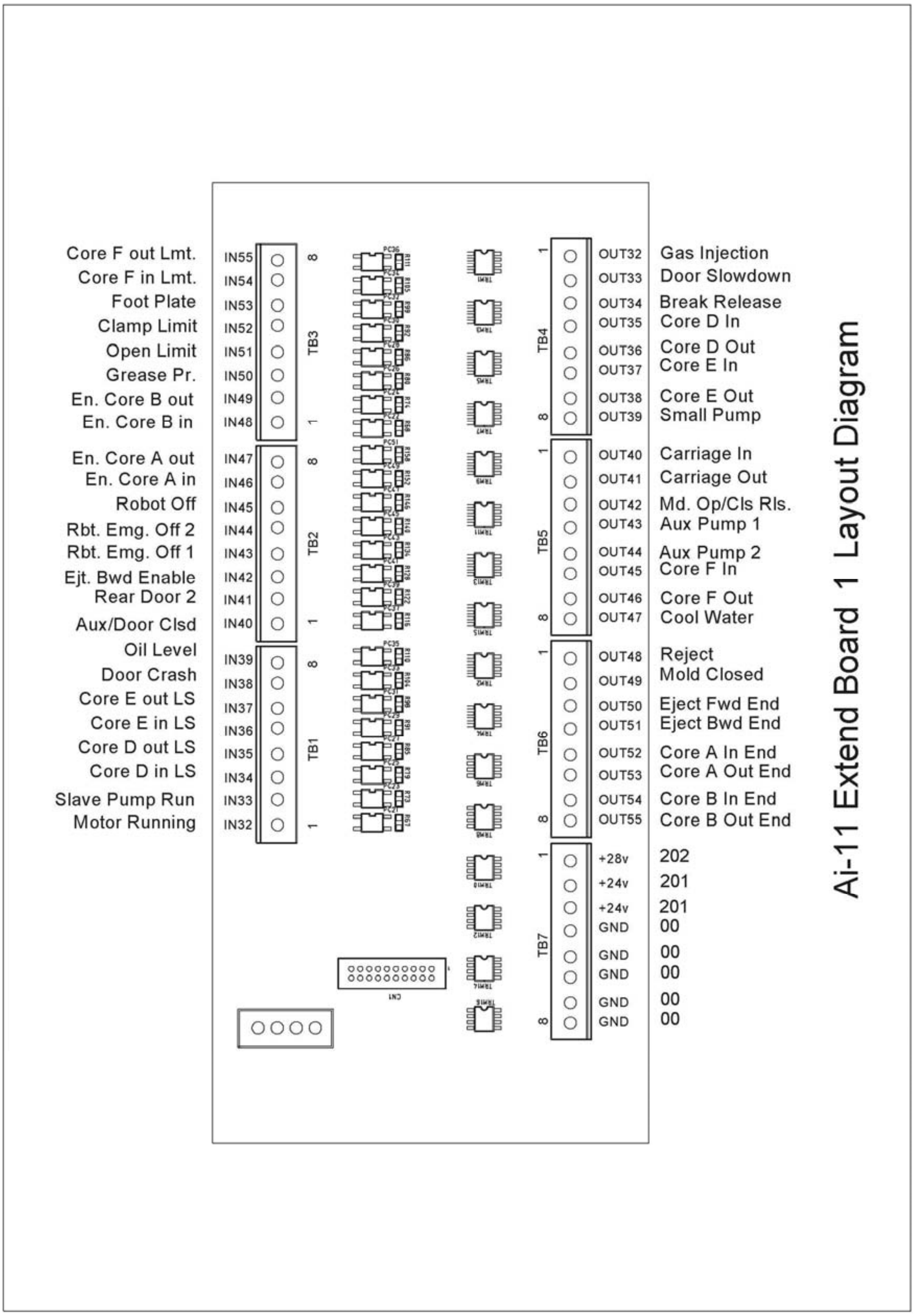
7.11 Ai-11 Extend Board 1 Wiring Diagram (CE)


3 Color Signal Lamp
143
144
Buzzer(White)
145
Non-flash Com 402
+26V
OUT32 Aux
OUT33 Aux
OUT34 Aux
OUT35 Aux
OUT36 Aux
OUT37 Aux
OUT38 Aux
OUT39 Aux
OUT40 Aux
OUT41 Aux
OUT42 Take Out Ready
OUT43 Red Signal Lamp
OUT44 Yellow Signal Lamp
OUT45 Green Signal Lamp
OUT46 Aux
OUT47 Aux
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
142
202
+26V
148
149
150
151
152
153
154
155
To Robot
0v
IN32 Aux
IN33 Aux
IN34 Aux
IN35 Aux
IN36 Aux
IN37 Aux
IN38 Aux
IN39 Aux
IN40 Aux
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 Aux
IN51 Aux
IN52 Aux
IN53 Aux
IN54 Hyd. Safety Valve
IN55 Aux
00
41
42
43
44
45
46
47
48
49
54
From Robot
Ai-11 Extend Board 1 Wiring Diagram (CE)

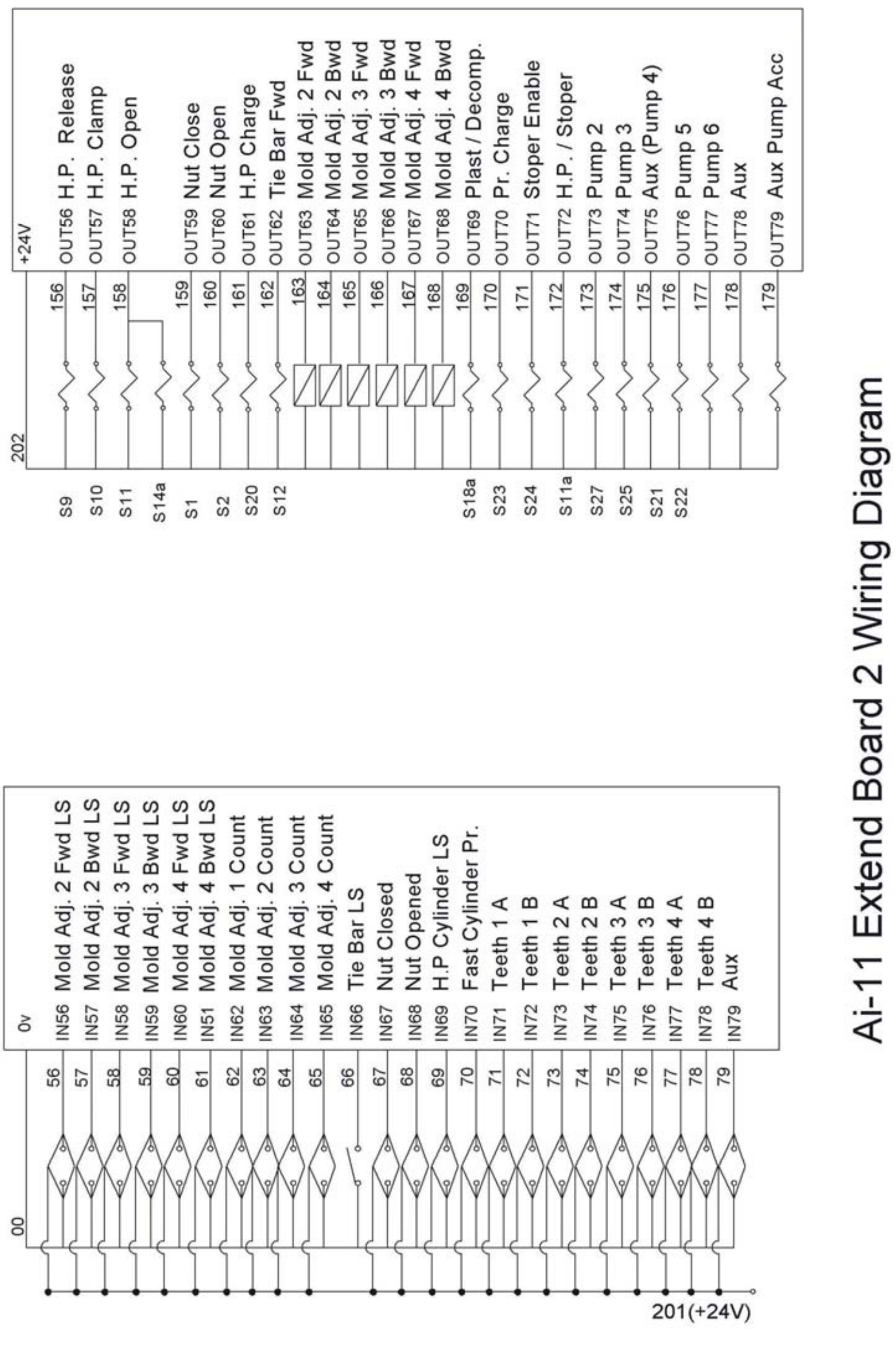
7.12 Ai-11 Extend Board 1 Wiring Diagram (Large Machine)


