



Dongguan SOKE Hot Runner Technology LTD.

MANUAL

M Series Hot Runner Temperature Controller





PRECISE
CONTROL



SIMPLE
DESIGN



EXTENSIVE
DIAGNOSTICS



POWERFUL
COOLING



FAST
DELIVERY



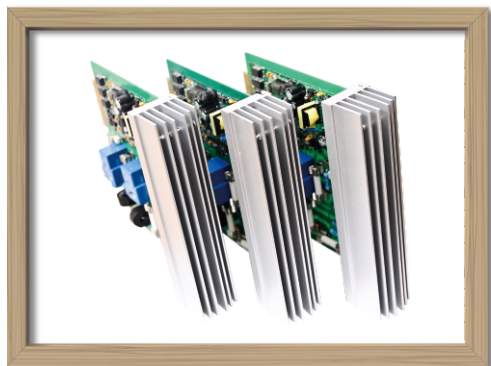
ABUNDANT
ALARM MESSAGES



LONG
WORKING LIFE



EASY
MAINTENANCE



M series Hot Runner Controller

Manual

1 SPECIFICATION

- (1) Input Voltage: 110/220V AC $\pm$ 10%, 50/60HZ
- (2) Output: 15A(50W–1650W(110V), 100W–3300W(220V))
- (3) Control Mode: Phase Angle Control / Zero Cross Control
- (4) Thermocouple Type: J / K
- (5) Temperature Range: 45°C–450°C
- (6) Measurement Accuracy: $\pm$ 0.5%
- (7) Operating Temperature: -10°C~+50°C
- (8) Operating Humidity: 10%~80% RH, No-Condensing

2 Prior to Start Up

- (1) Check that the system is completely disconnected from the power source.
- (2) Clean up any water, oil, dirt, cleaning fluid etc. That may have spilled during a mold change or since the last production run.
- (3) Check all of the cables connections between the system and the mold (if required). Make sure all of cables are free from wear or damage.
- (4) Check the earth/ground connection is in good condition. Verify the system and the mold have the same ground reference.
- (5) Connect the thermocouple and power output cables (if required).
- (6) Using an Ohmmeter, touch one test lead to the mold and the other to the mold ground terminal on the system. Resistance must be less than 1 ohm.
- (7) Check the main input power disconnect and make sure it is in the OFF position prior to connection of the controller to the power source.

3 Operation

3.1 Once the system is powered up, the following display will appear on your screen.

3.2 Choose the language

HOT RUNNER TEMPERATURE CONTROLLER

ENGLISH

3.3 After the language is selected, enter into home page

Example: 24 zones controller home page

Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF
1 PowerOff	2 PowerOff	3 PowerOff	4 PowerOff	5 PowerOff	6 PowerOff			
7 PowerOff	8 PowerOff	9 PowerOff	10 PowerOff	11 PowerOff	12 PowerOff			
13 PowerOff	14 PowerOff	15 PowerOff	16 PowerOff	17 PowerOff	18 PowerOff			
19 PowerOff	20 PowerOff	21 PowerOff	22 PowerOff	23 PowerOff	24 PowerOff			
Disable	Enable	Auto	Manual	Temp	Percent	SelectAll	Scan	Previous 1 Next

3.4 press "start" key to enter working mode

press "start" key

Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF
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Enter working mode

(example, 24 zones controller, all setpoints are 100 centigrade)

