Welcome to use Our shoes Machine Control System

Safety Cautions

（Please read it before installation）

Danger

1. When the exterior power supply is abnormal or the control system breaks down, make sure the safety circuit is installed outside the control system in order to make the entire system work safely.
2. When abnormal situations occur, such as the control system unable to test the input/output, the output can not be controlled; in order to make the machine operate safety, for the output signal related to major accident, please design the exterior safety circuit or protection device.
3. The emergency door safety device is the core safety part of the injection molding machine. Make sure related safety protection devices for machine and oil line are added outside.

Cautions

Only a professional technician qualified after training can install and maintain this system.

Statement

Please read the manual carefully before you use this system. PORCHESON Company will only be responsible for the maintenance of the problems exist in the system itself, and will not be responsible for the fault caused by improper operation， unauthorized maintenance，natural disasters， or the system damage or data loss caused by other abnormal situations. The changes in the manual will not be informed in advance. The contents in the manual are for reference，the company will not be responsible.

for thelosses caused by the misunderstanding of the manual.There may be differences between the actual objects and the abstract image,but the functions are Consistent.

Product Guarantee Terms

I. Our guarantee services are provided by our after-sale service center of all offices all over China and cover all products sold by us.

II. Our products carry out one-month 3-R service and two-year (one year for LCD screen) free repair service. Except otherwise specified by both parties, these periods shall start as of the date where the products are sold.

III. Provided that they are used normally, in case of failures due to quality reason of the products, within the 3-R or free repair period, we will provide free repair or replacement for you.

IV. Within the 3-R or free repair period, in any of the following circumstances,you will not be able to enjoy the 3-R service and free repair service:

1.When the product is defective or damaged due to human factor or force majeure;

2.When the product is damaged due to the installation and operation not conforming to the related regulations;

3.When the product is damaged due to peripheral electric leakage or short during use;

4.When the product is damaged due to being bumped by external force during use;

5.When the product is repaired without permission or its bar code or serial number is tore or altered;

6.When the product is used in the environment with high temperature and humidity and thus it is burnt due to overheat or damaged due to high damp.

V. We undertake hereby that, if the domestic user needs after-sale services due to product quality, based on our service offices everywhere, we will repair the product within 24h if in the same city, within 48h if in the same province or not later than 72h if out of the same province to reach your place; if the overseas user needs such service, he can send the product back to us at its own cost and we will provide the desired repair.

VI. In order to satisfy the individualized demand of the user, our products can provide software development packagefor secondary development; however, the user should bear all risks therefrom.

VII. In case of failures during use, the user should inform us as soon as possible and then we will display our professional technicians for repair. It is not allowed to dismantle the product by the user without our permission; otherwise, it will be deemed that the user waives the right for free repair and any loss or product damage will be assumed by the user.

VIII. The repair out of the free maintenance period will be charged. The failure of the same feature can enjoy 3-month free maintenance as of the completion of the first maintenance; however, the six circumstances mentioned in IV above will be excluded for free maintenance.

IX. These Terms shall come into effect as of June 1, 2009. In the case where any terms before are inconsistent with these Terms, the latter shall prevail.

X. We reserve the final right to interpret these Terms.

PORCHESON TECHNOLOGY CO.,LTD

TB128

Operator's Manual

2010.09 Version

Contents

Chapter 4 Instructions for the System Commissioning Settings

Chapter 5 Input/Output Mode Inspection

Reference & Appendices

Chapter 1 System Configuration & Installation

1. System Configuration & Remarks

No.	Code	Content	NO	Remarks
1 Host Computer	PS860BM	27/28+10+3Electronic Ruler	1 Set	
2 Keyboard	TB128(Colour)	"800*480 7inch/TFT	1 Set	
3.Power pack	PW450	450W	1 Set	
4.Message cable	DB-15F	1To8 meter optional	1 Set	

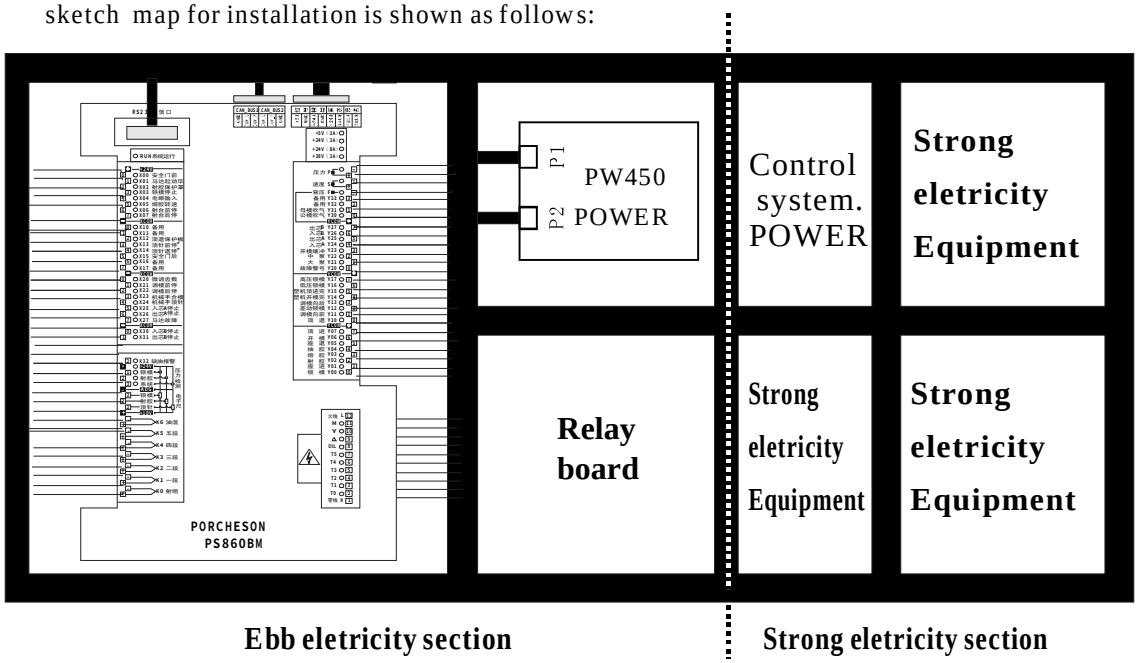
2. Characteristics of PS860BM Control System

- ▶ The whole computer may control all functions and temperatures.
- ▶ The system has bright LCD display and 800*480 7inch colorful
- ▶ The system adopts two CPU design with fast operating speed, precise control and high stability.
- ▶ It has the real time function to display time and date in real time.
- ▶ With 999 groups of mode data storage, it may enter the mode description and real-time
- ▶ operating help in Chinese and English.
- ▶ The cipher setting and data locking can prevent the operators from changing the established
- ▶ data arbitrarily to influence the quality of products.
- ▶ There are multiple languages for your choice that display dynamically in real time.
- ▶ Packing modulus setting function for 6-digit output may set the packing modulus.
- ▶ Various self-plugging and tein type programs are applicable for the self-plugging and tein
- ▶ control in different types.
- ▶ PID with self temperature control has (6+1) sections of temperatures.
- ▶ Temperature may be preset a week in advance to enable more convenient operation.
- ▶ Failure Self-detection functions, alarm display and voice prompt
- ▶ Input and output are done by the optically coupled circuit to isolate the interference of the
- ▶ external circuitry.
- ▶ 3-circuit standard D/A proportion output with max. current as 3A
- ▶ The output value of pressure, speed, current can have real-time dynamic observation,
- ▶ and it is not necessary to install another ammeter
- ▶ In the inspection window, you can inspect all input and output points and the moving states of key.
- ▶ Presetting of the voltage and runoff values, proportional valve available for the products in
- ▶ all brands and better linear proportion.
- ▶ The management of 255 vertical machine production is by a host networking computer ,It can
- ▶ accurate statistics each machine production state and produce data type ,so it is convenient to manage.

3. Installation and Debugging of Computer Control System

3. 1Cautions upon Installing the Control System

The design of control system is simple and easy, only one 15-core shielding cable connecting the keyboard and host computer shell with flexible and handy installation and connection. The sketch map for installation is shown as follows:



control box equipment;outfit (for reference only)

(1) Upon installing the host control box, adopt the enclosed distribution cabinet at the first choice. It shall be fixed in the well-ventilized, greaseproof and dustproof conditions equipped with a fan and dustproof. The distribution box shall be stored under 50degree.

(2) Upon fixing the host computer and power pack, please keep the interconnecting parts such as all AC connectors and transformers as far away from each other as possible to prevent the electric wave interference from the electronic grid.

(3) All electric wires and shielding wires shall not be cut off, lengthened or curtailed arbitrarily. You should use the electric wires and shielding wires provided by this company to prevent from influencing the reliability and normal operation of the control system.

(4) The shell of flame couple shall adopt the shielding wire. When the outer shielding of all flame couples adopts the thermal couple reticles, the reticle and machines shall be well grounded and connected to the ground with the earthing resistance below 10ohm.

(5) Upon wiring, separate the high and low pressure line from the computer control line as much as possible, do not bind all electrical wires together to prevent the interference from affecting the reliable operation of control system.

(6) Upon fixing the keyboard and 15-core communication connections of the host computer, you shall press and tweak with force to prevent the poor connection from affecting the reliable operation of control system.

(7) Pay special attention to the oil valve outlet public port YCOM, it shall be connected well to prevent the computer from inputting while having the phenomenon of oil valve having no motion.

3. 2Inspection of the Control System

（1）After installation completed, carry out an over all inspection if all connection lines are well fixed including the switching power supply, host computer shell, electrothermal output line and the thermal couple of keyboard.

（2）After the line inspection completed, carry out an electric connection inspection. First take Out the11-digital output line plug of the DC power supply outlet port, namely the power pack PW450, And then power on to examine and measure if the voltage is the same as the nominal values and observe if the output indicator on the power pack is normal.

（3）Power off after the measurement completed, insert the DC power supply to input to the plug of host computer shell. After power-on again for inspection, LCD on the keyboard will display the normal state of the main page. Revolve on the emergency stop switch to check if the RUN indicator on the host computer shell turns on. When it turns on, it indicates that the system can work soundly.

3. 3gging of the Control System

（1）After the system having shown normal operating state, press 

button on the monitor page to adjust color and comparison.

（2）To conduct the parameter setting and memory testing, press 

button to select a group of module numbers and then set data in all screens. Press 

button to save data. Disconnect the power and connect it again after a few time, the system will automatically call the data of module numbers saved by you. In case of they are correct, it indicates that the memory is all right.

（3）Afterwards, set the data in all relevant data (please see Chapter III Explanation of the Parameter Setting for the detailed operations). Upon setting in the first time, set the pressure and speed as little as possible and then after all movements come normally, gradually increase the values to normal parameters to prevent from damaging the mechanical performances.

（4）After all parameter set, save them and carefully inspect if all input and output points are normal. Carry out an overall inspection of the alarm system, including the front and back safety doors. The wire of safety doors shall be connected as stated in the following figure.

Chapter 2 Explanation of the Key Operations

1. Figure of Keyboard on the Operation Panel (See the figure below)

2. Explanation of the Functional Keys

Keys	Usage
公共設定 COM. SET	Enter the pubic action setting page
射 膠 INJECTION	Enter plastic injection setting page
吹 氣 BLOW	If the blow function exists, press this key to enter the blow setting page
熔 膠 FEEDING	Enter plastic melting setting page
熔膠快捷 CEK. FEEDING	Enter celerity feeding setting page
時 間 TIME	Enter timing and counting setting page
温 度 TEMPERATURE	Enter temperature and pre-heating setting page.
資 料 DATUM	Enter into the screen to set the changes to mold and production facilities.
監 視 MONITOR	Return to monitor at any time.
幫 助 HELP	Enter into the on-line help page in current state

3. Explanation of the Parameter Setting

0-9 numeric keys are used for data input in the data setting screen. When the electric lock is in "OFF" state,these ten numbers are locked to ensure the data will notbe changed arbitrarily. In the meanwhile, there are 26English letters and special symbols respectively on 0-1numeric keys used for the input of Chinese and English letters as well as the machine serial number. [DELETE]key is used to delete the error words during entering theparameters and serial numbers. [INPUT] key is used toselect the functions during function selection and used to confirm during item confirmation.

4. Cursor Key

Keys	Usage
	Skip key, pressing it will skip the cursor to the upper line
	Escape key, pressing it will move the cursor to the left
	Escape key, pressing it will move the cursor to the right
	Skip key, pressing it will skip the cursor to the lower line

5.Operation Mode Selection Key

Keys	Usage	Remarks
	Pressing this key will enter the system into manual state.	There is an indicator in the top left corner of every key respectively; press any key among them and then the indicator will be on, which means the system is in this state. Every time the compute is powered on, the system regards the power-on as manual operation by default.The system can not automatically operate until the temperature reaches the set value and the screw cold start up time is up.
	Pressing this key will enter the system into auto state	

6. Electrothermal ON/OFF key  and Motor ON/OFF key 

In the manual mode, press the key once and the indicator at the left upper will turn on,indicating the function state has opened. Pressing the key again and this indicator will turn off, indicating the function state has shut off. Repeatedly pressing this key, the functions will turn on or off in turn. Upon the emergency switch stops, the motor will power off swiftly without affecting the electro thermal operation.

7.Emergency reset  key

At any moment, press once the indicator in the top left corner of the key and make it on, and the system will skip back to the manual mode and all action outputs will end; however, the motor and electric heater operation will not be affected.

8. Manual Operation Keys

Keys	Usage	Operation Conditions
	Mold opening	1.The mould opening does not reach the end position; 2.The mould advance has reached the fixed position;
	Mold locking	1.The mold locking does not reach the end position or the clamping time does not end; 2.The mold advance has reached the fixed position;
	Ejcet advance	1. No condition
	Ejector return	1. No condition
	Feeding	1.The plastic melting does not reach the end position; 2.The temperatures at various sections of the charging barrel must be kept within the scope of expected deviations;(No alarm for low temperature is given) and the screw cold startup time is up;
	Mold open 2	1.Two functions of mould opening and locking are selected; 2.The mould opening does not reach the end position; 3.The mould advance has reached the fixed position;
	Mold colse 2	1.Two functions of mould opening and locking are selected; 2.The mould locking does not reach the end position or the locking time does not end; 3.The mould advance has reached the fixed position;
	Injection	1.The plastic injection does not reach the end position; 2.The temperatures at various sections of the charging barrel must be kept within the scope of expected deviations; (No alarm for low temperature is given) and the screw cold startup time is up;
	Plastic pumping operation	1.The plastic injection time does not end; 2.The temperatures at various sections of thecharging barrel must be kept within the scope of expected deviations; (No alarm for low temperature is given) and the screw cold startup time is up;

Keys	Usage	Operation Conditions
	Blow operation	1.Blow selected; 2.Blow not finished
	Nozzle advance	1.The injection platform advance stop does not reach the fixed position;
	Nozzle return	1.The ejector pressure release stop does not occur; 2.The release action time of the injection platform does not end;
	Mold advance motor switch operation	1.Unlimited;
	Mold advance	1.Mould opening finished 2.No input for mould protection X21 3.The mould advance does not reach the stop position;
	Mold return	1.Mould opening finished 2.No input for mould protection X21 3.The mould release does not reach the stop position;
	Rollover 1 advance operation	1.Unlimited;
	Rollover 1 return operation	1.Unlimited;

9. Setting Scope of Numeric Items

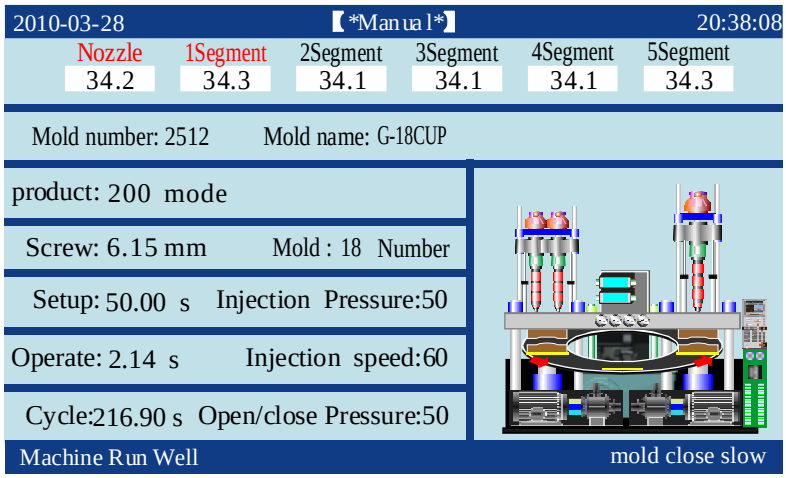
Number	Setting Items	Setting Scope	Unit
1	Time Setting	Digital≤999.9	Second
2	Pressure Setting	Digital≤140	Bar
3	Speed Setting	Digital≤99	%
4	Temperature Setting	Digital≤999.9(Measure) Digital≤600.0(set)	℃
5	Mould close position set	Digital≤999.9	mm
6	Mould information save	Digital ≤0.5	Number
7	Predicted Turnout	Digital≤99999999	PC

In case of the set values exceed the above-mentioned scopes, the system will not accept the numbers set and keep the original set values. For the habit of data input, the data input of this system is display from right to left.

