型号 Type :**ACR-201**

用户手册

Temperature controller

INSTRUCTION MANUAL

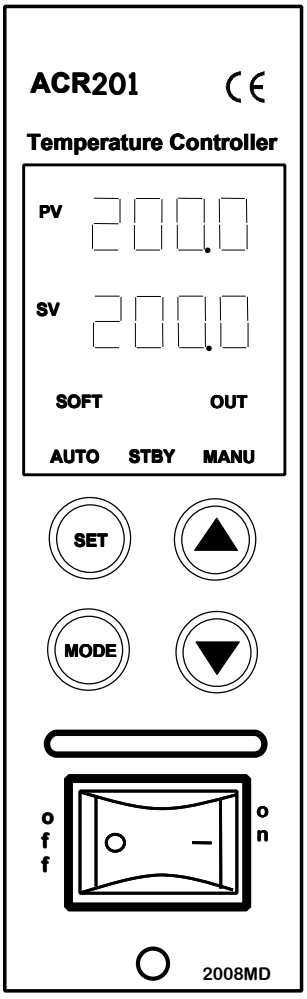
ACR – 201系列

感谢贵公司使用ACR-201系列产品
Thank you for using ACR-201

使用产品前，敬请仔细阅读此手册，以免在操作过程中的失误。如有任何不明处请与本公司联系。

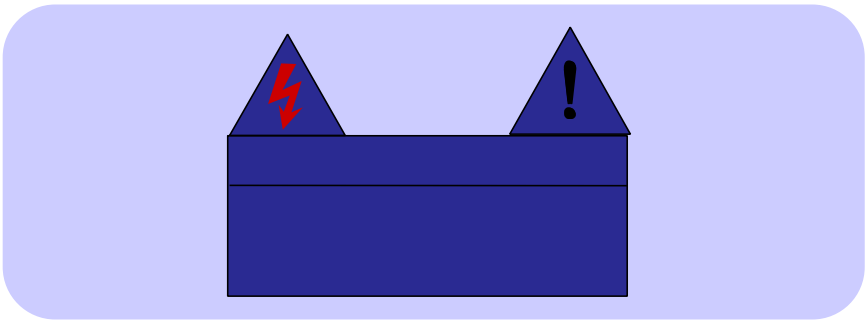
Before using the product, please read this instruction manual carefully to avoid any damage due to improper usage.

If you have any questions, please do not hesitate to contract our Head Office or Territory Sales Branch.



目录 contest

1．使用和操作温控器前注意事项



1） 注意模具上的接线盒的接线情况和感温线类型。

2） 检查模具接线规格与温控箱接线规格是否相匹配。

3） 检查温控箱线缆是否匹配该温控箱。

4） 检查接线盒和线缆。

5） 检查发热线的电阻和绝缘状况，感温线是否连接好。

6） 模具安装在注塑机上并接上线缆。

7） 检查电源开关和表芯开关是否关闭。

8） 如输入电压（220V/380V）符合温控箱的电压规格，接上电线（输入电压值注明在温控箱箱壳的标签上，如输入电压与标签上注明的电压值不相符，那么敬请垂询当地的ABIDO公司，然后改正温控箱的接线方式，接错线会引起温控箱的不正常运行，而且会毁坏表芯）。

9） 确认温控箱的地线(如不能区分地线(绿色),那么就易烧保险丝和可控硅)。

10） 打开温控箱电源主开关。

11 ） 然后打开表芯的电源开关。

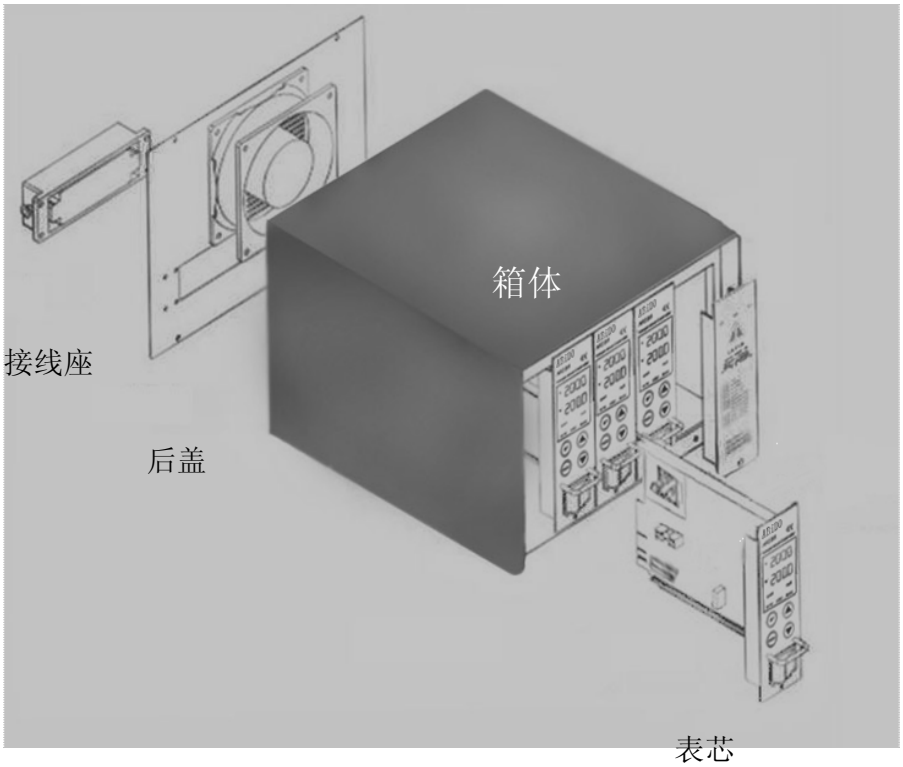
12） 设定所需要的温度。

13） 检查设定所需要温度达到没有，温度是否稳定。

注意：为了防止温度控制指令舱出故障，用于降温的风扇须一直运转。

2 . 温控箱的基本结构

安装条件:底部密封以确保安全



3、温控箱概述

温控箱是一种连续不断保持所需温度值的设备，通过内装的智能电脑MICOM和输入适当电流,来探测热流道系统所处的温度。温度控制的精确性有几个重要因素。

1）PIDD模糊控制：通过调控反映输出电流比例，综合指数和区别值的装　置。

2）**自动调节：** 通过分析发热线的电容和模具的热常数、提供其主异因素的功能（具有潜热性和散热性）,不管环境怎么变化它都有助于精确控制温度。

3）**输出模式：** 根据环境可以改变。

- PWM模式：可达到精确的温度控制，但电源的噪音比SSR模式大得多。
- SSR模式：电流噪音小，但对特定温度的控制能力比PWM模式差。

4、温控箱的表芯规格

室内使用

电源输入电压：AC86－250V 50/60Hz 15A

载荷：15A，50W-1650W(110)，100W-3300W(220V)

输出型：PWM(移相连续控制方式)

SSR(过零脉宽控制方式)

使用感温线类型: 感温线(J或K型)

温度设定范围32℃-450 ℃， 0℉-752℉

温度稳定性±0.5%

温度控制类型:PID控制

周围温度:-10℃~50 ℃

海拔高度:可达2000M

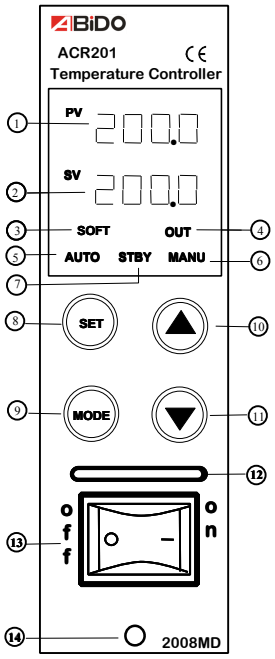
过电压类别 ： II

灵活性:插入式指令舱

F1,F2:250V-15A(特殊保险丝)

F3:250V-1A

5、各部位名称



1 实际温度	显示实际的温度
2 设定温度	显示设定热流道系统温度
3 软起动指示灯	显示软起动功能
4 输出指示灯	显示电源输出状态
5 自动指示灯	显示自动选择模式
6 手动指示灯	显示手动操作模式
7 待机指示灯	显示待机状态
8 选择	设定选择键
9 模式	模式转换键
10 调高	温度调高键
11 调低	温度调低键
12 表芯拉把	
13 表芯电源开关	
14 表芯固定螺栓	

6、操作模式

1）**自动模式** 正常的操作模式下，温度可调控。能自动调节达到与设定温度一致。

显示转换：每按一次 MODE 键时，SV显示的转换顺序如下：

[设定温度 P]=>[输出百分比 A]=>[电流量 C]=>[设定温度 P]

2）**待机模式** 在既定的时间内，把输出电源功率下调到某一特定值，如在生产过程中需停止生产。

- ➢以自动模式形式按住 SET 键 3 秒然后就会转换到待机模式。
- ➢在待机状态下，把设定温度的设定值（SV）改换成%比率。
- ➢输出电源功率减至诚待机状态下的温度。
- ➢ 在待机设定时间后，待机模式将进入到自动模式。

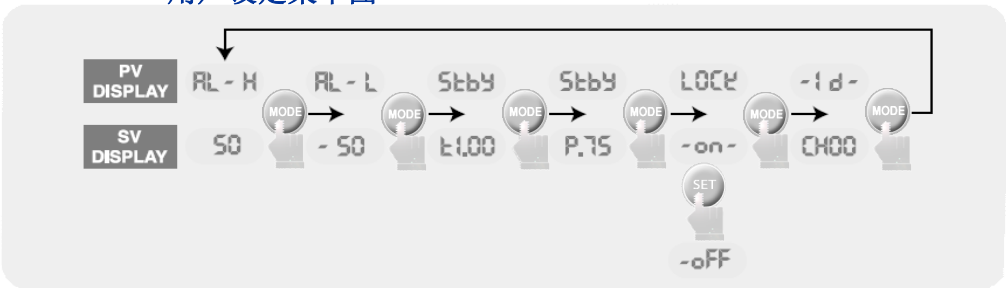
3）**手动操作模式** 使用者可通过 ▲ 和 ▼ 键，在紧急情况时，随意调整电源输出功率。

- ➢按住 SET 键连续按2次,每次3秒钟，那么就可以由自动模式转成手动工作模式。
- ➢如果传感器探测到感温线断裂（tC.oP)或感温线短路（Tc.st）时,紧急状态下就可自动转换成手动模式。
- ➢设定值通过 ▲ ，▼ 键进行修改。

