

## SINOTIMER 40DA

# SINOTIMER PID Temperature Controller Kit (Model 40DA) User Manual

AC 100-240V with SSR 40DA, K-Type Thermocouple, and Heat Sink

## 1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of your SINOTIMER PID Temperature Controller Kit. This kit is designed for precise temperature regulation in various industrial and domestic applications, offering stable and accurate control. Please read this manual thoroughly before installation and operation to ensure safe and efficient use.

## 2. PRODUCT OVERVIEW

The SINOTIMER PID Temperature Controller Kit includes the following components:

- **PID Temperature Controller:** An intelligent digital controller for accurate temperature management.
- **SSR 40DA Solid State Relay:** A high-current solid-state relay for switching heating elements.
- **K-Type Screw Thermocouple:** A temperature sensor for measuring the process variable.
- **Heat Sink:** For dissipating heat from the Solid State Relay, ensuring stable operation.

### Key Features:

- Supports K, E, J type thermocouple inputs.
- Equipped with both SSR and Relay control outputs.
- Includes one alarm relay output (AC220V/DC30V 3A NO/NC).
- Digital display with selectable Celsius (°C) or Fahrenheit (°F) units.
- Compact design with standard 45x45mm hole size for easy installation.



Figure 2.1: Complete SINOTIMER PID Temperature Controller Kit, showing the PID controller, SSR 40DA, K-Type Thermocouple, and heat sink.

### 3. SPECIFICATIONS

Parameter	Value
Model	40DA
Power Supply	AC 100-240V, 50/60Hz
Input Type	K, E, J Thermocouple
Temperature Range	0-999 °C / °F
Output Type	Relay / SSR
Alarm Output	AC220V/DC30V 3A (Resistive load) NO/NC
SSR Output	40DA (Included)
Panel Dimensions	48mm x 48mm
Hole Size	45mm x 45mm
Item Weight	12.6 ounces

## 4. SETUP AND INSTALLATION

### 4.1 Physical Installation

The PID controller is designed for panel mounting. Ensure the mounting hole dimensions are 45mm x 45mm. The heat sink should be securely attached to the SSR 40DA to prevent overheating.



Figure 4.1: Dimensions of the SINOTIMER PID Temperature Controller (48mm x 48mm front panel, 75mm depth).