Chapter 3: Descriptions on setting parameters/functions

1. The Main Control panel while turning on

Connect with power, turn the red urgent stop switches, the operation light of the computer-RUN -flickers, the following menu shown on the display, now the control system is running and it is ready to operate the machine.



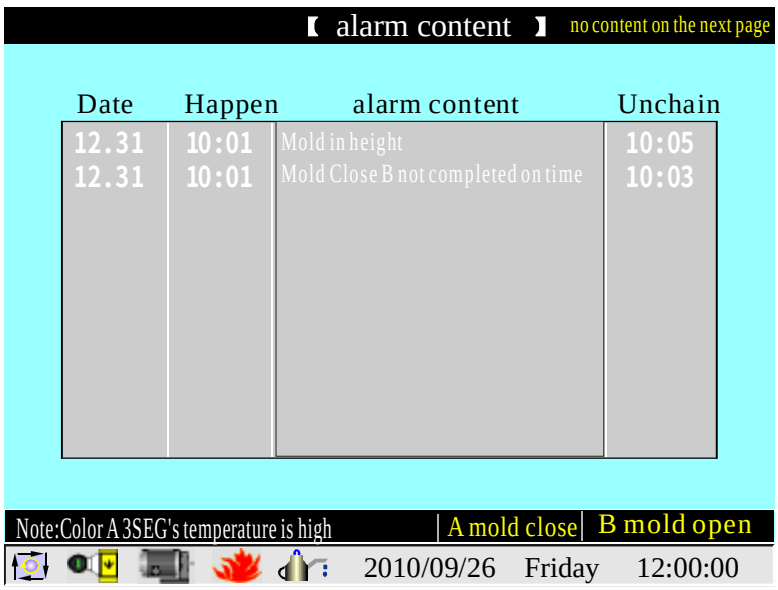
Press 

key at any time after re-turning on the computer, and then enter the menu of the monitor menu of the machine. This menu is for monitoring temperature and machine running condition.The names and numbers of the moulds will be set in mould information menu.The temperature scale and current oil temperature show the real value of each stage thus its information cannot be modified. Each function of the menus is described as follows:

The descriptions on display:

Display	Meanings and descriptions
2seg	This section is heating;
Mold number	The current mold number;
Output	Record the numbers of mould opening for current mould number during the automatic operation of the system;
Whole process	The real operation cycle time of the system;
Operation	When a time value set for current movement, only the operation time increase to the set time, the next movement starts. When it is the number was set, the acted numbers will be shown on the display till the numbers reach the set counterdate.;
Set	The time value and counter data of the current movement;
Pressure	The set pressure value of the current movement;
Flow	The set flow value of the running action;
Screw	Shows the current position of the screw . The unit: mm;
machine normal	Display the current alarm content
Mold advance fast	Display the running action of the machine;

Press 診斷 DIAGNOSE key to show the following menus:

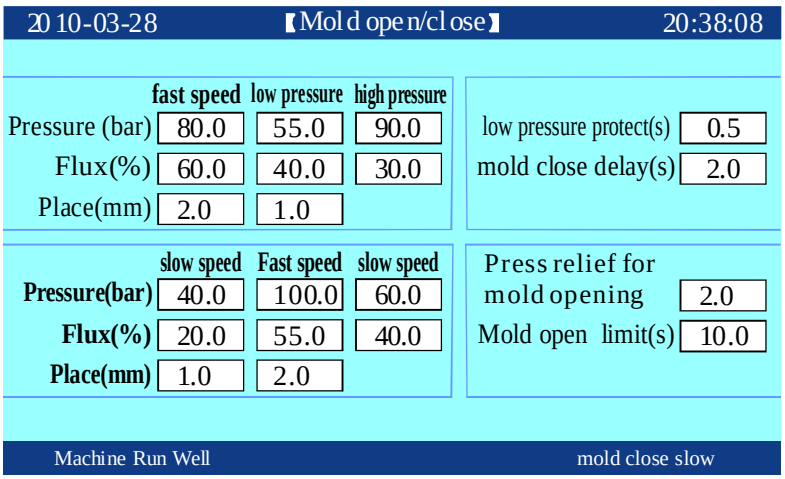


Alarm status descriptions

Alarm	Source	Solution
Mold high	The mold touches the travelswitch X21 when the mould closing or advance is made.	Adjust the travel switch position suitable for normal mould closing,or check if the mould has turned over.
Mold closing not completed in fixed time	Mold actions are not completed within the “mold closing time limit”.	Check if the mould closing process is normal; in case of no abnormality,the “closing time limit” may be adjusted properly longer.
Mould advance stop/slowing down signal failure	When the mould is advanced or released, the stop travel switch X13 and the slow-speed travel switch has signals at the same time.	Check if the mould opening process is normal; in case of no abnormality,the “opening time limit” may be adjusted properly longer.
Mold opening not completed in fixed time	The mould opening is not proper within the mould opening time limit.	Check if the automatic production process Is normal; in case of no abnormality, the “cycle time” set value may be adjusted properly longer.
Time limit for action ended	The manual key-pressing time exceeds allowed time.	Check if the manual key-pressing operation is too long or check if thekeypad keys are shorted; if no, the manual action time limit may be adjusted longer.
Cycle time ended	Automatic production cycle time exceeds set time [cycle time].	Check the auto production process, extend properly the set [cycle time]if it is normal.
Output having reached the preset value	When the output stop function is activated and the preset value isreached, the machine will stop operation.	Solutions: If you want to make the machine continue to operate after the output has reached the set value;you only require setting “stop after warning “ on the “roduction management” page as No or clear the total number of the opened moulds with the current mould number.
Keypad lock not released	The panel emergency button pressed.	Emergency button on the right panel.
Emergency stop	A signal occurs at the input point X23.	The external switch at X23 is on; it is OK to turn it off.

2.Mold open/close setting information

Press 公共設定 COM. SET key, enter mold open/close setting page, now the menu is as following:



Descriptions on setting parameters/process/function mode

(1) Mould locking: first enter the rapid mould locking, enter the high-voltage locking via the set rapid locking time, make it travel to X03 corresponding input point ON, and then the locking will stop; the flow chart is shown below.

Fast speed ——→low pressure ——→high pressure———→over
Fast time low pressure X03

(2) Mould opening: Relieve pressure before opening; open the mould after the pressure relief time ends; the opening will not end until the mould travels to X12.

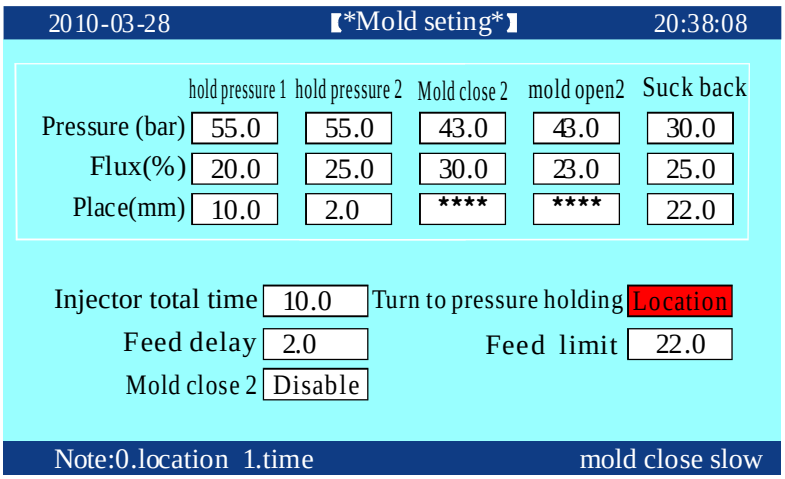
Pressure relief—→mold open low—→mold open fsat—→mold open slow—→over
Pressure relief time slow time fast time X12

(3) Opening/locking time limit: It means the time limit for mould opening or locking; please try not to set too short time and the set time should be suitable; otherwise, the system will give an alarm of [mould opening/locking not completed in fixed time].

(4) Delay: It means a corresponding action can be performed after this set time; this delay should be set based on actual conditions.

3. Pressure holding/mold opening & closing/plastic pumping data setting

Press 公共設定 COM. SET key twice, and you will enter the pressure holding/mould opening & closing/ plastic pumping data setting page; the following is showed on the page:

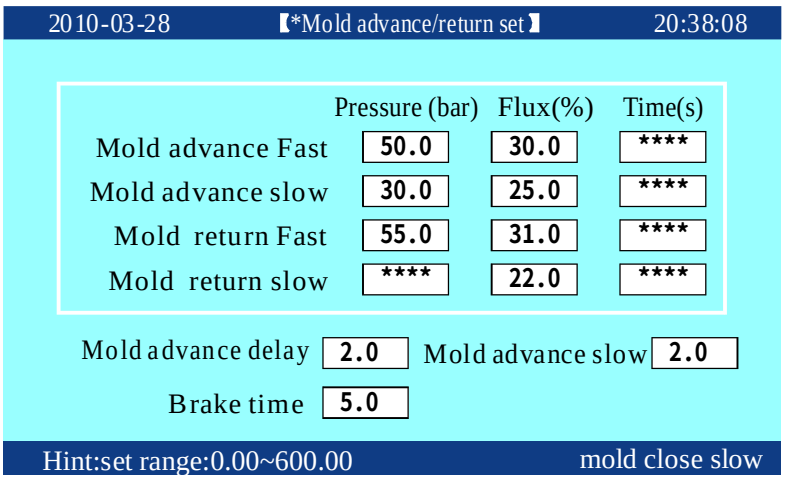


Descriptions on setting parameters/process/function mode

(1) Pressure holding: After the plastic pumping is completed, the pressure holding action will be performed in two stages and respectively controlled via time.
(2) Mold closing 2: In automatic mode, the closing 2 action will be performed after mould locking; such action will not end until the mould travels to X31.
(3) Mold opening 2: In automatic mode, the opening action can not be performed until the molding opening 2 is completed; such opening action will not end until the mould travels to X31.
(4) Plastic pumping: The pumping follows plastic melting and will stop when the time is up or the electric ruler reaches the set position.
(5) Total injection time: For the injection controlled by an electric ruler, the injection action time can not exceed this set time.
(6) Plastic melting delay: It means the melting action can be performed after this set time.
(7) Plastic melting time limit: The melting time can not exceed this set time, or an alarm will be given and the machine will stop.
(8) Mold closing 2 selection: For setting this option, you may select use or non-use of mold locking 2 and mold opening 2 actions.

4. Mold advance/return setting

Press 公共設定 COM. SET key for three times, and you will enter the mold advance/release data setting page; the following is showed on the page:

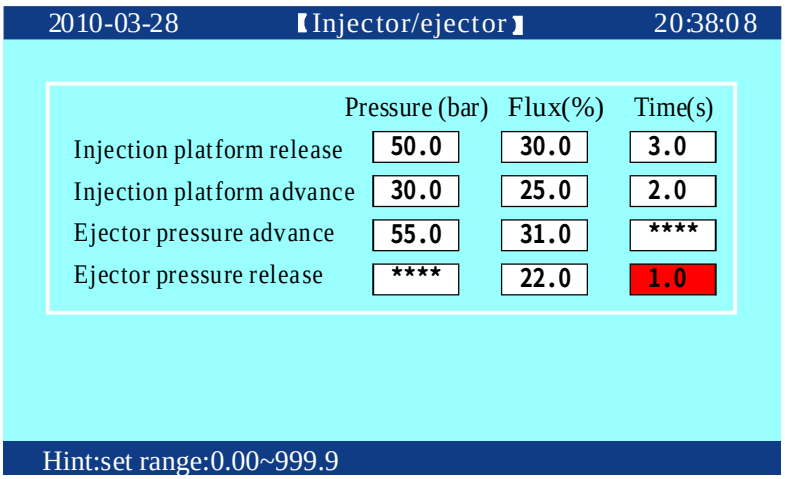


Descriptions on setting parameters/process/function mode

(1) Mould advance: On the page, you may set the pressure, flow, time and other related parameters of the mould advance/release action.

5. Ejector pressure, injection platform and other data setting

Press 公共設定 COM. SET key four time Ejector pressure injector or other page .the following is showed on the page:



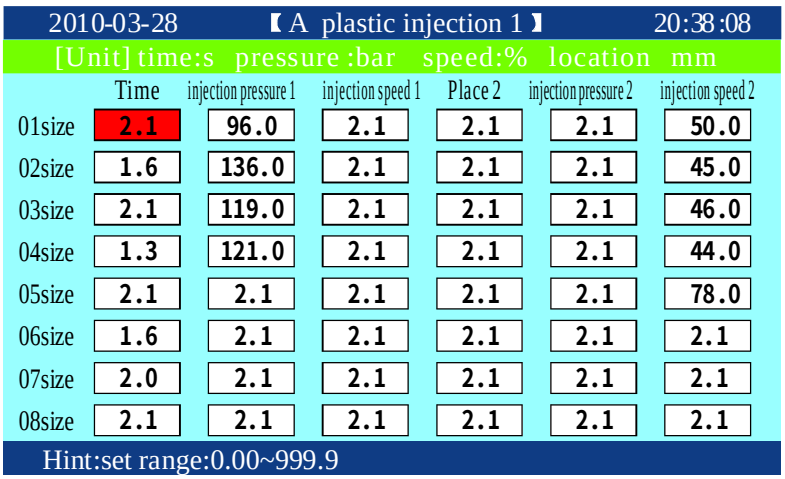
Descriptions on setting parameters/process/function mode

(1) Ejector pressure advance/release: You may set the pressure, flow and time of the ejector pressure advance/release action.

(2) Injection platform advance/release: The parameters related to the injection platform advance /release are set.

6. Plastic injection 1 - setting

Press 射 膠 INJECTION keyto enter the Plastic injection 1 - setting page; the following is showed on the page:



Descriptions on setting parameters/ process/function mold

The system has 16 sets of mould parameters at most (the mould station numbers are on the far left side of the parameter setting area) available for setting; each set is corresponding to one mould station respectively. Each set of parameters include the injection time and the pressure, speed and position of Level II injection, which are described below respectively:

(1) Injection time: Used to set the maximal time for injection action. Timing starts from the injection valve action; if the electric ruler for injection reaches the set position of Level II before the timing is completed, the pressure holding will be turned to immediately; otherwise, the pressure holding will be turned to immediately after the timing is completed, and the injection action ends.

