

Microcomputer Temperature Controller

MS-60A/B User guide

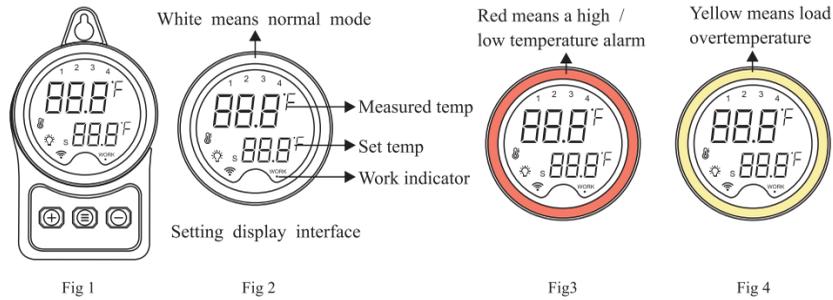
Thank you for purchasing our Shenzhen "MEISAL" microcomputer temperature controller. With a wide range of modern heating technologies, this product can be used in various environments to control the temperature in reptile vivariums, pet breeding facilities, incubation kennels, grills, ovens, turtle farming facilities, greenhouses, fish tanks, fermentation and germination processes.

If you have any feedback on our products, please feel free to contact us. We are committed to improving our products to provide you with a satisfactory service. If our products meet your expectations, we would appreciate your recommendation to others. Your continued support is of great value to us.

I. Technical Parameters:

1. Working voltage range: AC100V ~ AC250V±10P/60HZ; Machine power consumption: ≤3W;
2. Standby function: ≤0.5W;
3. Temperature control range: -49°F ~ 230°F (-45 - 110°C); Display Range: 58°F ~ 230°F
4. Control accuracy: 0.1°F (0.1°C); Temperature hysteresis: Adjustable in the range 0.9 ~ 27°F (0.5 - 15°C);
5. Temperature sensor probe: NTC77°F=10K B3435 ±1% (1.5 m wire length);
6. Power cord: 1.1 m
7. Relay: 11A/110V~11A/AC220V;
8. Working environment temperature: -30°F - 150°F; Humidity: 90 % RH frost-free;

II. Temperature Controller Diagram



III. Key Operation Instructions:

1. Power on for display for 2 seconds; (all lights on the display will be on).
2. Menu "≡" key: It is a setting key; press and hold the menu "≡" key for 3 seconds to enter the program menu code mode to display the code **ES** (press and hold this key in the setting state to exit the setting state). Press the menu "≡" key once again to select the parameter code **ES-PU** in a cycle way (with attached parameter code table).

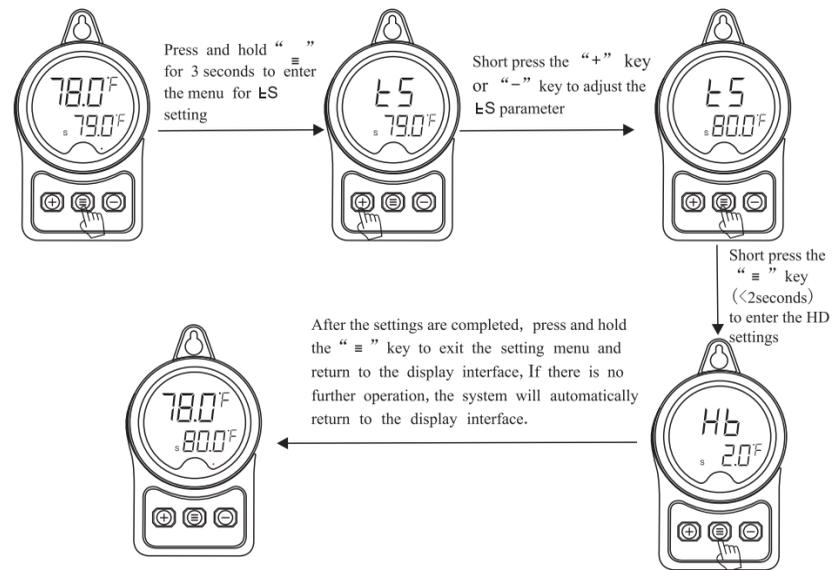


Fig 6

VII. Parameter Code Table:

Menu code (C)	Code description	Range / Step	Factory default/Unit
ES	Control temp	To set the controlled temperature (-45 - 110°C) (Short press for 0.1 C, and long press for 1 C)	25°C
HD	Hysteresis temp	To set the temperature hysteresis value (0.5 C - 15 C) (Short press / Long press 0.1 C)	1°C
HA	High temperature alarm	ES ~ 110 C	110°C
LA	Low temperature alarm	-45 C ~ ES	-45°C
PU	Delay start	0 - 10 minutes	0 - 10 minutes

Menu code (C)	Code description	Range / Step	Factory default/Unit
ES	Control temp	-49°F ~ 230°F	77°F
HD	Hysteresis temp	0.9°F - 27°F	1.8°F
HA	High temperature alarm	ES ~ 230°F	230°F
LA	Low temperature alarm	-49°F ~ ES	-49°F
PU	Delay start	0 - 10 minutes	0 - 10 minutes

To enter the code to adjust parameters, press the "+" key or "-" key to adjust to the required value when the code occurs, and then short press the menu "≡" key once to enter the next parameter setting, and set it in the same way. (Press and hold the menu key "≡" for 3 seconds to exit the setting state, otherwise the setting state will exit if there is no any operation within 10 seconds).