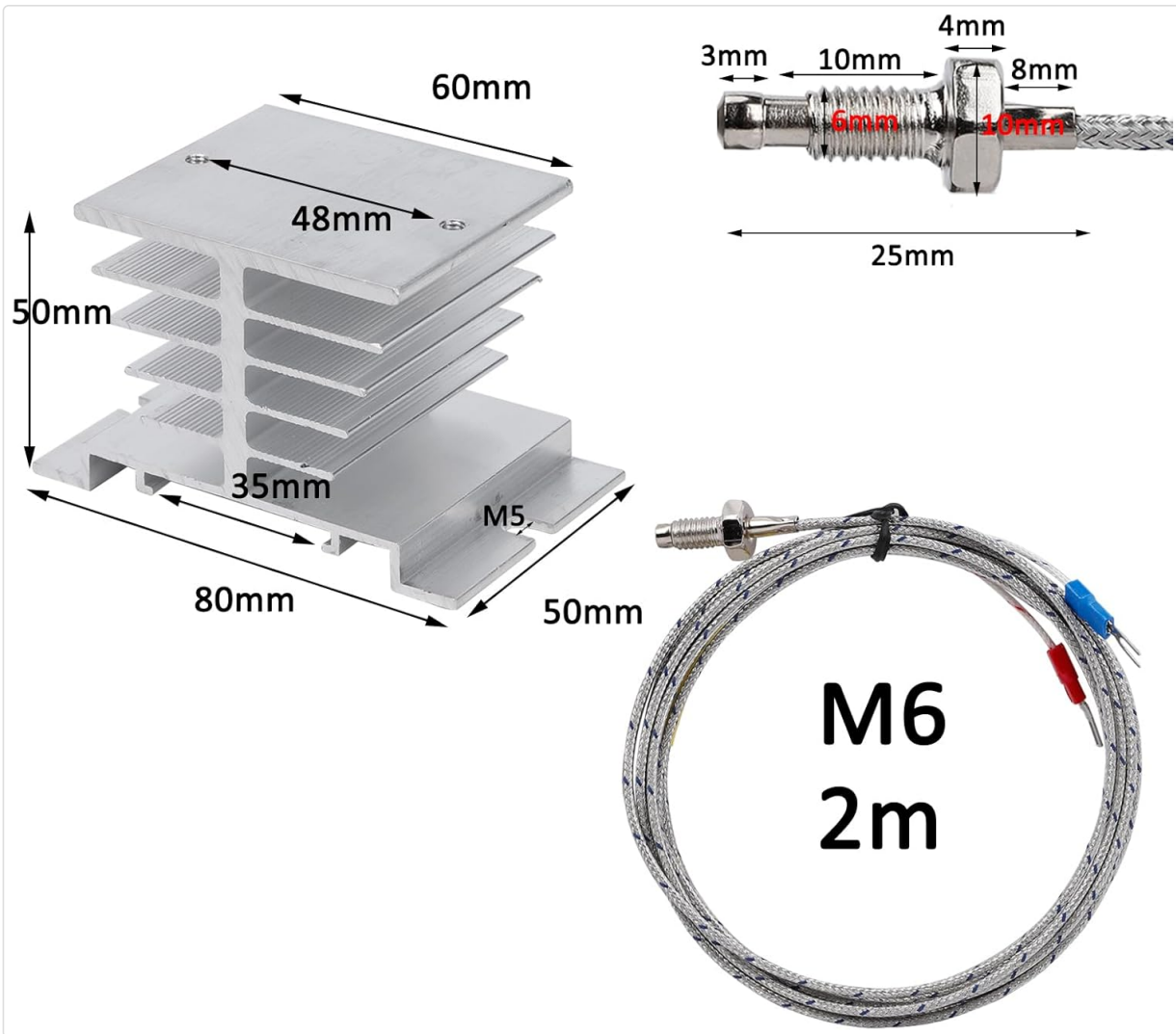


Figure 4.2: Dimensions of the heat sink (80x50x50mm) and the M6 K-type screw thermocouple (2m cable length).

## 4.2 Wiring Diagram

**WARNING: Ensure all power is disconnected before performing any wiring. Incorrect wiring can lead to equipment damage or personal injury. If you are unsure, consult a qualified electrician.**

Refer to the wiring diagrams below for proper connection of the PID controller, SSR, and thermocouple. The controller requires AC 100-240V power supply.