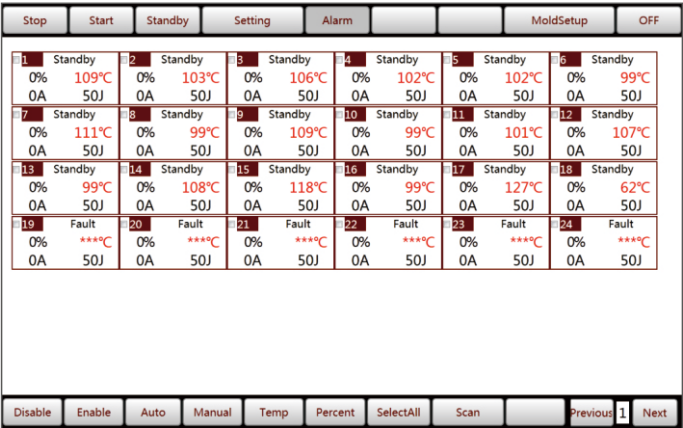
Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF
1 Auto 0% 103°C 0A 100J	2 Auto 30% 66°C 0A 100J	3 Auto 30% 69°C 0A 100J	4 Auto 0% 98°C 0A 100J	5 Auto 92% 72°C 8A 100J	6 Auto 30% 68°C 1A 100J			
7 Auto 0% 110°C 0A 100J	8 Auto 0% 95°C 0A 100J	9 Auto 0% 99°C 0A 100J	10 Auto 10% 95°C 0A 100J	11 Auto 0% 110°C 0A 100J	12 Auto 0% 97°C 0A 100J			
13 Auto 30% 57°C 0A 100J	14 Auto 30% 58°C 1A 100J	15 Auto 30% 54°C 1A 100J	16 Auto 30% 53°C 0A 100J	17 Auto 30% 47°C 0A 100J	18 Auto 30% 55°C 0A 100J			
19 Fault 0% ***°C 0A 100J	20 Fault 0% ***°C 0A 100J	21 Fault 0% ***°C 0A 100J	22 Fault 0% ***°C 0A 100J	23 Fault 0% ***°C 0A 100J	24 Fault 0% ***°C 0A 100J			
Disable	Enable	Auto	Manual	Temp	Percent	SelectAll	Scan	Previous 1 Next

3.5 It may be necessary to lower the temperature in the mold for a period of time, press "standby" key to do it, without having to change the normal setpoint.

Press “standby” key

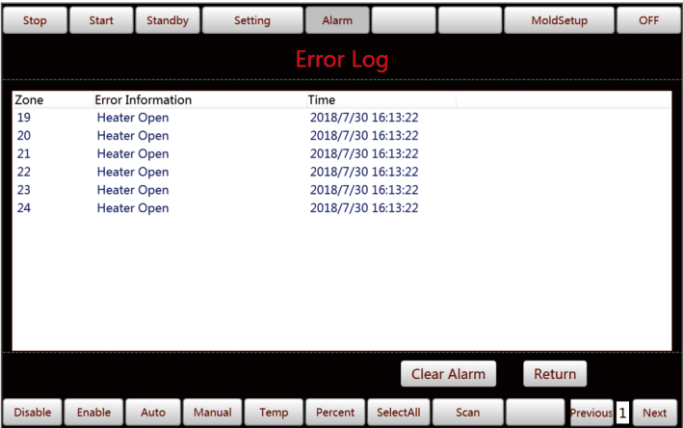


To enter standby mode
(example, all setpoints are 100 centigrade, standby percentage is 50%,
the percentage can be adjusted in setting menu)



3.6 Alarm

In the event of an error, malfunction or failure, the controller will turn on the audible and visual alarms, press “alarm” key to silence the audible alarm and display the alarm information .
(example, zone 19 to 24 display heater open alarm)



When return home page, the corresponding zone or zones with errors will display “fault” to remind the operator until the problem has been solved.

(example, zone 19 to 24 display fault)

Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF															
1 Standby 0% 109°C 0A 50J	2 Standby 0% 103°C 0A 50J	3 Standby 0% 106°C 0A 50J	4 Standby 0% 102°C 0A 50J	5 Standby 0% 102°C 0A 50J	6 Standby 0% 99°C 0A 50J	7 Standby 0% 111°C 0A 50J	8 Standby 0% 99°C 0A 50J	9 Standby 0% 109°C 0A 50J	10 Standby 0% 99°C 0A 50J	11 Standby 0% 101°C 0A 50J	12 Standby 0% 107°C 0A 50J	13 Standby 0% 99°C 0A 50J	14 Standby 0% 108°C 0A 50J	15 Standby 0% 118°C 0A 50J	16 Standby 0% 99°C 0A 50J	17 Standby 0% 127°C 0A 50J	18 Standby 0% 62°C 0A 50J	19 Fault 0% ****°C 0A 50J	20 Fault 0% ****°C 0A 50J	21 Fault 0% ****°C 0A 50J	22 Fault 0% ****°C 0A 50J	23 Fault 0% ****°C 0A 50J	24 Fault 0% ****°C 0A 50J
Disable	Enable	Auto	Manual	Temp	Percent	SelectAll	Scan		Previous	1	Next												

