## AUTONICS TX4S-14S

# AUTONICS TX4S-14S Temperature Controller User Manual

Model: TX4S-14S

## 1. Product Overview

The AUTONICS TX4S-14S is a high-performance 1/16 DIN temperature controller featuring an LCD display and PID control. It is designed for precise temperature regulation in various industrial and scientific applications. This model includes an SSR drive output and one alarm output, operating on 100-240 VAC 50/60Hz power.




Figure 1: Front and side view of the AUTONICS TX4S-14S Temperature Controller. The device features an LCD screen, 'MODE' button, and arrow buttons on the front panel. The side shows heat sink fins and a white mounting bracket.

## 2. Safety Information

Please read this manual thoroughly before installation and operation to ensure safe and proper use. Failure to follow these instructions may result in damage to the product, property, or serious injury.

- **Electrical Hazard:** Ensure power is disconnected before wiring or performing maintenance. Only qualified personnel should perform electrical work.
- **Voltage:** Verify the power supply voltage matches the product's specifications (100-240 VAC 50/60Hz).
- **Environment:** Do not install the unit in locations subject to excessive vibration, shock, direct sunlight, corrosive gases, or high humidity.
- **Grounding:** Properly ground the unit to prevent electric shock.
- **Ventilation:** Ensure adequate ventilation around the unit to prevent overheating.

## 3. Setup and Installation

### 3.1 Mounting

The TX4S-14S is a 1/16 DIN panel mount type controller. Ensure the panel cutout dimensions are appropriate for secure installation.

1. Prepare a panel cutout according to the specified dimensions for a 1/16 DIN controller.
2. Insert the controller into the cutout from the front.
3. Attach the supplied mounting bracket to the rear of the controller and tighten the screws to secure it firmly to the panel.

### 3.2 Wiring

Refer to the wiring diagram provided on the side of the unit or in the full technical manual for specific terminal connections. Ensure all connections are secure and correct before applying power.

- **Power Supply:** Connect 100-240 VAC 50/60Hz to the designated power terminals.
- **Sensor Input:** Connect the temperature sensor (e.g., thermocouple, RTD) to the sensor input terminals. Ensure correct polarity for thermocouples.
- **SSR Drive Output:** Connect the Solid State Relay (SSR) to the SSR drive output terminals. This output controls the heating/cooling element.
- **Alarm Output:** Connect the alarm device (e.g., buzzer, light) to the alarm output terminals.

## 4. Operating Instructions

### 4.1 Initial Power-Up and Display

Upon applying power, the LCD display will show the current process value (PV) and the set value (SV).

- **PV (Process Value):** Displays the current measured temperature from the sensor.
- **SV (Set Value):** Displays the target temperature you wish to maintain.

### 4.2 Setting the Temperature (SV)

1. Press the **MODE** button briefly to enter the SV setting mode. The SV display will start blinking.
2. Use the **Up (▲)** and **Down (▼)** arrow buttons to adjust the SV to your desired temperature.
3. Press the **MODE** button again to confirm the setting and return to normal operation.

### 4.3 PID Control

The TX4S-14S utilizes PID (Proportional-Integral-Derivative) control for stable and precise temperature regulation. The controller automatically calculates and applies the necessary output to minimize the difference between PV and SV.

- **Auto-tuning:** For optimal performance, it is recommended to perform auto-tuning after initial setup or if the process

characteristics change significantly. Refer to the detailed manual for auto-tuning procedures.

### 4.4 Alarm Output

The single alarm output can be configured for various alarm types (e.g., high limit, low limit, deviation alarm). The alarm will activate when the process value exceeds or falls below the set alarm parameters.

- Consult the full technical manual for detailed instructions on configuring alarm types and set points.

## 5. Maintenance

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

- **Cleaning:** Clean the display and front panel with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Connections:** Periodically check all wiring connections for tightness and signs of corrosion.
- **Ventilation:** Ensure that the heat sink fins on the side/rear of the unit are free from dust and obstructions to allow for proper heat dissipation.
- **Sensor Check:** If temperature readings appear inaccurate, check the sensor for damage or degradation.

## 6. Troubleshooting

| Problem | Possible Cause | Solution |
|---|---|---|
| No display/Power off | No power supply; Incorrect wiring; Blown fuse | Check power connections; Verify wiring against diagram; Replace fuse if necessary (by qualified personnel). |
| Inaccurate temperature reading | Sensor faulty; Incorrect sensor type setting; Sensor wiring issue | Check sensor integrity; Verify sensor type configuration in settings; Inspect sensor wiring for breaks or shorts. |
| Output not activating | SSR faulty; Wiring issue to SSR; Control mode incorrect; SV not reached | Check SSR operation; Verify SSR wiring; Ensure control mode (e.g., heating/cooling) is correct; Allow time for PV to reach SV. |
| Alarm not triggering | Alarm set points incorrect; Alarm type incorrect; Alarm device faulty | Review and adjust alarm set points; Confirm alarm type configuration; Test alarm device independently. |

## 7. Specifications

| Feature | Detail |
|---|---|
| Model Number | TX4S-14S |
| Display Type | LCD Display, 4 Digit |
| Control Method | PID Control |
| Output Type | SSR Drive Output |
| Alarm Output | 1 Alarm Output |

| Feature | Detail |
|---|---|
| Power Supply | 100-240 VAC 50/60Hz |
| Item Weight | 1 pound (approx. 16 ounces) |
| Manufacturer | AUTONICS USA |

## 8. Warranty and Support

Warranty information for the AUTONICS TX4S-14S Temperature Controller is typically provided with your purchase documentation. Please refer to the warranty card or contact your point of purchase for specific details regarding warranty coverage and duration.

For technical support, additional documentation, or service inquiries, please visit the official AUTONICS website or contact their customer service department. Keep your product model number (TX4S-14S) and serial number (if applicable) ready when seeking support.

Official AUTONICS Website: www.autonics.com

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