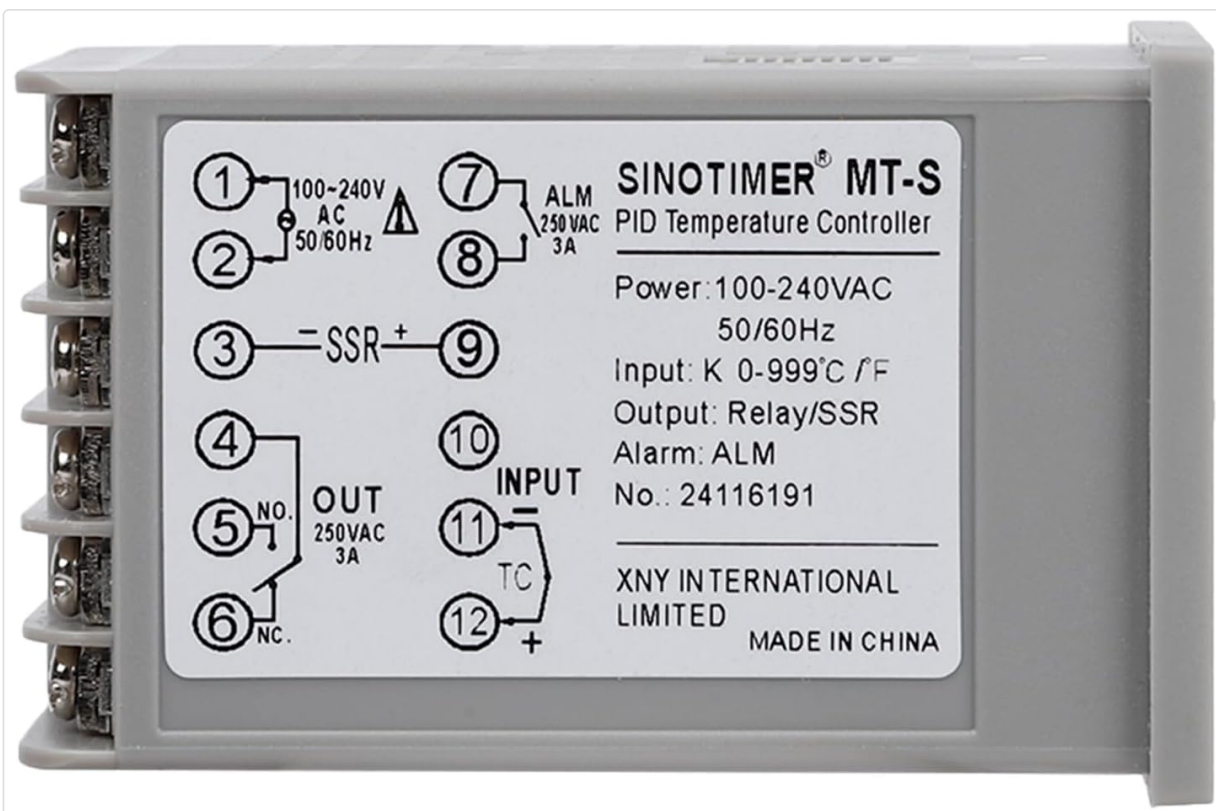


Figure 4.3: Back panel of the PID controller showing terminal assignments for power (1, 2), SSR output (3, 4), alarm output (5, 6), and thermocouple input (11, 12).



