80mm

160mm

ITC-308

Plug and Play Temperature Controller

User Manual



1.Safety Precautions

- Please read specification carefully before using this product.
- Do not touch the terminals while plugged into an outlet. This could lead to electric shock.
- Do not allow pieces of metal, wire clippings, or fine metallic shavings to enter the product. Take care to prevent metal debris from getting in unit while drilling holes for mounting. These can all result in electric shock, fire, or malfunction.
- Keep the product away from heat sources such as fires, flammable or explosive gas, etc. This may lead to the generation of excessive heat, ignition, and explosion.
- Never disassemble, modify or repair the product or touch any of the internal parts. This can result in electric shock, fire, or malfunction.

2.Overview

What is ITC-308?

ITC-308 is an easy-to-use, safe and reliable dual relay output temperature controller. It can be used as an overtemperature protection and automatic temperature control system for various electric appliances such as homebrewing, reptile, pet breeding, incubation, BBQ, seedling heat mats, oven temperature control, terrestrial heat control, constant temperature cycle of heating pump, culture fermentation, accelerating germination, electric radiator, electric oven, etc.

This product has a plug-n-play design with dual relays, to be able to connect with refrigeration and heating equipment easily to achieve ideal temperature control. It's equipped with a dual LED display, and offers display options of Centigrade or Fahrenheit. With a high output power rating of 1200W (120V) / 2200W (220V), it's suitable for most applications.

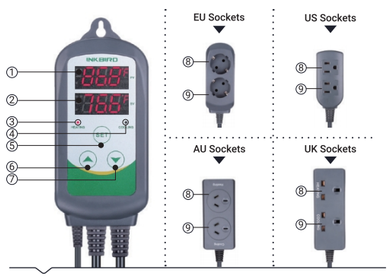
Main features

- Plug and play design, easy to use;
- Dual relay output, to connect with refrigeration and heating equipment at the same time;
- Selectable display of Centigrade or Fahrenheit;
- Maximum output load: 1200W (120V) /2200W (220V);
- Dual display window, to display measured temperature and set temperature at the same time;
- Temperature calibration adjustment (if needed);
- Compressor delay feature for protection of attached refrigeration hardware;
- High and low temperature alarms;
- Fault detection alarms for built-in temperature probe;
- Heating and cooling differential can be set independently to allow customization based on your heating and cooling hardware;

3.Specifications

Temperature Control Range	50 ~ 120 °C/-58 ~ 248 °F
Temperature Display Resolution	0.1°C/°F (<100) 1 °C/°F (≥100)
Temperature Accuracy	±1°C / ±2 °F
Temperature Control Mode	On/Off Control Heating and Cooling
Temperature Control Output	Max. 10A, 100V-240VAC
Buzzer Alarm	High and Low Temperature Alarms
Temperature Sensor Error Detection	Short Circuit, Open Circuit, Over Temperature
Sensor Type	NTC sensor (Attached)
Sensor Cable Length	2 m/6.56 ft
Relay Contact Capacity	Heating (10A, 100-240VAC)
	Cooling (10A, 100-240VAC)
Input Power Cable Length	1.5 m (5 ft)
Ambient Temperature	-30 ~ 75 °C/ -22 ~ 167 °F
Storage	Temperature: -20 ~ 60 °C / -4 ~ 140 °F
	Humidity: 20 ~ 85% (No Condensate)
Dimensions (Main Body)	140 x 68 x 33 mm (5.5 x 2.7 x 1.3 inches)
Warranty	1 Year
Input	120Vac 60Hz 10A/1200W MAX
Output	120Vac 60Hz 10A/1200W (total two receptacles) MAX
Disconnection means	Type 1B
Pollution degree	2
Rated impulse voltage	1500V
Automatic action	6000 cycles

4.Controls and Display Information



① **PV:** Process Value, in run mode, displays the current temperature; in setting mode, displays the selected menu function (see Section 6).

② **SV:** Set Value, in run mode, displays the set/target temperature; in setting mode, displays the value of the selected menu function.

③ **Heating Indicator Light:** when the light is **on**, power is being provided to the Heating outlet.

④ **Cooling Indicator Light:** when the light is **on**, power is being provided to the Cooling outlet; when the light is flickering, Compressor Delay is active and no power is being provided to the outlet.

⑤ **SET key**: press SET key for 3 seconds to enter settings menu. During the setting process, press SET key for 3 seconds to quit and save setting changes.

⑥ **INCREASE key:** in run mode, press INCREASE key to display HD value (see Sec 6.1); in setting mode, press INCREASE key to increase the value.

⑦ **DECREASE key:** in run mode, press DECREASE key to display CD value (see Sec 6.1); in setting mode, press DECREASE key to decrease the value.

⑧ **Heating Device Outlet:** for your device; active when controller in heating mode.

⑨ **Cooling Device Outlet:** for your device; active when controller in cooling mode.

5.Key Operation Instructions

When the controller is working normally, briefly press "▲" key and release, then the heating differential (HD) will be displayed; briefly press "▼" key and release, then the cooling differential (CD) will be displayed. The screen will return to normal display mode after 2 seconds.

5.2 How to Set Parameters

Step 1: While controller is on, press "SET" key for over 3 seconds. The indicator light will turn on.

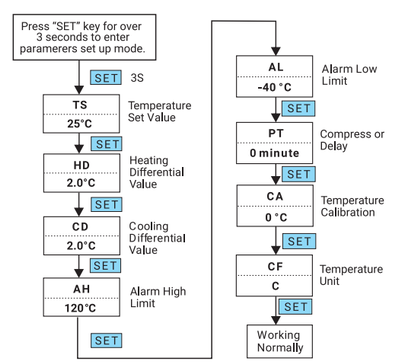
Step 2: Make sure the upper window says "TS".