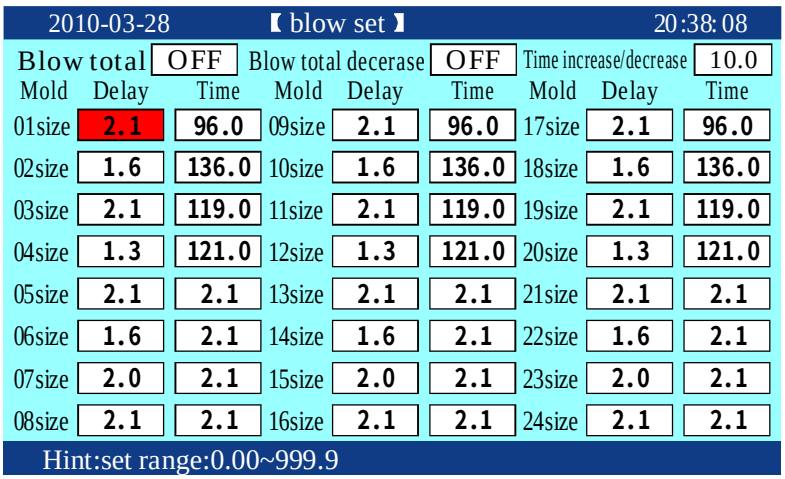
(2) Injection pressure: The injection pressure totally consists of two levels, which are respectively corresponding to the two position sections of the electric ruler, and different pressures can be set for the two position sections, that is, injection pressure 1 is the pressure for the first section and injection pressure 2 is the pressure for the second section.

(3) Injection speed: Set the speed values corresponding to the injection pressures respectively, and no further information will be given.

(4) Injection position: Divide the injection process into two sections according to the electric ruler position; for either section, the pressure, speed and other process parameters must be set.

7. Blow material setting

Press 公共設定 COM. SET key to enter the Blow material setting page; the following is showed on the page:

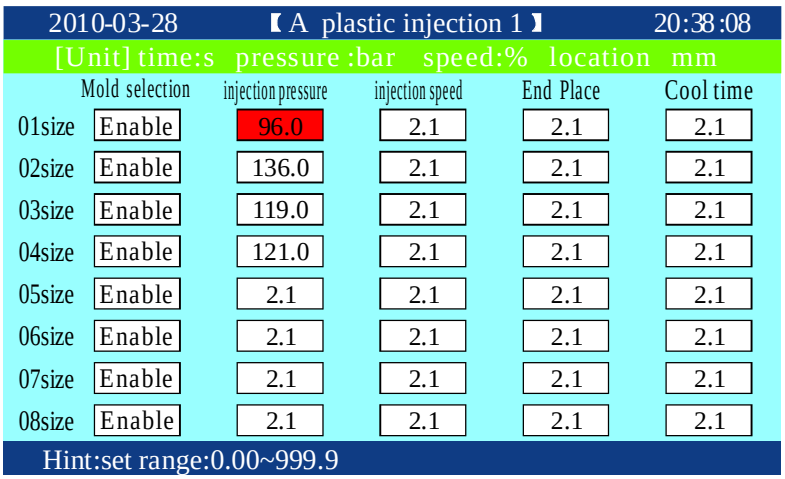


Descriptions on setting parameters/ process/function mold

(1) Blow total increase: If the cursor stays at this option, press the Enter key once and then the working hours of each mould station will increase the values set for time increase/decrease.
(2) Blow total decrease: If the cursor stays at this option, press the Enter key once and then the working hours of each mould station will decrease the values set for time increase/decrease.
(3) Time increase/decrease: used to set the values of total increase/decrease.
(4) If blow is selected on the special function page, this page can appear. Each mould station has its corresponding delay and action time setting.

8. Plastic feeding1 setting

Press 熔 膠 FEEDING key, and you will enter the Plastic feeding1 setting page; the following is showed on the page:



Descriptions on setting parameters/ process/function mold

The melting action has 16 sets of mould parameters at most available for setting; each set is corres ponding to one mould station respectively, which is the same as the injection. Various items of each set are described below:

(1) Mold station selection: There are two options of [use] or [non-use]. When automatic [use] is selected, the corresponding mould station will perform such main machine actions as opening, locking and injection; when [non-use] is selected, the above actions will not be performed.

(2) Pressure, speed and position: This action is divided into plastic melting and pumping; sections can be divided in different positions with the screw electric ruler and each section can set pressure and speed.

(3) Cooling: After the injection and pressure holding are completed, perform the cooling timing, that is, the cooling time required by the product in this mould station.

9. Plastic melting rapid setting

Press 熔膠快捷 CEK. FEEDING key, and you will enter the Plastic melting rapid setting page; the following is showed on the page:

2010-03-28	【A plastic injection 1】							20:38:08
feed total	OFF	Feed total decerase	OFF	Materials increase/decrease	10.0			
Mold selection	Place	Mold selection	Place	Mold selection	Place			
01size	Enable	2.1	01size	Enable	2.1	01size	Enable	2.1
02size	Enable	2.1	02size	Enable	2.1	02size	Enable	2.1
03size	Enable	2.1	03size	Enable	2.1	03size	Enable	2.1
04size	Enable	2.1	04size	Enable	2.1	04size	Enable	2.1
05size	Enable	2.1	05size	Enable	2.1	05size	Enable	2.1
06size	Enable	2.1	06size	Enable	2.1	06size	Enable	2.1
07size	Enable	2.1	07size	Enable	2.1	07size	Enable	2.1
08size	Enable	2.1	08size	Enable	2.1	08size	Enable	2.1
Hint:set range:0.00~999.9								

Descriptions on setting parameters/ process/function mold

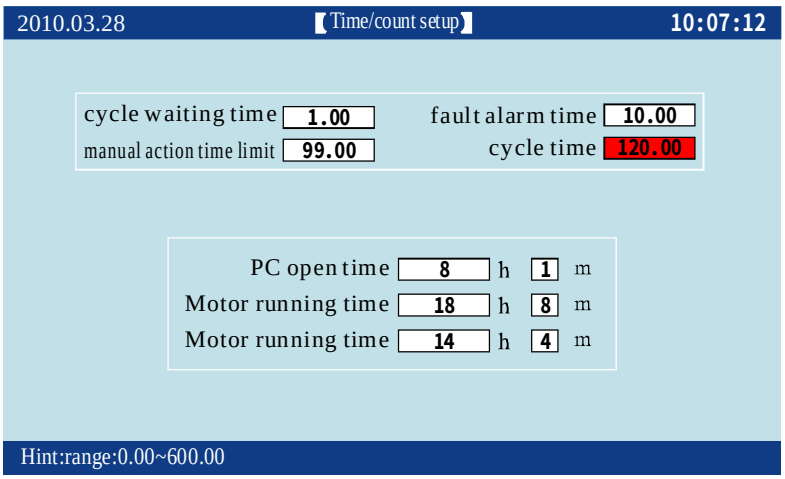
(1) Melting total increase: If the cursor stays at this option, press the Enter key once and then the melting materials in each mould station will increase the values set for materials increase/ decrease.

(2) Melting total decrease: If the cursor stays at this option, press the Enter key once and then the melting materials in each mould station will increase the values set for materials increase/ decrease.

(3) Materials increase/decrease: the material value increased/decreased once when the total increase /decrease operation is conducted.

10. Set time/count information

Press 時 間 TIME key , enter the menu for setting time/count information, now the menu is as following:



Descriptions on setting parameters/ process/function mold

(1). Cycle Wait time: During auto process, it is the time between completed thimble movement and starting a movement of moulds clamping of next cycle.

(2). Cycle time: The time limitation to operation cycle in automatic process. The system alarms [cycle time is over] when the real operating time is longer than cycle time limitation.

(3). Movement time limitation: the max time permitted when output movement.

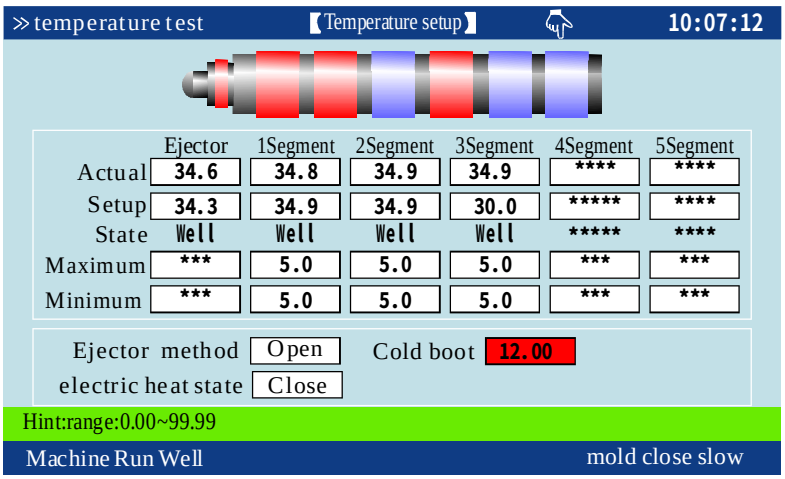
(4). Error alarm bell: The max time when error output occurs. To avoid long time alarming, the bell stops alarm when time is over.

(5) Alarm interval: The time between alarm output and stop in alarm time.

(6). Lubrication process: As it shows in the follow chart ,During the output time of lubrication, if it fails to detect any lubrication pressure signal, it would trigger an alarm, telling that the lubrication is failing. If “opping working” after the failing of lubrication is chosen, then it would stop lubricating and would change to work in manual mode and stop the engine after the cycle of the alarming.

11. Set temperature information

Press 温 度 TEMP. key, enter the menu for setting temperature information, now the menu is as following:



Descriptions on setting parameters/ process/function mold

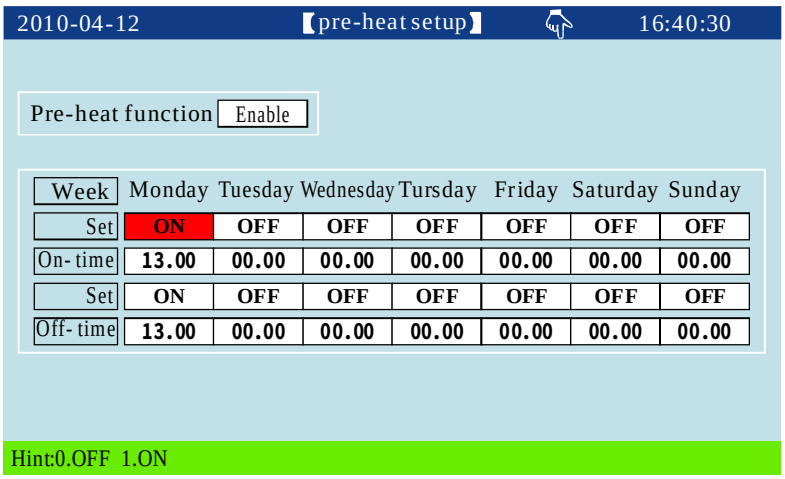
The set temperature value is 0.1℃(Celsius). The temperature of the hopper of injection molding machine is close-loop controlled after it is fed back to controlling system by K style thermal electriccouple.

The system provides total 6 stages of temperature control and 1 stage oil temperature testing. [Open-loop] /[close-loop]can be selected to control temperature for injection nozzle. The system monitors The temperature in every area to find out if the temperature over passes the set top and bottom limitation. It cannot inject or melt plastic if the temperature is lower than the bottom limitation and than the cold preventing screw starts. It alarms when the temperature is higher than the top limitation. The temperature of each stage is shown on the main menu.

Cold boot: After the boot, the actual temperature in each area will be within the setup scope.

12. Set warm-up information

Press 温 度 TEMP. key twice, enter the menu for setting warm-up information, now the menu is as following:



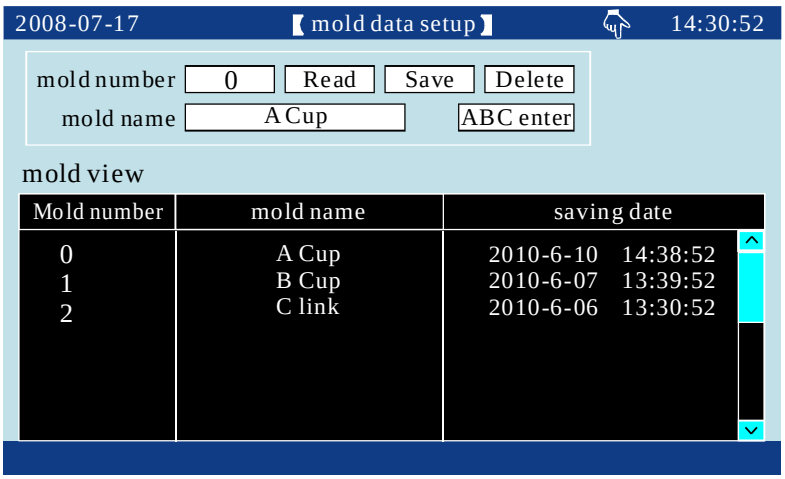
Description on setting parameters

Warm-up function: Can set a time for seven days a week in advance. The system controls the heating system to heat through the set value of the intraday [on]/[off] time. The system heats automatically the hopper to working temperature before operator comes to the office. The operator's waiting time for heating hopper is decreased.

*[note]: The input value of time adopts the input value of 24 hours system. 00:00 is 12: 00 Midnight.

13. Set mold information

Press 資 料 DATUM key, enter the menu for setting mold information, now the menu is as following:



Descriptions on setting parameters/ process/function mold

(1).Mold number: this system can store 10 mould numbers. The system can provide automatically the information of the modified mold number after they have been modified.

(2).How to store mold: Move cursor to the box of mold numbers, key in the mold number; and than move the cursor to the box of the name of the mold, key in the name of the mold; this system provides the input mold with English/Chinese phonetic alphabet; move the cursor tobox of storage after the name has been keyed in and than press [enter] to store the name.

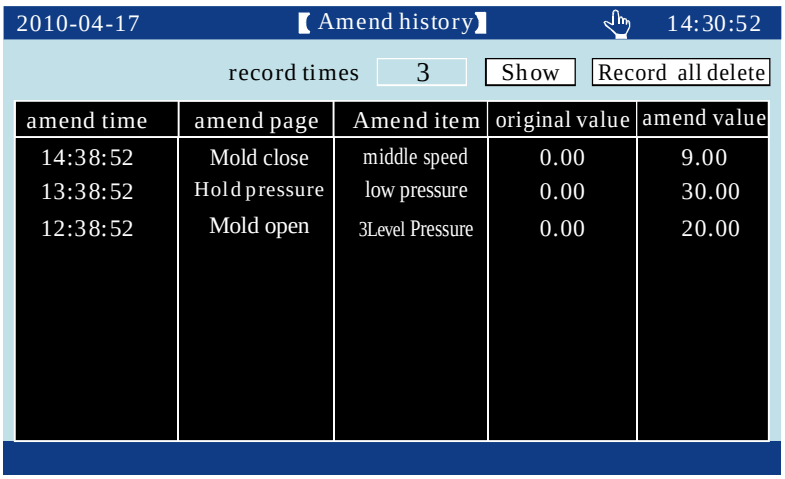
(3).How to get mold: Move cursor to the box of mold numbers, key in the mold number that will be read out, move the cursor to the box of reading out, press[enter]to read out. The functions of getting mold is limited within manual mold to prevent accident occurs; in the semi-auto/auto mold, the accident is caused by the influence of bad products, which comes from the sudden varying of the set parameters in the menu.