## Physical wiring diagram

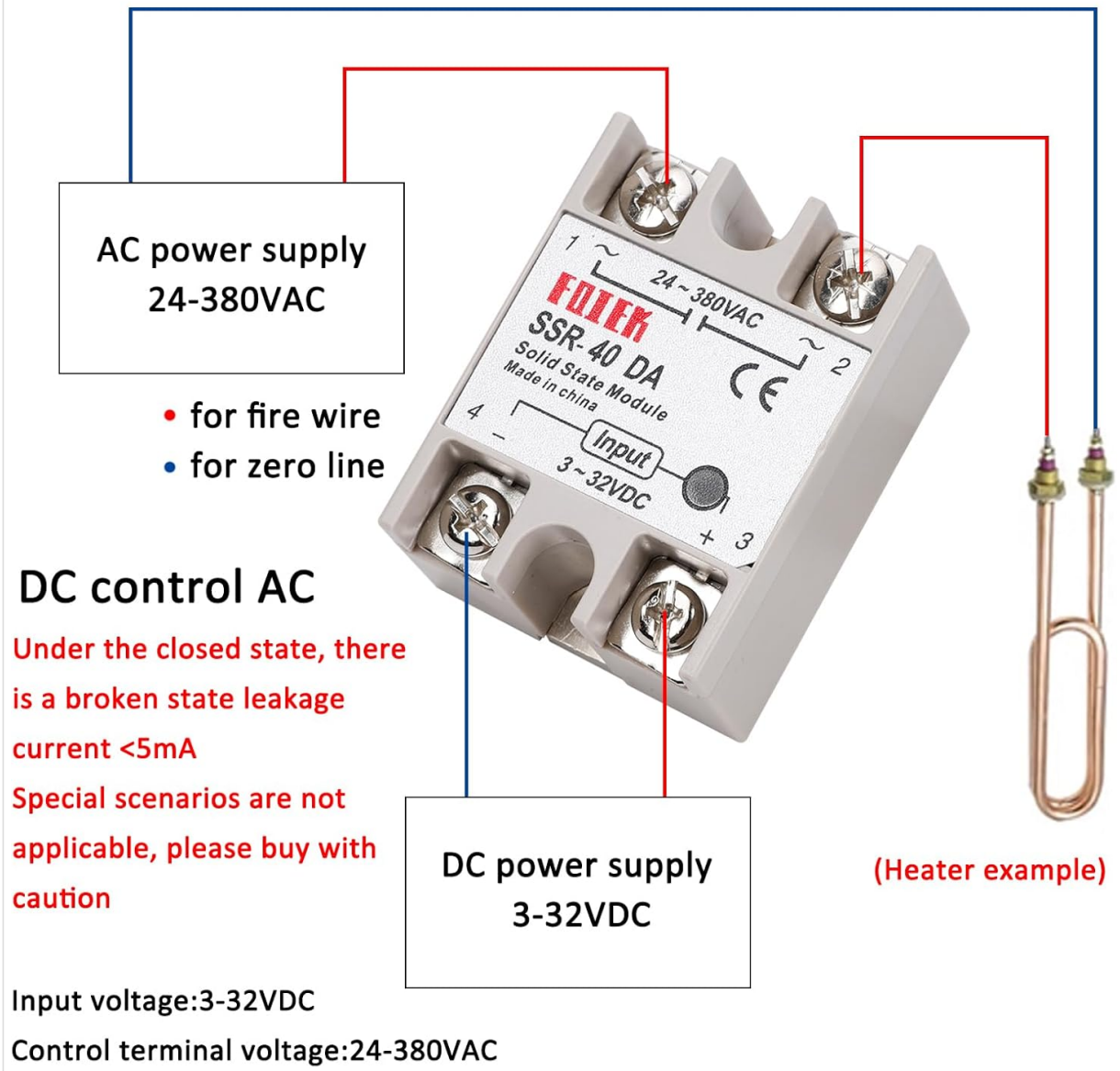


Figure 4.4: Example physical wiring diagram for connecting the SSR 40DA to the PID controller and a heating element. Terminals 1 and 2 on the SSR connect to the AC load (heater), and terminals 3 and 4 connect to the DC control output (3-32VDC) from the PID controller.

### Wiring Notes:

- Connect the K-Type Thermocouple to terminals 11 and 12. Ensure correct polarity (positive to 12, negative to 11).
- Connect the main AC power supply (100-240V) to terminals 1 and 2 of the PID controller.
- Connect the SSR control output from the PID controller (terminals 3 and 4) to the input terminals (3-32VDC) of the SSR 40DA.
- Connect the AC load (e.g., heater) to the output terminals (24-380VAC) of the SSR 40DA.
- The alarm output (terminals 5 and 6) can be connected to an external alarm device if required.

## 5. OPERATING INSTRUCTIONS

### 5.1 Display and Control Panel

The front panel of the PID controller features a digital display and control buttons:

### Measured value PV display section

- ① Operation mode: Displays the current measured value (PV).
- ② Setting mode: Parameter display

### Set value SV display part

- ① Operation mode: Set value (PV) is displayed.
- ② Setting mode: Parameter setting value is displayed.

### Control output indicator

Lamp on when control output is ON

### Self-tuning AT execution lamp

Blinks when the self-tuning function is executed

### Alarm output 1 indicator

Lights up when the corresponding alarm output is ON.

### MODE setting key

Used to enter parameter setting and return to operation  
Flip down between mode parameters to store set values

### Displacement/Decrease/Increase Keys

Used for digit shifting, value increase/decrease while holding down  $\approx$  +  $\approx$  key for 3 seconds for shortcut mode



Figure 5.1: Front panel layout of the SINOTIMER PID Temperature Controller, indicating PV/SV displays, control indicators, and function keys.

- **PV (Process Value) Display:** Shows the current measured temperature.
- **SV (Set Value) Display:** Shows the target temperature or parameter setting value.
- **OUT Indicator:** Lights up when the control output (to SSR) is ON.
- **AT Indicator:** Blinks when the self-tuning function is active.
- **AL1 Indicator:** Lights up when the alarm output is ON.
- **MODE Key:** Used to enter parameter settings and navigate between modes. Press and hold to store set values.
- **Shift Key ( $\leftarrow$ ):** Used for digit shifting during value adjustment.
- **Decrease Key ( $\downarrow$ ):** Used to decrease values.
- **Increase Key ( $\uparrow$ ):** Used to increase values.

## 5.2 Setting the Target Temperature (SV)

1. In normal operation mode, the upper display shows PV (current temperature) and the lower display shows SV (target temperature).

2. Use the **Increase** (↑) and **Decrease** (↓) keys to adjust the SV to your desired temperature.
3. Use the **Shift** (<) key to move the cursor between digits for faster adjustment.
4. The new SV will be automatically saved after a few seconds of inactivity or by pressing the **MODE** key.