7、菜单设定

1）用户一级菜单设定

用户设定菜单图



★按 MODE 键3钞钟,PV行显示AL - H,表示进入一级菜单。 MODE 键是功能选择键。

★ SET 键用于开/关, ▲ 和 ▼ 键用于改变参数。

★为了便于设定值贮存，同时按住 MODE 和 SET 键则设定数据被存储。或者5钞钟内无任何键被按下，控制器则自动存储数据。

★在锁定 MODE 键的情况下,修改设定值。

1—1）AL-H（上限警报功能）

在设定温度的基础上，如温度高于设定的上限，那么PV会显示AL-H警报。

按 MODE 键3秒钟， PV会显示AL-H，然后AL-H最高温度值就会显现在设定值上。

用 ▲ ，▼ 键可设定00-99任意设定值，出厂初始值设定成50。

完成设定后，同时按 MODE 和 SET 键存贮设定值。

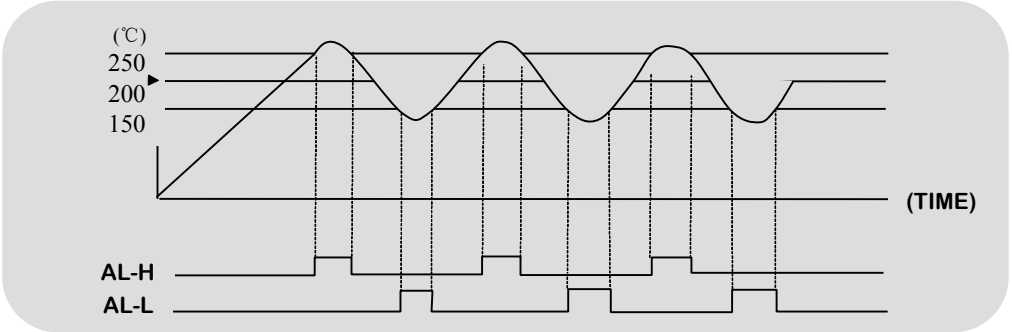
1—2）AL-L（下限警报功能）

在设定温度的基础上，如温度低于设定的下限值时， AL-L就会警报。

按 MODE 键 3秒钟 显示AL-H， 再按一次 MODE 键PV显示AL-L，SV显示最低警报值.

用 ▲ 键，▼ 键从00-99任意设定，出厂初始值设定成-50。

完成设定后同时按 MODE 和 SET 键存贮设定值。



1—3 ）　Stby（待机时间设定）

（1）t（设定待机时间）

按 MODE 键 3 秒钟 PV显示AL-H时， 再按2次 MODE 键，直到PV显示 Stby 为止。

通过 SET 键实现小时和分钟的单位转换。

用 ▲ 键 ▼ 键可以设定待机时间为**0**到**9**小时 **59**分 的范围。

（2）**p**（设定待机温度）

在STANDBY时间显示状态下按一次 SET 键就切换到待机温度设定模式。

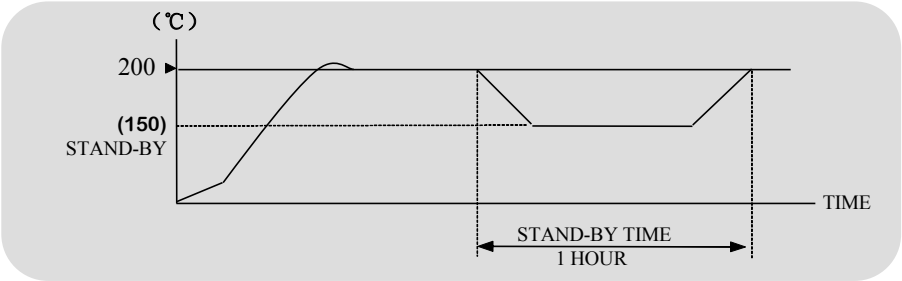
在设定温度的基础上，SV显示设定温度的比率值（P）。

用 ▲ 和 ▼ 键可设定 00----99% 设定值。

完成设定后同时按 MODE 键+ SET 键。

例如:设定温度(SV)设定为200,T(待机时间为1小时)P(待机温度75%)。

=>待机模式操作设定为1小时，待机温度设定为150(75%×200度)。



1-4）LOCK（Key S/W锁定功能）

此功能可以防止由操作者的失误引起的设定值的改变。

按 MODE 键 3秒钟 PV显示AL-H时，再连 续按4次 MODE 键直到PV显示LOCK为止，此时你 可以发现OFF显现在 (SV)行。

这时SV行显示OFF，用 SET 键可以转换ON/OFF。

完成设定后同时按 MODE 和 SET 键存贮设定。

1-5）ID(Channel设定选择)

此设计是便于客户区别每一个表芯在温控箱上的位置,确保产品质量及特殊的管理需求.

按住 MODE 键3秒,直到AL-H显现在实际温度显示值上。

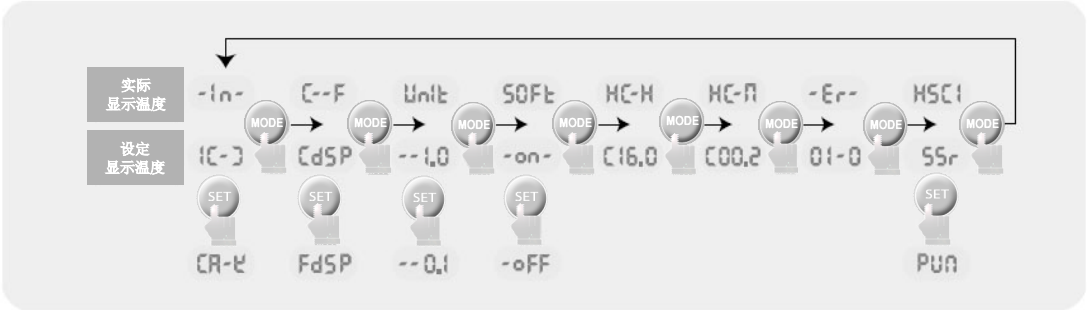
再多按5次直至ID显示在PV行上，直至CHANNEL ID 显示在SV行上。

按 ▲ , ▼ 键，可从00至99之间设定值。

同时按 MODE 和 SET 键，贮存下来。

2）用户二级菜单设定

用户二级菜单设定图示



★要进入二级菜单设定,一级菜单必须在 Lock off 状态下才可以进入。

★同时按 MODE 键＋ SET 键3秒钟 。

★功能选择用 MODE 键, ON/OFF选择用 SET 键,参数设定用 ▲ 和 ▼ 键。

★同时按 MODE 键和 SET 键保存已设定的参数．或者 5 秒钟不触动按键也可能可以自动保存。

2-1） - In-（感温线类型选择功能）

感温线的类型用于选择测量发热线的温度。

同时按键 MODE ＋ SET 键 3 秒钟， ＰＶ显示 - In- ，SV显示感温线种类 IC-J 或 CA-U 。

用 SET 键可以选择感温线种类。

完成设定后同时按 MODE 键＋ SET 键保存设定。

2-2）C-F（摄氏、华氏温度显示选择功能）

温度单位可以用摄氏以及华氏（C/F)。

同时按键 MODE ＋ SET 键3秒钟， PV显示 - In- 。

此时再按一次 MODE 键， ＰＶ显示 C--F ， ＳＶ显示温度选择状态 CdSP 或 FdSP 。

用 SET 键可以选择温度单位。

完成设定后同时按 MODE 键+ SET 键保存设定。

2-3） Unit（温度显示单位设定功能）

此功能是用于选择显示的温度单位，可选择 1.0精度和 0.1精度。

同时按 MODE 键+ SET 键3秒钟， PV显示 - In- 。

此时再按2次 MODE 键， PV显示 Un It SV显示温度设定单位 --1.0 或 --0.1

用 SET 键可以选择温度显示单位。

完成 设定后同时按 MODE 键+ SET 键

2-4） SoFt（软起动设定功能）

此功能目的是确认发热丝的接线状态 ,低热平稳启动温控功能以避免因潮湿而引发的发热圈毁坏。

在 接通电源时，控制器以1-30%的额定电流量输出 1分钟时间，实现保护功能。

同时按 MODE 键+ SET 键3秒钟，PV 显示 - In-

此时再按3次 MODE 键，ＰＶ显示 SOFt ，ＳＶ显示使用状态 -on- 或 -oFF 。

用 SET 键可以选择SOFE START使用与否（ON/OFF）。

同时按 MODE 和 SET 键，贮存设定。

2-5）HC-H（最高上限电流值设定）

此功能用于检测发热线的异常情况 ，电流超过上限值时显示“Hest”信息，并自动停止输出电流。

同时按 MODE 键+ SET 键3秒钟, PV显示 - In- 。

这时再按时4次 或超 4 次 MODE 键，PV显示 HC-H ，SV显示上限电流值 C 16.0 。

用 ▲ 键+ ▼ 键完成参数设定。

同时按 MODE 键＋ SET 键，贮存设定。

2-6）HC-L（最低下限电流设定）

此功能用于检测发热线的异常情况，电流下降到下限告时显示“He.op”信息，并停止输出电流。

同时按 MODE 键＋ SET 键 3 秒钟， ＰＶ显示 - In- 。

此时再按 5 次或超 5 次 MODE 键， ＰＶ显示 HC-L ，ＳＶ显示下限电流值 C002 。

用 ▲ 键＋ ▼ 键完成参数设定。

同时按 MODE 键＋ SET 键 ，贮存设定。

2-7） 故障信息显示功能储存

按顺序保存最近发生的错误信息1-20条。

同时按 MODE 键+ SET 键3秒钟，PV显示 - In- 标示状态。

这时再按6次 MODE 键，PV显示 -Er- ，SV显示已发生过的错误代码。

用 ▲ 和 ▼ 键确认到20条为止的错误内容。

当重复地按 ▲ 和 ▼ 键时，其它内容可相应地显示出来。

故障发生时信息显示

错误代码	错误表示	错误内容
1	tC.oP	感温线断路
2	tC.St	感温线短路
3	tC.rE	感温线接反
4	AL-H	温度超过上限温度
5	AL-L	温度下降超出下限温度
6	Ht.oP	发热丝断路
7	Ht.St	发热丝短路
8	tr.St	可控硅短路
9	FU-1	保险丝1断路
10	FU-2	保险丝2断路