(4).How to delete: Move cursor to box of mold number, key in the mold number that will be deleted, and than move the cursor the box of deleting, press the [enter] to delete. The current mold number can not be deleted.

(5).How to check mold: Move cursor to the box of mold browsing, read it through the rolling menu by using up and down key.

14. Amend history information

Press 資 料 DATUM key twice, enter the menu for amend history information, now the menu is as following:



Descriptions on setting parameters/ process/function mold

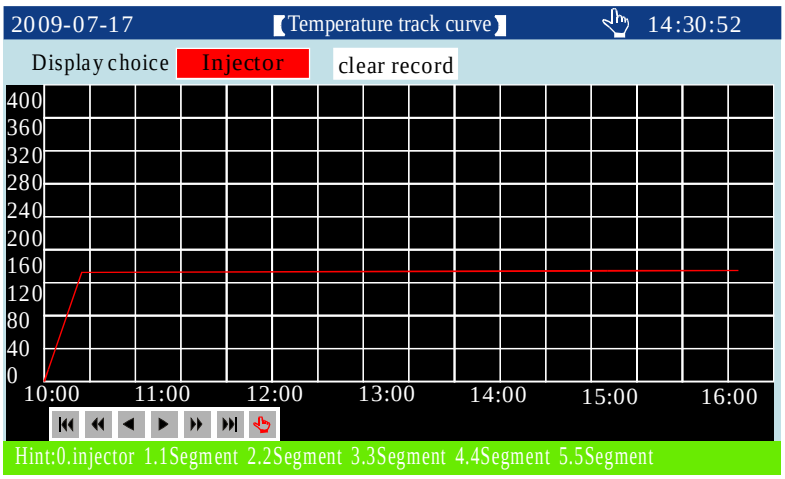
(1).Page number: This screen can keep at most 999 items of records, press or , press buttons to move up or down cursor to view the revised information.

(2).Printing: start printing function.

15 Temperature tracing curve panel.

Press 

key twice to enter the temperature tracing curve panel, and it is as follows:



Description on setting parameters

(1) Display selections: That is, select the historical track curve of a certain section temperatures; the temperature historical track record function of the system can provide historical parameters of temperatures of four sections within the first 6 hours to allow the operator to better know the measured temperature change of the machine and to analyze the effect of the temperature and product quality by comparison. You can select [Injection nozzle], [Section 1], [Section 2], [Section 3], [Section 4] and [Section 5].

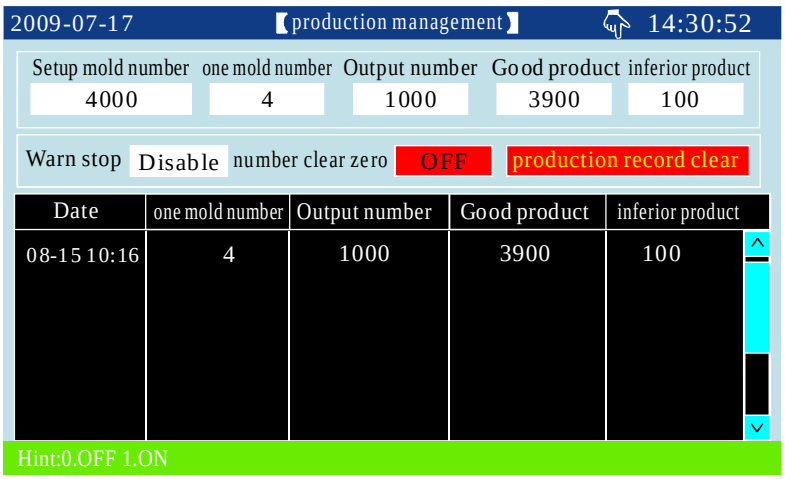
(2) Clear records: When the cursor stays at this position, press the Enter key to clear the temperature curve.

(3) Temperature sampling cycle: 5min.

16. Set porduction Imformation

Press 

key , enter the menu for setting production information, now the menu is as following:



Description on setting parameters

(1) The quality products equal to the number of the opened mold times the amount of one mold minus rejects. The rejects are controlled through ejecting testing function. When ejecting testing function is on, just like in stroke. When too much or too less stuff occurs, the rejects will increase amount value of one mould, and [Failure of plastic] alarms.

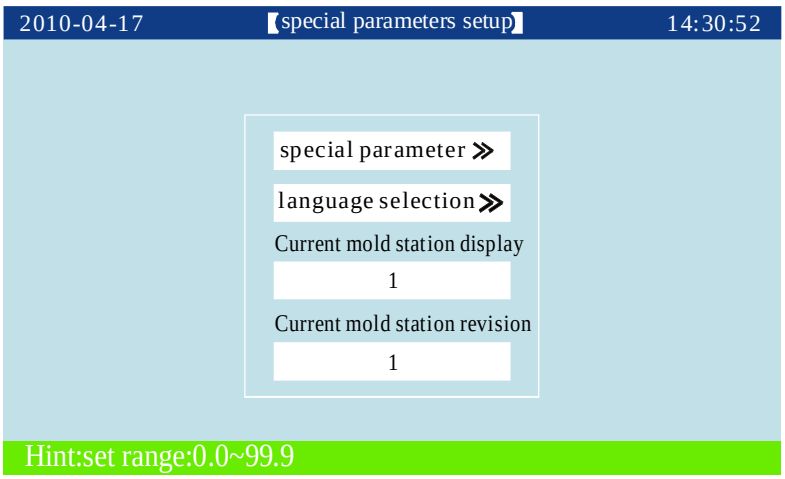
(2). Set mold numbers: In the mold numbers setting of pre-production, the system starts alarming when the number of mold opening arrives at the first 5 molds till it reacheded The set output .

(3). Warn Stop : [On] or [Off] can be selected. It will continue producing even arrives at the set mold number if [Off] has been selected till an operator stops it.

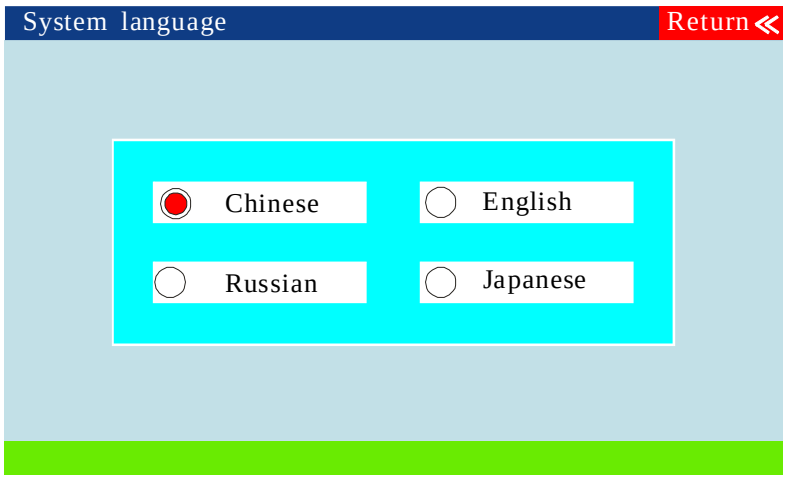
(4). How to check production records: Move cursor to the box of production records, read it through the rolling menu by using [↑ ↓] key.

17. Set special parameters

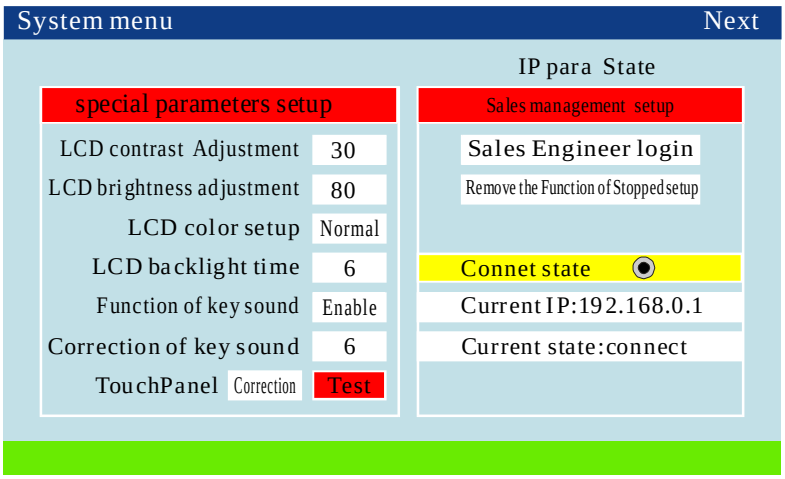
Press 1STU key in the home menu, enter the menu for setting special parameters, now the menu is as following:



(1) Current mold station display: The mould number and station number are displayed, but can not be set.
(2) Current mold station revision: The number of the mould station where the feeding barrel is positioned.
(3) Language selection: Move the cursor to the 揑anguage selection? and press the Enter key to enter the language section page, on which English, Chinese, Korean and Japanese can be selected.



(4) Special parameter: Move the cursor to the 揑anguage selection揮osition, and press the Enter key to enter the system menu page.



Description on setting parameters

(4a) Adjustment of LCD contrast: move the cursor to this place, input the data [adjustment range "0-100%"]. Under appropriate brightness, the higher the contrast is, the richer the color will be (Note: when LCD is the STN screen, it can be valid).

(4b) LCD brightness adjustment: move the cursor to this place, input the data [adjustment range "0-100%"], the screen will display the darkness & brightness degree according to the data entered.

(4c) LCD color setup: the system can provide [normal/anti-color] two options, move your cursor to this place, press [input] button to select LCD color display.

(4a) LCD backlight time: the system has the function of screen protection, the background light time is adjustable, the setup scope is 1~6 minutes. If the keyboard is not pressed in the setup time, the background light will be automatically turned OFF. (Note: if any button is pressed, background light will be on)

(4e) Function of key sound: Select [use], you will hear a "tick" sound when the key is pressed, if do not select, no sound.

(4f) Key sound scope: move your cursor to this place, input the data[scope "0-10"]to adjust voice volume.

(4g) Correction of Touchscreen: click on the [Correction] button to enter the correction page

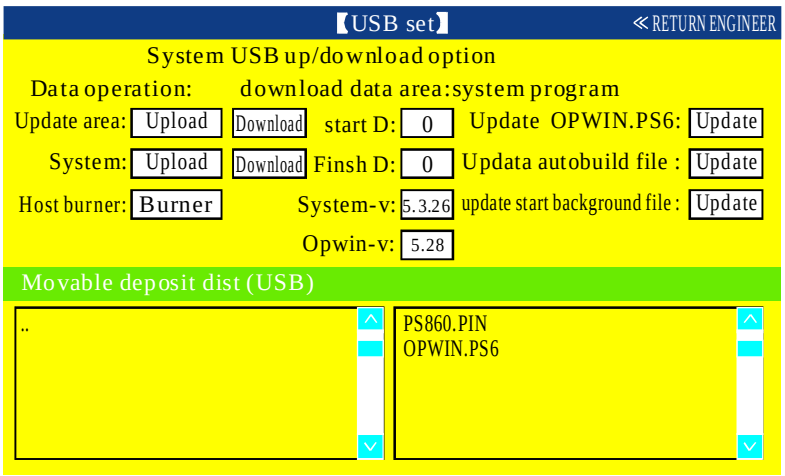
(4h) Network connection status: the network connection status is indicated with colors.

(4i) Current IP: show the IP address of the machine.

18. USB setting page

Press 

key; enter USB setting page. and it is as follows:



Parameter setting introduction

(1) Formula downloading: download the mold data from control system of jet injection machine to the USB of moveable disc.

(2) Formula uploading: upload the mould data from the USB of moveable disc to control system of jet injection machine; at the same time the data will overlay previous data correspondingly.

(3) System downloading: download the mold data from control system of jet molding machine to the USB of moveable disc.

(4) System uploading: upload the mould data from the USB of moveable disc to control system of jet moulding machine; at the same time the data will overlay previous data correspondingly.

(5).Start/End D: when you are downloading the material of [formula] and [system], please designate the scope of the downloading data .

(6).Mainframe replication: means updating the host procedures. First, press the stop button on the keyboard, then move the cursor to [replication], press the enter button and move the cursor to select [. Pin] files and update it.

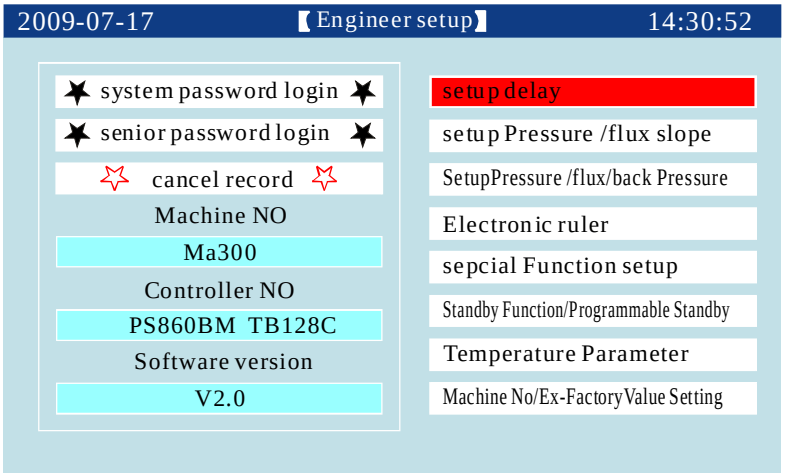
(7).Update OPWIN.PS6: means updating the keyboard procedures. Move the cursor to [update], press the enter button and move the cursor to select [. PS6] files and update it.

(8).Update the boot background documents: means updating the boot screen. Move the cursor to [update], press the enter button and move the cursor to select [. Bmp] files and update it.

Chapter 4 Instructions for the System Commissioning Settings

1. Engineer Setting Page

Press 0 Key the Main Page to enter the Engineer Setting , and the following will be displayed:



Setting delay between actions

(1) Login via the system password: Move the cursor to this position, press the Enter key to eject a prompt box, enter the system password, and if such password is correct, the system will allow operations of corresponding levels.

(2) Login via advanced password: Move the cursor to this position, press the Enter key to eject a prompt box, enter the advanced password, and if such password is correct, the system will allow operations of corresponding levels.

(3) Login cancelled: Move the cursor to this position, press the Enter key to cancel the login via the system password or advanced password; if you want to have some operations with the password required, you must log in again.

(4) Page selection: Enter correct password of the system or above the system level, use the arrow key to move the cursor to the position of the name of the page to be entered and then press the Enter key. After entering any page, you may press the eight functional keys in a row on the bottom of the screen to switch to corresponding page. On each page, move the cursor to the position of the page Back to engineer撬 nd then press the Enter key to back to the Engineer page.

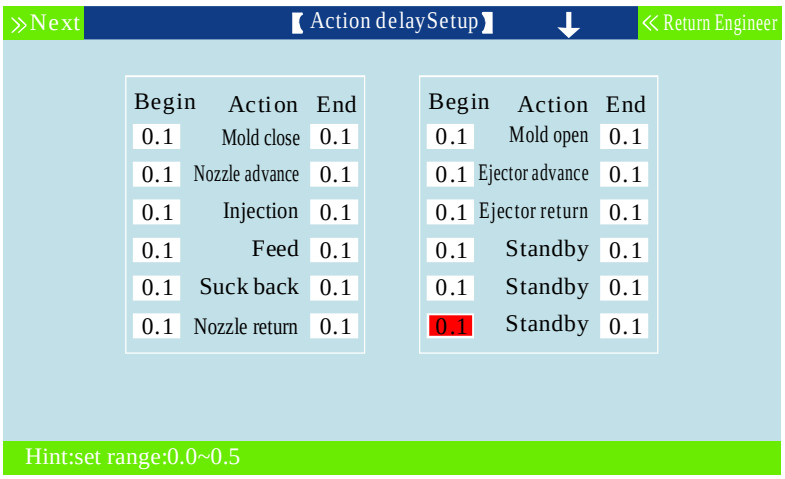
(5) Machine number: The number of the machine used by the user.