Alarm information include: 1. over temp 2. low temp 3. thermocouple open
4. heater open 5. thermocouple reversed
6. triac shorten 7 wrong wiring 8 fuse open

3.7 parameter setting

press "setting" key to enter parameter setting



setting page as the following

Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF
Parameter Setting								
T/C Type ☒ J ☐ K		Temp Unit ☒ °C ☐ °F		T/C Wiring Detection ☒ ON ☐ OFF		Remote Standby Option ☒ ON 6 Minute ☐ OFF		Timer ☐ ON ☐ OFF
Over Temp Setting		Under Temp Setting		Standby Time 199 Minute		Standby Output Percent 50 %		SoftStart Time 9 Minute
Pin Tuning								Admin Login
								Return
Disable	Enable	Auto	Manual	Temp	Percent	SelectAll	Scan	Previous 1 Next

1. thermocouple type: type J/ type K
2. temperature unit: Centigrade/ Fahrenheit
3. T/C wiring detect: choose ON, if the thermocouple wire is connected with power output port on the board, the board will detect the wrong wiring, then alarm, choose Off, no alarm.

4. **Injection signal delay time (optional):** control board connect with the injection machine by signal line, when the machine stopped, a signal to start Delay Standby could be sent to the board, when the delay time is up, the boards moved to standby mode, if the machine resume working before the delay time has elapsed, the board will not enter standby, the board goes to auto mode from standby mode when the machine is activate or the standby time expires.
5. **timer (optional):** press on, the controller include temperature control and sequential control.
6. **over temp setting:** function to enter temperature for alarm limit high. Alarm activates if the present temperature is higher than setpoint+set temperature, each zone alarm limit can be set independently.

Example: 24 zones controller, choose zone 3.9.15,21 together, over temp setting is 50 centigrade.

Stop
Start
Standby
Setting
Alarm
MoldSetup
OFF

Parameter Setting—Over Temp Setting

1 10	2 30	3 30	4 30	5 30	6 30
7 30	8 30	9 30	10 30	11 30	12 30
13 10	14 30	15 30	16 30	17 30	18 30
19 10	20 30	21 10	22 30	23 30	24 30

Select All
Setting
Previous 1 Next
Return

Disable
Enable
Auto
Manual
Temp
Percent
SelectAll
Scan
Previous 1 Next

Stop
Start
Standby
Setting
Alarm
MoldSetup
OFF

Parameter Setting—Over Temp Setting

1 10	2 30	3 30	4 30	5 30	6 30
7 30	8 30	9 30	10 30	11 30	12 30
13 10	14 30	15 30	16 30	17 30	18 30
19 10	20 30	21 10	22 30	23 30	

Select All
Setting
Previous 1 Next

Disable
Enable
Auto
Manual
Temp
Percent
SelectAll
Scan

50

7 8 9
4 5 6
1 2 3
0

Clear
OK

Close

7. **Low temp setting:** function to enter temperature for alarm limit low. Alarm activates if the present temperature is lower than setpoint-set temperature, each zone alarm limit can be set independently.

Example: 24 zones controller low temp setting page

Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF			
Parameter Setting—Under Temp Setting											
1	10	2	10	3	30	4	30	5	30	6	30
7	30	8	10	9	30	10	30	11	30	12	30
13	30	14	30	15	50	16	50	17	30	18	30
19	30	20	30	21	30	22	30	23	30	24	30
				Select All	Setting	Previous	1	Next	Return		
Disable	Enable	Auto	Manual	Temp	Percent	SelectAll	Scan		Previous	1	Next

8. Standby time

Standby mode finished after standby timer finishes, and the controller moves to auto mode, the temperature will return to the set temperature.