Ai-11 Extend Board 1 Wiring Diagram (Large Machine)
+24v
202
OUT32 Gas Injection 132
OUT33 Door Slowdown 133
OUT34 Break Release 134
OUT35 Core D In 135
OUT36 Core D Out 136
OUT37 Core E In 137
OUT38 Core E Out 138
OUT39 Small Pump 139
OUT40 Carriage In 140
OUT41 Carriage Out 141
OUT42 Mold Op/Cls Rls. 142
OUT43 Aux Pump 1 143
OUT44 Aux Pump 2 144
OUT45 Core F In 145
OUT46 Core F Out 146
OUT47 Cool Water 147
OUT48 Reject 148
OUT49 Mold Closed 149
OUT50 Eject Fwd. End 150
OUT51 Eject Bwd. End 151
OUT52 Core A In End 152
OUT53 Core A Out End 153
OUT54 Core B In End 154
OUT55 Core B Out End 155
To Robot
0v
00
IN32 Motor in Running 32
IN33 Slave Pump Run 33
IN34 Core D in LS 34
IN35 Core D out LS 35
IN36 Core E in LS 36
IN37 Core E out LS 37
IN38 Door Crash 38
IN39 Oil Level 39
IN40 Aux / Door Close 40
IN41 Rear Door 2 41
IN42 Ejector Bwd Enable 42
IN43 Robot Emg. Off 1 43
IN44 Robot Emg. Off 2 44
IN45 Robot Off 45
IN46 Core A in Enable 46
IN47 Core A out Enable 47
IN48 Core B in Enable 48
IN49 Core B out Enable 49
IN50 Grease Pressure 50
IN51 Cool Water Shut 51
IN52 Hydraulic Safety 52
IN53 Foot Plate 53
IN54 Core F in Limit 54
IN55 Core F out Limit 55
From Robot
201(+24V)

7.13 Ai-11 Extend Board 1 Layout Diagram

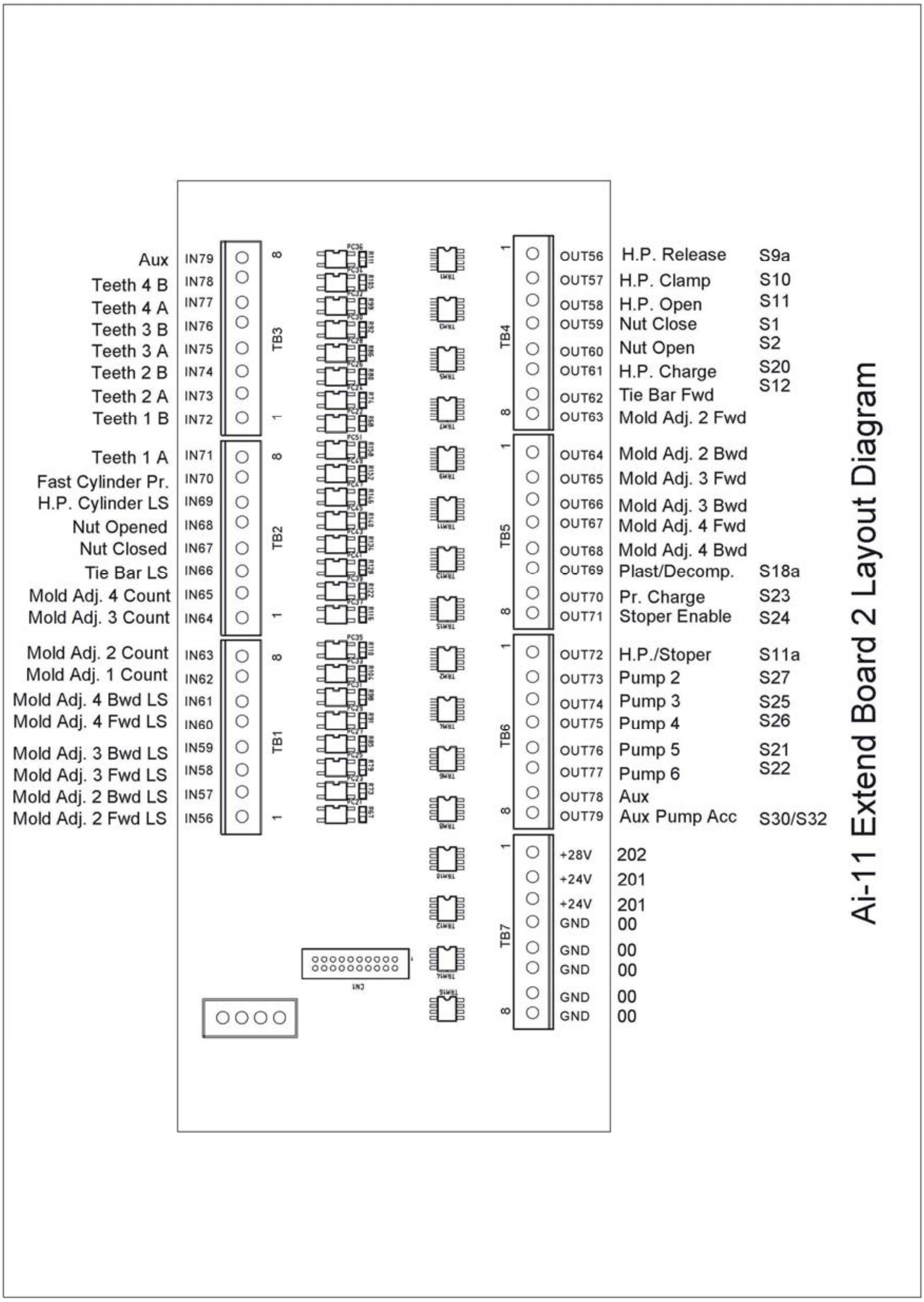

Ai-11 Extend Board 1 Layout Diagram
TB3
Core F out Lmt. IN55
Core F in Lmt. IN54
Foot Plate IN53
Clamp Limit IN52
Open Limit IN51
Grease Pr. IN50
En. Core B out IN49
En. Core B in IN48
TB2
En. Core A out IN47
En. Core A in IN46
Robot Off IN45
Rbt. Emg. Off 2 IN44
Rbt. Emg. Off 1 IN43
Ejt. Bwd Enable IN42
Rear Door 2 IN41
Aux/Door Clsd IN40
TB1
Oil Level IN39
Door Crash IN38
Core E out LS IN37
Core E in LS IN36
Core D out LS IN35
Core D in LS IN34
Slave Pump Run IN33
Motor Running IN32
8
1
TB4
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
TB5
OUT40 Carriage In
OUT41 Carriage Out
OUT42 Md. Op/Cls Rls.
OUT43 Aux Pump 1
OUT44 Aux Pump 2
OUT45 Core F In
OUT46 Core F Out
OUT47 Cool Water
TB6
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
TB7
+28v 202
+24v 201
+24v 201
GND 00
GND 00
GND 00
GND 00
GND 00
CN1