2-8 ）选择输出模式

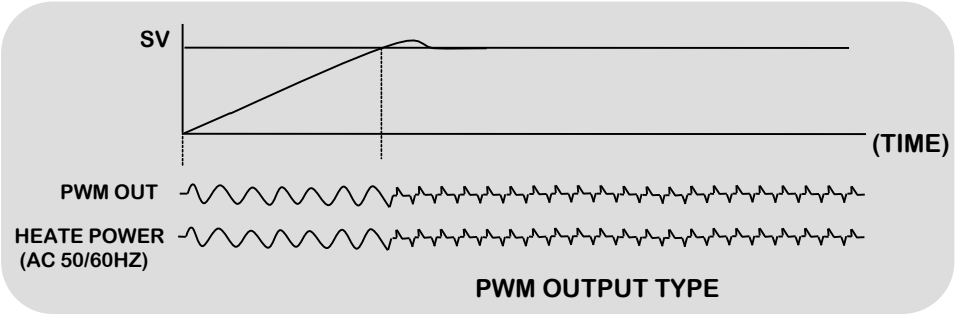
因周围环境的不同，可选择**PWM**和**SSR**不同的输出方式。

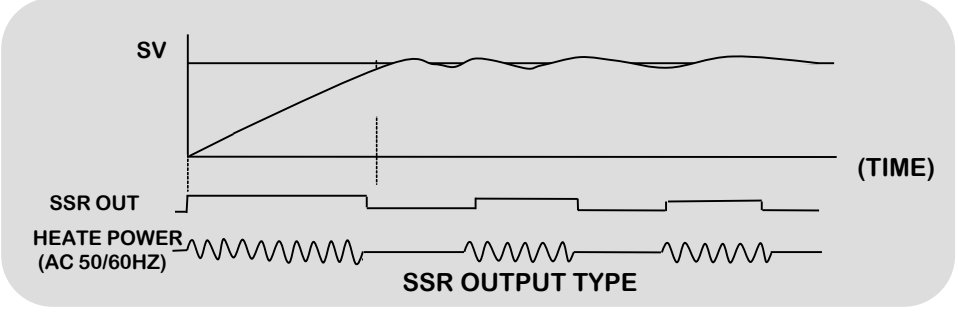
同时按三秒钟 MODE 键+ SET 键时，PV显示 - In- 状态。

此时再连续按七次 MODE 键，PV则显示 HSCI，SV显示 PnM 或 SSr 的输出方式。

。 可用 SET 键选择不同的输出方式 PnM (**PWM**)或 SSr (**SSR**) 。

设定结束后同时按 MODE 键+ SET 键。





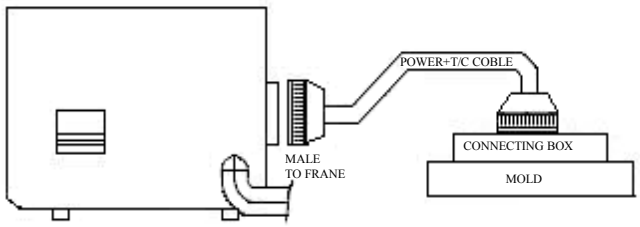
8、错误功能标示

NO	故障分类	故障排除方法
1	感温线发生异常时	-判断感温线是否断线或短路，正负极调换（REVERSED）等。或者正常使用时断线及发生短路时自动会转换成手动操作（MANUAL）状态，再把正常状态的出力量继续出力维持设定的温度。这样的功能可以预防因感温线的异常而引起的停止作业，也可以临时变更操作量出力方式。 -发生故障时感温线断路（tC,oP）、感温线短路（tC,St），感温线反接线（tC,rE）等可显示在PV上，解决所有的问题 后重新打开电源方可正常动作。
2	发热圈发生异常时	-判断发热圈是否断线，短路，高电流等状态，也可判断可控硅是否击穿，短路等。 -发生异常时发热圈断线（Ht, oP）, 发热圈短路(Ht, St) 可控硅短路（tr, St）故障显示在SV上，解决问题后重新打开电源方可正常运作。
3	保险丝断线时	-保险丝断开时把所属的号码记录在SV上。-问题解决后重新打开电源方可以正常工作。

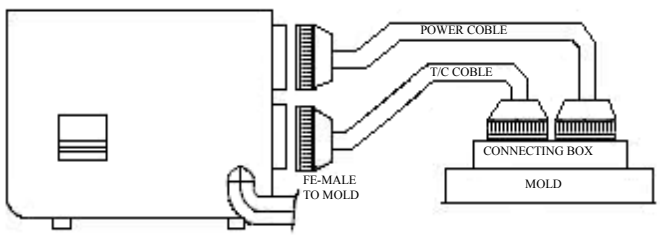
10、接线盒和线缆

接线盒是用于接在线缆末端，线缆用以把电源连接于模具与温控箱上的配件，根据所负荷的电容量，采用不同的线缆和插座。

标准规格：电源线与感温线于一体的单线缆

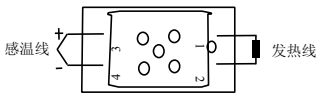


可选规格：电源线与感温线分开各成一线缆（共两组）

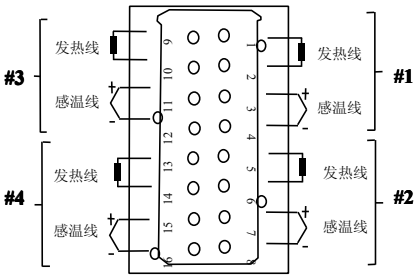


1）怎样把感温线和发热线接到接线盒上

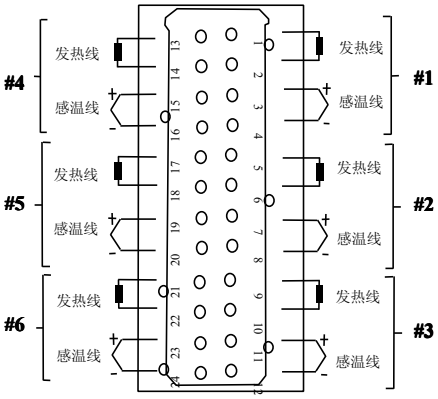
5针标准公插 1组



16针标准公插 2—4组



24针标准公插
5—24组



2)、标准规格

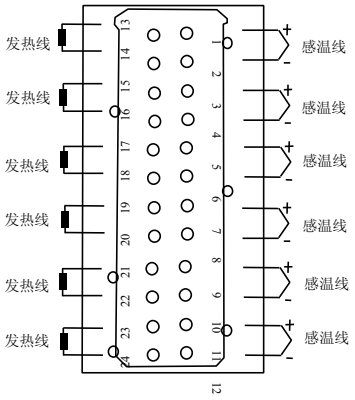
母插安置在主机上， ABIDO提供5针,16针,24针插座,其规格标准如下:

编号	温控箱	接线盒	数量
1	1 组	5针圆形插座	每一套1个
2	2 组	16针	每一套1个
3	3 - 4 组	16针	每一套1个
4	5 - 6 组	24针	每一套1个
5	7 - 8 组	24针	每一套2个
6	9 - 12 组	24针	每一套2个
7	13 - 16 组	24针	每一套3个
8	17 - 20 组	24针	每一套4个
9	21 - 24 组	24针	每一套4个

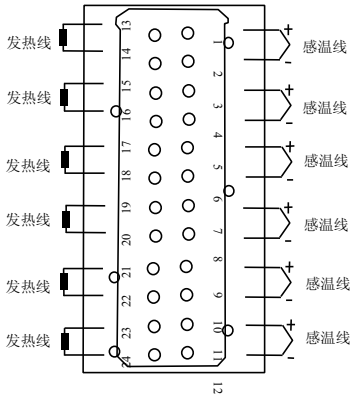
3） 选择

至于接线方法的选择，感温线与发热丝分开，此种方法的选择,因客户要求而定，但应客户的要求，非ABIDO标准的插座亦能提供，也可以根据定单的特殊要求，改装线缆，根据线缆规格配备温控箱插座。