9. Standby output percent

The temperature percent is set, when in standby mode, the present value will be kept as the set percent of setpoint, for example, the setpoint is 200C, standby percent is 50%, when in standby mode, the temperature will be 100C.

10. Soft start time

Soft start feature to extend the life of the heaters and the mould, the soft start allows slow dissipation of moisture in heaters by gradually applying power to the heaters, the board will go into auto mode when soft start time finishes.

11. Manual PID tuning

Manual PID control is a function to control by manual input of PID constant in case that temperature can not be controlled by auto tuning, because the condition of heaters is not controllable, basically, for large power heater, apply small number, for small power heater, apply large number.

Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF
01 ○ 01		08 ○ 08		15 ○ 15			22 ○ 22	
02 ○ 02		09 ○ 09		16 ○ 16			23 ○ 23	
03 ○ 03		10 ○ 10		17 ○ 17			24 ○ 24	
04 ○ 04		11 ○ 11		18 ○ 18			25 ○ 25	
05 ○ 05		12 ○ 12		19 ○ 19			26 ○ 26	
06 ○ 06		13 ○ 13		20 ○ 20			27 ○ 27	
07 ○ 07		14 ○ 14		21 ○ 21			28 ○ 28	
Mold Name				Save Mold		Load Mold		Return
Disable	Enable	Auto	Manual	Temp	Percent	SelectAll	Scan	Previous 1 Next

Example: No.1 mold's name is "01", select 01 mold setup file which you want to rename, enter new name in mold name dialog box, press "save mold", the new name will be now stored.

Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF
01 ● 01		08 ○ 08		15 ○ 15			22 ○ 22	
02 ○ 02		09 ○ 09		16 ○ 16			23 ○ 23	
03 ○ 03		10 ○ 10		17 ○ 17			24 ○ 24	
04 ○ 04							25 ○ 25	
05 ○ 05							26 ○ 26	
06 ○ 06							27 ○ 27	
07 ○ 07		14 ○ 14		21 ○ 21			28 ○ 28	
Mold Name 01				Save Mold		Load Mold		Return
Disable	Enable	Auto	Manual	Temp	Percent	SelectAll	Scan	Previous 1 Next

Example: select 01 mold setup file which you want to load, press “load mold”, the selected mold setup will be loaded, the whole loading process will be displayed, then press “return” to go back to homepage.

Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF
01 ● 01		08 ○ 08		15 ○ 15		22 ○ 22		
02 ○ 02		09 ○ 09		16 ○ 16		23 ○ 23		
03 ○ 03		10 ○ 10		17 ○ 17		24 ○ 24		
04 ○ 04		11 ○ 11		18 ○ 18		25 ○ 25		
05 ○ 05		12 ○ 12		19 ○ 19		26 ○ 26		
06 ○ 06		13 ○ 13		20 ○ 20		27 ○ 27		
07 ○ 07		14 ○ 14		21 ○ 21		28 ○ 28		
Mold Name 01				Save Mold		Load Mold		Loading12
Disable	Enable	Auto	Manual	Temp	Percent	SelectAll	Scan	Previous 1 Next

3.9 Disable and enable function

The controller zones are fixed, but different hot runner systems have different zone quantities, for example, the controller zones are 24, the system need 20 zones, each time, the controller will alarm heater open on 4 zones, for avoiding this situation, we can disable these 4 zones, if we want to use these 4 zones controller in future, we can select the corresponding zones, then press “enable”.

Example: select zone 2,8,14,20 together, press “disable”, zone 2,8,14,20 display disable.