7.14 Ai-11 Extend Board 2 Wiring Diagram

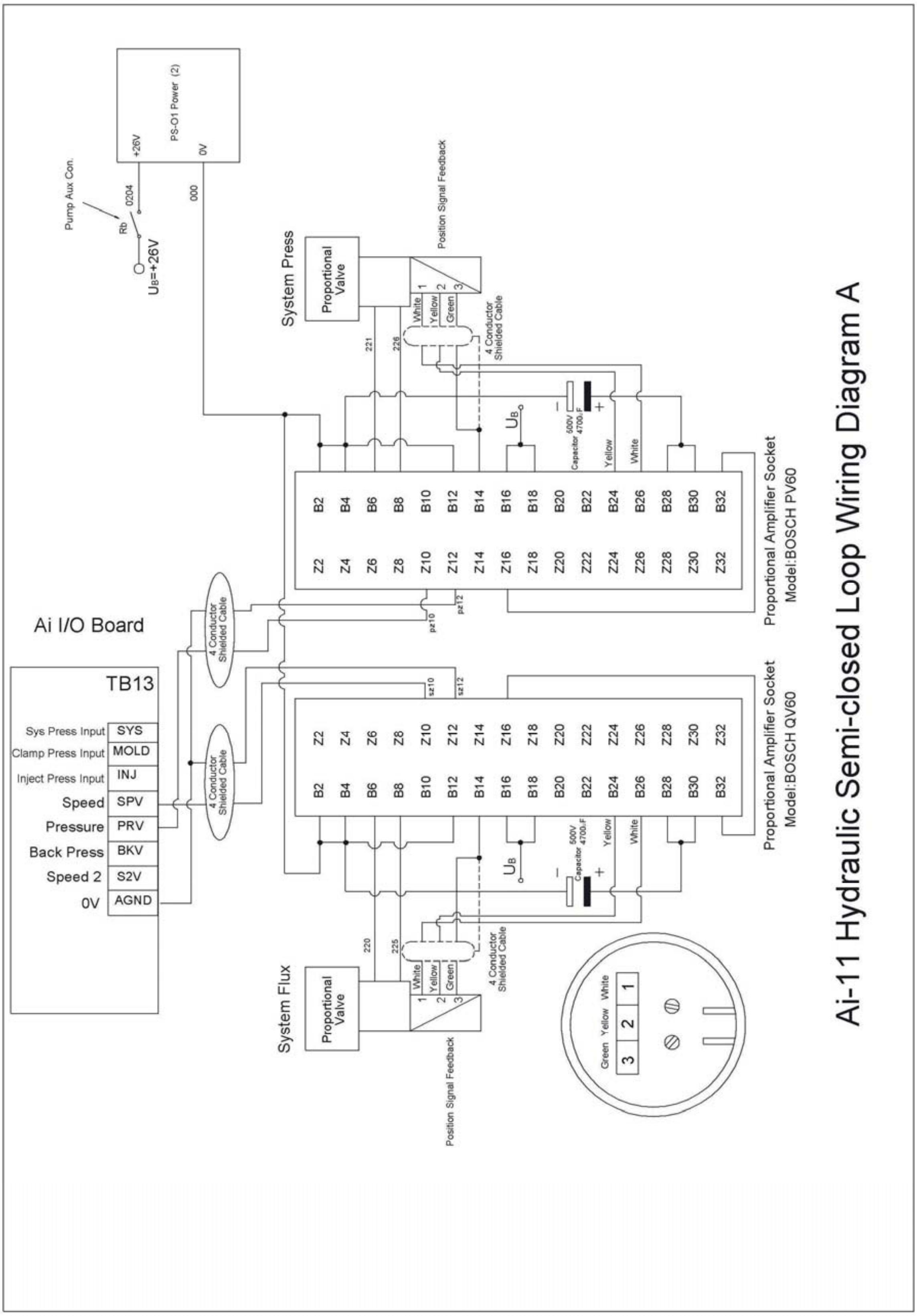

+24V
202
156 OUT56 H.P. Release S9
157 OUT57 H.P. Clamp S10
158 OUT58 H.P. Open S11
S14a
159 OUT59 Nut Close S1
160 OUT60 Nut Open S2
161 OUT61 H.P Charge S20
162 OUT62 Tie Bar Fwd S12
163 OUT63 Mold Adj. 2 Fwd
164 OUT64 Mold Adj. 2 Bwd
165 OUT65 Mold Adj. 3 Fwd
166 OUT66 Mold Adj. 3 Bwd
167 OUT67 Mold Adj. 4 Fwd
168 OUT68 Mold Adj. 4 Bwd
169 OUT69 Plast / Decomp. S18a
170 OUT70 Pr. Charge S23
171 OUT71 Stoper Enable S24
172 OUT72 H.P. / Stoper S11a
173 OUT73 Pump 2 S27
174 OUT74 Pump 3 S25
175 OUT75 Aux (Pump 4) S21
176 OUT76 Pump 5 S22
177 OUT77 Pump 6
178 OUT78 Aux
179 OUT79 Aux Pump Acc
0v
00
56 IN56 Mold Adj. 2 Fwd LS
57 IN57 Mold Adj. 2 Bwd LS
58 IN58 Mold Adj. 3 Fwd LS
59 IN59 Mold Adj. 3 Bwd LS
60 IN60 Mold Adj. 4 Fwd LS
61 IN51 Mold Adj. 4 Bwd LS
62 IN62 Mold Adj. 1 Count
63 IN63 Mold Adj. 2 Count
64 IN64 Mold Adj. 3 Count
65 IN65 Mold Adj. 4 Count
66 IN66 Tie Bar LS
67 IN67 Nut Closed
68 IN68 Nut Opened
69 IN69 H.P Cylinder LS
70 IN70 Fast Cylinder Pr.
71 IN71 Teeth 1 A
72 IN72 Teeth 1 B
73 IN73 Teeth 2 A
74 IN74 Teeth 2 B
75 IN75 Teeth 3 A
76 IN76 Teeth 3 B
77 IN77 Teeth 4 A
78 IN78 Teeth 4 B
79 IN79 Aux
201(+24V)

Ai-11 Extend Board 2 Wiring Diagram

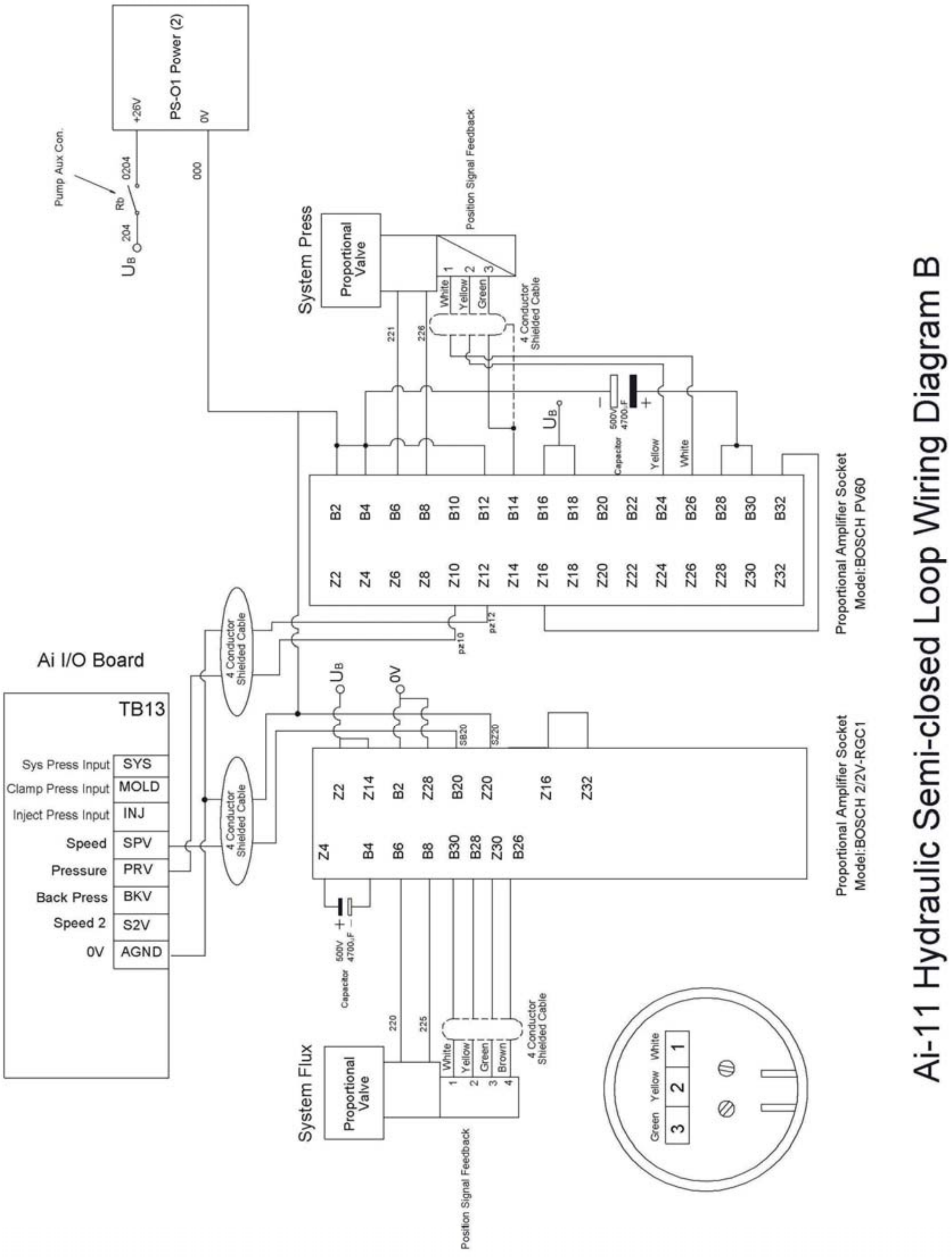
7.15 Ai-11 Extend Board 2 Layout Diagram


Ai-11 Extend Board 2 Layout Diagram
TB3
Aux IN79 8
Teeth 4 B IN78
Teeth 4 A IN77
Teeth 3 B IN76
Teeth 3 A IN75
Teeth 2 B IN74
Teeth 2 A IN73
Teeth 1 B IN72 1
TB2
Teeth 1 A IN71 8
Fast Cylinder Pr. IN70
H.P. Cylinder LS IN69
Nut Opened IN68
Nut Closed IN67
Tie Bar LS IN66
Mold Adj. 4 Count IN65
Mold Adj. 3 Count IN64 1
TB1
Mold Adj. 2 Count IN63 8
Mold Adj. 1 Count IN62
Mold Adj. 4 Bwd LS IN61
Mold Adj. 4 Fwd LS IN60
Mold Adj. 3 Bwd LS IN59
Mold Adj. 3 Fwd LS IN58
Mold Adj. 2 Bwd LS IN57
Mold Adj. 2 Fwd LS IN56 1
TB4
1 OUT56 H.P. Release S9a
OUT57 H.P. Clamp S10
OUT58 H.P. Open S11
OUT59 Nut Close S1
OUT60 Nut Open S2
OUT61 H.P. Charge S20
OUT62 Tie Bar Fwd S12
8 OUT63 Mold Adj. 2 Fwd
TB5
1 OUT64 Mold Adj. 2 Bwd
OUT65 Mold Adj. 3 Fwd
OUT66 Mold Adj. 3 Bwd
OUT67 Mold Adj. 4 Fwd
OUT68 Mold Adj. 4 Bwd
OUT69 Plast/Decomp. S18a
OUT70 Pr. Charge S23
8 OUT71 Stoper Enable S24
TB6
1 OUT72 H.P./Stoper S11a
OUT73 Pump 2 S27
OUT74 Pump 3 S25
OUT75 Pump 4 S26
OUT76 Pump 5 S21
OUT77 Pump 6 S22
OUT78 Aux
8 OUT79 Aux Pump Acc S30/S32
TB7
1 +28V 202
+24V 201
+24V 201
GND 00
GND 00
GND 00
GND 00
8 GND 00
CN1