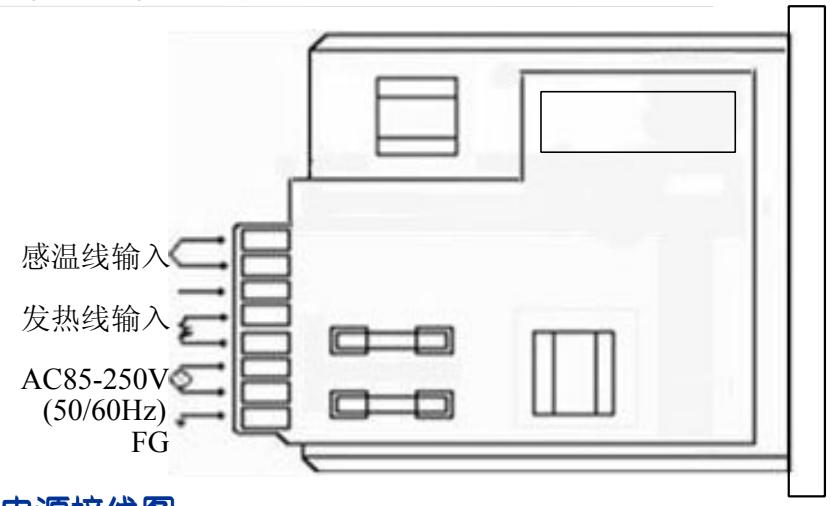
24针发热线母插



24针感温线公插

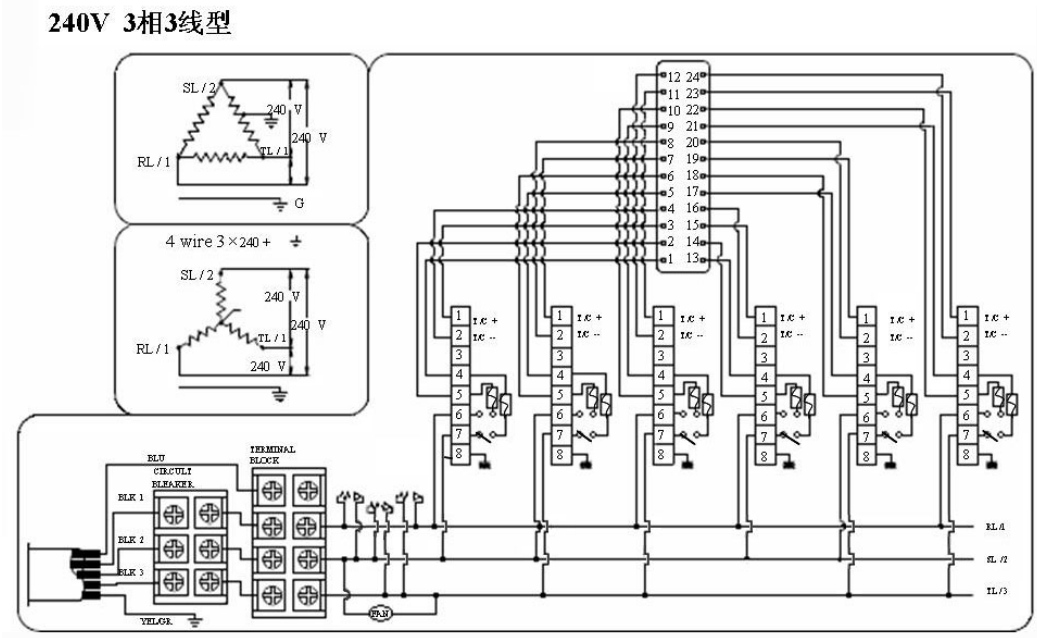


11、接线端接线方法及结构示意图

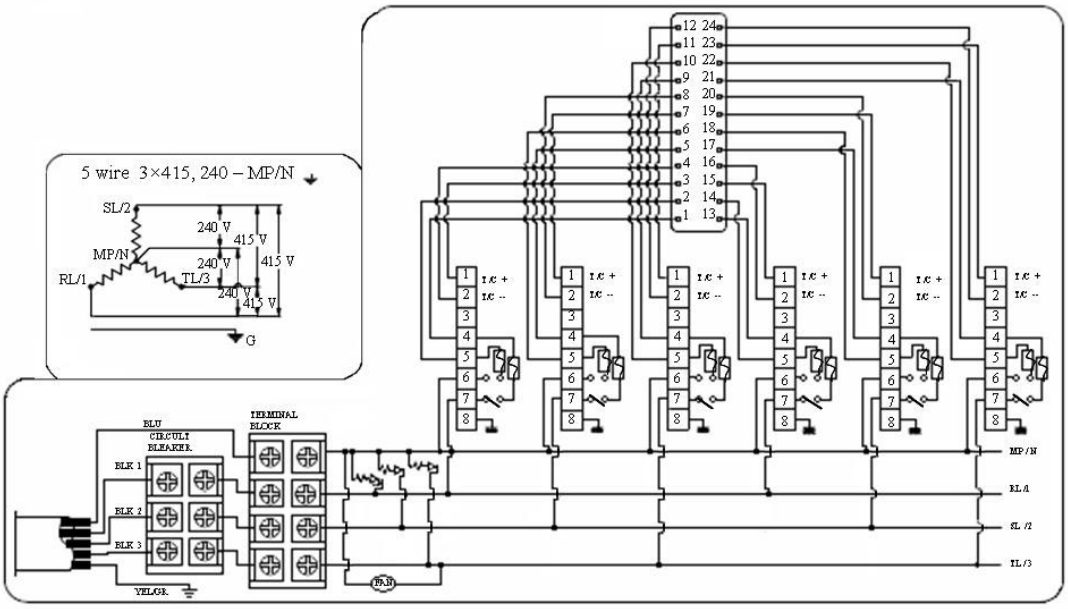


12、电源接线图

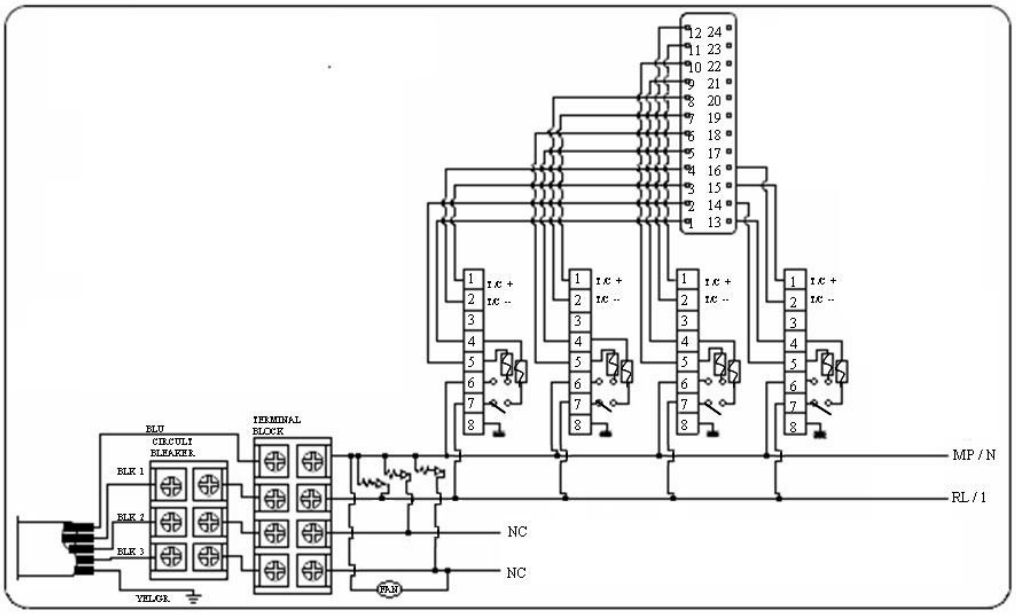
240V 3相3线型



380 / 414V 3相4线型



240V 单相2线型

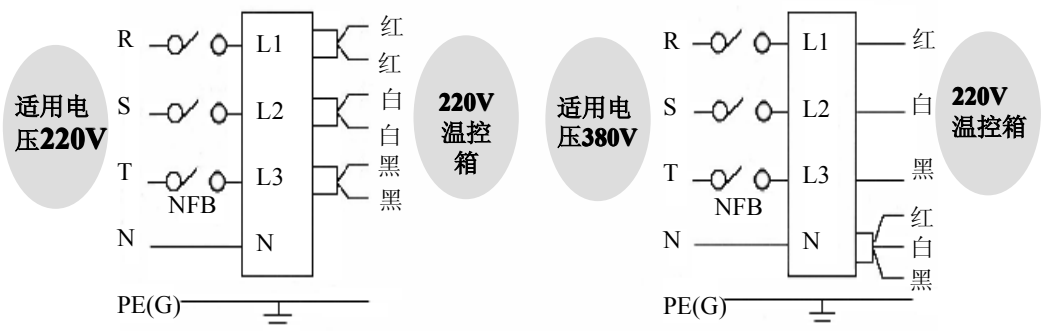


13、修改接线方法

ABIDO温控箱操作使用的电压为220V-240V交流电，如是使用380V – 450V 3相4线交流电，其重新接线方法如下。220V-240V 交流电可选用单相（R、S或T）及不带电。除客户有特别要求，ABIDO的温控箱一般提供220 -240v交流电的接线。敬请检查电流接线方法。

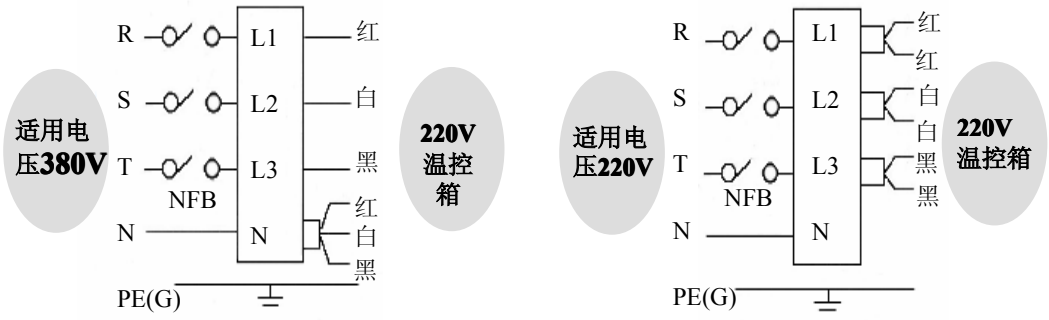
注意： 重新接线时，应确认交流电源主开关和温控箱电源开关关闭。

由220V 交流电改380V交流电重新接线方法如下：



1、切断电源及关闭温控箱的电源开关。
2、拧开温控箱后盖。
3、把L1、L2、和L3的蓝色护套线分开后全部接在N上。
4、把输入蓝色电源线N延长后接在N极上。
5、上右图为转换后的排线图。

由380V 交流电改220V交流电改线方法如下：



1、切断电源。
2、打开温控箱后盖。
3、从N中的3根蓝色护套线取下。
4、把蓝色套红线插进L1，把蓝色套白线插入L2，把蓝色套黑线插入L3：输入蓝色电源线N从总电源线N极中断开。
5、上右图为转换后的排线图。

注意： 切勿把PE线插入N，如把PE线插入N可引发毁坏温控箱，如这种情况，ABIDO公司将不承担责任。

14、默认值

1、用户默认值

序号	菜单	设定值
1	SV(设定温度)	200℃
2	AL-H(温度上限警告)	50℃
3	AL-L(温度下限警告)	-50℃
4	STANDBY	T(时间) 1.00小时
		P(比率) 75%(150℃)
5	LOCK(可设定状态)	OFF
6	-ID-(个别标示)	CH00

2、提供(供应商)的设定默认值

序号	菜单	设定值
1	-IN-(感温线类型)	J 或 K 型（任意选择）
2	C-F(摄氏、华氏)	摄氏或华氏供选择
3	UNIT(温度单位)	1.0
4	SOFT(软启动功能)	ON
5	HC-H(最大电流)	C 16.0
6	HC-L(最小电流)	C 00.2
7	-RE-(故障记载)	0.1-0
8	-HSCI-(输出模式)	PWM

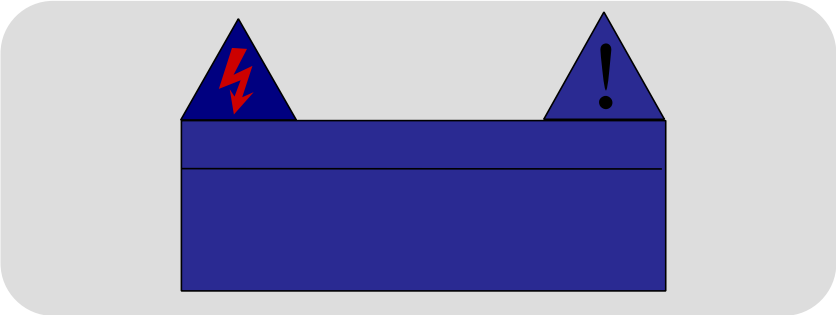
15、安全标示

	注意内部高电压
	维修之前请关闭电源

16、故障现象及检查方法

NO	现象	原因	检查事项
1	PV显示tC.oP	感温线断路	-用万用表检查感温线。 -如断路时，请更换感温线。
2	PV显示tC.St	感温线输出端短路	-检查感温线和温控箱有无接触不良或者是否被模具压着
3	PV显示tC.rE	感温线的正负极接反	-检查接线状况,然后更换钉在模具接线盒中感温线的正负性。
4	SV显示Ht.oP	发热丝断路	-用万用表检查发热丝的电阻后断路时换发热丝
5	SV显示Ht.St	发热丝短路或者发热丝太短 发热丝的容量大于15A或更大	-用万用表检查发热丝的漏电或者发热丝的短路 -换容量15A以内的发热丝
6	SV显示tr.St	装在表芯散热板上面的可控硅损坏	-确认可控硅的极不良：2个极N或者3个极全部短路
7	SV显示FU-1	因瞬间电压过高，保险丝F-1断路	-换保险丝 F-1（250V 15A）
8	SV显示FU-2	因瞬间电压过高，保险丝F-2断路	-换保险丝 F-2（250V 15A）
9	温度不停上升	装在表芯散热板上面的可控硅损坏 F-1或F-2保险丝爆裂	-确认可控硅的极不良：2个极或者3个极全部短路. -更换保险丝
10	温度不停下降	发热丝断路 发热丝连接处断路 感温线断路	-用万用表确认发热丝的电阻 -检查发热丝连接部位 -确认感温线是否断路
11	设定温度和实际温度偏差很大	感温线接触不良时 感温线型号不符时	-检查感温线的接触状态 -确认感温线型号
12	温控箱的温度正常但是发热丝温度过高	感温线压在模具上或包皮已破，以至与模具或线接触了	-检查、更换新的感温线
13	温控箱的设定温度与实际温度相同，但发热丝过热	模具的感温线与温控箱的感温线不一致,如:CA(K)-- IC(J) IC(J)-- CA(K)	-使模具和温控箱的感温线相一致