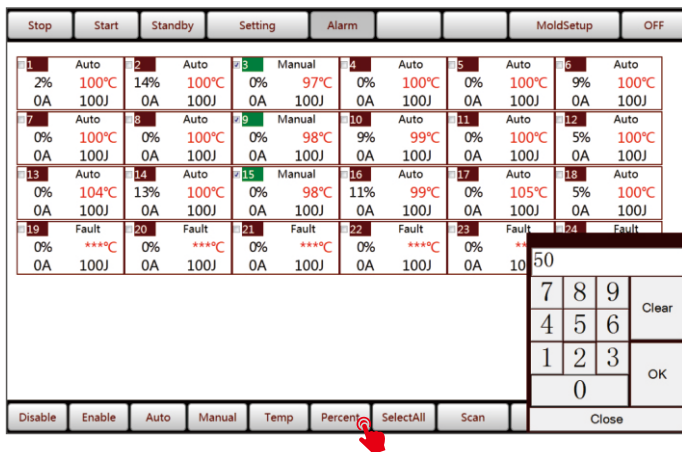
Stop	Start	Standby	Setting	Alarm			MoldSetup	OFF
1 Auto 0% 102°C 0A 100J	2 Disable	3 Auto 0% 104°C 0A 100J	4 Auto 0% 100°C 0A 100J	5 Auto 0% 105°C 0A 100J	6 Auto 1% 100°C 0A 100J			
7 Auto 0% 100°C 0A 100J	8 Disable	9 Auto 0% 100°C 0A 100J	10 Auto 7% 100°C 0A 100J	11 Auto 0% 103°C 0A 100J	12 Auto 0% 100°C 0A 100J			
13 Auto 0% 112°C 0A 100J	14 Disable	15 Auto 0% 107°C 0A 100J	16 Auto 9% 100°C 0A 100J	17 Auto 0% 119°C 0A 100J	18 Auto 0% 101°C 0A 100J			
19 Fault 0% ****°C 0A 100J	20 Disable	21 Fault 0% ****°C 0A 100J	22 Fault 0% ****°C 0A 100J	23 Fault 0% ****°C 0A 100J	24 Fault 0% ****°C 0A 100J			
Disable	Enable	Auto	Manual	Temp	Percent	SelectAll	Scan	Previous 1 Next

3.10 Auto mode and manual mode

Auto mode:normal operation mode in which the temperature is controlled and maintained automatically in accordance with the setpoint.

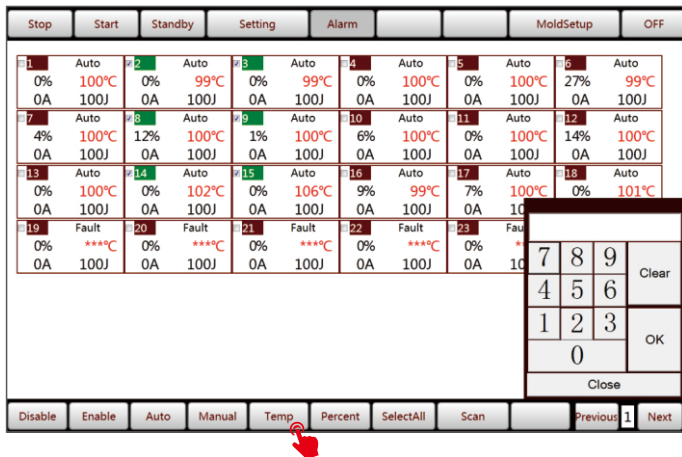
Manual mode:if the thermocouple fails or no thermocouple,set a manual power output percent, the controller will keep the output percent during manual mode.

Example: select zone 3,9,15 together, touch “percent”, then number dialog box will display, input 50, it means 50% output, press “OK” to save and exit.



3.11 Temp setting

During auto mode, select one zone or some zones together, or press “select all”, press “Temp”, then number dialog box will display, input the temp number, press “OK” to save and exit.



3.12 Scan

If new board is inserted into the cabinet, press “scan”, the computer will detect new board.



3.13 Previous page and next page

If the controller information can not be displayed totally in one page, press “previous”or “next”to view more.