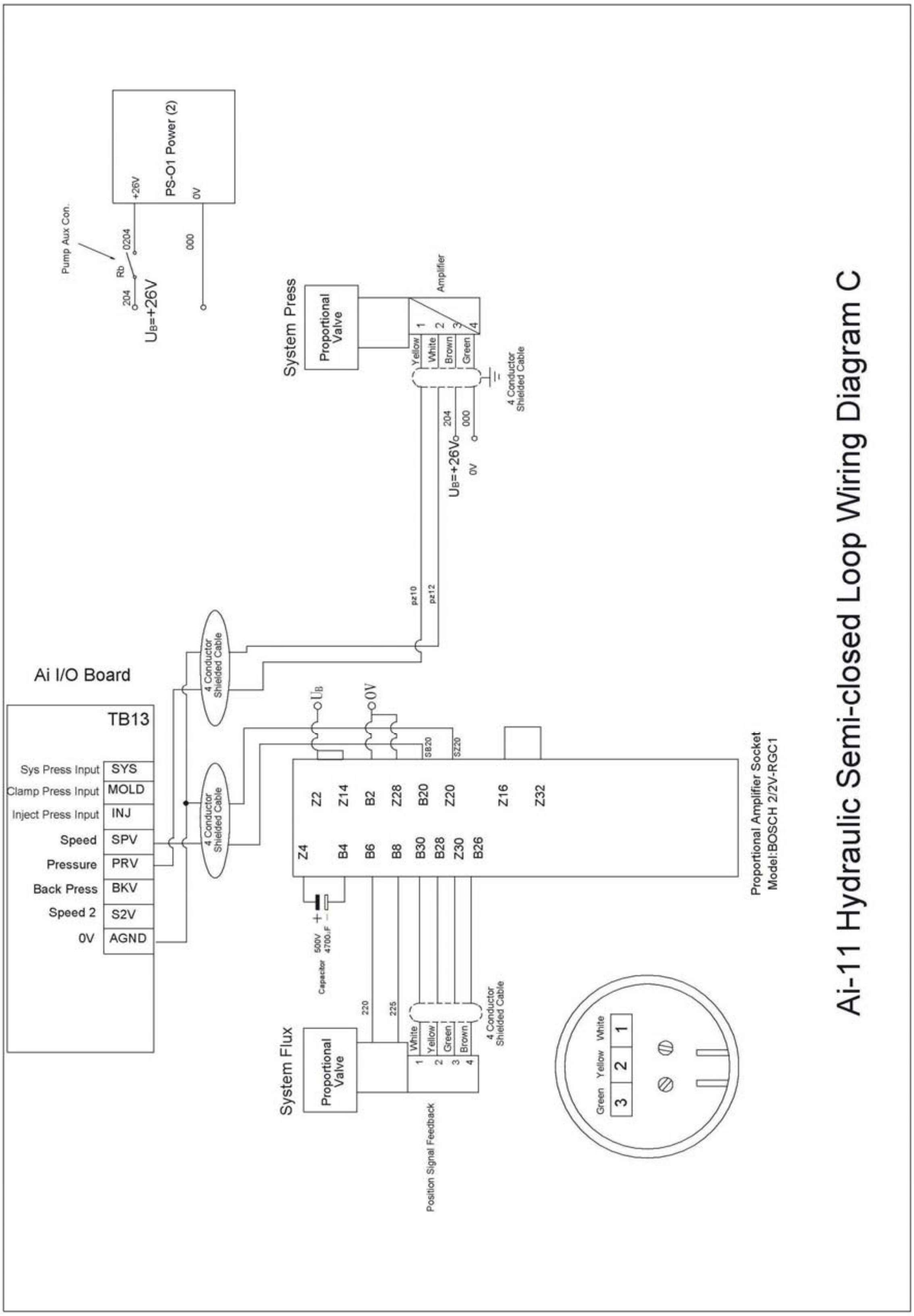
7.16 Ai-11 Hydraulic Semi-closed Loop Wiring Diagram A


Ai-11 Hydraulic Semi-closed Loop Wiring Diagram A
Ai I/O Board
TB13
Sys Press Input SYS
Clamp Press Input MOLD
Inject Press Input INJ
Speed SPV
Pressure PRV
Back Press BKV
Speed 2 S2V
0V AGND
Pump Aux Con.
Rb
0204
UB=+26V
PS-O1 Power (2)
+26V
0V
000
System Press
Proportional Valve
Position Signal Feedback
1 2 3
White
Yellow
Green
221
226
4 Conductor Shielded Cable
UB
Capacitor 500V 4700μF
−
+
Yellow
White
B2 B4 B6 B8 B10 B12 B14 B16 B18 B20 B22 B24 B26 B28 B30 B32
Z2 Z4 Z6 Z8 Z10 Z12 Z14 Z16 Z18 Z20 Z22 Z24 Z26 Z28 Z30 Z32
pz10
pz12
Proportional Amplifier Socket Model:BOSCH PV60
sz10
sz12
Proportional Amplifier Socket Model:BOSCH QV60
System Flux
220
225
Green Yellow White
3 2 1

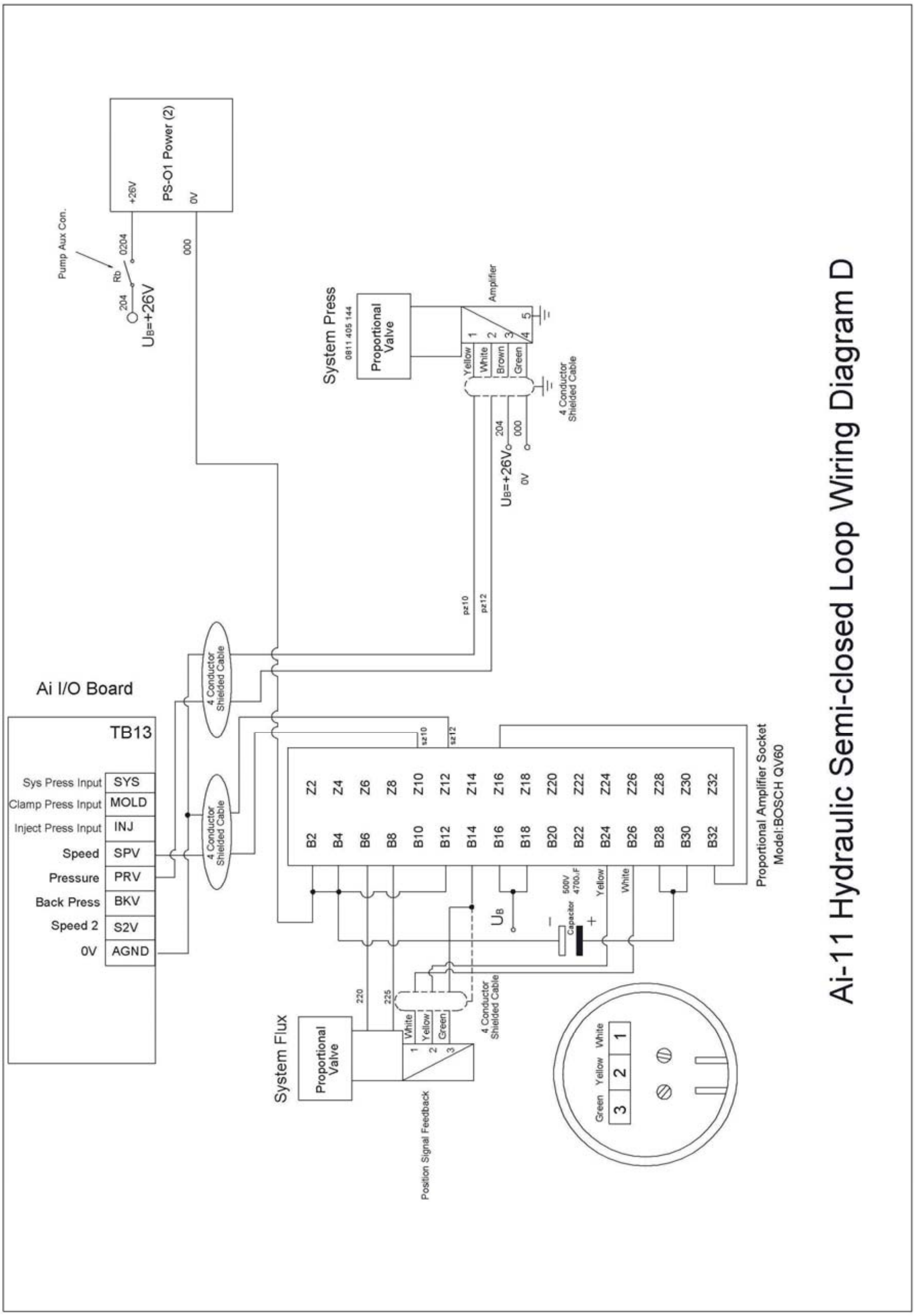
7.17 Ai-11 Hydraulic Semi-closed Loop Wiring Diagram B


