ICs & Robot Gadgets
Easy Deal Easy Fun

ICStation XY-T04 High Temperature Controller

1.Description:

XY-T04 is a K-type digital high temperature controller module. It can be widely used at Smart home,Industrial control, Automatic irrigation, Indoor ventilation. Protection equipment.

It has high precision output automatic constant temperature panel.

XY-T04 adopts industrial-grade chip with high-precision K-type thermocouple temperature sensor that can measuring -99℃~999℃ or -99℉~999℉.

2.Features:

1>.Intelligent control and monitoring
2>.Simultaneous temperature detection
3>.Celsius and Fahrenheit switch display
4>.Automatic recognition working mode
5>.Automatic data saving
6>.High temperature measuring -99C~999C or -99F~999F

3.Parameters:

1>.Product Name:XY-T04 Temperature Controller
2>.Product Number:XY-T04
3>.Working Voltage:DC 6V-30V
4>.Control Type:Button/MODBUS
5>.Support sensor:K-type thermocouple(1 meter)
6>.Temperature range:-99C~999C or -99F~999F
7>.Temperature Control precision:0.1C/F
8>.Temperature measurement error:+/-2C/F
9>.Output type:Relay output(It can not output voltage)
10>.Load: AC220V/DC30V 10A
11>.PCB Working Temperature range:-40℃~85℃
12>.Working Humidity Range:5%-95%RH
13>.Module Size:72*48*25mm

4.Functions:

1>.Setting parameters:

1.1>.Set work mode by Cooling mode and Heating mode.

1.2>.Set the Set Temperature and Hysteresis Temperature. User can set start delay time if necessary.

1.3>.Set ON/OFF the high and low temperature alarm function and threshold if necessary.

2>.Cooling Mode C:

2.1>.Relay turn ON and Refrigeration equipment starts working if connect load when Current Temperature is greater than (Set Temperature + Hysteresis Temperature). LCD will display symbol ‘OUT’ on left.

2.2>.Relay turn OFF and Refrigeration equipment stops working if connect load when Current Temperature is less than Set Temperature. Symbol ‘OUT’ will disappear.

2.3>.Example: Set Temperature 30℃ and Hysteresis Temperature 5℃.

2.3.1>.Relay turn ON and Refrigeration equipment starts working if Current Temperature is greater than 35℃(30+5=35).

2.3.2>.Relay turn OFF and Refrigeration equipment stops working if Current Temperature is less than 30℃.

3>.Heating mode H:

3.1>.Relay turn ON and Heating equipment starts working if connect load when Current Temperature is less than (Set Temperature - Hysteresis Temperature). LCD will display symbol 'OUT' on left.

3.2>.Relay turn OFF and Heating equipment stops working if connect load when Current Temperature is more than Set Temperature. Symbol 'OUT' will disappear.

3.3>.Example: Set Temperature 30℃ and Hysteresis Temperature 5℃.

3.3.1>.Relay turn ON and Heating equipment starts working if Current Temperature is less than 25℃(30-5=25).

3.3.2>.Relay turn OFF and Heating equipment stops working if Current Temperature is more than 30℃.

4>.Delay start function dLY:

4.1>.It means the load can allow the next heating or cooling after delay time T and the time unit is second if turn ON dLY function.

4.2>.Relay can not turn ON if the heating temperature is met at H mode during delay time T if turn ON dLY function.

5>.Calibration temperature:

5.1>.Current Temperature = Detect Temperature + Calibration Temperature.

5.2>.The system works for a long time, and there may be deviations, which can be corrected by this function.

6>.Temperature alarm:

6.1>.Buzzer will alarm and press anyone button to stop alarm if turn ON this function.

6.2>.High Temperature Alarm OTP: Relay turn OFF and load stop work if Current Temperature is more than High Temperature Threshold.

6.3>.Low Temperature Alarm LTP: Relay turn OFF and load stop work if Current Temperature is less than Low Temperature Threshold.

7>.Emergency stop:

7.1>.Relay turn OFF,display OFF and load stop work if press emergency stop button.

7.2>.Press again to turn ON.

8>.Sleep function:

8.1>.Keep press 'SET' about 2 second to turn ON or OFF this function.

8.2>.L-P ON : Turn ON sleep function. LCD screen turns off automatically if there is no operation within 10 minutes. Press any button to wake up screen. Note: XY-T04-W works normally, just enters the power saving state.