(6) Controller number: The number of the controller used for the machine.

(7) Software version: Version number of the system software.

2. Delay Setting Page

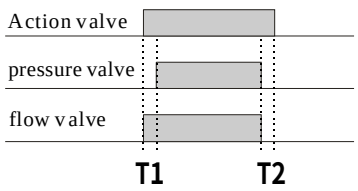
Entering Engineer Setting Page, press 開鎖模 M.PLT Key enter the Delay Setting Page. The following is displayed:



Setting delay between actions

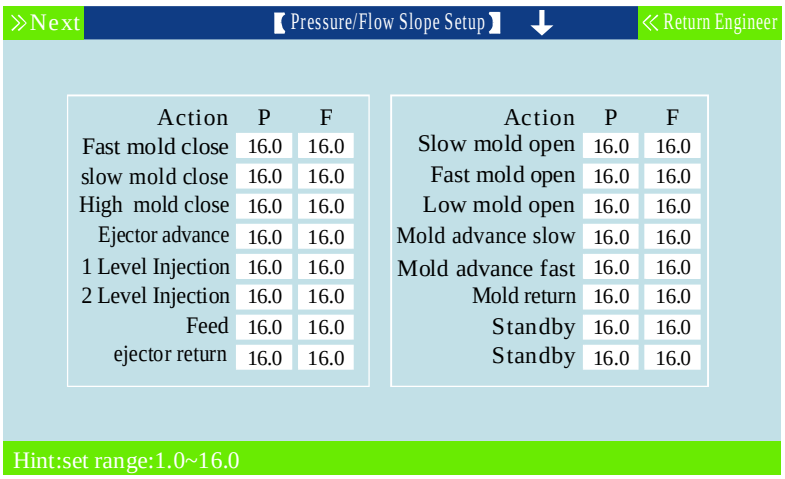
(1) The meaning of Start Delay: the corresponding action valve ON → delay time T1 → pressure output ON; flow output ON

(2) The meaning of End Delay: the corresponding action valve → pressure output OFF; flow output OFF → delay time T2 → action valve OFF



3. Pressure/Flow Slope Setting Page

Entering Engineer Setting Page, press 射 膠 INJECTION Key to enter Pressure/Flow Slope Page. The following is displayed:

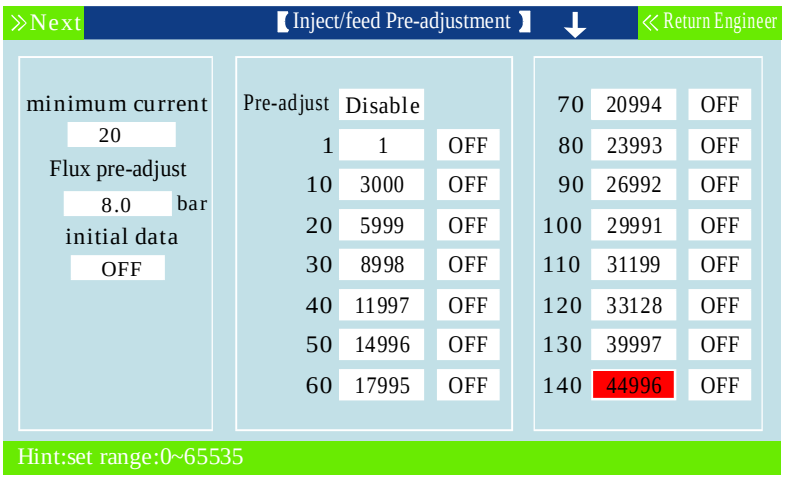


Description on setting parameters

The Pressure/Flow Slope refers to the steep degree of rise or fall when the pressure/flow changes from one value to the next value. "1.0 stands for the slowest change and "16.0 stands for the fastest change. The setting range is [1.0-16.0].

4. Injection/feed Pressure Pre-Adjustment Page

Entering Engineer Setting Page, press 吹 氣 BLOW Key to enter the injection/feed Pressure Pre-Adjustment Page.The following is displayed:



Description on setting parameters

The pressure pre-adjustment is the linear adjustment of pressure output. In general, the standard pressure is 0-800mA and the standard output impedance is 10-20Ω,unless the manufacturer has specific requirements since different manufactures' overall oil piping designs and the capabilities of the pressure proportional valve being used are different.

Pressure Adjustment Method:

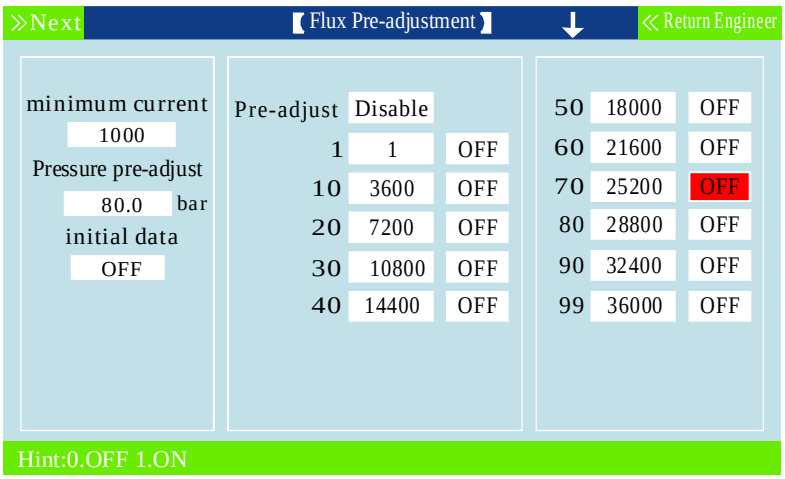
The parameters on this page have been set before ex-factory. If the capability of the proportional valves being used by the user is different, and the normal proportion and linear proportion cannot be achieved, the parameters on this page can be adjusted. First set the pre-adjustment to be [Activated], and then set the pre-adjustment item to be [ON]. For example, for the 50 bar Pressure position of Item 50, if the reading on the pressure meter is 45 bar, the parameter of this item should be increased until the pressuremeter reading reaches 50 bar. Make adjustments On all parameters which need adjusting and make the0-160 bar pressures being set correspond to the pressures being shown on the oil pressure meter respectively.After the adjustments are completed, the computer executes automatically linear processing and takes the processing results as the subsequent normal D/A proportional output values.

Initial data:

First, pre-adjust the needed maximum pressure data in 160bar, and then move the cursor to [initial data], press the enter key and select [ON], the system will automatically distribute average data to 10bar---160bar.

5. Flow Pre-Adjustment Page

Entering Engineer Setting Page, press Key 储 料 FEEDING twice to enter the Flow Pre-Adjustment Page.The following is displayed:



Description on setting parameters

The flow pre-adjustment is the linear adjustment of flow output. In general, the standard value is 0- 800mAand the output impedance is 40Ω,unless the manufacturer has specific requirements since different manufactures' overall oil piping designs and the capabilities of the pressure proportional valve being used are different.

Flow Adjustment Method:

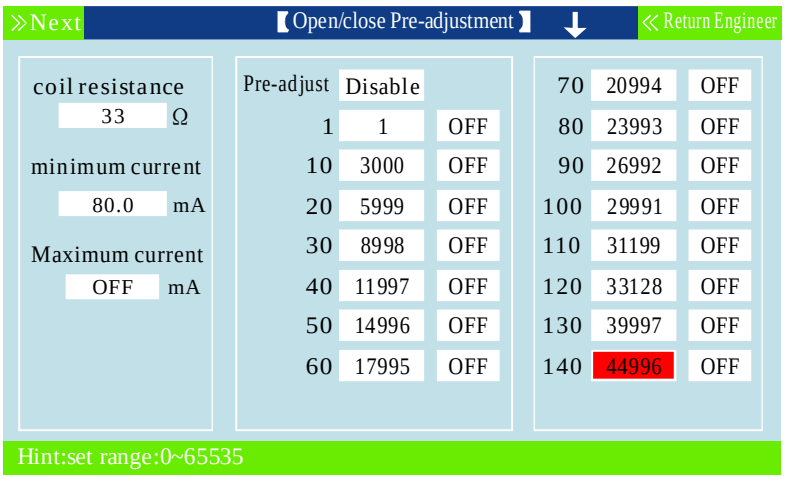
The parameters on this page have been set before ex-factory. If the capability of the proportional valves being used by the user is different, and the normal proportion and linear proportion cannot be achieved, the parameters on this page can be adjusted. As for the speed adjustment, different manufacturershave different measuring methods. Some manufacturers use the melt tachometer to measure the rotation speed. First heat the barrel until the barrel temperature reaches normal melt temperature. Set the melt speed to be 1, 10, 20, 30, and more until 99 and check the actual values. Make adjustments on all parameters whichneed adjusting and make the 0-99% speeds being set correspond to the proportional coefficients being shown on the tachometer respectively. After the adjustments are completed, the computer executes automatically linear processing and takes the processing results as the subsequent normal D/A proportional outputvalues.

Initial data:

First, pre-adjust the needed maximum flow data in 99%, and then move the cursor to [initial data], press the enter key and select [ON], the system will automatically distribute average data to 10%---90%.

6. Pressure Pre-Adjustment Page

Entering Engineer Setting Page, press 吹 氣 BLOW Key third times to enter the Pressure Pre-Adjustment Page.The following is displayed:



Description on setting parameters

The pressure pre-adjustment is the linear adjustment of pressure output. In general, the standard pressure is 0-800mA and the standard output impedance is 10-20Ω ,unless the manufacturer has specific requirements since different manufactures' overall oil piping designs and the capabilities of the pressure proportional valve being used are different.

Pressure Adjustment Method:

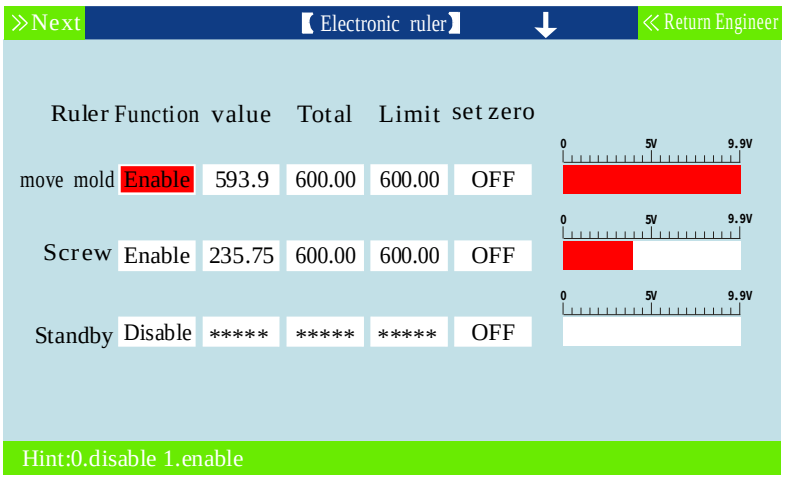
The parameters on this page have been set before ex-factory. If the capability of the proportional valves being used by the user is different, and the normal proportion and linear proportion cannot be achieved, the parameters on this page can be adjusted. First set the pre-adjustment to be [Activated], and then set the pre-adjustment item to be [ON]. For example, for the 50 bar Pressure position of Item 50, if the reading on the pressure meter is 45 bar, the parameter of this item should be increased until the pressuremeter reading reaches 50 bar. Make adjustments On all parameters which need adjusting and make the0-160 bar pressures being set correspond to the pressures being shown on the oil pressure meter respectively.After the adjustments are completed, the computer executes automatically linear processing and takes the processing results as the subsequent normal D/A proportional output values.

Initial data:

First, pre-adjust the needed maximum pressure data in 160bar, and then move the cursor to [initial data], press the enter key and select [ON], the system will automatically distribute average data to 10bar---160bar.

7. Electronic RulerSetting Page

Entering Engineer Setting Page, press 熔膠 FEEDING Key enter the Electronic Ruler Setting Page. The following is displayed:



Description on setting parameters

(1) Electronic Ruler Function: If the equipment needs to use the electronic ruler, choose [Activated]. If the equipment adopts stroke switch control, choose [Deactivated].

(2) Measurement Values: indicating the actual dynamic positions of the electronic rulers for the clamping unit, the injection unit and the ejector.

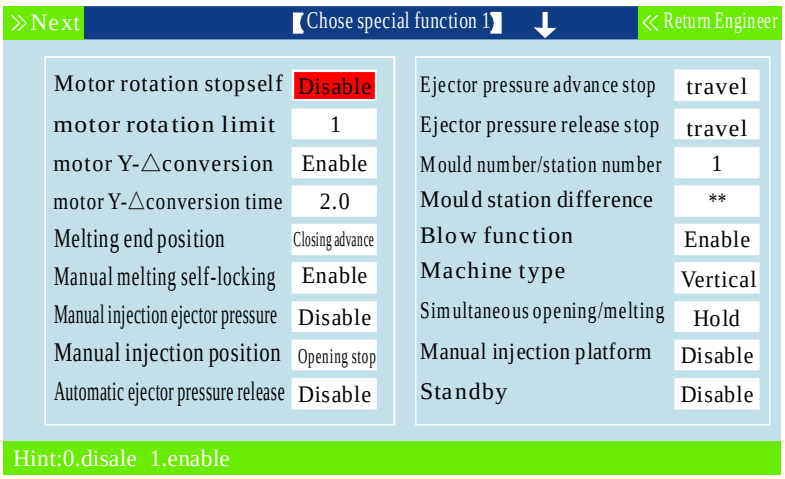
(3) Total Length: referring to the actual lengths of the electronic rulers for the clamping unit, the injection unit and the ejector.

(4) Limit Position: It refers to the maximum value set for the position. This parameter is subject to the maximum position setting. For example , if the parameter set is bigger than the limit position value,the system will not accept the parameter set and will retain the original setting.

(5) Zeroing: When the equipment choose [Activated] for the Electronic Ruler Function and uses the Electronic ruler, it may appear that the mechanic movement stroke is in place and yet the actual positions of the electronic rulers for the clamping unit, the injection unit and the ejector do not Indicate "0". In such case, the corresponding ruler should be zeroed. Move the cursor to the Zeroing button for [clamping unit ruler], [injection unit ruler] and [ejector ruler], and then press 輸入 ENTER Key tomake zero clearing for the corresponding electronic ruler.

8. Special function selection page

Enter the Engineer page; press 熔膠快捷 CEK. FEEDING key to enter the Special function selection page and the following is shown:



Description on setting parameters

(1) Motor Idle Running & Automatic Stop: When [Activated] is chosen, time setting is effective and the setting range is 2-99 minutes. If the equipment has no operation within the set time period after the motor starts up, the motor is turned off automatically to protect the motor life and to save electricity charge.

(2) Motor Y-△Conversion: If [Activated] is chosen, the system converts from star output to delta output when the motor starts up. The conversion time period can be set and the setting range is 2.0-99.9seconds.

(3) Melting end position: In automatic state, the melting action will be completed at the position selected by this option.

(4) Manual melting self-locking: If selecting it, in manual state, press the Melting key once and the melting action will continue until the stop condition occurs.

(5) Manual injection ejector pressure: If the manual injection is used, the ejector action will be performed first and then the injection action.

