

AUTONICS TK4S-T4CN

AUTONICS TK4S-T4CN Temperature Controller

USER MANUAL

1. Introduction

This manual provides essential information for the safe and efficient operation of the AUTONICS TK4S-T4CN Temperature Controller. Please read this manual thoroughly before installation and operation to ensure proper use and to prevent accidents.

The TK4S-T4CN is a high-performance 1/16 DIN temperature controller designed for precise temperature regulation in various industrial applications. It features a dual display for Process Value (PV) and Set Value (SV), multiple output options, and RS485 communication capability.

2. Safety Precautions

- Ensure power is disconnected before installation, wiring, or maintenance.
- Do not use the unit in locations with flammable or explosive gases.
- Install the unit in a location free from excessive vibration, shock, or direct sunlight.
- Connect the power supply according to the specified voltage (100-240VAC, 50/60 Hz).
- Do not disassemble or modify the unit.
- Use appropriate personal protective equipment during installation and operation.

3. Features

- **High-Accuracy Temperature Control:** Achieves precise temperature regulation.
- **Dual Display:** Simultaneous display of Process Value (PV) and Set Value (SV).
- **Multiple Output Options:** Supports Current output or SSR Drive output.
- **Alarm Function:** Includes 1 alarm output for process monitoring.
- **RS485 Communication:** Enables remote monitoring and control.
- **Compact Design:** 1/16 DIN size for easy integration into control panels.
- **Universal Input:** Compatible with various temperature sensors.

4. Setup and Installation

The TK4S-T4CN is designed for panel mounting. Follow these steps for proper installation and wiring.



Figure 4.1: Front view of the AUTONICS TK4S-T4CN Temperature Controller, showing the dual digital display (red for PV, green for SV), control buttons (MODE, left arrow, down arrow, up arrow), and indicator lights for outputs and alarms.

4.1 Panel Mounting

1. Cut a panel cutout of 45x45 mm (1/16 DIN standard).
2. Insert the unit into the cutout from the front.
3. Secure the unit using the supplied mounting brackets from the rear.

4.2 Wiring

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

- **Power Supply:** Connect 100-240VAC, 50/60 Hz to the designated power terminals.
- **Sensor Input:** Connect your temperature sensor (e.g., thermocouple, RTD) to the input terminals. Ensure correct polarity for thermocouples.
- **Control Output:** Connect your current output or SSR drive output to the appropriate terminals.
- **Alarm Output:** Connect the alarm output to your alarm device.
- **RS485 Communication:** Connect A and B terminals for RS485 communication if utilizing this feature.



Figure 4.2: Side view of the AUTONICS TK4S-T4CN Temperature Controller, illustrating the terminal block for power, sensor input, control output, alarm output, and RS485 communication connections.

5. Operating Instructions

Once installed and wired, the TK4S-T4CN is ready for operation. The unit features a clear dual display and intuitive button controls.

5.1 Display Overview

- **PV (Process Value):** The upper red display shows the current measured temperature.
- **SV (Set Value):** The lower green display shows the desired target temperature.
- **Indicators:** LEDs indicate output status (OUT1, OUT2), alarm status (AL1, AL2), and auto-tuning (AT).

5.2 Button Functions

- **MODE Button:** Used to cycle through parameter groups and enter/exit setting modes. Press and hold to enter parameter setting mode.
- **Left Arrow (←) Button:** Moves the cursor to the left during parameter setting, or used for specific function calls.
- **Down Arrow (▼) Button:** Decreases the value of a parameter or navigates through options.
- **Up Arrow (▲) Button:** Increases the value of a parameter or navigates through options.

5.3 Setting the Set Value (SV)

1. In normal operating mode, the lower green display shows the current SV.
2. Press the **MODE** button briefly to enter SV adjustment mode. The SV display will blink.
3. Use the <, ▼, and ▲ buttons to adjust the SV to your desired temperature.
4. Press the **MODE** button again to confirm the new SV and return to normal operating mode.

5.4 Control Modes (PID / ON/OFF)

The TK4S-T4CN supports both PID control for precise regulation and ON/OFF control for simpler applications. The control mode and associated parameters are configured in the parameter setting menu. Refer to the detailed manual for specific parameter settings for each control mode.

6. Maintenance

Regular maintenance ensures the longevity and reliable operation of your temperature controller.

- **Cleaning:** Gently wipe the display and casing with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Environmental Conditions:** Ensure the operating environment remains within specified temperature and humidity ranges to prevent damage.
- **Connection Checks:** Periodically inspect wiring connections for looseness or corrosion.
- **Calibration:** If accuracy issues are suspected, consult a qualified technician for calibration.

7. Troubleshooting

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
No power to unit	Incorrect wiring; Power supply issue; Blown fuse	Check power connections; Verify power supply voltage; Check and replace fuse if necessary.
PV display shows "HHHH" or "LLLL"	Sensor open circuit (HHHH) or short circuit (LLLL); Sensor disconnected; Incorrect sensor type setting	Check sensor wiring; Replace faulty sensor; Verify sensor input type setting in parameters.
Temperature not controlling	Incorrect control output wiring; PID parameters not tuned; Output device failure	Verify output wiring; Perform auto-tuning; Check external output device (e.g., SSR).
Alarm not activating	Alarm setting incorrect; Alarm output wiring issue; Alarm device failure	Check alarm type and setpoint; Verify alarm output wiring; Test alarm device.

If the problem persists after attempting these solutions, please contact AUTONICS customer support or a qualified service technician.

8. Specifications

Key technical specifications for the AUTONICS TK4S-T4CN Temperature Controller.

Parameter	Value
Model Number	TK4S-T4CN
Brand	AUTONICS
Power Supply	100-240VAC, 50/60 Hz
Display Type	LCD or LED (Dual Display)
Control Output	Current or SSR Drive Output
Alarm Output	1 Alarm
Communication	RS485
Dimensions (Package)	4.45 x 2.95 x 2.56 inches

Parameter	Value
Item Weight	5.3 ounces
Manufacturer	AUTONICS USA

9. Warranty and Support

Specific warranty terms and conditions for the AUTONICS TK4S-T4CN Temperature Controller are typically provided with the product packaging or on the manufacturer's official website. Please refer to those resources for detailed warranty information.

For technical support, service, or inquiries regarding your AUTONICS product, please contact AUTONICS customer service directly. Contact information can usually be found on the AUTONICS official website or on the product's packaging.

It is recommended to have your product model number (TK4S-T4CN) and serial number ready when contacting support.

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Name

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question