Ai-11 Hydraulic Semi-closed Loop Wiring Diagram B
PS-O1 Power (2)
+26V
0V
Pump Aux Con.
UB
204
Rb
0204
000
System Press
Proportional Valve
Position Signal Feedback
White 1
Yellow 2
Green 3
4 Conductor Shielded Cable
221
226
Capacitor 500V 4700μF
Yellow
White
Proportional Amplifier Socket
Model:BOSCH PV60
B2 B4 B6 B8 B10 B12 B14 B16 B18 B20 B22 B24 B26 B28 B30 B32
Z2 Z4 Z6 Z8 Z10 Z12 Z14 Z16 Z18 Z20 Z22 Z24 Z26 Z28 Z30 Z32
pz10
pz12
Ai I/O Board
TB13
Sys Press Input SYS
Clamp Press Input MOLD
Inject Press Input INJ
Speed SPV
Pressure PRV
Back Press BKV
Speed 2 S2V
0V AGND
4 Conductor Shielded Cable
UB
0V
SB20
SZ20
Proportional Amplifier Socket
Model:BOSCH 2/2V-RGC1
Z2 Z14 B2 Z28 B20 Z20 Z16 Z32
Z4 B4 B6 B8 B30 B28 Z30 B26
Capacitor 500V 4700μF
220
225
System Flux
Proportional Valve
White 1
Yellow 2
Green 3
Brown 4
Position Signal Feedback
Green Yellow White
3 2 1

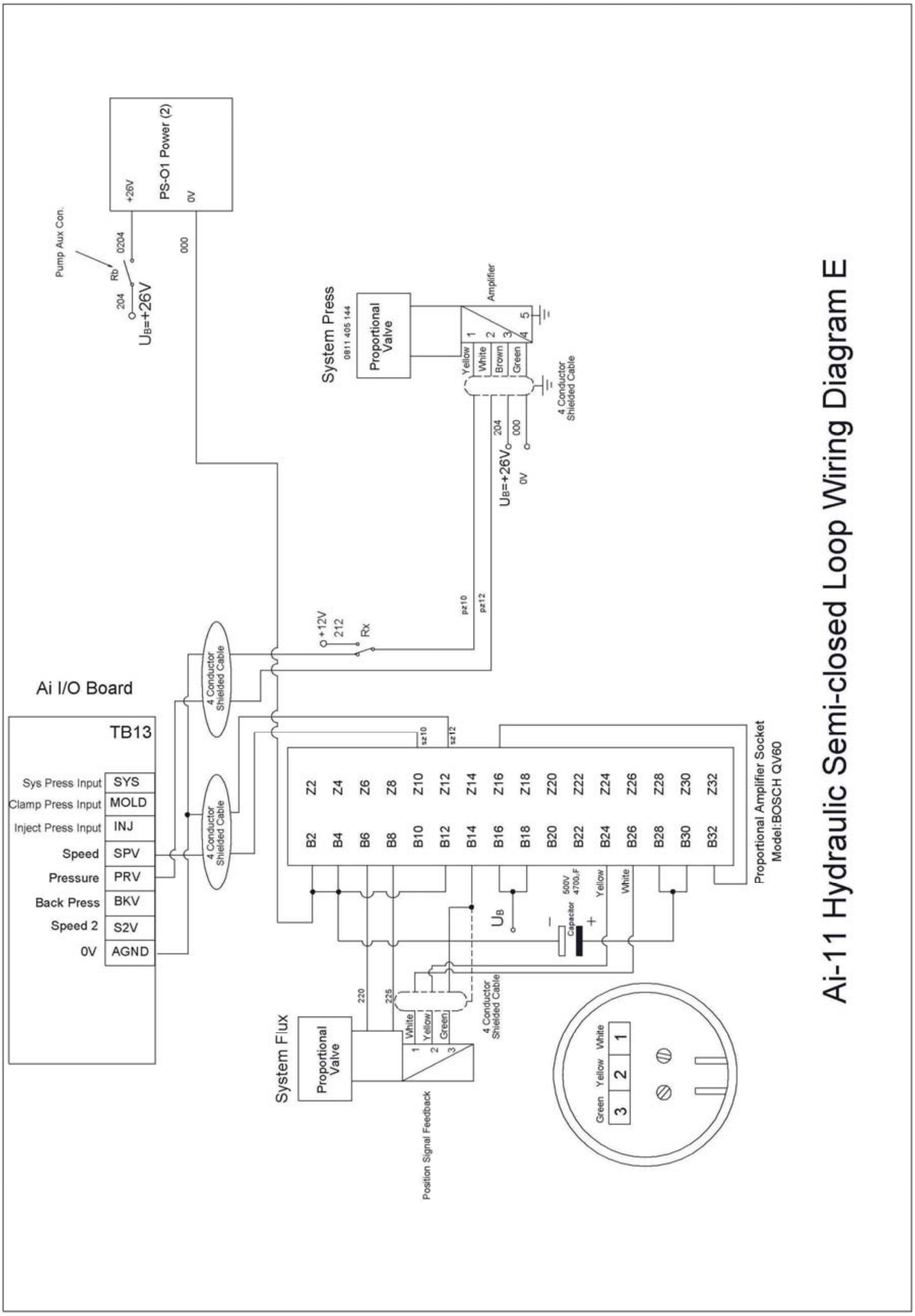
7.18 Ai-11 Hydraulic Semi-closed Loop Wiring Diagram C


Ai-11 Hydraulic Semi-closed Loop Wiring Diagram C
PS-O1 Power (2)
+26V
0V
Pump Aux Con.
Rb
0204
204
000
UB=+26V
System Press
Proportional Valve
Amplifier
1
2
3
4
Yellow
White
Brown
Green
4 Conductor Shielded Cable
204
000
UB=+26V
0V
pz10
pz12
Ai I/O Board
TB13
Sys Press Input
SYS
Clamp Press Input
MOLD
Inject Press Input
INJ
Speed
SPV
Pressure
PRV
Back Press
BKV
Speed 2
S2V
0V
AGND
4 Conductor Shielded Cable
4 Conductor Shielded Cable
UB
0V
SB20
SZ20
Z2
Z14
B2
Z28
B20
Z20
Z16
Z32
Z4
B4
B6
B8
B30
B28
Z30
B26
Proportional Amplifier Socket
Model:BOSCH 2/2V-RGC1
Capacitor
500V
4700μF
220
225
System Flux
Proportional Valve
White
Yellow
Green
Brown
1
2
3
4
4 Conductor Shielded Cable
Position Signal Feedback
Green
Yellow
White
3
2
1

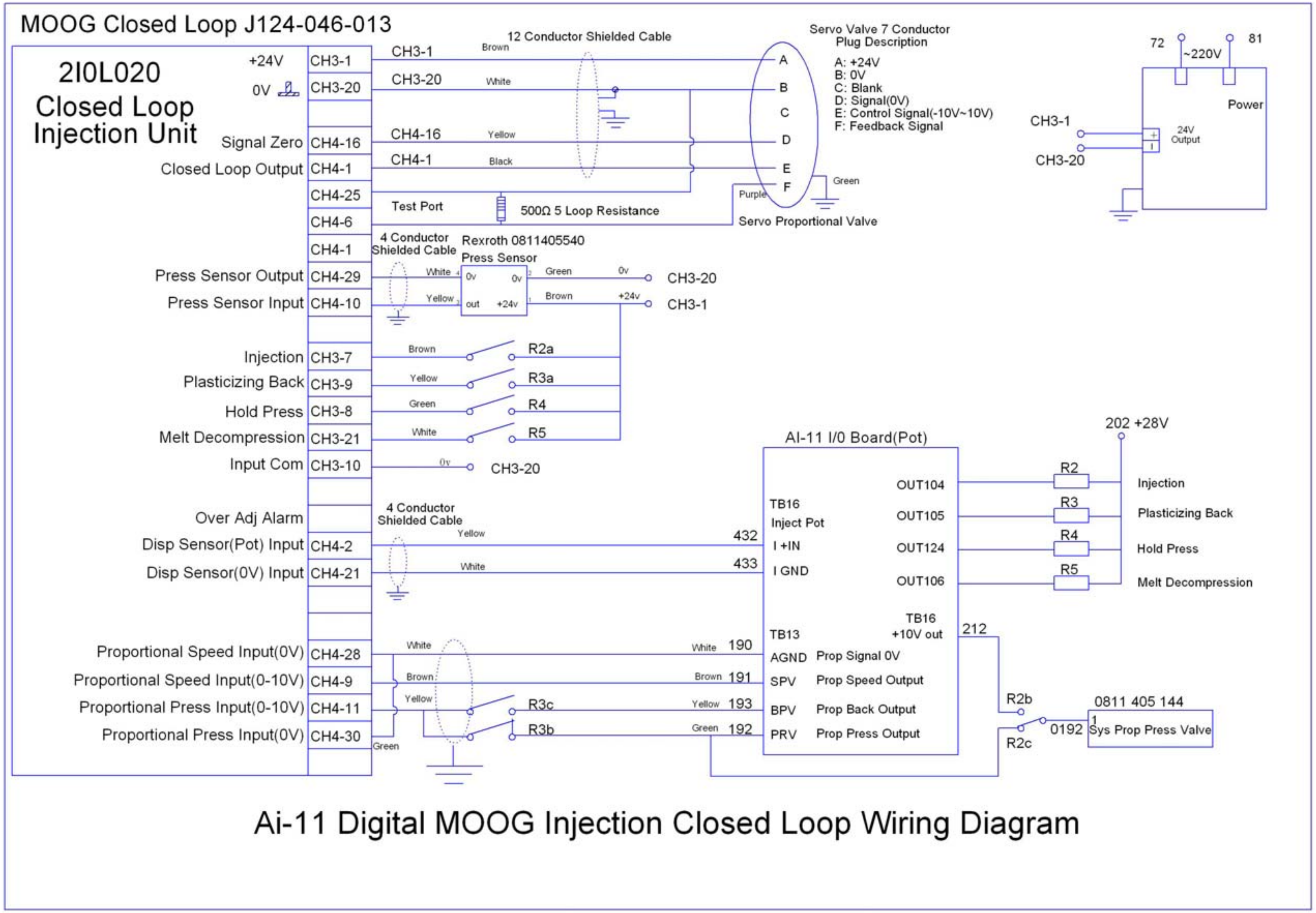
7.19 Ai-11 Hydraulic Semi-closed Loop Wiring Diagram D