(6) Manual injection position: If the locking stop is selected and the previous one option is also used, for the manual injection, the locking will be first performed and then the injection; otherwise, direct injection action will be performed.

(7) Automatic ejector pressure release: If selecting use, in automatic state, first perform the ejector pressure release before melting.

(8) Ejector pressure advance stop/release stop: Ejector pressure advance /release stop available; [stroke]/[time] available.

(9) Mould number/station number: The numbers can be set according to the actual mould station numbers of the machine.

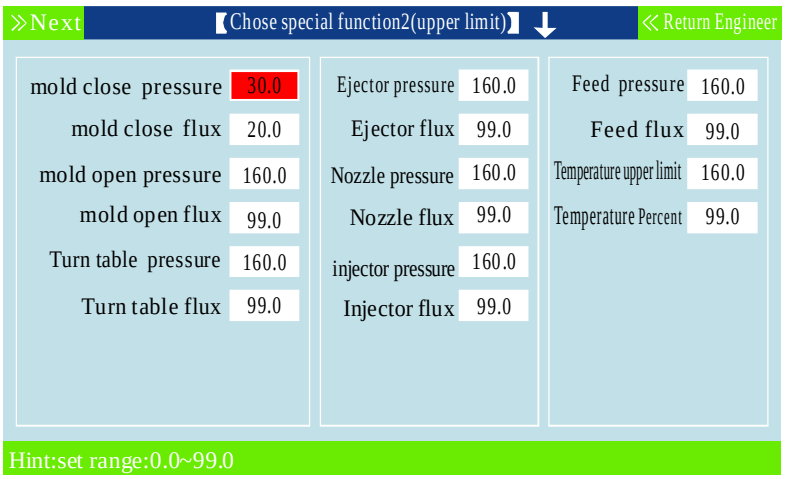
(10) Blow function: If the function is selected, the blow action only exists in automatic injection or manual blow; otherwise, the blow output will always exist.

(11) Machine type: Vertical type/horizontal type.

(12) Simultaneous opening/melting: If selecting suspension, the melting action will stop when the opening is performed; if selecting to continue, the melting action will not stop when the opening is performed.

(13) Manual injection platform: If this platform is selected, the injection platform will act when the injection is performed; otherwise, the platform will not act.

Enter the Engineer page; press 熔膠快捷 CEK. FEEDING key twice to enter the Upper limit control setting page and the following is shown:

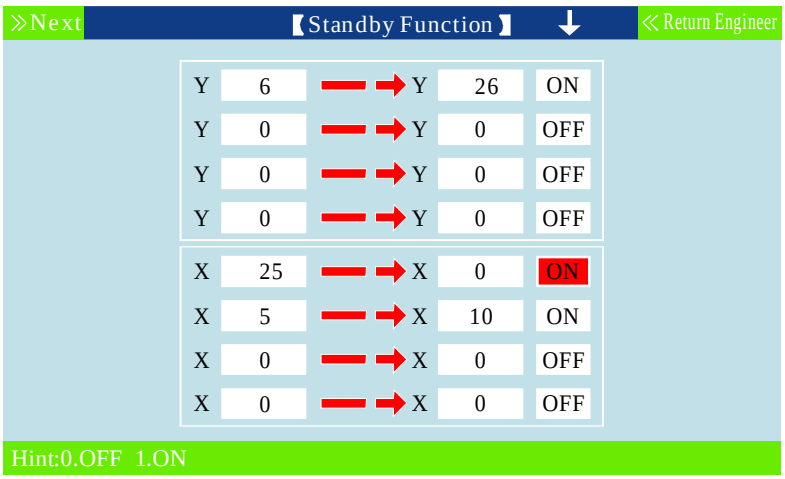


Descriptions on setting parameters function mode

(1) Pressure/flow upper limit: The set values on the page will depend on the upper limit scope of the mold parameter set values on various pages.
(2) Temperature/percent upper limit: The temperature set value upper limit scope.

9. Standby Function Setting Page

After entering the correct password, press 時 間 TIME Key to enter the Standby Function Setting Page. The following is displayed:



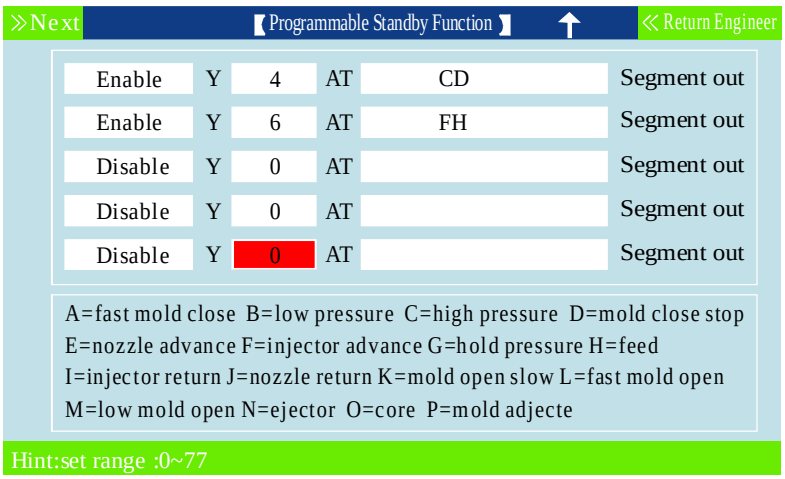
Descriptions on setting parameters function mode

(1) Output Point Transfer Function: This function can be activated or deactivated. If activated, the Output point executes immediately transfer operation. In case that mal-function or damage occurs to a certain point, the control can be transferred to another point by activating this function. For example, in case that failure occurs to the mould opening output point and the knockout core function is deactivated, the Y06 mould opening point can be transferred to Y26 and then the output wires should be exchanged.The system is equipped with the function of simultaneously transferring two output points. Once this function is activated, the system makes judgment on the two selected items. If the item is [ON], the transfer of the pre-set conditions of the item will be executed.

(2) Input Point Transfer Function: This function can be activated or deactivated. If activated, the input point executes immediately transfer operation. In case that mal-function or damage occurs to a certain point, the control can be transferred to another point by activating this function. For example, in case that failure occurs to the front safety door input point and the knockout core function is deactivated,the X00 front safety door input point can be transferred to X25 and then the input wires should be exchanged. The system is equipped with the function of simultaneously transferring two input points.once this function is activated, the system makes judgment on the two selected items. If the item is[ON], the transfer of the pre-set conditions of the item will be executed.

10. Programmable Standby Function Page

After entering the correct password, press 時 間 TIME Key twice to enter the Programmable Page.The following is displayed:



Descriptions on setting parameters function mode

In order to meet diversified application needs and provide an innovative product, we take the Initiative to offer the programmable standby function page so that the users can define and revise by themselves the functions and the action sequence.

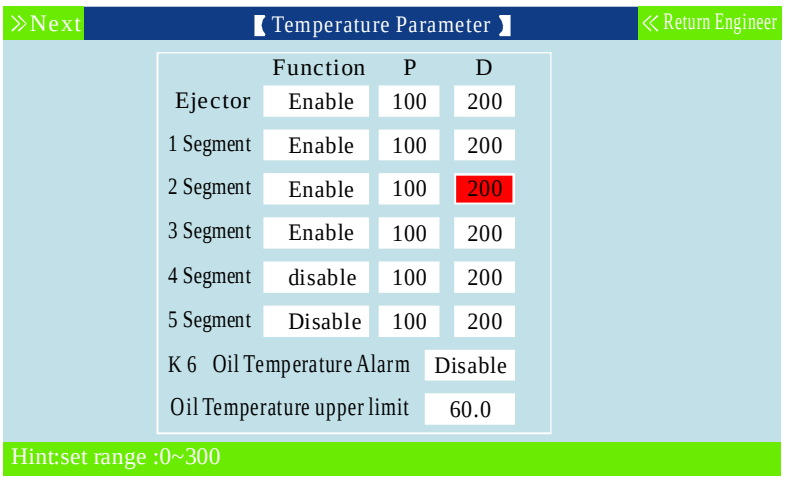
Example 1: For a certain mould injection machine, due to the different design of the oil piping, it is required that a point is output while clamping at high pressure and the power will not be interrupted until the melt finishes taking out. To achieve such a special function, choose an item and have it activated,and then specify an output point (i.e. this function is output through Y 01), and then set the action sequence [CD].

Notes: Regarding the output scope of Sequence D Clamping Stop, in automatic mode, the Clamping switch is contacted during the process of mould close at high pressure, and this sequence output starts until the melting finishes; in manual mode, the clamping switch is contacted during the process of mould close at high pressure, and this sequence output starts until the mould opening key or the reset key is pressed.

Example 2: For a certain mould injection machine, due to the different design of the oil piping, it is required that a point is output while injecting and melting. To achieve such a special function, Choose an item and have it activated, and then specify an output point (i.e. this function is output through Y22),and then set the action sequence [FH].

11. Temperature ParameterSetting Page

After entering the correct password, press Key 温 度 TEMP. to enter the Temperature Parameter Setting Page. The following is displayed:



function Description on setting parameters

(1) Ejector Function、1Segment、2Segment 、3Segment 、4Segment 、5Segment function、[Activated]or [Deactivated] can be chosen. If deactivated, the system will not execute inspectionand control on this sequence.

(2) Oil Temperature Alarm: [Activated] or [Deactivated] can be chosen. If deactivated, once it is detected

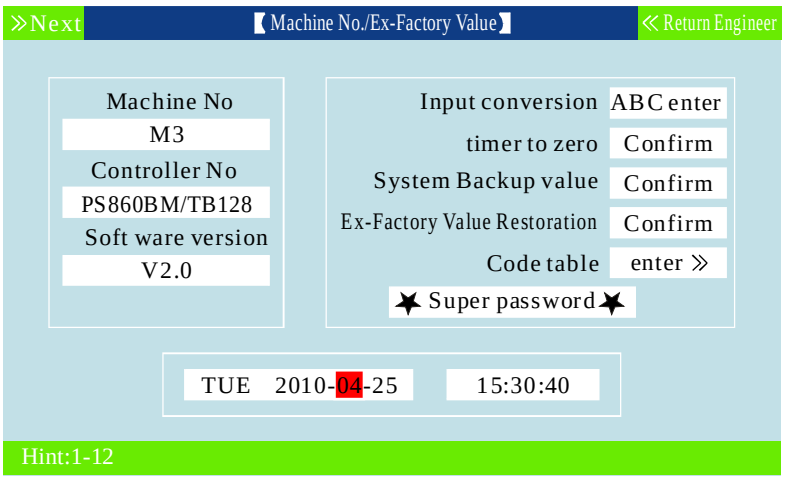
(3) Pd Setting: Pd has been set before ex-factory. It is recommended that the user should not revise this parameter under normal circumstance.

(4) Proportion control: proportion control is one of the simplest way for controlling, in which the input error signals are in proportion relation with output signals. There are steady-state errors when proportion control is the only way to be utilized.

(5) Different coefficient control: in different coefficient control, output error signals of controller form direct proportion relationship with input error signals of controller Fluctuation even destabilization may appear in automatic control system during the course of getting over and adjusting errors. The reason is: the existing heavier inert (links) or lagging assemblies can constrain errors, and its changing is always behind the changing of errors.The solution is to make the changing of errors constraint effect become advancing, i.e., the errors constraint effect should be zero when errors become close to zero. That is, it is not efficient enough to introduce proportion into controller merely. The function of Proportion can only enlarge the amplitude value of errors. But at present time it is necessary toin crease different coefficient , which can forecast the changing directions of the errors. Thecontroller combined proportion with different coefficient can cause errors constraint effect to be zero, even to be negative,thereby severe over adjusting of proportion under controlling can be avoided. So for Assemblies under controlling with heavier inertia or lagging, PD controller can improve dynamic behaviors of system during adjustment.

12. Machine No./Ex-Factory Value/Time Setting Page

After entering the correct password, press Key 資 料 DATUM to enter the Machine No./Ex-Factory Value/ Time Setting Page. The following is displayed:



Descriptions on setting parameters function mold

(1) Machine No: The system is equipped with the function of setting NO.for the mould injection machine so that the manufacturer can set the No. for easy sales management and after-sales service record.

(2) Ex-Factory Value Restoration: During the modifying process of password pages, if normal operation cannot be achieved due to too much deviations of the modified parameters, press Key Enter and choose Confirm, and then all the contents and all the parameters will be restored to the standards values set before ex-factory.

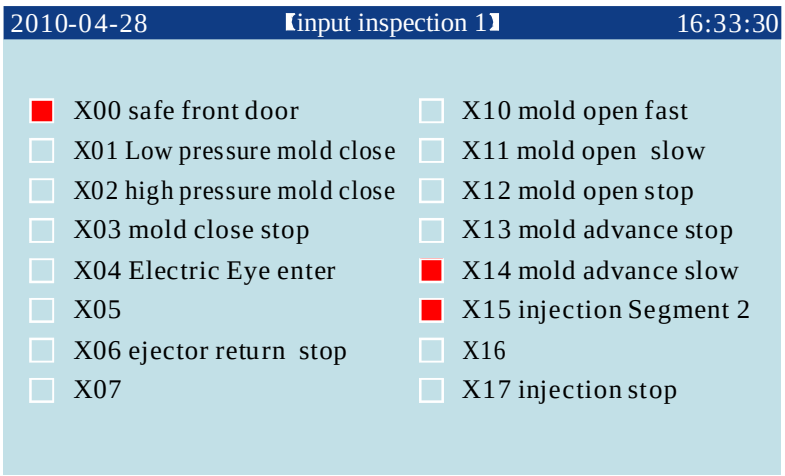
(3) System Backup value:standard values backup are provided for resetting when machines leave factory;

(4).Time setup: to set up the time, after the setup, press the [input] key, and then press [OK], the update is successfully set up.