3. "+" key or "-" key: Used to adjust the parameter key up or down; long press it to adjust the parameter continuously. Press both plus and minus at the same time for more than 3 seconds to restore factory settings.
4. Temperature conversion and mode switching:

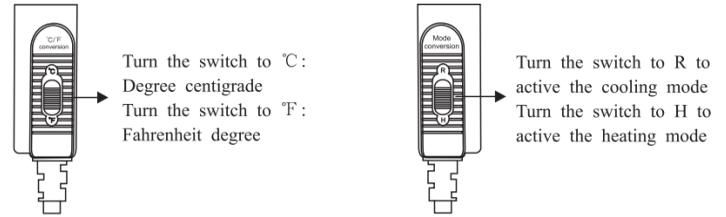


Fig 5

IV. Temperature Controller Parameters Settings:

ES control temperature setting: Enter the parameter menu code mode, select the code **ES**, and press the "+" key or "-" key to change the value to be set, and the changed value will be automatically saved after 3 seconds. (Pressing and holding the "+" key or "-" key for 2 seconds can quickly adjust the value in 1°F increments. HD heating mode hysteresis setting: If set to **ES** = 77.0 °F, HD = 2.0°F. When the controller detection temperature is < (77.0-2.0) 75.0°F, the heating function will be enabled for heating; when the temperature is ≥ 77.0°F, the heating function will stop.

Heating mode hysteresis setting: If set to **ES** = 77.0 °F, HD = 2°F. When the controller detection temperature is > (77.0 + 2.0) 79.0°F, the cooling function will be enabled for cooling; when the temperature ≤ 77.0°F, the cooling function will stop.

HA high temperature alarm temperature setting: When the device detects that the temperature is > HA, the device will activate a high temperature alarm test, and the display will show the HA and temperature value alternately (the high temperature alarm value cannot be below than **ES**, and 1°C/5°F increment will be available for fast adjustment of parameters).

LA high temperature alarm temperature setting: When the device detects that the temperature is < LA, the device will activate a low temperature alarm test, and the display will show the LA and temperature value alternately (the low temperature alarm value cannot be higher than **ES**, and 1°C/5°F increment will be available for fast adjustment of parameters).

PU delay start: This delay is available only in the cooling mode, and defines the minimum time interval required from when the relay stops cooling to when cooling can be enabled again. (This parameter applies only to compressors or other devices with limited start frequency).

V. Example Interpretation for Heating Mode

To control the temperature to 80.0°F, heating starts when below 78.0°F, and stops when above 80.0°F; please set **ES** to 80.0°F, and set HD to 80.0°F - 78.0°F (2.0°F). (See Fig. 6)

VIII. Load Overtemperature Protection Settings:

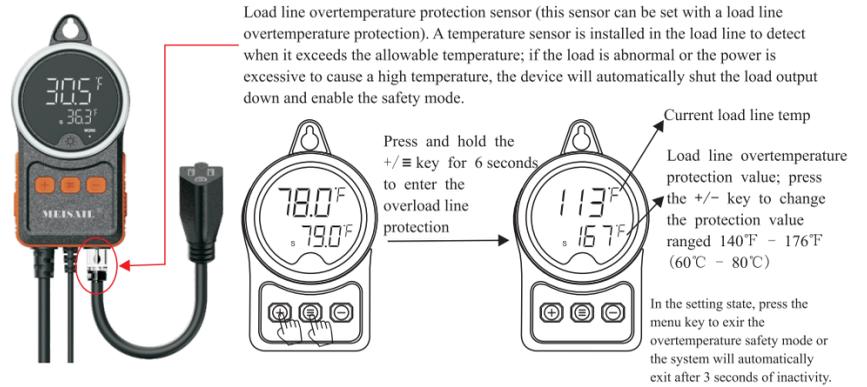


Fig 7

IX: Load Parameters Description

Rated voltage: 110 V AC voltage, 50 Hz	Rated surge voltage: 2500 V
Rated load (Ω): 11A (1200 W)	Rated load (inductive): 2 A Ω
Load: Electronic rectifier, 800 W	Halogen lamp: 1000 VA
Motor: 800VA110V	LED lamp: 500 W

X: Fault Codes:

- HHH: Short circuit of sensor (short circuit well above 120°C/248°F).
- HH: Sensor over-range (above 120°C/248°F).
- LLL: Open circuit of sensor (open circuit is far below -50°C/-58°F).
- LL: Sensor overrange less than -50°C/-58°F or internal sensor failure.
- HA: Alternating temperature display (30 seconds alternate): The temperature controller is higher than the high temperature alarm value and turns off the heating devices.
- LA: Alternating temperature display (30 seconds alternate): The temperature controller is below the low temperature alarm value and turns off the cooling devices.
- HC: Load line overtemperature protection sensor failure. (Temperature below -40°C or above 120°C)

XI. After-Sales Service:

1. If you have feedback on our products, please contact us via email at (15989456050@163.com), Your feedback is highly valued.
2. If the manual is lost or the product cannot be operated, please access our after-sales website (<http://www.szmeihang.cn>) and read the relative operation instructions in the SERVICE column.