Step 3: Select the parameter you want by pressing "SET" key to scroll through all of the parameters (see Sec 5.3).

Step 4: Adjust the parameter setting by pressing "▲" key and "▼" key to see the value change in the lower display window.

Step 5: To save your changes, press "SET" key for at least 3 seconds. To exit without saving changes, do not press any buttons and it will revert back to display mode without saving after 10 seconds.

5.3 Setup Flow Chart



6.Menu Instruction

When the temperature is displayed in Centigrade

Menu	Function	Setting range	Default	Remarks
TS	Temperature Set Value	-50 ~ 120 °C	25 °C	6.1
HD	Heating Differential value	0.3 ~ 15 °C	2.0 °C	
CD	Cooling Differential value	0.3 ~ 15 °C	2.0 °C	
AH	Alarm High Limit	-50 ~ 120 °C	120 °C	6.2
AL	Alarm Low Limit	-50 ~ 120 °C	-40 °C	
PT	Compressor Delay	0 ~ 10 minutes	0	6.3
CA	Temperature Calibration	-15 °C ~ +15 °C	0 °C	6.4
CF	Display in Fahrenheit or Centigerade		C	6.5

When the temperature is displayed in Fahrenheit

Menu	Function	Setting range	Default	Remarks
TS	Temperature Set Value	-58 ~ 248 °F	77 °F	6.1
HD	Heating Differential value	1 ~ 30 °F	3 °F	
CD	Cooling Differential value	1 ~ 30 °F	3 °F	
AH	Alarm High Limit	-50 ~ 248 °F	248 °F	6.2
AL	Alarm Low Limit	-50 ~ 248 °F	-40 °C	
PT	Compressor Delay	0 ~ 10 minutes	0	6.3
CA	Temperature Calibration	-15 °F ~ +15 °F	0 °F	6.4
CF	Display in Fahrenheit or Centigerade		F	6.5

6.1 Temperature Control Range Setting (TS, HD, CD)

When the controller is working normally, the LED displays the current measured temperature, and automatically switches between refrigeration and heating modes as needed.

When the measured temperature is above your set temperature by at least CD (cooling differential value) degrees, the system enters refrigeration status. The cool indicator light turns on, and power is provided to the Cooling outlet (when the cool indicator light is flickering, it is waiting for compressor delay protection time to count down).

When the measured temperature reaches your set temperature, the cool indicator light turns off, and the refrigeration relay shuts off.

When the measured temperature is below your set temperature by at least HD (heating differential value) degrees, the system enters heating status. The heat indicator light turns on, and power is provided to the Heating outlet.

When the measured temperature reaches your set temperature, the heat indicator light tuns off, and the heating relay shuts off.

For example, with TS= 25 °C, CD= 2 °C , and HD= 3 °C, when measured temperature is higher or equal to 27 °C (TS+CD), the system enters refrigeration status; when temperature drops to 25 °C (TS), refrigeration stops. And when measured temperature is lower or equal to 22 °C (TS-HD), the system enters heating status; when the temperature increases to 25 °C (TS), heating stops.

6.2 Alarm High/Low Limit Setting (AH, AL)

When measured temperature is higher or equal to AH, high temperature alarm will be triggered and will beep until the temperature is lower than AH or any key is pressed.

When measured temperature is lower or equal to AL, low temperature alarm will be triggered and will beep until the temperature is higher than AL or any key is pressed.

6.3 Compressor Delay (PT)

If the measured temperature is higher than the set temperature (TS) by (CD) degrees, the equipment normally enters refrigeration mode. To avoid too frequent cycling of the attached refrigeration unit compressor, Compressor Delay can be used.

Setting Compressor Delay (PT) is the time in minutes you want to wait between compressor cycles. When your last refrigeration mode ends, a timer starts counting, and the unit won't power the refrigeration relay until the timer exceeds (PT) minutes. The cooling light will blink until this time has passed, and then it will enter refrigeration mode normally.

6.4 Temperature Calibration (CA)

If the temperature sensor has an error in measuring the actual temperature, you can use the temperature calibration function to align the measured temperature and actual temperature. The value you put into (CA) is added to the measured temperature before reporting the measured value. (CA) Can be a positive value, 0, or a negative value.

6.5 Display in Fahrenheit or Centigrade (CF)

You can select to display in Fahrenheit or Centigrade. Default setting is to display with Centigrade. To display with Fahrenheit temperature value, set CF value to F.

Attention: When CF value is changed, all the settings will be reset to factory default settings.

7. Error Descriptions

Sensor Fault Alarm:

If the temperature sensor is detected to be either short circuited or open loop, the controller will enter sensor fault mode, and cancel all operations. The alarm will sound, and the LED displays "ER". The alarm can be dismissed by pressing any key. After the electrical fault is corrected, the system will return to normal working mode.

Over-temperature Alarm:

If the measured temperature exceeds the measuring range (higher than 120 °C/248 °F), the controller will initiate over-temperature alarm mode, and cancel all operations. The alarm will sound, and the LED displays "HL". The alarm can be dismissed by pressing any key. When the temperature returns to within the measuring range, the system will return to normal working mode.

8. FCC Requirement

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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V5.0

修改内容：1 .去掉电话号码
2.添加版本号

2021.12.01修改内容：1.更新地址. 2.更新版本号

2022.1.22修改内容：1.110V改为120V 2.更新版本号

2022.2.24修改内容：1.改成5折页 2.添加FCC警示语 3.更改版本号

2022.03.07 修改内容：更改地址