XMT*Digital Series Temperature Instrument Instruction Manual

I. Technical Specifications
1. Display method: LED display directly
2. Basic error: ±1.0%FS±1B
3. Fixed point error: ±1.0%FS
4. Cold end compensating deviation: 0～50℃ deviation<2℃
5. Time proportional adjustment: scope 1%～3%, period: 30S±10S
6. Output contact capacity: AC 220V 3A(resistance load)
7. Operational Power Supply: 85VAC～242VAC, 50HZ/60HZ
8. Power consumption less than 3W
9. Work environment: temperature 0～50.0℃, relative humidity < 85%RH, without corrode.

II. Connection Scheme (consult)

III. Model meaning
X M □ □ □ □ □ □ □
1: Display control method: "T" temperature controller; "Z" single display instrument
2: Size
Empty: 160×80×50 Installation hole 152×76; A: 96×96×150 Installation hole 92×92
B: 60×120×150 Installation hole 56×116; D: 72×72×110 Installation hole 68×68
E: 48×96×110 Installation hole 44×92; F: 96×48×110 Installation hole 92×44
G: 48×48×110 Installation hole 45×45; H: 80×160×150 Installation hole 76×156
3: Operation display method
1’s potentiometer setting, entire measurement distance display;
2’s push-numerical code switch setting, entire measurement distance display.
4: Master control method
0’ ON/OFF adjustment; 1’ ON/OFF differential control (dead space enlargement)
2’ 2-ON/OFF adjustment; 3’ time proportional ON/OFF adjustment; 5’ Solid state relay
adjustment 6 mono-phase trigger adjustment; 7’ mono-phase over zero trigger adjustment
8’ 3-phase over zero trigger adjustment; 9’ continuous PID standard current signal output
5: An additional alarm
blank or ‘0’: indicates no alarm ‘1’: upper limit touch alarm; ‘2’: lower limit touch alarm
3 : upper, lower limit touch alarm;
6: Input signal classification
1’ thermocouple; 2’ thermoresistance; 3’ mV signal; 4’ resistance signal
5’ standard current signal; 7’ humidity sensor
suffix ‘D’ 30A big power relay
IV. Use and adjustment
1. XMZ□:
Connect the power and the sensor according to the Connection Scheme, and then display the testing temperature.

2. A. Model XMT□-1001，1002: After the instrument is wired, set the switch at “setting” and turn the settiwng potentiometer, at which the digital screen displays the value of the required temperature. Finishing the regulation, set the switch at “measuring” in which the actual temperature value is displayed.

B. Model XMT□-2001，2002: After the instrument is wired, set the numerical code switch at the required setting value of the temperature, at which the digital screen displays the value of the actual temperature. When the actual value is lower than the setting value, the green bulb lights up, and the relay is connected at “general low”, disconnected at “general high”. When the actual value reaches or exceeds the setting value, the relay is connected at “general high” and disconnected at “general low”.

3. A. Model XMT□-1201，1202: After the instrument is wired, set the switch at “lower limit setting” and turn the corresponding lower limit setting potentiometer, at which the displayed digits indicate the required lower limit value of temperature, set the switch at “upper limit setting” again and turn the corresponding upper limit setting potentiometer, at which the displayed digits indicate the required upper limit value of temperature, set the switch at “measuring” and the digits will indicate the actual value of temperature.

B. Model XMT□-2201，2202: After the instrument is wired, set the numerical code switch at the required setting value of temperature, at which the digits displayed indicate the value of the actual temperature. When the actual value of temperature is lower than the lower limit setting, the green bulb lights up and both the upper and lower-limit relays will be connected at “General low” and disconnected at “General High”. When the actual value reaches or exceeds the lower limit setting, but is still lower than the upper limit setting, both the green and red bulbs turn off and the lower limit sensor is disconnected at “general low”, but connected at “general high”, while the upper limit relay is still connected at “general low”, disconnected at “general high”. When the actual value reaches or exceeds the upper limit setting, both the upper and low limit relays are disconnected at “general low”, connected at “general high”.

In general when making the temperature control, may use the output of the lower limit relay as an auxiliary heating control and use the upper limit relay for the heating control. Also, may use the output of the lower limit relay for the temperature control and use that of the upper limit relay for the over-temperature alarm.

4. Model XMT□-1601/2，2601/2，1701/2，2701/2: After the instrument being wired, conduct the setting as “2” when the actual temperature is lower than the proportional band, the heating voltage of on the load is 90%-up, the supplied voltage and the temperature rise upward. When the value reaches the proportional band, the heating voltage on the load will drop down gradually until reaches below 5% of supplied voltage. Because this instrument adopts a regulating method by changing the heating power to change the temperature value, when the heat-dissipation power and the heating power are in balance, the temperature may be stabilized at a certain point. In case of difference between the stabilized value and that required (this has something to do with the conditions of the heater power and heat dissipation), may turn the “manual adjustment” potentiometer until the required value only. Normally, the accuracy of the temperature control is higher than 0.1℃ (if flutter is found at the two voltage ends of Iod, may invert the two output wire on the instrument for solution) and lower than 0.8℃ of the thyristor may be assured.

5. Model XMT□-1301/2，2301/2: When the actual temperature haven’t entered the proportional band, the relay is connected at “general low”, disconnected at “general high” and the temperature of load rises upwards. After entry to the proportional band, the relay will start its on-off movement. The higher the temperature is, the shorter the time of the “general low” connection will be, and vice versa. The instrument changes the temperature by changing the average heating power. Other methods of use are the same as XMT□-2601 or 2602.

6. Model XMT□-1901/2，2901/2: When the actual temperature haven’t entered the proportional band, the output is a 10mA signal and the load temperature rises upwards. After entry to the proportional band, the output current decreases gradually, keeping dropping down until it is lower than 0.2mA. The instrument changes the load heating power by adopting the PID way of regulating and through fitting of ZK model thyristor voltage adjuster. Other methods of use are the same as model XMT□-2601 OR 2602.

V. Attention in using and designing of the instruments

1. There should be no corrosive gases on the site to install the instrument;

2. The heat-sensation elements should be set in the position which can reflect the true temperature inside the oven, and should have a good insulation against the oven resistance wires.

3. Before connecting with the power, check if the wiring is correct, and if the heat-sensation elements match the graduation code.

4. At the time of initial heating, because of the thermal inertia of the oven, though the resistance wires inside the oven have been disconnected, the oven temperature may still rise up. So each time before starting the machine, it is better to set only 80% of the required value so as to avoid the overshoot of the temperature rise at the starting of the machine.

5. If the instrument displays abnormally, it is necessary to check if the connecting wire of the sensor is disconnected or short-circuited and if the working voltage of the instrument is normal.