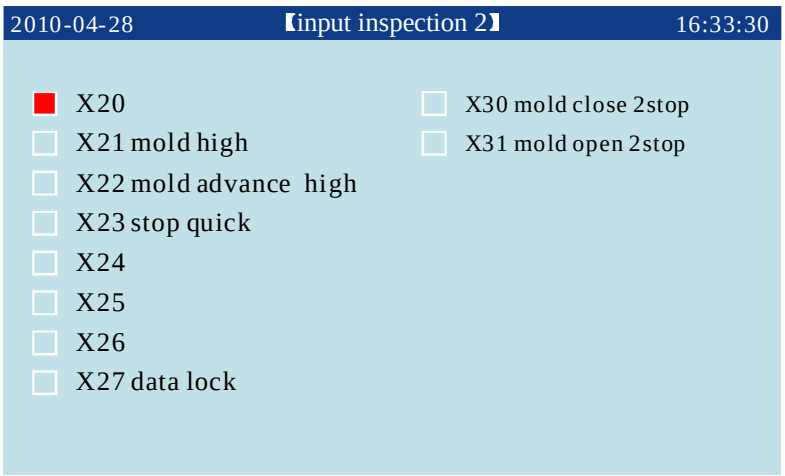
Chapter 5 Input/Output Mode Inspection

1. Input Inspection Page

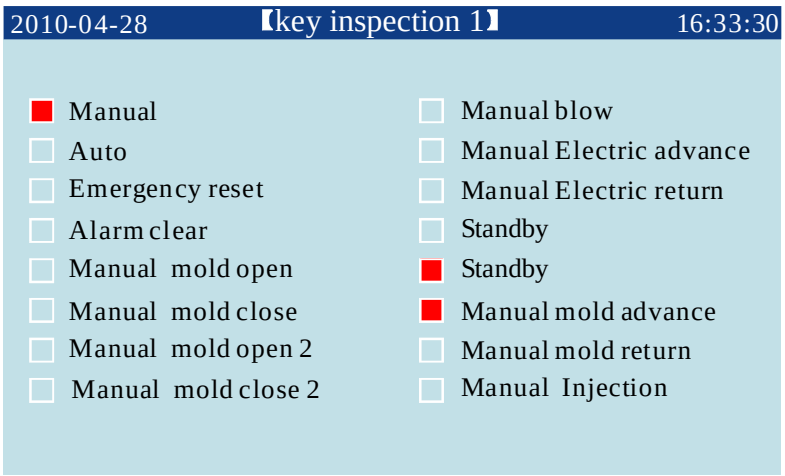
(1) Press Key 2 VWX on the Main Page to enter Input Inspection Page I and the following will be displayed:



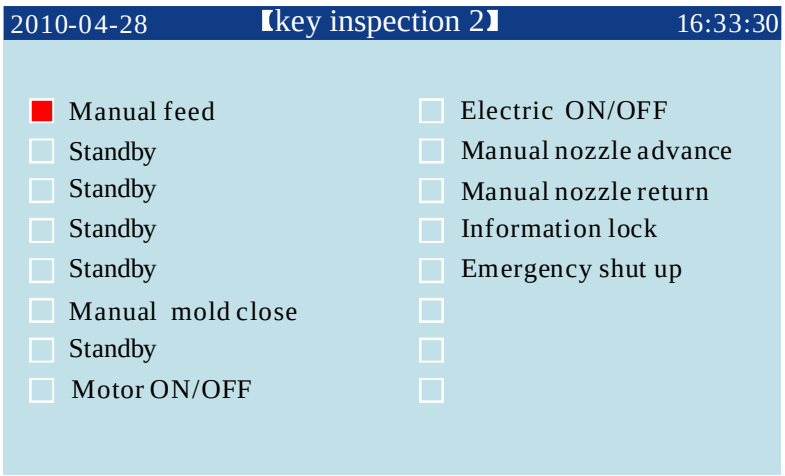
(2) Press Key 3 YZ on the Main Page to enter Input Inspection Page I I and the following will be displayed:



(3) Press 4JKL key on the main page to enter key inspection 1, now the menu is as following;

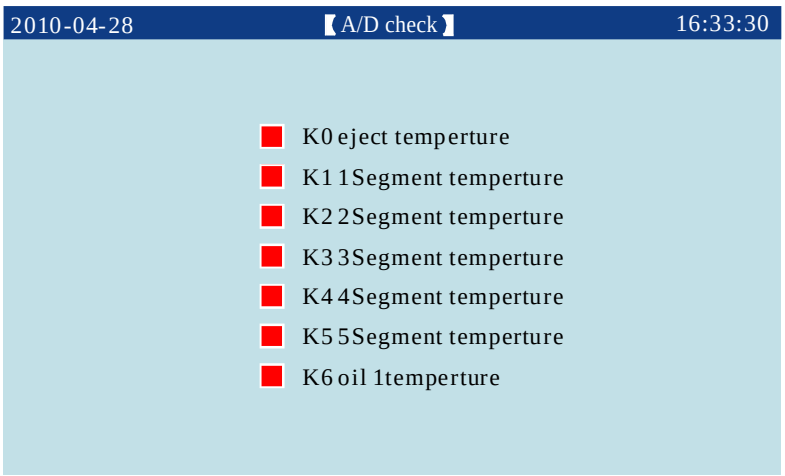


(4) Press 5MNO key on the main page to enter key inspection 2, now themenu is as following;



The inspection pages above can only provide for monitoring, but not for amending data, solid quadrel shows signal input.

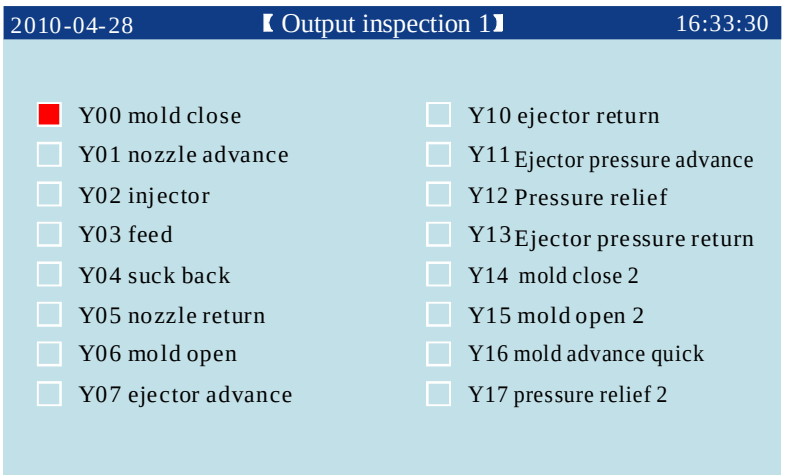
(5) Press 6 PQR Key on the Main Page enter A/Dcheck and the following will be displayed:



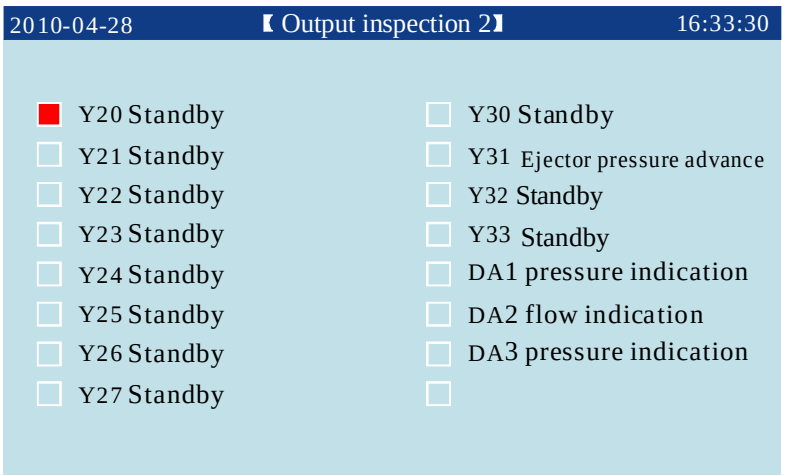
The above input inspection pages are used for signal inspection and cannot accept information modification. The solid box on the display indicates that the signals are being input.

2.output inspection

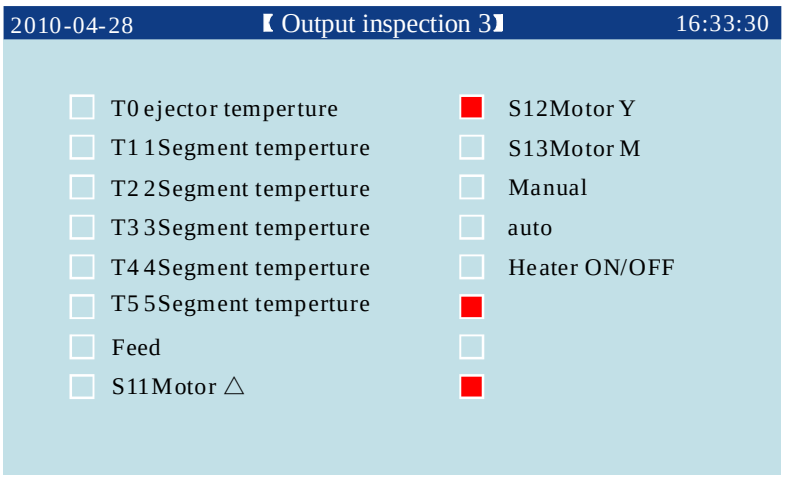
(1)Press 7 ABC on the main page to enter output inspection1, now the menu is as following;



(2) Press 8 DEF on the main page to enter output inspection 2, now the menu is as following;



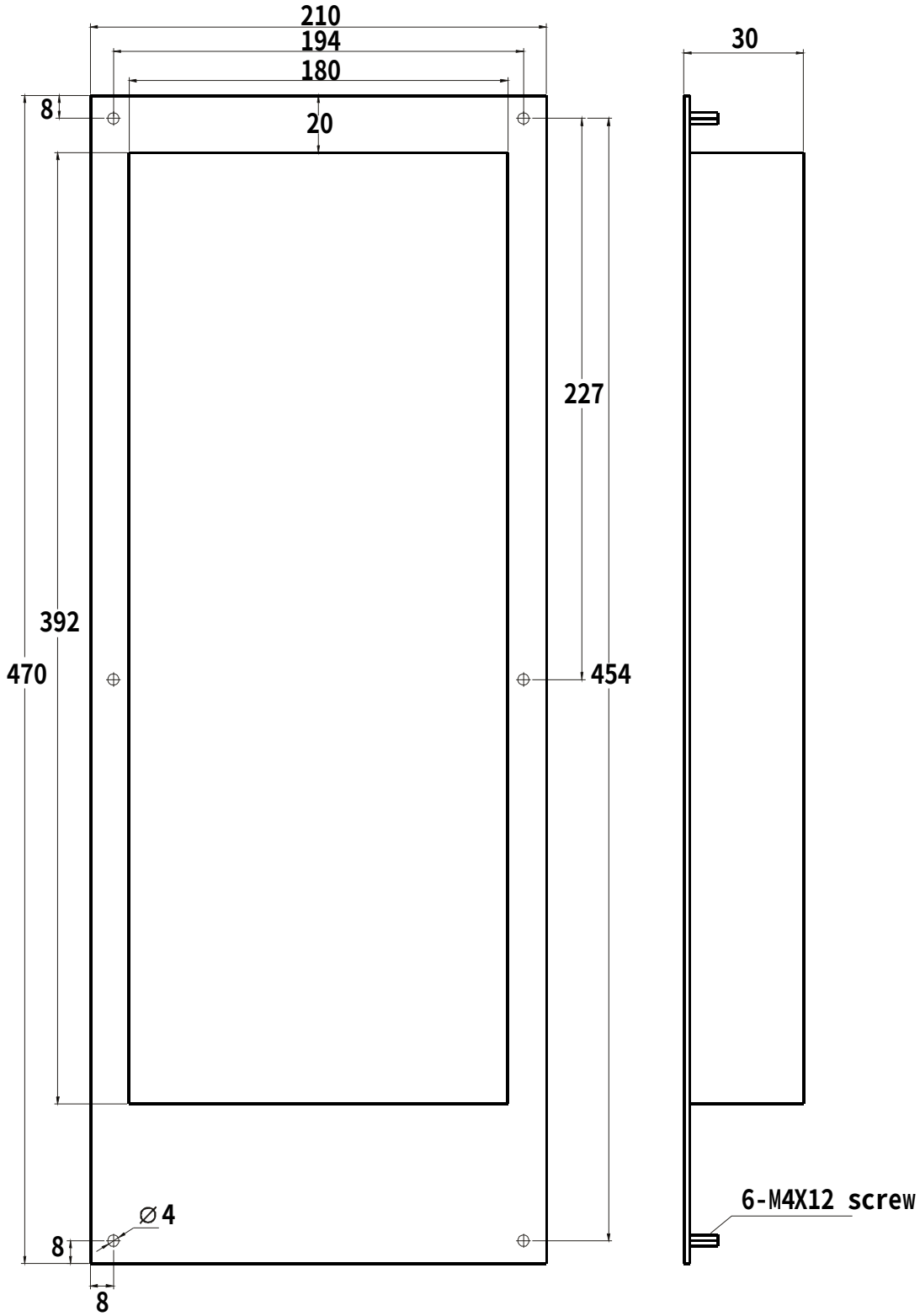
(3) Press 9 GHI on the main page to enter output inspection 3, now the menu is as following;



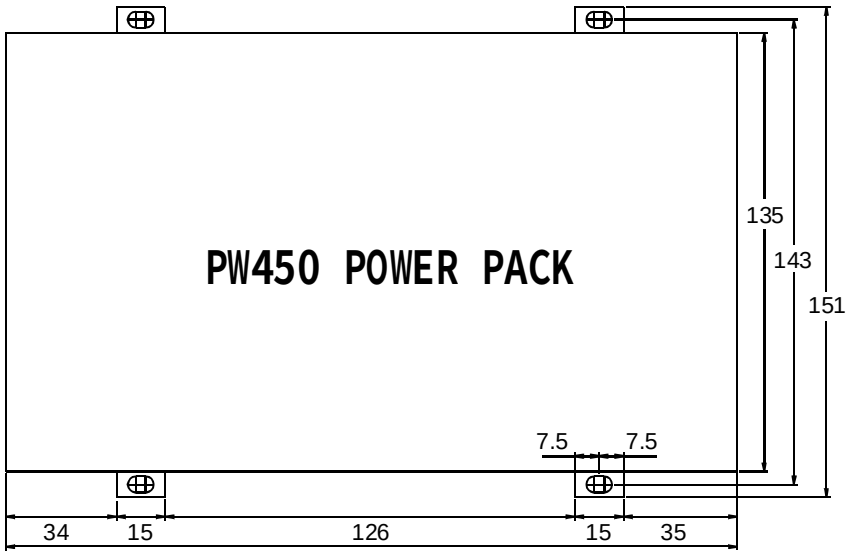
(6) Above delivery inspection pages are used for monitoring signals. If you want to inspect whether the delivery valve is ok or not manually without any actions, you can move the cursor to the delivery name which is waiting for your inspection, pressure enter button,then the delivery valve will come to work. Meanwhile the solid block in the scene shows the delivery of the signals.

★Special explaination

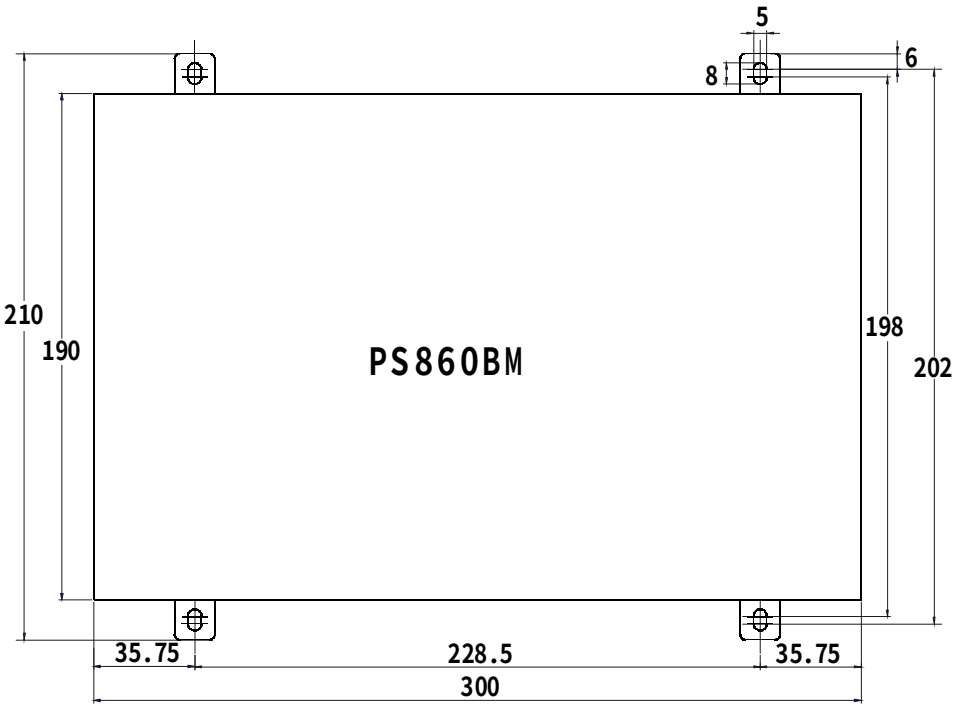
All the input and output point pages in this instruction manual are subject to changes without notice. The inspection pages displayed on the computer should be correct and final.



