

■ The necessity and features of PID Temperature Controllers

In order to secure and stabilize the quality of the molding components, the function to maintain the temperature as stable as possible and to reduce the range of vertical temperature for mold preset temperature is necessary.

By adopting the PID control system, this controller eliminated the difficulty of adjusting the temperature of the mold that uses a heater.

- PID (Proportional Integral Derivative) control system. (*1)
- Suitable for highly accurate mold components that are easily affected by the variations in temperature and mold components that need the temperature control.
- Unlike the conventional ON/OFF control system (*2), the variations in mold temperature can be suppressed.

<Difference in temperature control regarding the preset temperature>

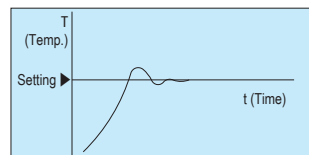


Fig.1: PID control system

*1 What is PID control?

PID is a control system method that extremely suppresses the range of variation in which the temperature rises and falls according to the mold preset temperature. In addition, by combining the PID function and SSR (Solid State Relay), this controller automatically adjusts the power supply to the heater by the PID control function, improving the accuracy according to the preset temperature.→Refer to Fig.1

⦿ Depend on the position of the temperature sensor and the heater, the variations in temperature might occur.

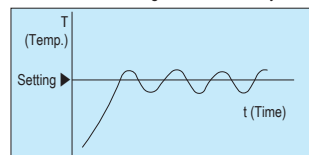


Fig.2: ON/OFF control system

*2 What is ON/OFF control system?

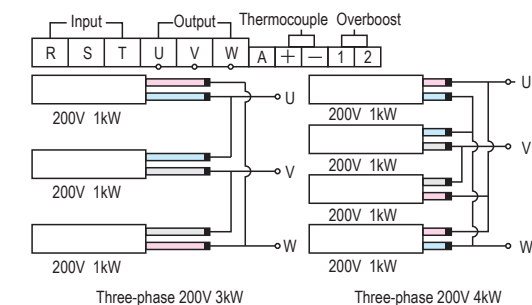
It is a function which increases or decreases the set value (Switch OFF when the temperature rises above the certain level, or continuously switch ON when the temperature falls below the certain level.) according to the mold preset temperature. Although the range of the variations varies depending on the heat balance between the heater and the mold according to the preset temperature, a large variation occurs compared to PID control.→Refer to Fig.2

■ Notes in handling

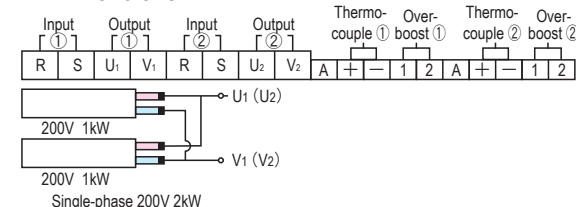
- (1) Use it for temperature control of injection molding dies. We are not responsible for any other usage.
- (2) Do not use it under any power voltage other than the one indicated as this can result in risk of fire, electric shock, and malfunctions.
- (3) Do not connect heaters exceeding the max. capacity. Electrical parts inside the temperature adjustment controller may malfunction.
- (4) Never modify the existing wiring inside this controller box.
- (5) Carry out connection of sensor and I/O wiring after turning power OFF.
- (6) Use specified type of sensor and securely tighten the connection.
- (7) Securely tighten the connection of I/O wire with crimped terminal.
- (8) If the cable of heater and sensor is damaged due to mold opening and closing of molding machine, electrical parts inside the temperature adjustment controller may malfunction, so pay attention to cable wiring.
- (9) Do not use in a flammable atmosphere. It might cause an explosion or a fire.
- (10) Do not carry out operation with wet hands. It might cause an electric shock.
- (11) Keep water away from the controller. It might cause an electric shock, leakage or malfunction.
- (12) Connection and wiring to the controller should only be carried out by a qualified person.
- (13) Recommended clearance of plate hole and heater is 0.05 or less on one side. If the clearance is too large, trouble such as short circuits may occur in the controller due to abnormal heat generation.

■ Connection

• 1CH Controller KCHH



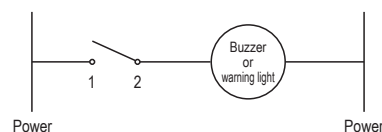
• 2CH Controller KCHD



Part Number	Input	Output (Heater voltage)	Temperature sensor
KCHH	R/S/T (Three-phase 200V/220V)	U/V/W	+/-*
KCHD	R/T (Single-phase 200V/220V)	U1/V1, U2/V2	+/-*

*All thermocouples listed in this catalog can be used.

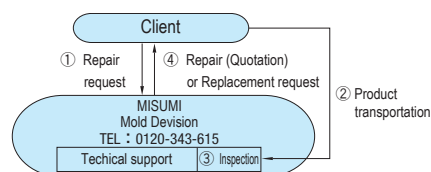
• Overboost terminal



- (1) Overboost terminal can be used to notify users of abnormality by an optional buzzer or warning light. (Overboost terminal will be displayed on the temperature controller in case of abnormality, even if it has not been in use.)
- (2) If abnormality occurs, turn off the power promptly and investigate the cause.

■ About Repair and Replacement

For inquiries about this product, please contact MISUMI Mold Division for Repair and Replacement application.



KCHH (Three-phase 1CH)

① Temperature controller ② Reset switch ③ Start/Stop switch ④ Circuit protector
⦿ Does not come with thermocouple(s) and power cable.

KCHD (Single-phase 2CH)

① Temperature controller ② Reset switch ③ Start/Stop switch ④ Circuit protector
⦿ Does not come with thermocouple(s) and power cable.

Part Number	Unit price
KCHH	Quotation
KCHD	

Order **Part Number**
KCHH
KCHD

Days to Ship **Quotation**

■ Specifications

Part Number	KCHH	KCHD
Input voltage	Three-phase 200/220V (50/60Hz)	Single-phase 100/200/220V (50/60Hz)
Max. load	—	Single-phase 100V 2.7kW x2 (Resistance load)
Max. current	Three-phase 200V 10kW (Resistance load)	Single-phase 200V 5kW x2 (Resistance load)
	Three-phase 220V 11kW (Resistance load)	Single-phase 220V 6kW x2 (Resistance load)
Max. current	30A	
Temperature control	Electronic digital display (PID control)	
Sensor	Freely (K/J/R/T/N/S/B) *Will be K thermocouple applicable when shipped.	
Weight	Approx. 4.5kg	Approx. 7.4kg
Working environment	5°C~40°C (Dew condensation is prohibited.)	

■ Application

Connect a heater or thermocouple to the mold temperature controller and turn on the power. The mold temperature is automatically controlled, and adjusted to the closest temperature to the preset temperature.

• Temperature setting

Use UP/DOWN key to set the temperature.
▽ DOWNキー △ UPキー

• Changing sensor type

1 Switching Display
Press and hold MODE key for 2 seconds to switch the display.

2 Changing Sensor
Press MODE key again to switch the display.
Change the sensor type using UP/DOWN key.

• Control setting

How to turn ON/OFF the PID (Factory setting)

After changing to control parameter mode, press MODE key 4 times to switch display to control type setting screen. Use UP/DOWN key to select.

Auto self-tuning setting (Factory setting)

After changing to control parameter mode, press MODE key 7 times to switch display to tuning setting screen. Use UP/DOWN key to select.