

# Intelligent Temperature Controller



## Instruction manual

**Tianjin ZINACA Intelligent Equipment Co., Ltd.**



## I. Overview

The Intelligent Temperature Controller is an integrated smart digital temperature measurement and control product that combines temperature measurement, display, output, and control functions. This product features an all-electronic structure, with a thin-film temperature sensor at the front end. It uses high-precision A/D conversion and processing by a microprocessor for real-time display and outputs two switching signals (with one analog output and optional 485 communication).

The intelligent digital temperature controller is easy to install, simple to operate, and flexible to debug, offering safety and reliability. It can replace most applications that use mechanical switches. It is widely used in industries such as hydropower, water supply, petroleum, chemical, mechanical, and hydraulic, for on-site temperature measurement, display, and control of fluid media.

## II. Features

- ◆ Standard meter installation.
- ◆ Adopt high precision temperature sensor, higher precision than mechanical temperature switch, small hysteresis, fast response, stable and reliable, sampling rate 36/sec.
- ◆ Adopting high precision AD and high speed microprocessor, fully digitalized design.
- ◆ 4-digit LED digital tube displays current temperature value without value error.
- ◆ Output two control point relay output 220V3A (one analog 4~20mA and 485 communication optional).
- ◆ Two-way control point field setting can set the high and low temperature alarm point, delay switching output time can be set by yourself, and through the relay output to the control equipment.
- ◆ Adjustment without dead zone, you can set the relay action temperature point in the whole range arbitrarily, use the key to adjust the action temperature, easy to use, more flexible.

## III. Technical parameters

|           |                    |               |                             |
|-----------|--------------------|---------------|-----------------------------|
| Range     | -200~550°C         | Accuracy      | Better than 0.5 per cent FS |
| Overload  | 200%               | Pressure type | Gauge pressure              |
| Stability | ≤0.2%/year         | Power Supply  | 24VDC                       |
| Display   | 0.56" digital tube | Display range | -1999~9999                  |

|                           |                         |                   |                  |
|---------------------------|-------------------------|-------------------|------------------|
| Environmental temperature | -20°C~70°C              | Relative humidity | ≤80%             |
| Mounting Threads          | M20*1.5<br>(selectable) | Material          | Stainless steels |

#### IV. External Dimensions

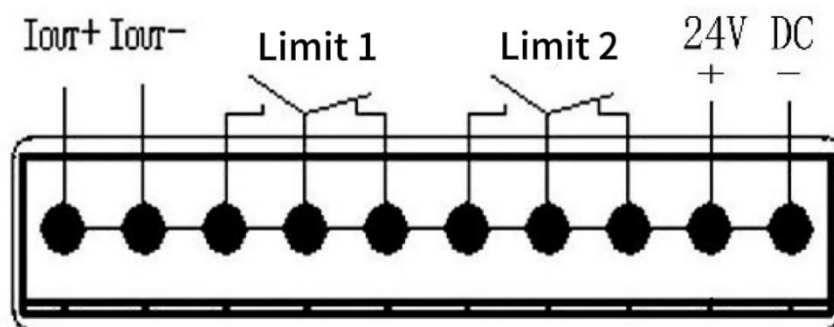


#### V. Installation

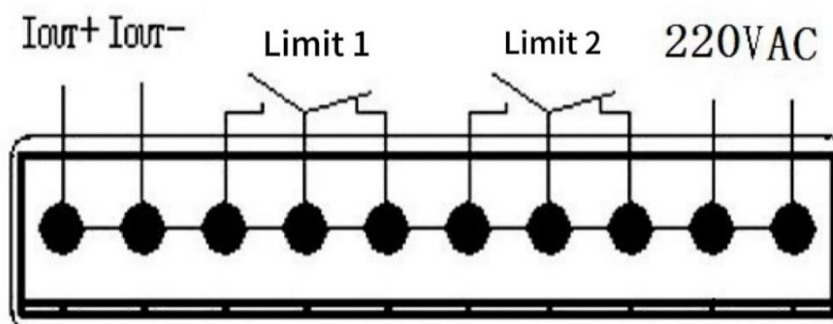
##### 5.1 Mechanical connections:

It can be directly installed on the pipeline through a temperature pipe fitting (M20\*1.5) (other fitting sizes can be specified when ordering). In critical applications (such as severe vibration or impact), the pressure pipe fitting can be mechanically decoupled using a miniature hose.

##### 5.2 Electrical connection: 24V power supply



Electrical connection: 220V power supply



To prevent the effects of electromagnetic interference, the following precautions should be observed:

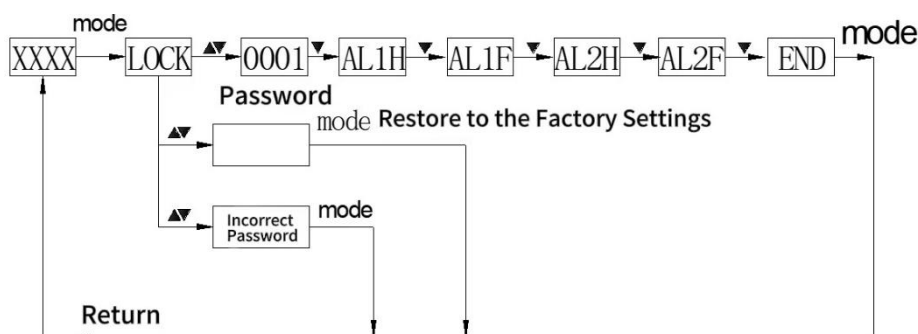
- Keep wiring connections as short as possible.
- Use shielded cables.
- Avoid placing wiring near devices or electrical/electronic equipment that may cause interference.
- If using a miniature hose for installation, the housing must be grounded separately.

## VI. Setting Functions

### 6.1 Output

There are two switching outputs. The corresponding outputs will switch when the switching point's absorption value is reached and will revert when the temperature drops below the release value.

### 6.2 Setting the switching point



**AL1H:** This value is the pickup value for Switch 1.

**AL1F:** This value is the release value for Switch 1.

**AL2H:** This value is the pickup value for Switch 2.

**AL2F:** This value is the release value for Switch 2.

**END:** Save and exit.

## VII. Notes on use.

- The instrument is suitable for storage and use in environments with temperatures ranging from -20°C to 70°C and humidity less than 80%.
- When connecting the instrument to the pipeline, ensure the connections are concentric and properly aligned.
- When connecting the instrument to the power supply, follow the electrical connection instructions in section 5.2. Only switch on the power after confirming the connections are correct.
- When disassembling the meter, do not apply force to the meter housing.

## VIII. Warranty

The instrument is guaranteed for one year from the date of delivery, provided that the user observes the rules of use and protection. After one year the maintenance is carried out in our company. The company is always ready to welcome users to write to us, call us for advice and suggestions.