## 5.3 Advanced Parameter Settings

To access advanced settings (e.g., PID parameters, alarm settings, input type, unit selection), press and hold the **MODE** key for several seconds. Use the **MODE** key to cycle through parameters, and the **Shift** (<), **Increase** (↑), and **Decrease** (↓) keys to adjust values. Refer to the detailed parameter list in the full product manual for specific functions and ranges.

## 6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your PID temperature controller kit.

- **Cleaning:** Periodically clean the controller's front panel with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Inspection:** Regularly check all wiring connections for tightness and signs of wear or damage. Ensure the thermocouple is securely in place and free from corrosion.
- **Heat Sink:** Verify that the heat sink on the SSR is free from dust and debris to ensure efficient heat dissipation.
- **Environment:** Ensure the controller is operated within its specified environmental conditions (temperature, humidity) to prevent malfunction.

## 7. TROUBLESHOOTING

If you encounter issues with your PID temperature controller, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Controller does not power on	No power supply; incorrect wiring	Check power connections (terminals 1 & 2); ensure power source is active.
PV display shows 'HHHH' or 'LLLL'	Thermocouple open circuit or reverse connection; temperature exceeds range	Check thermocouple wiring and polarity; ensure it's within operating range.
Output (OUT indicator) not activating	SV not set correctly; PID parameters incorrect; SSR faulty	Verify SV is below PV (for heating); check PID settings; test SSR functionality.
Temperature unstable or overshoots	PID parameters not optimized	Perform auto-tuning (AT function) or manually adjust PID parameters.

If the problem persists after attempting these solutions, please contact SINOTIMER customer support for further assistance.

## 8. SAFETY INFORMATION




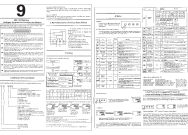


- Always disconnect power before installation, wiring, or maintenance.
- Ensure all wiring is done by a qualified individual and complies with local electrical codes.
- Do not operate the device in environments with excessive moisture, dust, or corrosive gases.
- The SSR generates heat during operation; ensure adequate ventilation and proper heat sink installation.
- This device is not intended for life-support applications or where malfunction could result in significant injury or damage.

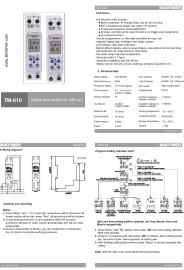
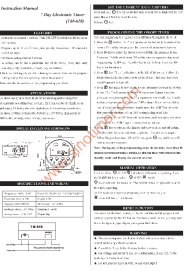
## 9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the product packaging or contact SINOTIMER directly through their official website or the retailer where the product was purchased. Please have your product model number (40DA) and purchase details ready when contacting support.

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### Related Documents - 40DA

	<p><a href="#">Sinotimer MT-S PID Temperature Controller: Features, Specifications, and Setup Guide</a></p> <p>Detailed information on the Sinotimer MT-S Intelligent PID Temperature Control Relay, including features, technical specifications, wiring diagrams, and setup instructions for PID and On-Off control modes.</p>
	<p><a href="#">MC-101 Series Intelligent Temperature Controller User Manual</a></p> <p>User manual for the MC-101 Series Intelligent Temperature Controller, detailing its features, operation, and settings for precise temperature control.</p>
	<p><a href="#">SINOTIMER SVP719 User Manual: Voltage Protector, Energy Meter, and Power Consumption Monitor</a></p> <p>Comprehensive user manual for the SINOTIMER SVP719, detailing its features as an adjustable over/under voltage protector, surge protector, over-current limit relay, and a Watt/kWh energy meter for monitoring power consumption.</p>
	<p><a href="#">SINOTIMER DDS6619 Series Guide Rail Metering Switch Instruction Manual</a></p> <p>Instruction manual for SINOTIMER DDS6619 series guide rail type metering switches. Details technical specifications, wiring, app control via Smart Life/Tuya, operating instructions, and safety precautions for smart energy monitoring.</p>

	<p><a href="#">SINOTIMER TM-610 Digital Time Switch for DIN Rail - User Manual and Specifications</a></p> <p>Detailed specifications, wiring diagrams, and operating instructions for the SINOTIMER TM-610 digital time switch, designed for DIN rail mounting.</p>
	<p><a href="#">Sinotimer TM-618 7-Day Electronic Timer Instruction Manual</a></p> <p>Comprehensive instruction manual for the Sinotimer TM-618 7-Day Electronic Timer, detailing features, programming, manual operation, and safety warnings.</p>