1、Items to check before using the Controller &Operation Procedure

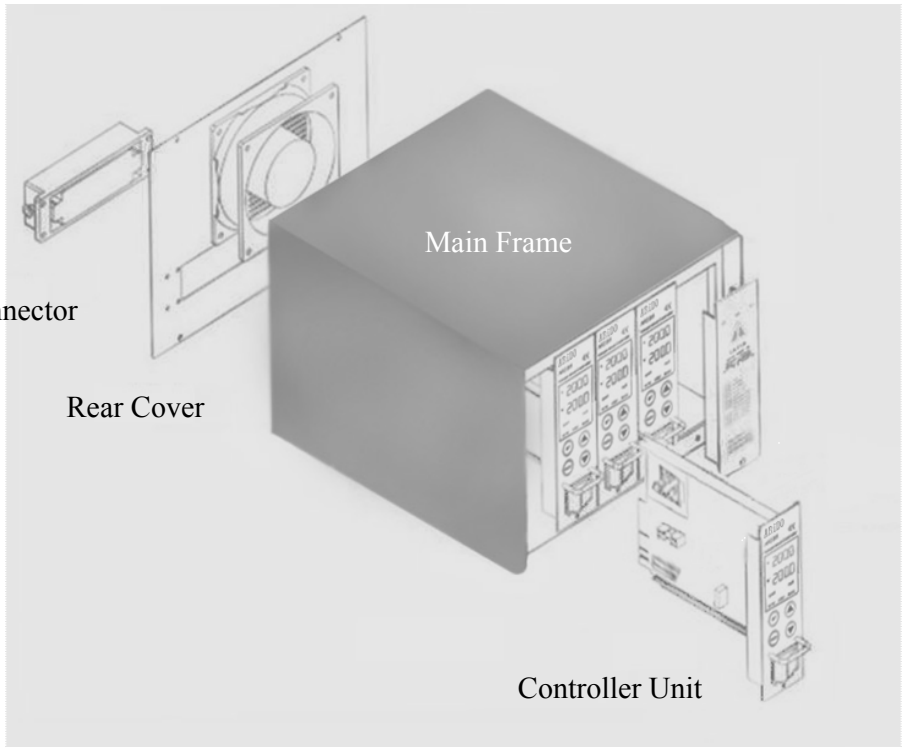


- 1) Check the wiring status of the connector attached to the mold and the type of T/C.
- 2) Check if the power lines are separated from the T/C lines and they are arranged in order.
- 3) Check if the trunk specification fits to the controller.
- 4) Check connection and wiring state of the trunk..
- 5) Check resistance and insulation state of the heater, then check if T/C wire is disconnected.
- 6)After the mold is fixed at the injection machine, connect the mold cable.
- 7)Check if the Power Switches of the Main & Units are off.
- 8)If Input Voltage (240V/380V)fits to the controller voltage specification, connect Power Cable. (Input power voltage is noted on the label of the controller case. If the power input voltage does not fit to that written on the label, ask a territory office and correct the controller wiring. False wiring can cause malfunction of the controller and damage on the unit).
- 9) Ensure grounding wire of the controller. failure to do this (green line) can cause damage to fuse and Triac due to noise voltage.
- 10) Turn on the Main Power Switch first.
- 11) Then, turn on the Unit Power switch.
- 12) Set up the appropriate temperature.
- 13) Check if the desired temperature is reached and stabilized.

CAUTION : To prevent possible malfunction of the temperature control modules, the cooling fan MUST OPERATE AT ALL TIMES.

2、 Basic Structure of controller

Installation Condition: The bottom side is blocked for the safety



3、Outline of Controller

The controller is a device that has a function to maintain the desired temperature consistently by sensing the state of Hot Runner System by use of high-intellectual computer system named MICOM to input proper power. It has several important functions for precise temperature control.

1) PID control

It is a method in order to maintain temperature at the set temperature accurately by controlling Output Power reflecting proportion, integration, and differentiation values.

2) Auto tuning

It is a function to extract the governing factors through analyzing capacity of the heaters and heat constant of the mold (characteristics of latent heat and released heat). It helps precise control of temperature regardless of environmental change.

3) Output method

Output method can be changed depending on environment.

PWM mode: Precise temperature control and be achieved. But electric noise is bigger than that in SSR mode.

SSR mode: Electric noise is small, but the specific temperature controlling ability is inferior to PWM mode.

4、Controller Unit Specification

Indoor use.

Power Input Voltage：AC86 - 250V 50/60Hz 15A

Load capacity：15A，50W-1650W(110)，100W-3300W(220V)

Output Type：PWM (Pulse Width Modulation), SSR (Solid State Relay)

Sensor Type: Thermocouple (J or K)

Temperature Setting Range: 100℃-450 ℃, 212℉-752℉

Temperature Stability: ±0.5%

Temperature Control Type :PID CONTROL

Surrounding temperature: -10℃~50 ℃

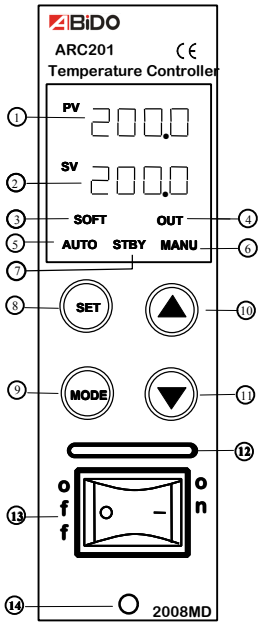
Altitude: up to 200MM

Over Voltage Categories II

Degree of Mobility: Plug-in module

F1,F2:250V-15A(Special Fuse) F3:250V-1A

5、Name of Components



1 PV FND	Display Measured Temperature of Hot Runner System
2 SV FND	Displays the Set Temperature of Hot Runner System
3 SOFT LED	Display SOFT Operation
4 OUT LED	Display Power Output State
5 AUTO LED	Display Auto Mode is selected
6 MANUAL LED	Display Manual Mode is selected
7 STAND-BY LED	Display Stand-by Mode is selected
8 MODE	Mode Change Key
9 SET	Enter Key
10 UP	Value Increase Key
11 DOWN	Value Decrease Key
12 MODULE Handle	
13 MODULE Power Switch	
14 MODULE Lock Bolt	

6、Operation Modes

1) AUTO Mode

Normal operation mode in which the temperature is controlled and maintained automatically in accordance with the Set Degree.①Display conversion: When key is pressed, the display on MODE SV is converted as the following order:

[Set temperature **P**] →[Output **A**] →[Ampere **C**] →[Set temperature **P**].

2) STAND-BY Mode

Reduce the Output Power to the Given Rate for the given time, When it is needed to stop production for a while on the way or production.

① Holding SET key for 3 second in AUTO mode will convert it into STAND-BY Mode.

②Temperature setting value (SV) is changed into % rate on the basis of the Set Temperature during Stand-by mode is working.

③Output power is reduced to maintain at the STAND-BY Temperature.

④STAND-BY Mode will finish after the given time, and move into AUTO Mode.

3) MANUAL Mode

User can adjust Power Output by using and key for Emergency Manual Operation at his will.

①When holding SET key is pressed twice, for 3 seconds each at the Auto Mode, It turns into Manual mode.

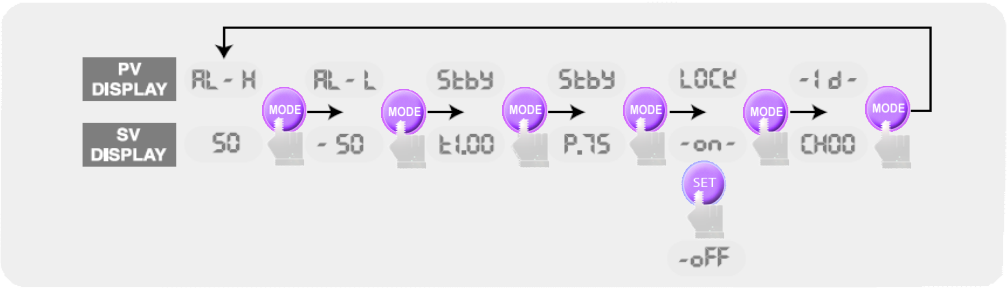
②If sensor detect any disconnection of Thermocouple (tC.oP) or Thermocouple Short (tC.St), it is converted into Manual mode automatically for a emergency operation mode.

③Setting value(%) can be modified with and keys.

7、Menu Setting

1) User's Setting Menu

User's setting menu diagram



◆Press MODE key for 3 seconds in order to start User's setting menu.

◆ MODE key is used for setting function. SET key for ON/OFF. ▲ and ▼ keys for changing parameter.

◆To save as Set value, press MODE and SET keys together. But also Present value is replaced automatically as Set Value unless any key to pressed for 5 seconds.

◆Modifying Set Value must be done under LOCK OFF Mode.

1-1) AL-H (High Limit Alarm Function)

when the temperature become higher than Setting Value, the AL-H function is operated.

① when MODE key is hold for 3 seconds, AL-H is displayed on PV, and the High Limit Value for AL-H is display on SV.

②The value can be set through 00-99 by using ▲ and ▼ key, and the Initial Value is set as 50 at the factory.

③To save as Set Value, press MODE and SET keys together.

1-2) AL-L(Low Limit Alarm function)

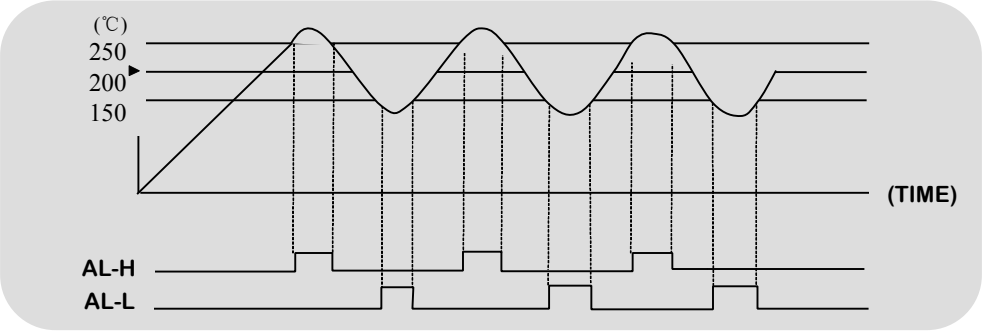
when the temperature become lower than Limit Set Value, the AL-L function is operated.

