CHBMSS AI208

CHBMSS AI208 Series Intelligent Temperature Controller User Manual

Models: AI208-4-RB10, AI208-4-SB10, AI208-6-RB10, AI208-6-SB10, AI208-7-RB10, AI208-7-SB10, AI208-8-RB10, AI208-8-SB10, AI208-9-RB10, AI208-9-SB10

1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of the CHBMSS AI208 series intelligent temperature controllers. Please read this manual thoroughly before using the device to ensure safe and efficient operation.

Safety Precautions

- Ensure all wiring is performed by qualified personnel and complies with local electrical codes.
- Disconnect power before performing any installation, wiring, or maintenance.
- Do not operate the device in environments exceeding its specified temperature and humidity limits.
- Avoid exposing the device to corrosive gases, strong vibrations, or direct sunlight.

2. Product Overview

The CHBMSS AI208 series intelligent temperature controller is a compact and reliable device designed for precise temperature regulation. It offers various features to ensure stable and accurate control in industrial and scientific applications.

Key Features

- Small, lightweight, and highly reliable design.
- Temperature calibration function for accurate readings.
- High-temperature alarm notification.
- Selectable cooling or heating modes.
- Adjustable maximum/minimum temperature limits for safety.

Figure 2.1: Front view of the CHBMSS AI208 Intelligent Temperature Controller, showing the PV and SV displays, alarm indicators (AL1, AL2, AL3), output indicators (OUT1, OUT2, AT), and control buttons (SET, AT, R/S, Up, Down).

3. Technical Specifications

Specification	Value
Model Number	AI208
Wattage / Power	380V 10A
Working Principle	Electronic Temperature Controller
Temperature Range	-50 to 999 (Units not specified, typically Celsius or Fahrenheit)
Temperature Control Function	Constant Temperature
Package Dimensions	1.18 x 0.79 x 0.39 inches
Item Weight	7.1 ounces (200 Grams)
Manufacturer	CHBMSS

Specification	Value
Input Type	TC/RTD GPIO (for models like AI208-4-RB10, AI208-6-RB10, AI208-7-RB10)
Output Type	Relay (for models like AI208-4-RB10, AI208-6-RB10, AI208-7-RB10); SSR output (for models like AI208-8-SB10)

Dimensions for Specific Models

The AI208 series includes various models with different physical dimensions. Please refer to the specific model's diagram for accurate measurements.

Figure 3.1: Dimensions for AI208-4-RB10 model. Size: 48*48*97.5mm. Dimension: 45.5*45.5mm. Input: TC/RTD GPIO. Output: Relay.

Figure 3.2: Dimensions for AI208-6-RB10 model. Size: 48*96*97.5mm. Dimension: 45.5*92mm. Input: TC/RTD GPIO. Output: Relay.

Figure 3.3: Dimensions for AI208-7-RB10 model. Size: 72*72*97.5mm. Dimension: 67.5*67.5mm. Input: TC/RTD GPIO. Output: Relay.

Figure 3.4: Dimensions for AI208-8-SB10 model. Size: 96*48*97.5mm. Dimension: 92*45mm. Input: TC/RTD GPIO. Output: SSR output.

4. Setup and Installation

4.1 Unpacking

Carefully remove the temperature controller from its packaging. Inspect the device for any signs of damage during transit. Ensure all components are present.

4.2 Mounting

The controller is designed for panel mounting. Cut an opening in the control panel according to the dimensions specified for your particular AI208 model (refer to Section 3). Insert the controller into the opening and secure it using the provided mounting brackets. Ensure a snug fit to prevent movement.

4.3 Wiring

Connect the power supply, temperature sensor (TC/RTD GPIO), and output load (relay or SSR) to the corresponding terminals on the rear of the controller. Refer to the wiring diagram provided with your specific product packaging for detailed connection instructions. Ensure all connections are secure and correctly polarized. Incorrect wiring can damage the device or lead to unsafe conditions.

5. Operation

5.1 Basic Controls

The front panel features several buttons for operation:

- **SET:** Enters parameter setting mode or confirms a setting.
- **<<AT:** Auto-tuning function or shifts cursor during parameter setting.
- **^R/S:** Increases value or scrolls through parameters.
- **v:** Decreases value or scrolls through parameters.

5.2 Setting Temperature Parameters

To set the desired temperature (SV - Set Value):

1. Press the **SET** button briefly to enter the set value adjustment mode. The SV display will flash.
2. Use the **^R/S** and **v** buttons to adjust the SV to your desired temperature. Use the **<<AT** button to shift the cursor for faster adjustment of individual digits.
3. Press **SET** again to confirm the new set value and exit the adjustment mode.

5.3 Temperature Calibration

The controller includes a temperature calibration function to compensate for sensor inaccuracies or environmental factors. Access this function through the advanced parameter settings (typically by pressing and holding SET for a longer duration) and adjust the offset value as needed. Refer to the detailed programming guide for specific steps.

5.4 Alarm Function

The controller is equipped with an alarm function that activates if the process variable (PV) reaches or exceeds a predefined high-temperature threshold. The AL1/AL2/AL3 indicators on the front panel will illuminate, and an audible alarm may sound depending on the model and configuration. The alarm threshold can be configured in the parameter settings.

5.5 Cooling or Heating Modes

The AI208 series supports both cooling and heating control modes. The desired mode can be selected within the controller's parameter settings to match your application requirements. Ensure the correct mode is selected for optimal performance and safety.

5.6 Maximum/Minimum Temperature Limits

To prevent accidental over-heating or over-cooling, you can set maximum and minimum temperature limits. If the set value (SV) attempts to exceed these limits, the controller will restrict it to the configured range. These limits are adjustable in the advanced parameter settings.

6. Maintenance

6.1 Cleaning

Regularly clean the front panel of the controller with a soft, dry cloth. Do not use abrasive cleaners or solvents, as these can damage the display or casing. Ensure no dust or debris accumulates in the ventilation slots.

6.2 Regular Checks

Periodically check all wiring connections for tightness and signs of corrosion. Ensure the temperature sensor is properly installed and free from damage. Verify that the controller's display and indicators are functioning correctly.

7. Troubleshooting

This section provides solutions to common issues encountered during the operation of the AI208 temperature controller.

- **Controller not powering on:** Check the power supply connection and ensure the voltage matches the controller's specifications. Verify that the circuit breaker or fuse is not tripped.
- **Temperature reading inaccurate:** Check the sensor wiring for correct polarity and secure connections. Ensure the sensor type configured in the controller matches the actual sensor being used. Perform temperature calibration if necessary.
- **Output not activating/deactivating:** Verify the set value (SV) and process variable (PV) are within the expected range. Check the output wiring and ensure the load is correctly connected. Confirm the control mode (heating/cooling) is set appropriately.
- **Alarm constantly active:** Check the alarm set points. Ensure the process temperature is not continuously exceeding the alarm threshold. Adjust alarm hysteresis if available.
- **Buttons unresponsive:** Disconnect power, wait a few minutes, and then reconnect. If the issue persists, contact support.

8. Warranty and Support

Specific warranty information for the CHBMSS AI208 series intelligent temperature controller is not provided within this manual. For details regarding warranty coverage, technical support, or service, please refer to the documentation included with your purchase or contact the manufacturer directly through their official website or customer service channels.