Ai-11 Hydraulic Semi-closed Loop Wiring Diagram D
Ai I/O Board
TB13
Sys Press Input
SYS
Clamp Press Input
MOLD
Inject Press Input
INJ
Speed
SPV
Pressure
PRV
Back Press
BKV
Speed 2
S2V
0V
AGND
PS-O1 Power (2)
+26V
0V
Pump Aux Con.
Rb
0204
204
UB=+26V
000
System Press
0811 405 144
Proportional Valve
Amplifier
1
2
3
4
5
Yellow
White
Brown
Green
4 Conductor Shielded Cable
204
000
UB=+26V
0V
pz10
pz12
4 Conductor Shielded Cable
4 Conductor Shielded Cable
sz10
sz12
Z2
Z4
Z6
Z8
Z10
Z12
Z14
Z16
Z18
Z20
Z22
Z24
Z26
Z28
Z30
Z32
B2
B4
B6
B8
B10
B12
B14
B16
B18
B20
B22
B24
B26
B28
B30
B32
Proportional Amplifier Socket
Model:BOSCH QV60
UB
Capacitor
500V
4700μF
−
+
Yellow
White
System Flux
Proportional Valve
220
225
White
Yellow
Green
1
2
3
4 Conductor Shielded Cable
Position Signal Feedback
Green
Yellow
White
3
2
1

7.20 Ai-11 Hydraulic Semi-closed Loop Wiring Diagram E

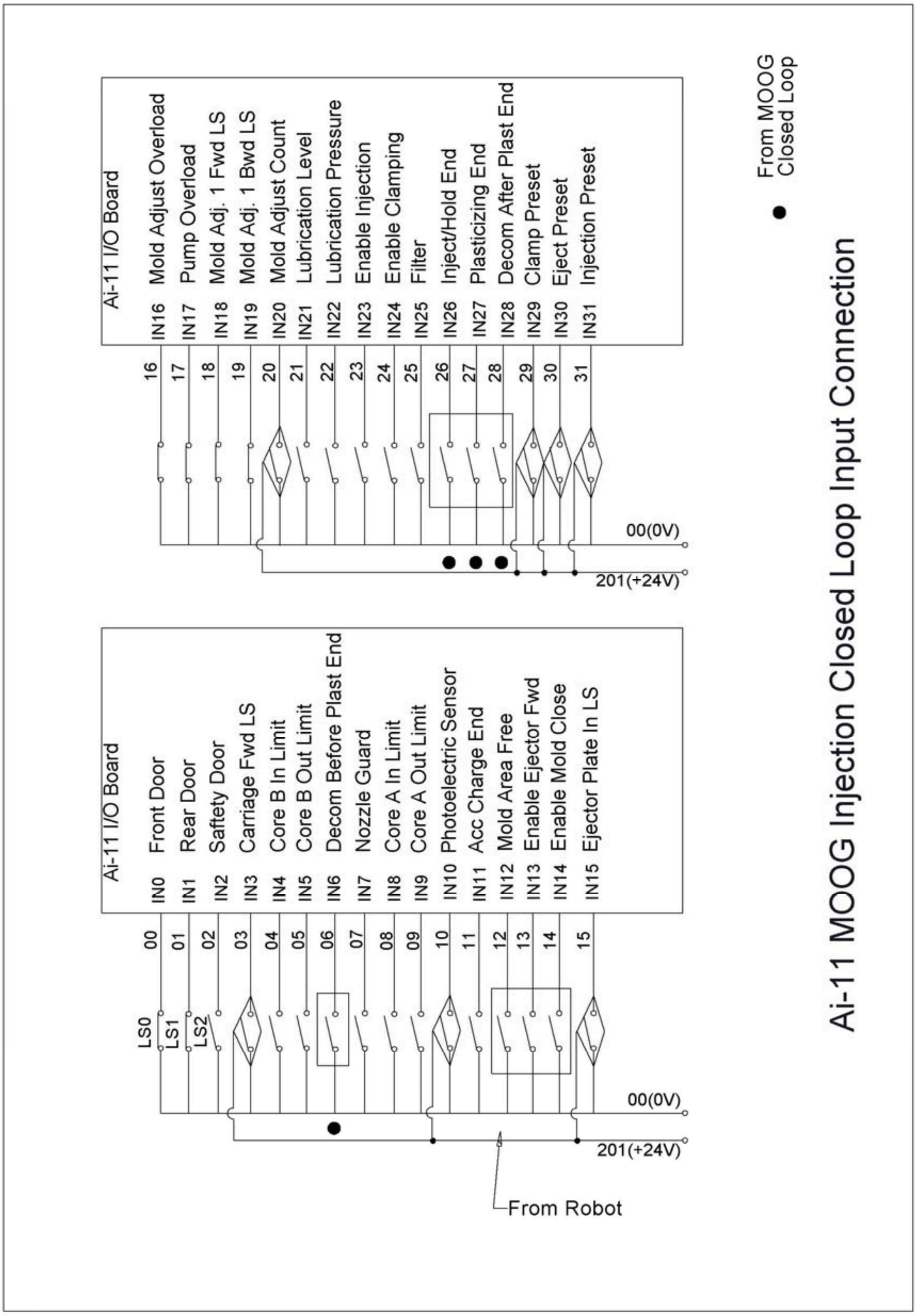

Ai-11 Hydraulic Semi-closed Loop Wiring Diagram E
PS-O1 Power (2)
+26V
0V
000
Pump Aux Con.
Rb
0204
204
UB=+26V
System Press
0811 405 144
Proportional Valve
Amplifier
1
2
3
4
5
Yellow
White
Brown
Green
4 Conductor Shielded Cable
204
000
UB=+26V
0V
pz10
pz12
+12V
212
Rx
Ai I/O Board
TB13
Sys Press Input
SYS
Clamp Press Input
MOLD
Inject Press Input
INJ
Speed
SPV
Pressure
PRV
Back Press
BKV
Speed 2
S2V
0V
AGND
4 Conductor Shielded Cable
4 Conductor Shielded Cable
sz10
sz12
Z2
Z4
Z6
Z8
Z10
Z12
Z14
Z16
Z18
Z20
Z22
Z24
Z26
Z28
Z30
Z32
B2
B4
B6
B8
B10
B12
B14
B16
B18
B20
B22
B24
B26
B28
B30
B32
Proportional Amplifier Socket
Model:BOSCH QV60
UB
Capacitor
500V
4700uF
Yellow
White
220
225
4 Conductor Shielded Cable
System Flux
Proportional Valve
White
Yellow
Green
1
2
3
Position Signal Feedback
Green
Yellow
White
3
2
1