◆For the first push MODE key for 3 seconds, then press the key once again. AL-L will be displayed on PV, and the Setting Value for the AL-L will be display on SV. ◆The value can be set through -99-00 by using ▲ and ▼ key, and the Initial Value is set as -50 at the factory.

◆To save as Set Value, press MODE and SET keys together

Ex) In case SV (Temperature Setting) is set as 200℃, AL-H (High Limit Alarm) as 50 ℃, AL-L (Lowest Limit Alarm) as -50 ℃:

=>AL-H start as 250 ℃ of measured temperature, AL-L at 150 ℃.



1-3) STBY (STAND-BY SETTING)

(1) t (STAND-BY Time Setting)

◆ Hold MODE key for 1 seconds and find AL-H is displayed on PV, Then press it twice more until Stby will be displayed on PV.

◆For the conversion between Hour and Minute, press SET key.

◆Stand-by Time can be adjusted from 0 (minutes) till 9 hours 59 minutes by use ▲ and ▼ keys.

(2) t (STAND-BY Temperature Setting)

◆At the state of Stand-by Time setting, Push SET key to convert into Stby Temperature Setting Mode

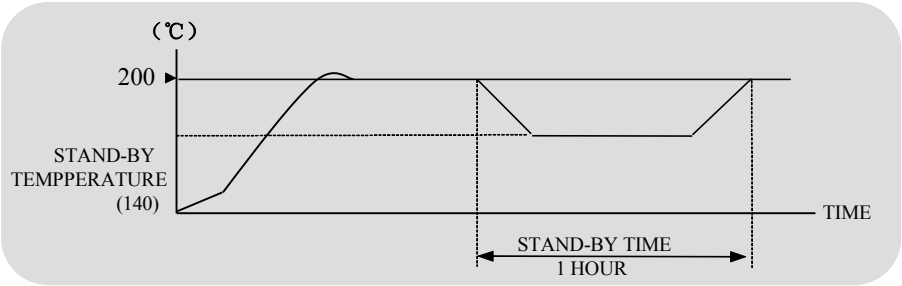
◆The % rate on the basis of Set Temperature is displayed on SV.

◆The value can be set in the range of 00-99% with ▲ and ▼ keys.

◆To save as Set Value, press MODE and SET keys together.

Ex) In case of that SV (Temperature Setting) is set as 200, t (Stand-by Time) as 1 hour(1:00),P (Standby Temperature%) to P.75:

=>Stand-by Mode is operated for 1 hour and her Temperature for Standby Mode is set as 140 ℃ (75%×200 ℃)



1-4) LOCK (Key S/W Locking device)

You can lock your parameter, and use this function to prevent form the change of parameter by mistakes of user.

◆ Hold MODE key for 3 seconds, and find AL-H is displayed on PV.

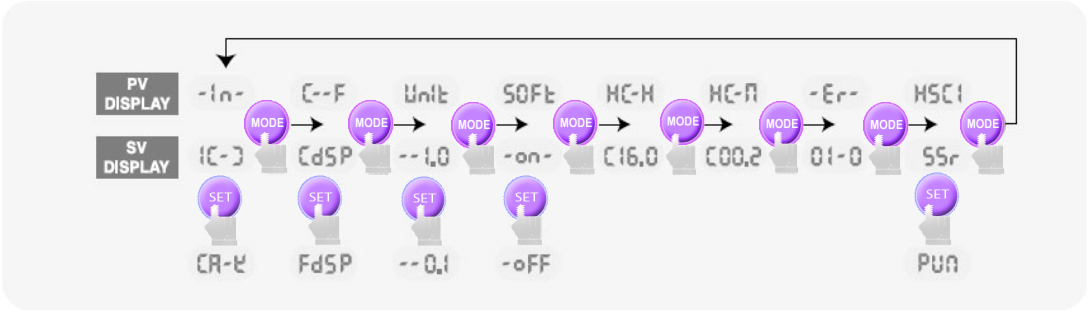
◆Press it 4 more times until LOCK is displayed on PV, then you can see the OFF on SV.

◆Choose NO or OFF with SET key.

◆To save, press MODE and SET keys together

2) Factory settings menu

Manufacture settings menu diagram



◆ Press MODE and SET keys together, for 3 seconds.

◆Press MODE for functions, SET key for NO/OFF, ▲ and ▼ key for setting parameter.

◆To save the value, Press MODE and SET key together. But also it will to save automatically after 5 seconds, unless any other key is pressed afterwards.

◆Setting must be done under LOCK OFF Mode.

2-1) - IN - (Sensor selecting function)

Type of Thermocouple can be selected to measure the Heater Temperature.

◆Hold MODE and SET keys for 3 seconds together, Then –IN- will be displayed on PV, and J or K (sensor type) will be displayed on SV .

◆Press SET key be selected sensor type.

◆To save, press MODE and SET keys together.

2-2) C - F (Celsius and Fahrenheit degrees Selection)

Each Celsius or Fahrenheit degrees can be selected for temperature units. Display as C--F.

◆Hold MODE and SET keys for 3 seconds at the same time, then –IN-will be displayed on PV.

◆Press SET key again to display C—F on PV and CdSP/FdSP (selected temperature display type) on SV.

◆Temperature unit can be selected by SET key.

◆To save as Set Value, press MODE and SET keys together.

2-3) UNIT (Temperature display Unit Setting)

This is a function to select Temperature Units displayed. You can choose 1.0 or 0.1 for temperature units.

◆Hold MODE and SET keys for 3 seconds together, Then –IN- will be displayed on PV.

2-4) SOFT (Soft START Setting)

This helps to avoid humidity-caused damage in heater, by outputting 1~30% of Input Power for 1 minute at the beginning of Power Supply, in order to check connection state of a heater and sensors, and start smooth control action at low heat state.

◆Hold MODE and SET keys for 3 seconds together. Then –IN- will be displayed on PV.

◆Press MODE key three more times to display SoFt on PV and ON/OFF on SV.

◆SOFT START (ON/OFF) can be selected with SET key.

◆To save, press MODE and SET keys together.

2-5) HC-H (High limit Current Setting)

This is provided to detect malfunction of the heater (disconnection). It displays "HtSt“ sign, and stops output, when the current becomes bigger than the high limit .

◆Hold MODE and SET keys for 3 seconds together, Then -IN- will be displayed on PV.

◆Press MODE key 4 times more to display HC-H on PV and the High Unit Current Value SV.

◆The value can be changed by use of ▲ , ▼ keys.

◆To save as set value, press MODE and SET keys together.

2-6) HC-L(Low limit Current Setting)

This is a function to detect malfunction of the heater (disconnection). It displays "Ht-oP" alarm sign, and stops output when the current is smaller than the Low Limit.

◆Hold MODE and SET keys for 3 seconds at the same time, then –IN-will be displayed on PV.

◆Press MODE key 5 times more to display HC-L on PV and the Lowest limit Current Value on SV.

◆The value can be changed by use of ▲ , ▼ keys.

◆To save as set value, press MODE and SET keys together.

2-7) Error Code saving function

Error Codes are saved in memory in order of sequence.

◆Hold MODE and SET keys for 3 seconds together, Then –IN- will be displayed on PV

◆ Press MODE key 6 times more to find –Er- on PV, and the stored Error Code on SV.

◆Error Code can be saved up to 20 cases.

◆The other content can be displayed in sequence, when pressing ▲ and ▼ key is repeated

ERROR OCCURRENCE SIGN

NO	ERROR SIGN	DESCRIPION
1	tC.oP	Sensor Disconnection
2	tC.St	Sensor Short-Circuit
3	tC.rE	Sensor Polarity Reverse
4	AL-H	High limit Alarm
5	AL-L	The Low limit Alarm
6	Ht.oP	Heater Disconnection
7	Ht.St	Heater Short
8	tr.St	Triac Short
9	FU-1	Fuse 1 Disconnection
10	FU-2	Fuse 2 Disconnection

2-8) Setting Output Method

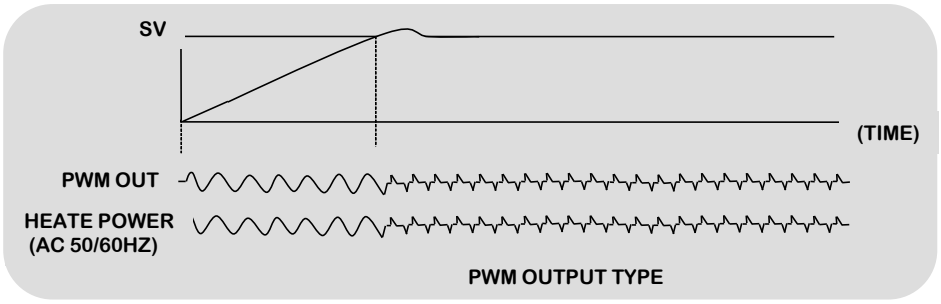
PWM and SSR are available depending on the user's choice considering environment.

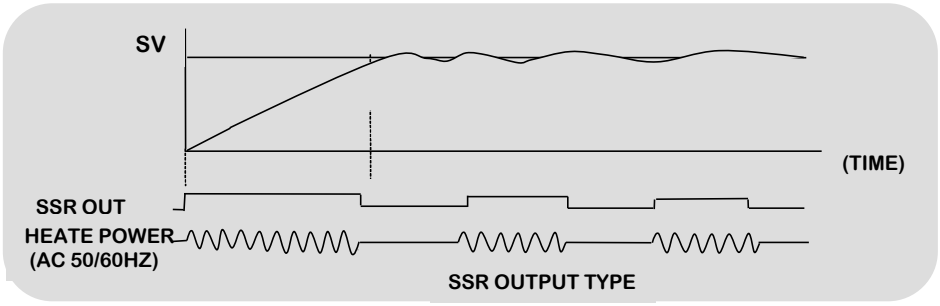
◆Hold MODE and SET keys for 3 seconds together, Then –IN- will be displayed on PV.

◆Press MODE key 7 times more to display HSCI on PV and PWM/SSR (Output Method) on SV.

◆Output method can be selected by pressing SET keys.

◆To save, press MODE and SET keys together.