8.3>.L-P OFF : Turn OFF sleep function. LCD screen keep ON all the time.

9>.Control method:

9.1>.Button Control Method: It can be set parameter and control by 4 buttons on PCB.

9.2>.MODBUS Control Method: It can be set parameter and control by MODBUS protocol. This mode can be connected to a micro-controller to realize embedded industrial control.

5.Button Control Method

1>.Set work mode and temperature:

1.1>.**Enter Set Mode**: Press 'SET' button enter into set parameter mode. Then display symbol 'SET' at bottom left and mode H or C keep flashing. Note: It will automatically save the parameters and exit the setting mode if there is no operation within 5 second.

1.2>.**Set Mode**: Symbol 'H' or 'C' flashing at second line after enter set mode. Then press 'UP' or 'DOWN' to switch work mode 'H' or 'C'.

1.3>.**Set the Set Temperature**: Press ‘SET’ button again and 3bit flashing behind ‘H’ or ‘C’. These 3bit is the Set Temperature. Then press ‘UP’ or ‘DOWN’ to change value.

1.4>.**Set the Hysteresis Temperature**: Press ‘SET’ button again and the first line flashing which is the flashing the Hysteresis Temperature. Then press ‘UP’ or ‘DOWN’ to change value.

1.5>.**Save and Exit**: Keep press ‘SET’ about 2second to save parameters and exit set mode. It will also automatically save the parameters and exit the setting mode if there is no operation within 5 second.

2>.Set system parameter:

2.1>.**Enter Set System Mode**: Keep press ‘SET’ button 3second enter into set system parameter mode.

2.2>.**Set High Temperature Alarm OTP**:

2.2.1>.Symbol ‘OTP’ is displayed on the first line and the second line flashing ‘----’ or High Temperature Alarm Value after enter set system mode.

2.2.2>.Press ‘STOP’ button to turn ON or OFF high temperature alarm function. ‘----’ means turn OFF this function, otherwise turn ON this function.

2.2.3>.Press press ‘UP’ or ‘DOWN’ to change value if turn ON this function.

2.3>.**Set Low Temperature Alarm LTP**:

2.3.1>.Press ‘SET’ button again and then symbol ‘LTP’ is displayed on the first line and the second line flashing ‘----’ or Low Temperature Alarm Value.

2.3.2>.Press ‘STOP’ button to turn ON or OFF high temperature alarm function. ‘----’ means turn OFF this function, otherwise turn ON this function.

2.3.3>.Press press ‘UP’ or ‘DOWN’ to change value if turn ON this function.

2.4>.**Set Delay Start Function dLy**:

2.4.1>.Press ‘SET’ button again and then symbol ‘dLy’ is displayed on the first line and the second line flashing ‘----’ or delay start time. The time unit is second.

2.4.2>.Press ‘STOP’ button to turn ON or OFF high temperature alarm function. ‘----’ means turn OFF this function, otherwise turn ON this function.

2.4.3>.Press press ‘UP’ or ‘DOWN’ to change value if turn ON this function.

2.5>.**Calibration Display Temperature OFE**:

2.5.1>.Press ‘SET’ button again and then symbol ‘OFE’ is displayed on the first line and the second line flashing calibration temperature value.

2.5.2>.Press press ‘UP’ or ‘DOWN’ to set calibration temperature value.

2.5.3>.Its set range is -20 to 20.

2.6>.**ON/OFF Buzzer Alarm bEp**:

2.6.1>.Press ‘SET’ button again and then symbol ‘bEp’ is displayed on the first line and the second line flashing ‘On’ or ‘OFF’.

2.6.2>.Press press ‘UP’ or ‘DOWN’ to turn ON or OFF this function.

2.7>.**Switch Temperature Unit F-C**:

2.7.1>.Press ‘SET’ button again and then symbol ‘F-C’ is displayed on the first line and the second line flashing ‘-C-’ or ‘-F-’.

2.7.2>.Press press ‘UP’ or ‘DOWN’ to change temperature unit.

2.7.3>.‘-F-’ : Temperature displayed in degrees Fahrenheit ℉.

2.7.4>.‘-C-’ : Temperature displayed in degrees Celsius ℃.

2.8>.**Set MODBUS Device Address**:

2.8.1>.Press ‘SET’ button again and then symbol ‘Add’ is displayed on the first line and the

second line flashing MODBUS Device Address such as '001'.