7.21 Ai-11 Digital MOOG Injection Closed Loop Wiring Diagram

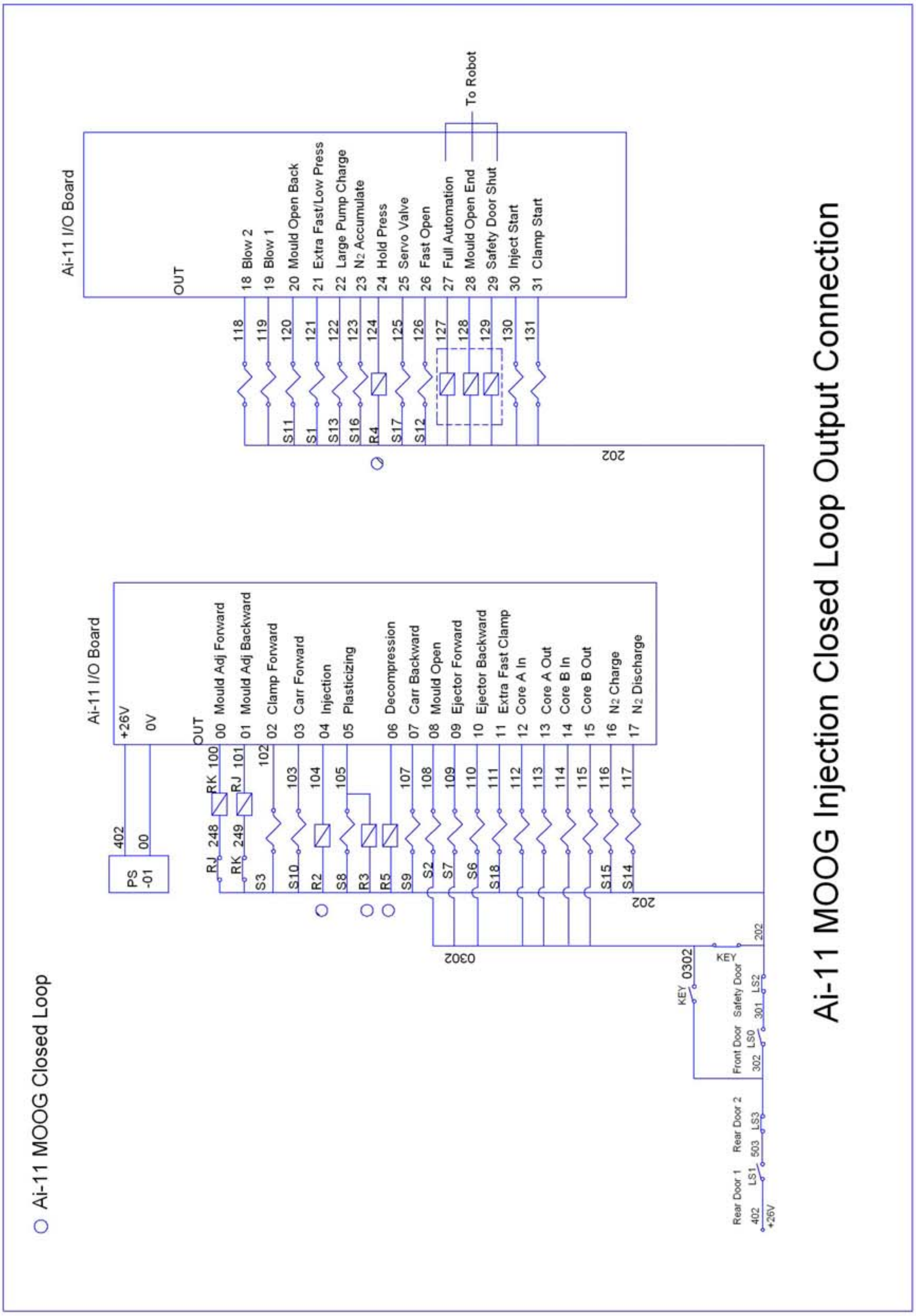

MOOG Closed Loop J124-046-013
2I0L020
Closed Loop
Injection Unit
+24V
0V
Signal Zero
Closed Loop Output
Press Sensor Output
Press Sensor Input
Injection
Plasticizing Back
Hold Press
Melt Decompression
Input Com
Over Adj Alarm
Disp Sensor(Pot) Input
Disp Sensor(0V) Input
Proportional Speed Input(0V)
Proportional Speed Input(0-10V)
Proportional Press Input(0-10V)
Proportional Press Input(0V)
CH3-1
CH3-20
CH4-16
CH4-1
CH4-25
CH4-6
CH4-1
CH4-29
CH4-10
CH3-7
CH3-9
CH3-8
CH3-21
CH3-10
CH4-2
CH4-21
CH4-28
CH4-9
CH4-11
CH4-30
12 Conductor Shielded Cable
CH3-1
Brown
CH3-20
White
CH4-16
Yellow
CH4-1
Black
Test Port
500Ω 5 Loop Resistance
A
B
C
D
E
F
Purple
Green
Servo Proportional Valve
Servo Valve 7 Conductor
Plug Description
A: +24V
B: 0V
C: Blank
D: Signal(0V)
E: Control Signal(-10V~10V)
F: Feedback Signal
72
~220V
81
Power
24V
Output
CH3-1
CH3-20
4 Conductor
Shielded Cable
Rexroth 0811405540
Press Sensor
White
Yellow
0v
out
0v
+24v
Green
Brown
0v
+24v
CH3-20
CH3-1
Brown
Yellow
Green
White
R2a
R3a
R4
R5
0v
CH3-20
4 Conductor
Shielded Cable
Yellow
White
432
433
AI-11 I/0 Board(Pot)
TB16
Inject Pot
I +IN
I GND
OUT104
OUT105
OUT124
OUT106
202 +28V
R2
R3
R4
R5
Injection
Plasticizing Back
Hold Press
Melt Decompression
TB16
+10V out
212
TB13
AGND
SPV
BPV
PRV
Prop Signal 0V
Prop Speed Output
Prop Back Output
Prop Press Output
White 190
Brown 191
Yellow 193
Green 192
White
Brown
Yellow
Green
R3c
R3b
R2b
R2c
0192
0811 405 144
1
Sys Prop Press Valve

Ai-11 Digital MOOG Injection Closed Loop Wiring Diagram

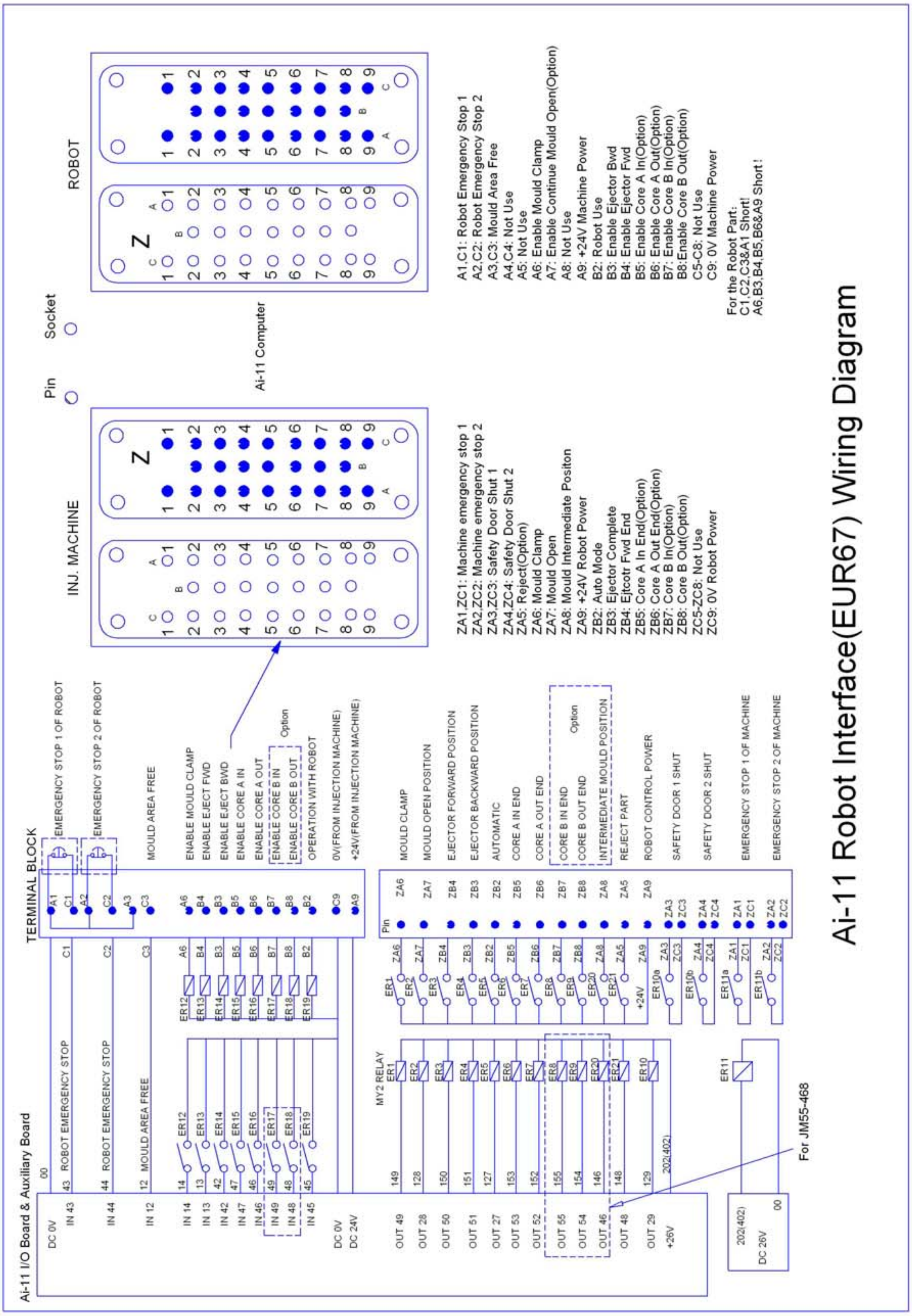
7.22 Ai-11 MOOG Injection Closed Loop Input Connection


Ai-11 MOOG Injection Closed Loop Input Connection
From MOOG Closed Loop
Ai-11 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 Enable Injection
IN24 Enable Clamping
IN25 Filter
IN26 Inject/Hold End
IN27 Plasticizing End
IN28 Decom After Plast End
IN29 Clamp Preset
IN30 Eject Preset
IN31 Injection Preset
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
00(0V)
201(+24V)
Ai-11 I/O Board
IN0 Front Door
IN1 Rear Door
IN2 Saftety Door
IN3 Carriage Fwd LS
IN4 Core B In Limit
IN5 Core B Out Limit
IN6 Decom Before Plast End
IN7 Nozzle Guard
IN8 Core A In Limit
IN9 Core A Out Limit
IN10 Photoelectric Sensor
IN11 Acc Charge End
IN12 Mold Area Free
IN13 Enable Ejector Fwd
IN14 Enable Mold Close
IN15 Ejector Plate In LS
00
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
LS0
LS1
LS2
00(0V)
201(+24V)
From Robot