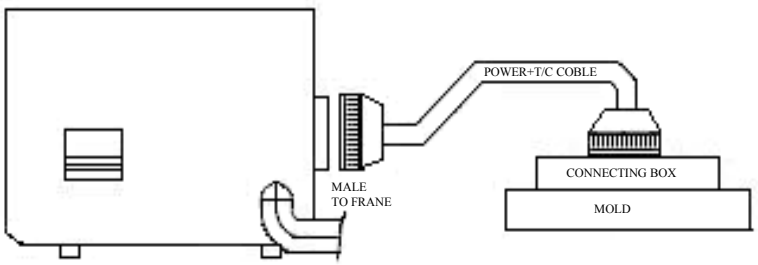
8、Error Code Display Function

NO	Error classification	Description
1	Malfunction on Temperature Sensor	- Disconnection, Short, or Reversed Polarity of Sensor can be checked. When Disconnection or Short is detected, it is converted into Manual Operation Mode automatically, and Power Output will be continued to maintain at the Set Temperature. This function helps to prevent interruption in production due to malfunction of a sensor, and Output Power can be adjusted manually at will. - On error occurrence, Sensor Disconnection (tC.oP), Sensor Short (tC.St), and Sensor Reversed (tC.rE) could be display on PV. When the problem is solved, power must be put again to recover Normal Operation.
2	Malfunction on heater	- Disconnection, Short Circuit, and Over Current of heater can be detected. Short status of Output Device (SSR,TRIAC, RELAY) can be checked also. -On error occurrence, Heater Disconnection (Ht- oP), Heater Short (Ht-St), and TRIAC short (tr-St) could be displayed on SV. When the problem is solved, power must be put again to recover Normal Operation.
3	FUSE Disconnection	- In case the fuse blown out, related fuse number is displayed on SV. -When the problem is solved, power must be put again to recover Normal Operation.

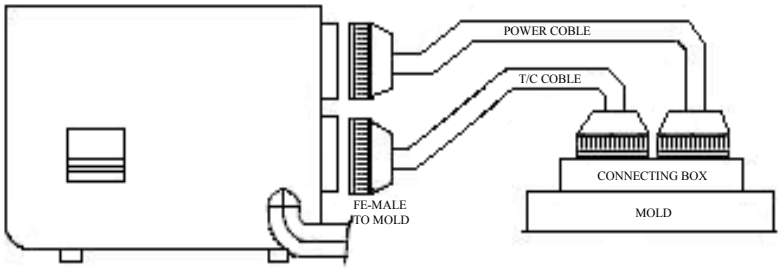
9、 Connector and Cable

Connector is a component attached to the end part of cable in order to make it easy to connect/disconnect the wire to the mold / controller. Various kinks of connectors are used depending on load capacities.

Standard Spec.: Integrated wire (power +T/C)

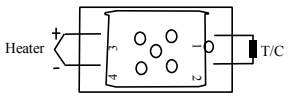


Optional Spec.: Separated wire (power +T/C)

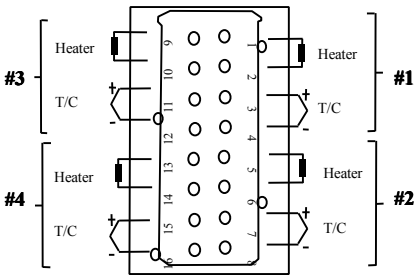


1) How to wire a heater and T/C in connectors

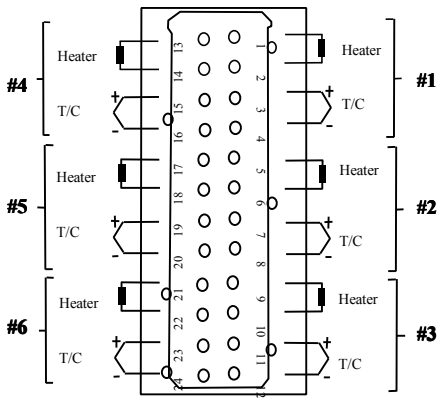
5 Male standard connector
1Zone



16 Male standard connector
2 Zone - 4Zone



24 Male standard connector
5 Zone – 4 Zone



2) Standard specification

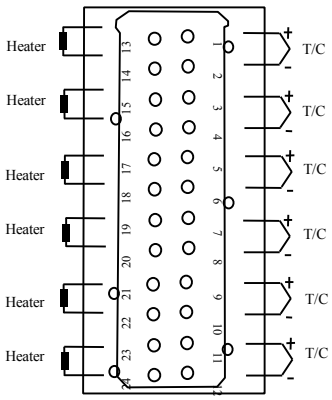
Female connector is attached to the mainframe, and ABIDO supply it with 5 pin, 16 pin and 24 pin as same to the following standard.

NO	CONTROLLER	CONNECTOR	QUANTITY
1	1 ZONE	5P Round Jack	1 EA
2	2 ZONE	16P	1 EA
3	3 - 4 ZONE	16P	1 EA
4	5 - 6 ZONE	24P	1 EA
5	7 - 8 ZONE	24P	2 EA
6	9 - 12 ZONE	24P	2 EA
7	13 - 16 ZONE	24P	3 EA
8	17 - 20 ZONE	24P	4EA
9	21 - 24 ZONE	24P	4 EA

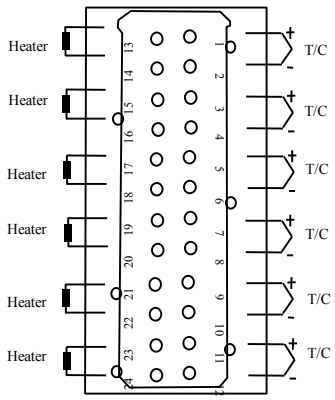
3) Options

As for option is wiring , Separated power lines from that of T/C can be selected depending on customer's preference. But also the other connector out of ABIDO standard could be equipped when those are supplied form customer. In case that, a cable is fabricated according to special order. Controller Connector must be fabricated in accordance with the cable Specification.

24P Female heater Connector

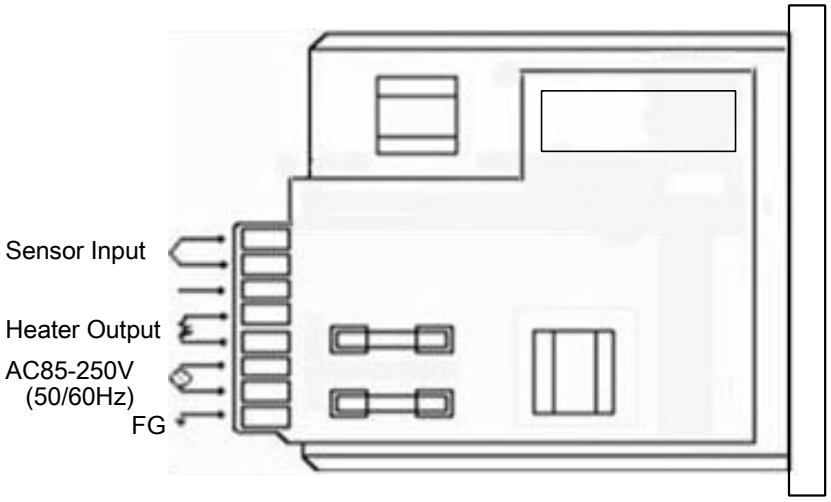


24P Male T/C Connector



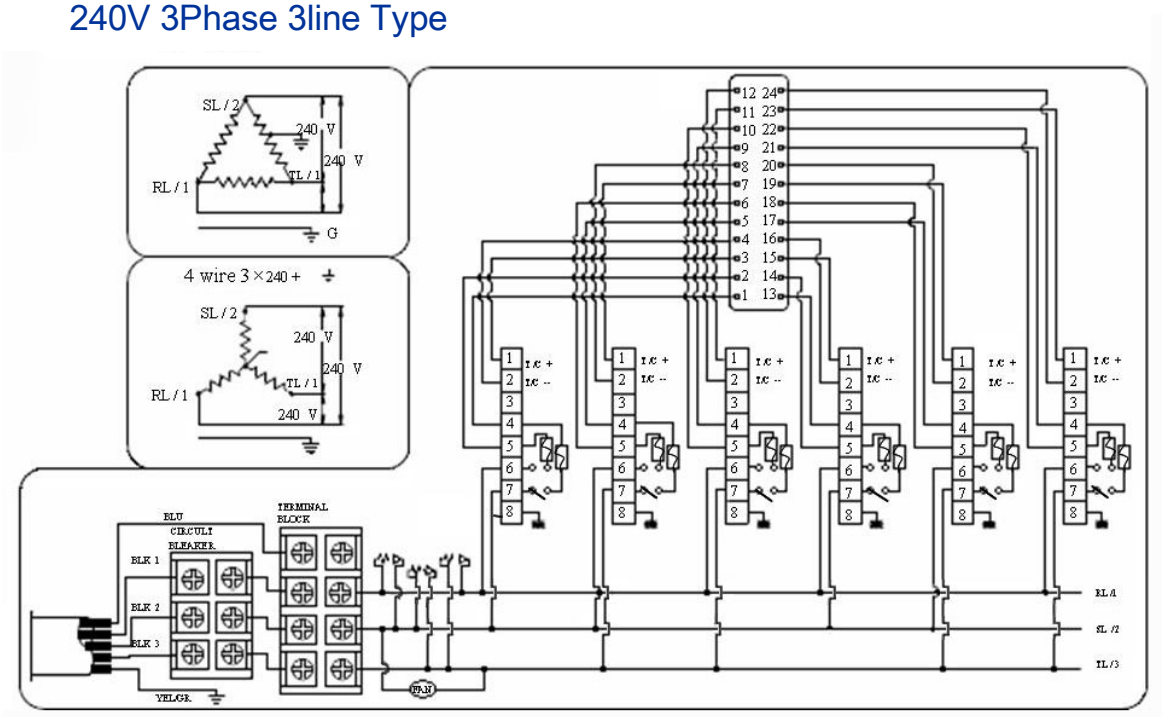
As for Zone No.: Please refer to the standard spec.