2.8.2>.Press press 'UP' or 'DOWN' to change device address.

2.8.3>.Its set range is 001 to 247.

6.MODBUS Control Method:

1>.It can be control by MODBUS-RTU control protocol which support function code 0x03/0x06/0x10. Note:It is recommended to use other control methods, because this method requires the user to have an electronic programming skills.

2>.Baud rate: 0:9600 1:14400 2:19200 3:38400 4:56000 5:57600 6:115200

3>.Device address:001~247

4>.Communication Interface:TTL

5>.Data frame structure:

Data Frame Interval	Address Code	Function Code	Data Area	CRC Check
>3.5 Byte	1 Byte	1 Byte	N Byte	2 Byte

6>.0x03 read function host format:

Address Code	Function Code	Register Start Address	Number Register Addresses n (1~32)	CRC Check
1 Byte	1 Byte	2 Byte	2 Byte	2 Byte

7>.0x03 read function slave return format:

Address Code	Function Code	Register Start Address	Return Register Quantity n	Register Data	CRC Check
1 Byte	1 Byte	2 Byte	1 Byte	2*n Byte	2 Byte

8>.0x06 write single register function host format:

Address Code	Function Code	Register Start Address	Register Data	CRC Check
1 Byte	1 Byte	2 Byte	2 Byte	2 Byte

9>.0x06 write single register function slave return format:

Address Code	Function Code	Register Start Address	Register Data	CRC Check
1 Byte	1 Byte	2 Byte	2 Byte	2 Byte

10>.0x10 write multiple registers function host format:

Address Code	Function Code	Register Start Address	Number Register Addresses n (1~32)	Write Byte Quantity 2*n	Register Data	CRC Check
1 Byte	1 Byte	2 Byte	2 Byte	1 Byte	2*n Byte	2 Byte

11>.0x10 write multiple registers function slave return format:

Address Code	Function Code	Register Start Address	Number Register Addresses n (1~32)	CRC Check
1 Byte	1 Byte	2 Byte	2 Byte	2 Byte

12>.Introduction to protocol registers (the data in a single register address is double-byte data)

Name	Description	Byte	Decimal	Unit	Register Type	Register Adds

RELAY	Current relay status	2	0	-	Holding register	0000H
SENSOR	Sensor status	2	0	-	Holding register	0001H
TIME	Remaining delay time	2	0	Min	Holding register	0002H
TEMP	Current temperature	2	1	C	Holding register	0003H
F_C	Temperature unit	2	0	-	Holding register	0004H
OPE	Work mode	2	0	-	Holding register	0005H
TEP	Set temperature	2	1	C	Holding register	0006H
BTE	Set hysteresis temperature	2	1	C	Holding register	0007H
OTP	High temperature alarm threshold	2	1	C	Holding register	0008H
LTP	Low temperature alarm threshold	2	1	C	Holding register	0009H
DLY	Delay start time	2	0	Min	Holding register	000AH
OFE	Temperature correction	2	1	C	Holding register	000BH
ALARM	Alarm status	2	0	-	Holding register	000CH
BEP-SW	Alarm switch	2	0	-	Holding register	000DH
OTP-SW	High temperature alarm switch	2	0	-	Holding register	000EH
LTP-SW	Low temperature alarm switch	2	0	-	Holding register	000FH
DLY-SW	Delay start switch	2	0	-	Holding register	0010H
STOP	Emergency stop switch	2	0	-	Holding register	0011H
ADDR	Slave device address	2	0	-	Holding register	0012H
BAUDRATE	Serial port baud rate	2	0	-	Holding register	0013H
BL-SW	Screen OFF switch	2	0	-	Holding register	0014H

7.Application:

1>.Control cabinet
2>.Production workshop
3>.Hatching aquaculture control
4>.Tobacco industry
5>.Printing house
6>.Aquarium temperature control
7>.Wood fired boiler

8.Note:

1>.It is a relay output mode and cannot be used as a power module. It cannot output voltage. The load needs to be connected to a separate power supply.
2>.Buzzer will alarm if no sensor was connected.
3>.Please read use manual and description before use.

9.Package:

1>.1pcs XY-T04-W Wireless WIFI Temperature Controller
2>.1pcs 100cm K-type thermocouple temperature sensor