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Sriiya XY504

Sriiya XY504 Intelligent PID Temperature Controller User Manual

Model: XY504
Brand: Sriiya

1. INTRODUCTION

The Sriiya XY504 is an intelligent PID temperature controller designed for precise temperature management in industrial heating and cooling applications. It features a dual-line, four-digit display for process value (PV) and set value (SV), supporting various thermocouple and RTD inputs. This manual provides essential information for the safe and effective installation, operation, and maintenance of your XY504 temperature controller.



Figure 1: Front view of the Sriiya XY504 Intelligent PID Temperature Controller. The top display shows the Process Value (PV) in red, and the bottom display shows the Set Value (SV) in green. Control buttons for SET, R/S, and up/down arrows are visible below the displays.

2. PACKAGE CONTENTS

Verify that all items are present and undamaged upon unpacking:

- 1 x Sriya XY504 Intelligent PID Temperature Controller
- 2 x Mounting Frames
- 1 x User Manual (this document)

3. SPECIFICATIONS

Parameter	Value
Item Type	Intelligent PID Temperature Controller
Model	XY504
Material	ABS
Output Type	General (Relay/SSR)
Power Supply	100-240VAC 50 / 60HZ
Maximum Input Range	0-1300°C (adjustable)
Display	Two lines, four-digit Celsius temperature (PV: red, SV: green)
Control Method	PID, On/Off
Alarm	ALM1
Dimensions (W x H x D)	Approx. 48 x 96 x 78mm / 1.9 x 3.8 x 3.1in
Item Weight	5.8 ounces

96mm / 3.8in



Figure 2: Dimensions of the XY504 Temperature Controller.

4. KEY FEATURES

- Dual display for set temperature (SV) and process temperature (PV).
- Supports both heating and cooling control applications.
- Universal input: Compatible with 10 different types of thermocouple and RTD inputs, selectable via panel settings.
- Auto-tuning function for automatic optimization of PID parameters.
- Versatile application: Suitable for temperature control in kilns, furnaces, ovens, incubators, and other industrial processes.
- Equipped with ALM1 alarm output.

5. SETUP AND INSTALLATION

5.1 Mounting

1. Cut a panel opening of approximately 45mm x 92mm (1.77in x 3.62in).
2. Insert the XY504 controller into the panel opening from the front.
3. Secure the controller using the provided mounting frames by sliding them onto the sides of the controller from the rear and tightening the screws until the controller is firmly in place.

5.2 Wiring Diagram

Refer to the wiring diagram on the side label of the controller for correct connections. Ensure all power is disconnected before performing any wiring.



Figure 3: Wiring Diagram of the XY504 Controller.

- **Power Supply (AC):** Connect 100-240VAC 50/60Hz to terminals 1 and 2.
- **SSR Output:** Connect to terminals 3 and 4.
- **Relay Output:** Connect to terminals 5, 6, and 7 (Common, Normally Open, Normally Closed).
- **Alarm 1 (ALM1):** Connect to terminals 8 and 9.
- **Input (Thermocouple/RTD):** Connect your temperature sensor to terminals 10, 11, and 12 according to the sensor type (e.g., K-type thermocouple to 10 and 11).

Warning: Incorrect wiring can damage the device and pose safety hazards. Consult a qualified electrician if

6. OPERATING INSTRUCTIONS

6.1 Front Panel Overview

The front panel consists of a dual display and several control buttons:

- **PV Display (Red):** Shows the current process value (measured temperature).
- **SV Display (Green):** Shows the set value (target temperature).
- **SET Button:** Used to enter parameter setting mode or confirm selections.
- **R/S Button:** Used to reset or switch between different display modes/parameters.
- **Up Arrow (▲) Button:** Used to increase values or navigate through menus.
- **Down Arrow (▼) Button:** Used to decrease values or navigate through menus.
- **Indicator Lights:** AT (Auto-tuning), OUT1 (Output 1), OUT2 (Output 2), ALM1 (Alarm 1), ALM2 (Alarm 2).

6.2 Setting the Target Temperature (SV)

1. In normal operating mode, the green SV display shows the current target temperature.
2. Press the **SET** button once. The SV display will start flashing.
3. Use the **▲** (Up) and **▼** (Down) arrow buttons to adjust the target temperature to your desired value.
4. Press the **SET** button again to confirm the new SV and exit the setting mode. The display will stop flashing.

6.3 Auto-Tuning Function

The auto-tuning function helps the controller automatically determine the optimal PID parameters for your specific system, ensuring stable and accurate temperature control.

1. Ensure the controller is connected to your heating/cooling element and sensor.
2. Set your desired target temperature (SV) as described in Section 6.2.
3. Access the parameter menu (usually by pressing and holding **SET** for a few seconds).
4. Navigate through the parameters using the arrow keys until you find the auto-tuning parameter (often labeled "AT" or similar).
5. Activate auto-tuning (e.g., by setting the parameter to "ON" or pressing **SET**). The "AT" indicator light will illuminate.
6. The controller will cycle the output to analyze the system's response. This process may take some time.
7. Once auto-tuning is complete, the "AT" indicator light will turn off, and the new PID parameters will be saved automatically.

6.4 Alarm Function (ALM1)

The ALM1 output activates when the process value (PV) deviates from the set value (SV) by a configured amount, or when other alarm conditions are met. Refer to the full parameter list in the comprehensive user manual for detailed alarm settings.

7. MAINTENANCE

- **Cleaning:** Wipe the front panel with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Inspection:** Periodically check wiring connections for tightness and signs of wear or damage.
- **Environment:** Ensure the controller is operated within its specified ambient temperature and humidity ranges to prolong its lifespan. Avoid exposure to excessive dust, moisture, or corrosive gases.
- **Calibration:** If temperature readings appear inaccurate, consider recalibrating the sensor or controller according to

advanced settings (refer to the full technical manual if available).

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
Controller does not power on.	No power supply; incorrect wiring; blown fuse.	Check power connections (100-240VAC). Verify wiring according to diagram. Check for internal fuse (if accessible and user-serviceable).
PV display shows "HHHH" or "LLLL".	Sensor open circuit (HHHH) or short circuit/reverse connection (LLLL); sensor out of range.	Check sensor wiring for breaks or shorts. Ensure sensor type matches controller settings. Verify sensor is within its operating temperature range.
Temperature control is unstable or inaccurate.	Incorrect PID parameters; sensor not properly installed; external interference.	Perform auto-tuning (Section 6.3). Ensure sensor is correctly placed to measure the process temperature. Check for strong electromagnetic interference.
Output (heating/cooling) does not activate.	Wiring error; output setting incorrect; temperature difference too small.	Verify output wiring. Check control mode (PID/On-Off) and output settings. Ensure PV is sufficiently far from SV to trigger output.

9. WARRANTY AND SUPPORT

Specific warranty terms and conditions for the Sriya XY504 Intelligent PID Temperature Controller are not provided in this document. Please refer to your purchase documentation or contact the retailer/manufacturer directly for warranty information and technical support.

For further assistance, please contact Sriya customer service through their official channels, if available.

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