10、 Diagram for Terminal Connection and Structure

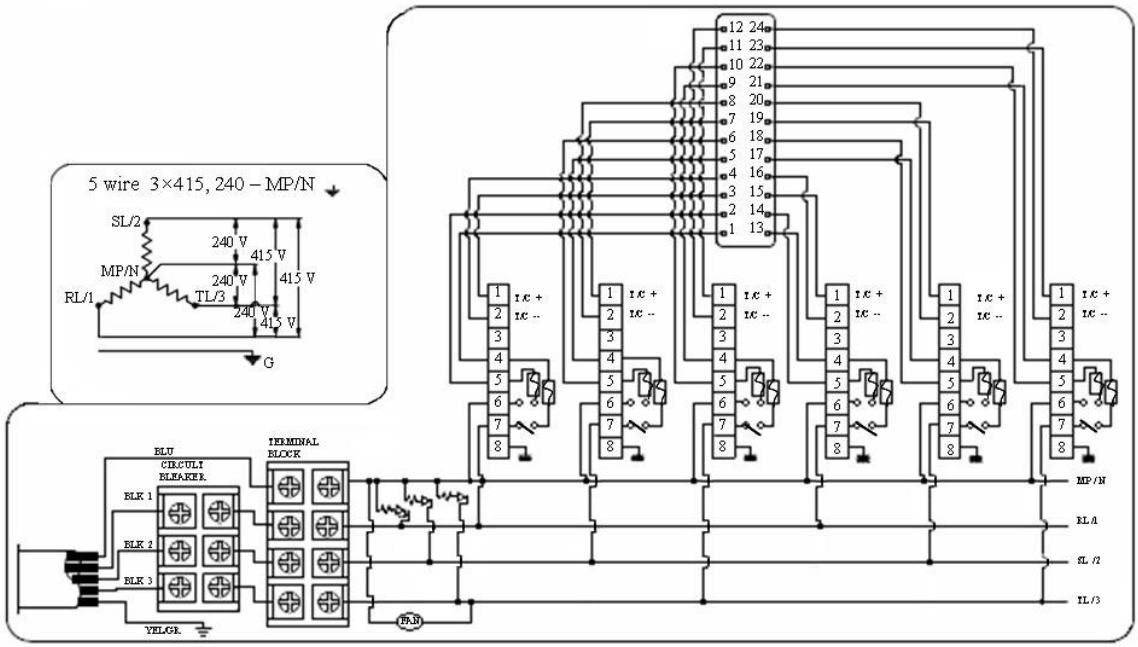


11、Electric Wiring Diagram

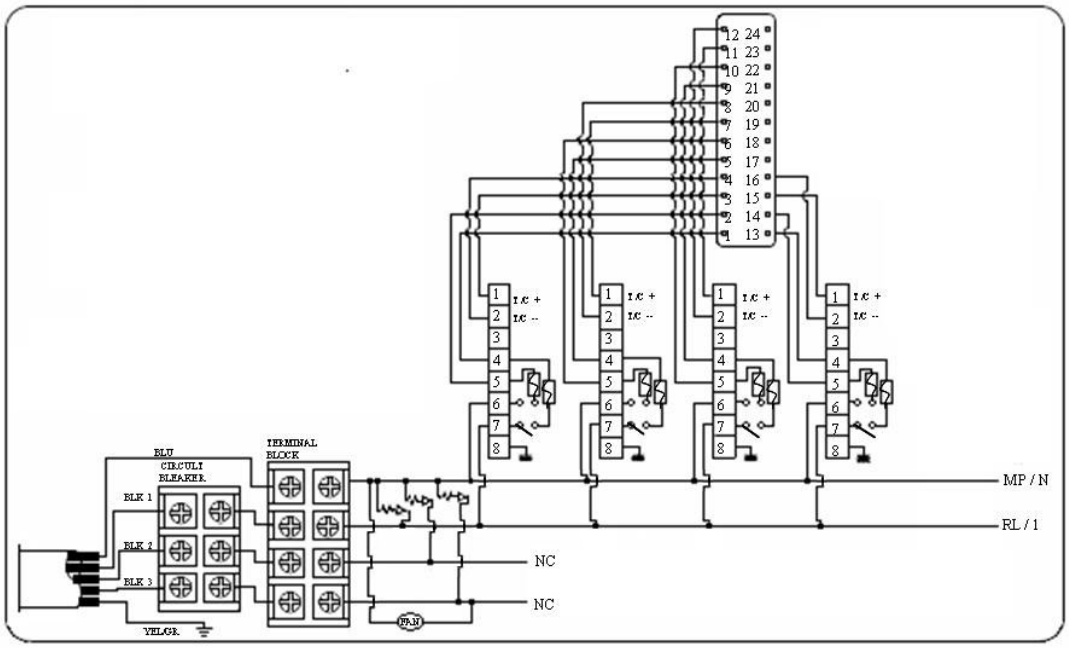
240V 3Phase 3line Type



380V/414V 3Phase 4line Type



240V 1Phase 2line Type



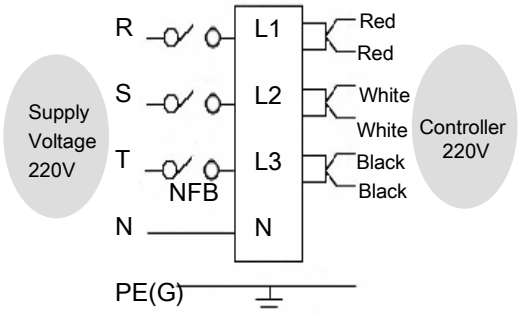
12、Wiring modification method

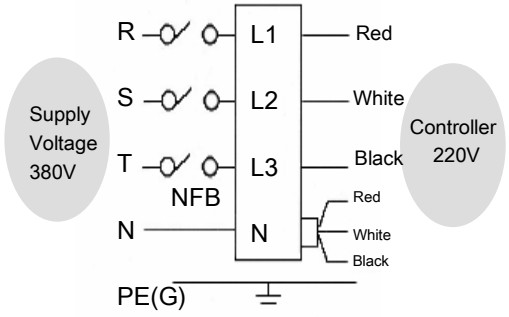
ABIDO Temperature Controller operates with supply voltage 220-240AC. But even in case of supply voltage 380-415V AC 3phase 4 line, by re-wiring as shown

below,220-240V AC can be taken between one phase (R, S or T) and Neutral (N). ABIDO Temperature Controller be supplied with wiring for supply voltage 220-240V AC unless special instruction. Please check the current wiring.

Caution: Before re-wiring, make sure AC main power OFF and Power Switch OFF on controller.

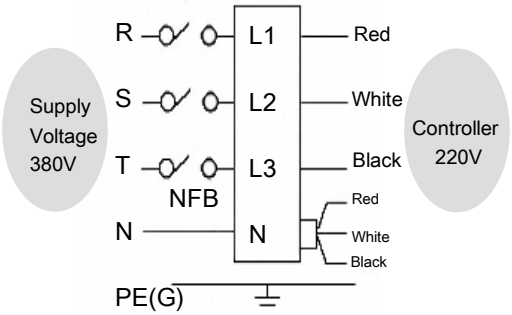
Re-wiring for supply voltage 380V AC from wiring for supply voltage 220V AC.

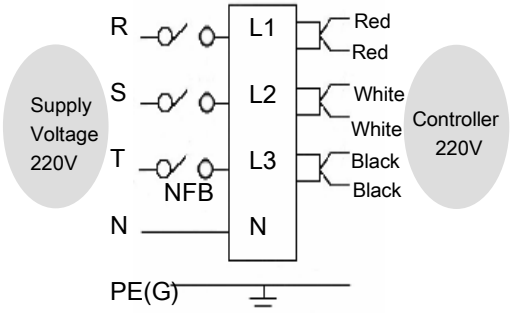




1. Power off
2. Open the back cover of controller
3. Separate all 3 blue-sleeved wires from L1, L2 and L3.
4. Plug all 3 blue –sleeved wires into N

Re-wiring for supply voltage 220v AC from wiring for supply voltage 380V AC.





1. Power off
2. Open the back cover of controller
3. Separate all 3 blue-sleeved wires from N
4. Plug blue–sleeved RED wires into L1
5 . Plug blue–sleeved WHITE wires into L2
6 . Plug blue–sleeved BLACK wires into L3

Warning: Do not plug PE wire into N. Plugging PE wire into N may cause damage of controller, for which ABIDO will not take responsibility.

13、Default Value

1) Default Value of user's Menu

NO	Menu	Setting Value
1	SV (Setting Temperature)	200℃
2	AL-H (High Limit Alarm)	50℃
3	AL-L (Low Limit Alarm)	-50℃
4	STANDBY	T (time) 1.00 Hour
		P (Rate) 75%(150℃)
5	LOCK (Can Setting State)	OFF
6	-ID-(Identification marking)	CH00

NO	Menu	Setting Value
1	-IN-(Sensor Type)	J or K (optional)
2	C-F (Celsius/Fahrenheit)	CdSP or FdSP (optional)
3	Unit (Temperature Unit)	1.0
4	SoFt (Soft start function)	On
5	HC-H (high limit Current)	C 16.0
6	HC-L (lowest Current)	C 00.2
7	-Er- (Error History)	0.1-0
8	HSCI(Output Method)	PWM

14、Security Marks

	DANGEROUS VOLTAGE INSIDE
	DISCONNECT AC BEFORE SERVICING

15、Check Point for the Trouble Shooting

No	Phenomenon	Probable Cause	Check Point
1	tC.oP on PV	-Sensor (T/C) was disconnected	-Check T/C wire with tester -When disconnected replace it
2	tC.St on PV	-Sensor (T/C) wire is short on output side	Check if T/C wire is mal-contacted at Connector of pressed by mold
3	tC.rE on PV	-+/-polarity of sensor (T/C) is changed	-Check connection and change polarity of T/C at connector affected to mold
4	Ht.oP on PV	-Heater was disconnected	-Check resistance of heater with tester, If it is blown out replace heater
5	Ht.St on PV	-Short circuit in heater or short in heater wire -Capacity of heater is too high (15A or more)	-Check short circuit of heater of short in heater line with tester. -Make wiring so that capacity of heater may lower than 15A
6	tr.St on PV	-TRIAC attached to heat radiation	-Check pin in TRIAC -2 or 3 pins may short circuit
7	FU-1 on PV	-F-1 fuse is disconnected by momentary over-current	-Replace F-1 fuse (250V 15A)
8	FU-2 on PV	-F-2 fuse is disconnected by momentary over-current	-Replace F-2 fuse (250V 15A)
9	Temperature rises continuously	-TRIAC attached to heat radiation board of controller is damaged.	-Check pin in TRIAC -2 or 3 pins may short circuit
10	Temperature drops continuously	-FS1 of FS2 fuse blown out -Heater blown out -Heater wire disconnection -Sensor (T/C) disconnection	-Change fuse -Check resistance of heater with tester -Check connection of heater -Check sensor disconnection
11	Severs temperature (Deviation between set temp.& Sensing Temp.)	-Sensor contact is unstable -Sensor type is different each other	-Check contact state of sensor -Check sensor type
12	Controller Temp. rise, but heater in actual mold is overheated	-T/C wire is pressed by mold or it coat is peeled, so as to contact mold or line.	-Check and replace T/C wire
13	Setting temperature of controller equals with present temp., but the heater in actual mold is overheated or cold	-T/C Sensor type between mold and controller is different EX: CA(K) - IC(J) IC(J) - CA(K)	-Make T/C (sensor) type of mold with that of controller.