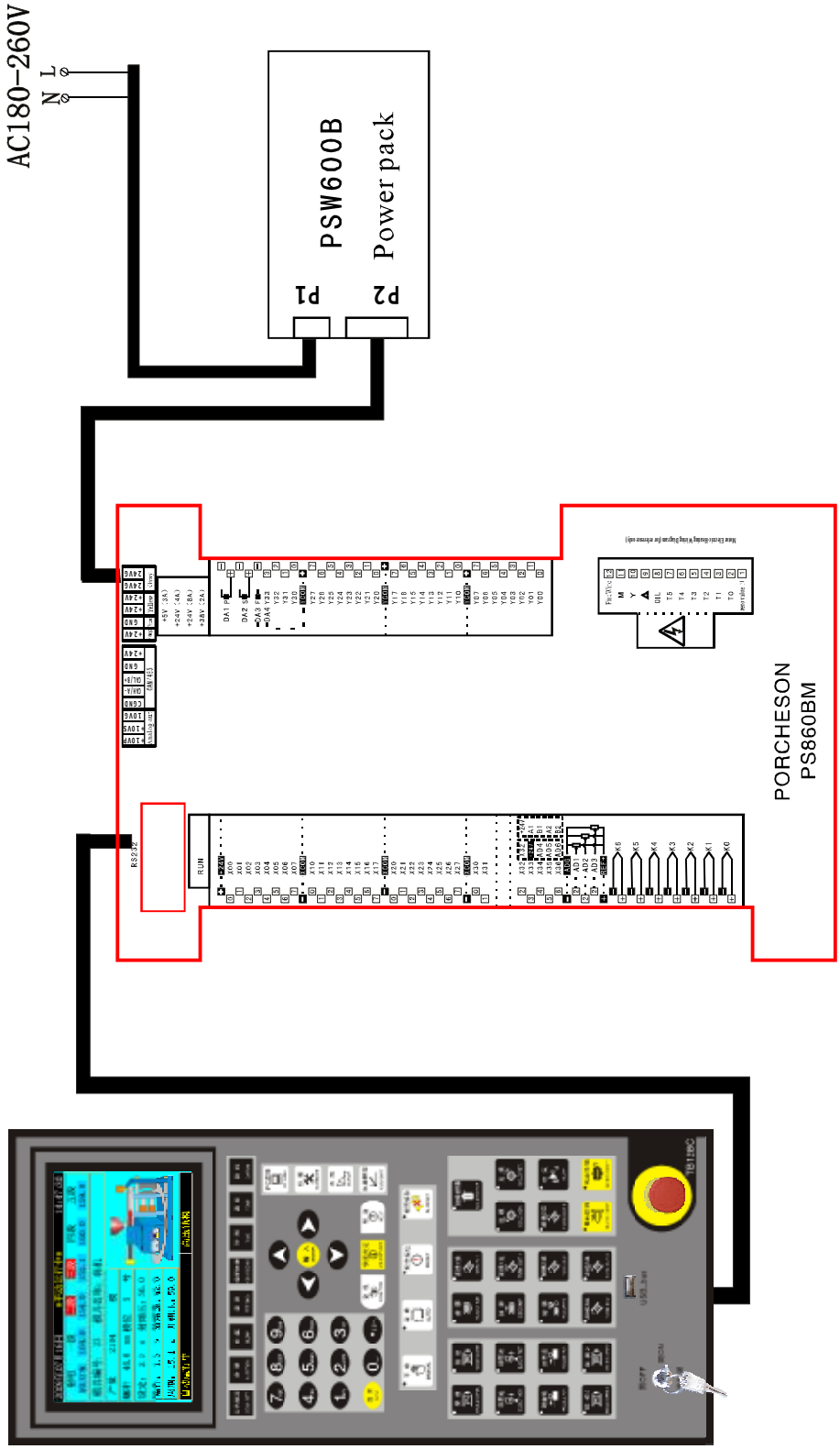
TB128 keyboard installation dimension Layout



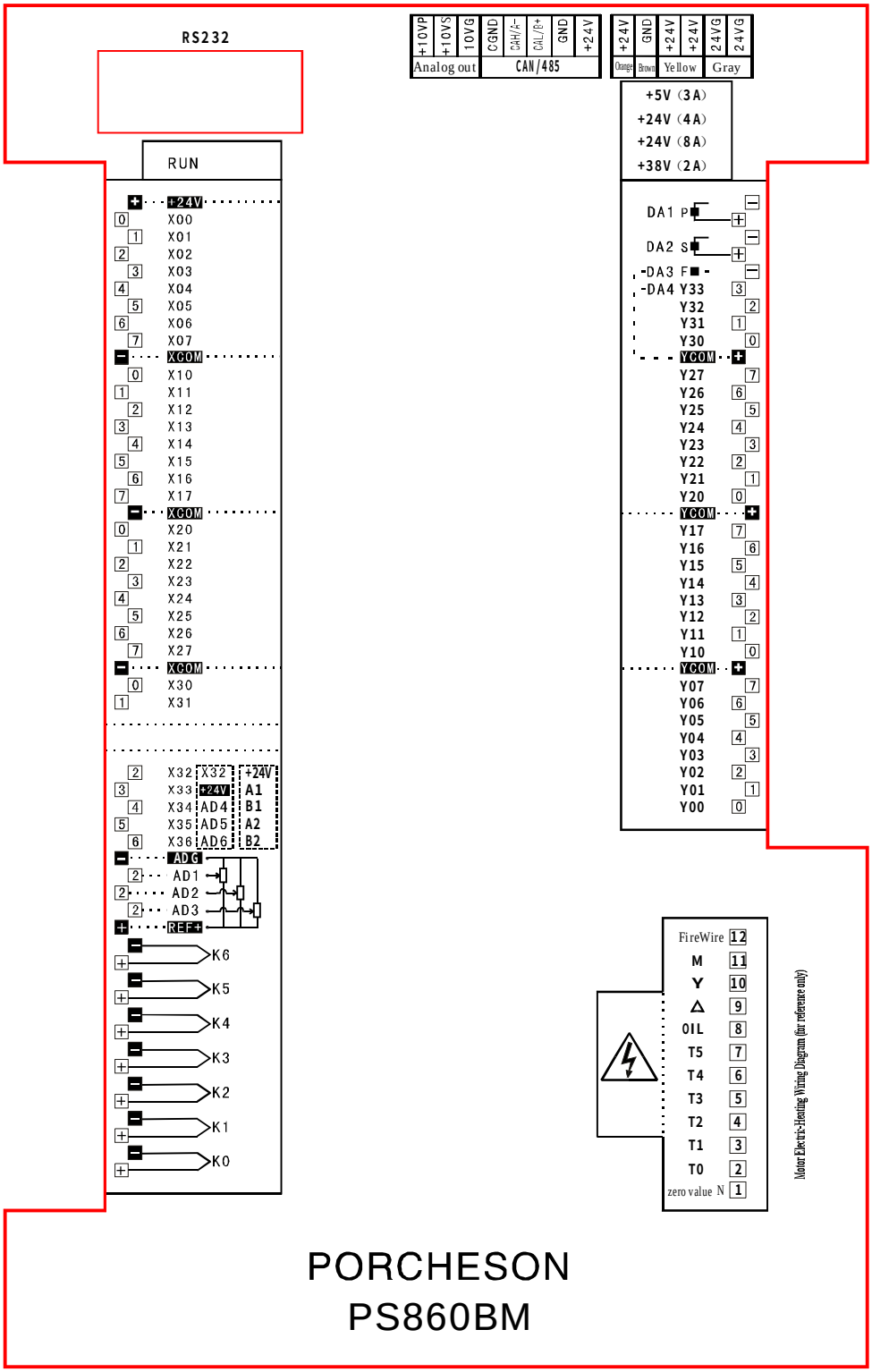
External dimensions and installation hole positions drawings for power supply case and transformer



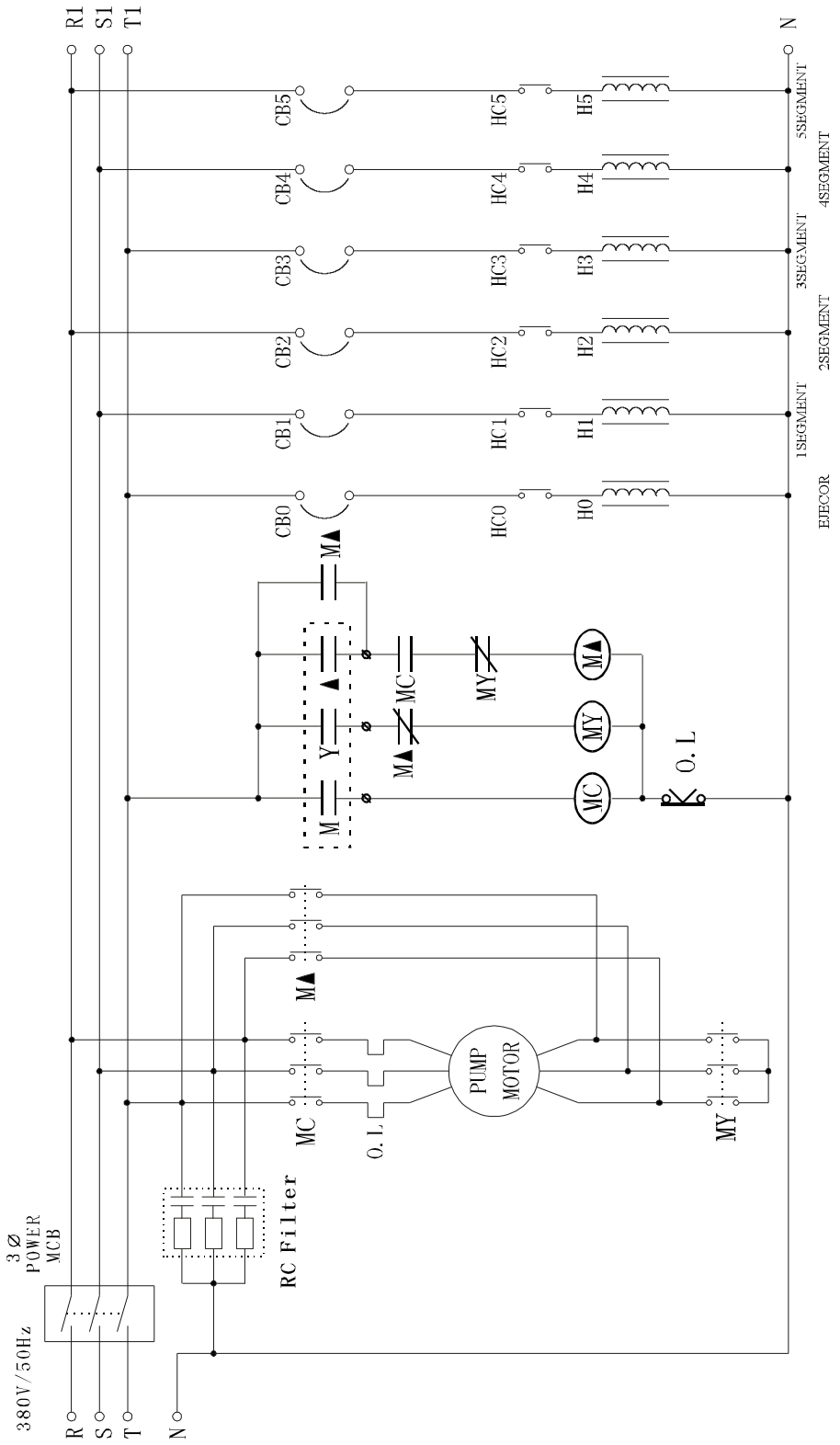
Exterior dimensions and installation hole position drawings for main controller



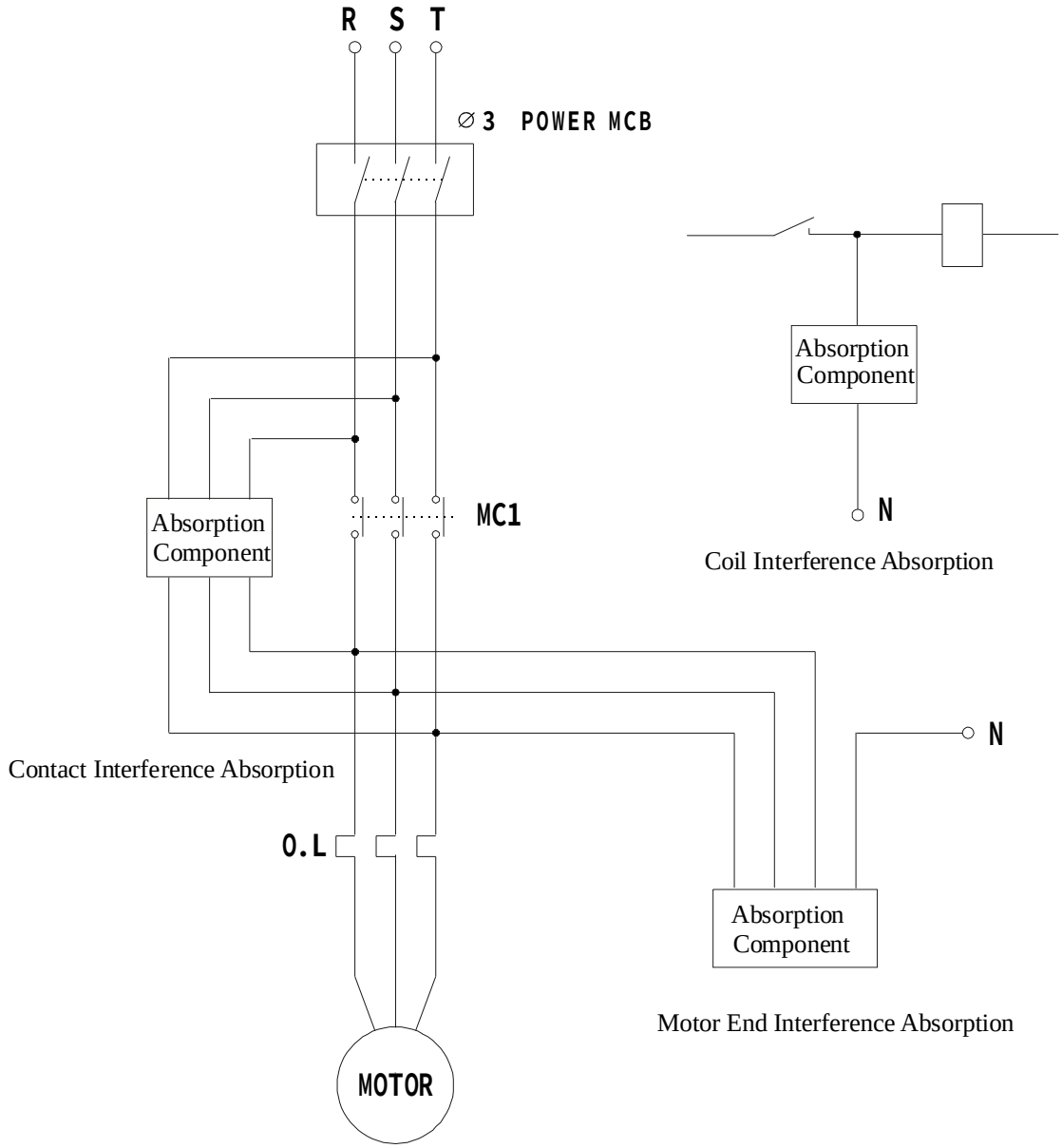
PS860BM system drawing



PS860BM Input & Output Wiring Diagram



Motor Electric-Heating Wiring Diagram (for reference only)



Common Interference Suppression Method (for reference only)