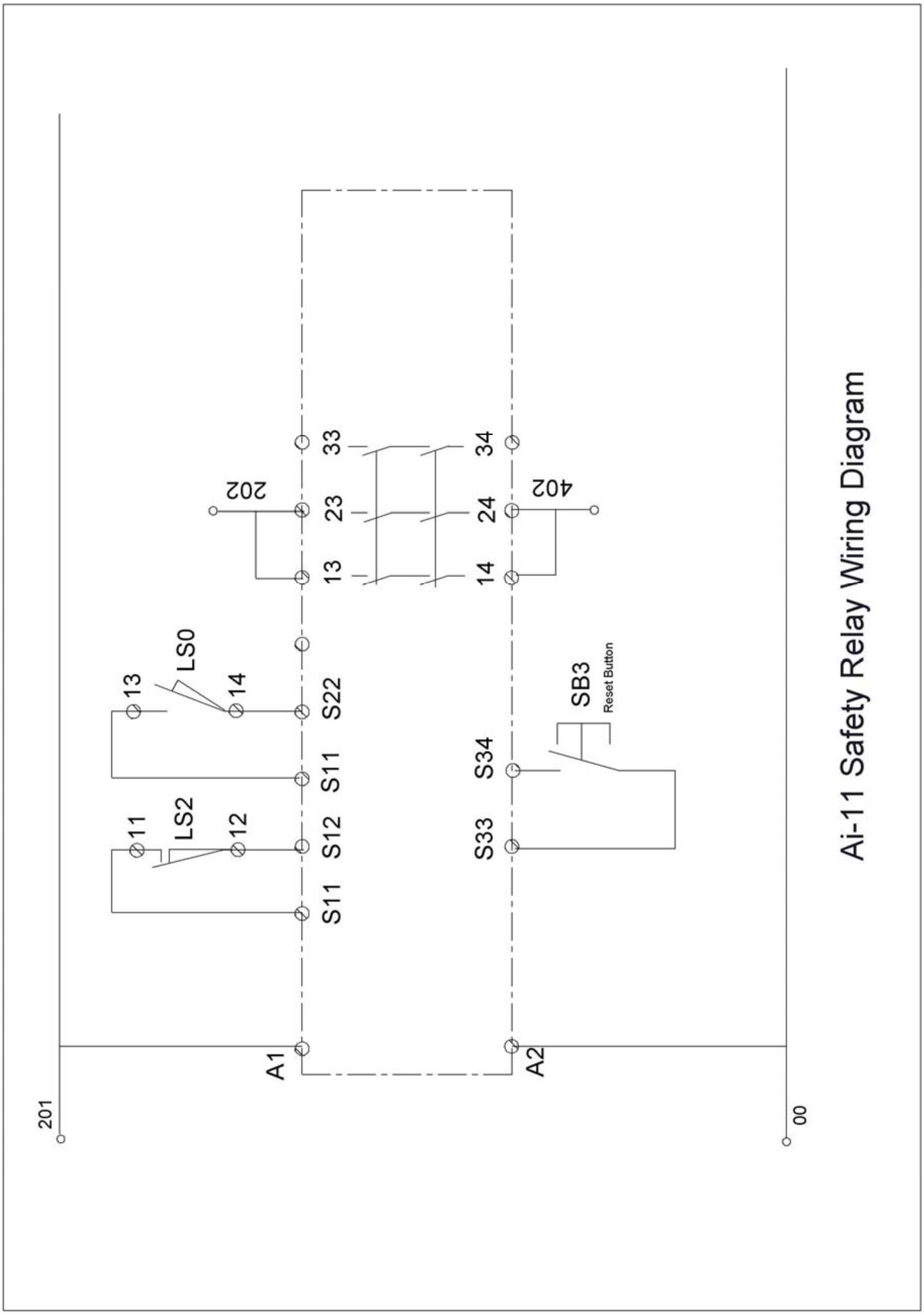
7.23 Ai-11 MOOG Injection Closed Loop Output Connection


Ai-11 MOOG Injection Closed Loop Output Connection
○ Ai-11 MOOG Closed Loop
Ai-11 I/O Board
OUT
18 Blow 2
19 Blow 1
20 Mould Open Back
21 Extra Fast/Low Press
22 Large Pump Charge
23 N2 Accumulate
24 Hold Press
25 Servo Valve
26 Fast Open
27 Full Automation
28 Mould Open End
29 Safety Door Shut
30 Inject Start
31 Clamp Start
To Robot
118 119 120 121 122 123 124 125 126 127 128 129 130 131
S11 S1 S13 S16 R4 S17 S12
202
Ai-11 I/O Board
+26V
0V
OUT
00 Mould Adj Forward
01 Mould Adj Backward
02 Clamp Forward
03 Carr Forward
04 Injection
05 Plasticizing
06 Decompression
07 Carr Backward
08 Mould Open
09 Ejector Forward
10 Ejector Backward
11 Extra Fast Clamp
12 Core A In
13 Core A Out
14 Core B In
15 Core B Out
16 N2 Charge
17 N2 Discharge
402
00
PS -01
RK 100
RJ 101
102 103 104 105 107 108 109 110 111 112 113 114 115 116 117
RJ 248
RK 249
S3 S10 R2 S8 R3 R5 S9 S2 S7 S6 S18 S15 S14
202
0302
KEY 0302
KEY
202
Safety Door LS2 301
Front Door LS0 302
Rear Door 2 LS3 503
Rear Door 1 LS1 402
+26V

7.24 Ai-11 Robot Interface (CE67A) Wiring Diagram


Ai-11 I/O Board & Auxiliary Board
DC 0V
IN 43
IN 44
IN 12
IN 14
IN 13
IN 42
IN 47
IN 46
IN 49
IN 48
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 46
OUT 48
OUT 29
+26V
00
43 ROBOT EMERGENCY STOP
44 ROBOT EMERGENCY STOP
12 MOULD AREA FREE
14
13
42
47
46
49
48
45
ER12
ER13
ER14
ER15
ER16
ER17
ER18
ER19
MY2 RELAY
149
128
150
151
127
153
152
155
154
146
148
129
202(402)
ER1
ER2
ER3
ER4
ER5
ER6
ER7
ER8
ER9
ER20
ER21
ER10
202(402)
DC 26V
00
ER11
For JM55-468
TERMINAL BLOCK
C1
C2
C3
A6
B4
B3
B5
B6
B7
B8
B2
A1
C1
A2
C2
A3
C3
A6
B4
B3
B5
B6
B7
B8
B2
C9
A9
EMERGENCY STOP 1 OF ROBOT
EMERGENCY STOP 2 OF ROBOT
MOULD AREA FREE
ENABLE MOULD CLAMP
ENABLE EJECT FWD
ENABLE EJECT BWD
ENABLE CORE A IN
ENABLE CORE A OUT
ENABLE CORE B IN
ENABLE CORE B OUT
Option
OPERATION WITH ROBOT
0V(FROM INJECTION MACHINE)
+24V(FROM INJECTION MACHINE)
Pin
ZA6
ZA7
ZB4
ZB3
ZB2
ZB5
ZB6
ZB7
ZB8
ZA8
ZA5
ZA9
+24V
ER10a
ZA3
ZC3
ER10b
ZA4
ZC4
ER11a
ZA1
ZC1
ER11b
ZA2
ZC2
MOULD CLAMP
MOULD OPEN POSITION
EJECTOR FORWARD POSITION
EJECTOR BACKWARD POSITION
AUTOMATIC
CORE A IN END
CORE A OUT END
CORE B IN END
CORE B OUT END
Option
INTERMEDIATE MOULD POSITION
REJECT PART
ROBOT CONTROL POWER
SAFETY DOOR 1 SHUT
SAFETY DOOR 2 SHUT
EMERGENCY STOP 1 OF MACHINE
EMERGENCY STOP 2 OF MACHINE
INJ. MACHINE
Pin
Socket
ROBOT
Ai-11 Computer
Z
A
B
C
1
2
3
4
5
6
7
8
9
ZA1,ZC1: Machine emergency stop 1
ZA2,ZC2: Machine emergency stop 2
ZA3,ZC3: Safety Door Shut 1
ZA4,ZC4: Safety Door Shut 2
ZA5: Reject(Option)
ZA6: Mould Clamp
ZA7: Mould Open
ZA8: Mould Intermediate Positon
ZA9: +24V Robot Power
ZB2: Auto Mode
ZB3: Ejector Complete
ZB4: Ejtcotr Fwd End
ZB5: Core A In End(Option)
ZB6: Core A Out End(Option)
ZB7: Core B In(Option)
ZB8: Core B Out(Option)
ZC5-ZC8: Not Use
ZC9: 0V Robot Power
A1,C1: Robot Emergency Stop 1
A2,C2: Robot Emergency Stop 2
A3,C3: Mould Area Free
A4,C4: Not Use
A5: Not Use
A6: Enable Mould Clamp
A7: Enable Continue Mould Open(Option)
A8: Not Use
A9: +24V Machine Power
B2: Robot Use
B3: Enable Ejector Bwd
B4: Enable Ejector Fwd
B5: Enable Core A In(Option)
B6: Enable Core A Out(Option)
B7: Enable Core B In(Option)
B8:Enable Core B Out(Option)
C5-C8: Not Use
C9: 0V Machine Power
For the Robot Part:
C1,C2,C3&A1 Short!
A6,B3,B4,B5,B6&A9 Short!
Ai-11 Robot Interface(EUR67) Wiring Diagram

7.25 Ai-11 Safety Relay Wiring Diagram


201
00
A1
A2
S11
S12
S11
S22
LS2
11
12
LS0
13
14
13
23
33
14
24
34
202
402
SB3
Reset Button
S33
S34

Ai-11 Safety Relay Wiring Diagram