Xetron STC-1000ProTH Smart Temperature Controller

Xetron STC-1000ProTH Smart Temperature Controller User Manual

Contents

Xetron STC-1000ProTH Smart Temperature Controller

Specifications

- **Temperature range:** -5°C to 70°C (23°F to 158°F)
- **Humidity range:** 0% to 99%
- **Temperature differential:** 0.2°C to 15°C (1°F to 30°F)
- **Humidity differential:** 5% to 50%
- **Temperature protection time:** 0 to 10 minutes
- **Humidity protection time:** 5 to 30 minutes
- **Temperature alarm high limit:** -5°C to 70°C (23°F to 158°F)
- **Temperature alarm low limit:** -5°C to 70°C (23°F to 158°F)
- **Humidity alarm high limit:** 35% to 95%
- **Humidity alarm low limit:** 0% to 30%
- **Temperature calibration range:** -10°C to 10°C (-15°F to 15°F)
- **Humidity calibration range:** Not specified
- **Continuous operating time:** 0 to 32 hours
- **Backlight time:** 0 to 30 seconds

Product Overview

Temperature & Humidity Sensor

The temperature and humidity sensor is used to measure the ambient temperature and humidity.

Power Plug

The power plug is used to connect the controller to a power socket. The controller supports UK/EU/US standards.

Main Controller

The main controller is the central unit of the temperature controller. It displays the temperature, humidity, and other readings.

English Outlets

The controller has outlets for connecting external devices. The WORK1 outlet is for heating or cooling, while the WORK2 outlet is for humidifying or dehumidifying.

Display Introduction

The display shows various icons and information related to the temperature and humidity control.

Icon	Function	Status
1	Wi-Fi connection status	Not connected, Resetting, ON
2	Cooling status	OFF, Protection delay, ON
3	Alarm status	No alarm, Alarm
4	Heating status	OFF, Protection delay, ON
5	Humidification status	OFF, Protection delay, ON
6	Dehumidification status	OFF, Protection delay, ON
7	Setting status	Nonsetting, Setting
8	Temperature-present value	
9	Humidity-present value	
10	Parameter code1	
11	Temperature-set value	
12	Humidity-set value	

Parameter Table

Temperature Related Parameters

Code	Function	Setting Range	Default Value
TCH	Temperature cooling/heating mode selection	C / H	C
TS	Temperature set value	-5°C to 70°C (23°F to 158°F)	25°C
TD	Temperature differential	0.2°C to 15°C (1°F to 30°F)	2.0°C
TPT	Temperature protection time	0 to 10 minutes	3 minutes
TAH	Temperature alarm high limit	-5°C to 70°C (23°F to 158°F)	35°C
TAL	Temperature alarm low limit	-5°C to 70°C (23°F to 158°F)	95°C
TCA	Temperature calibration	-10°C to 10°C (-15°F to 15°F)	0°C

Humidity Related Parameters

Code	Function	Setting Range	Default Value
CF	Temperature unit	C / F	C
HDH	Dehumidifying/Humidifying mode selection	C2 / H2	H2
HS	Humidity set value	50% to 99%	75%
HD	Humidity differential	5% to 50%	5%
HPT	Humidity protection time	0 to 10 minutes	3 minutes
HAH	Humidity alarm high limit	35% to 95%	35%
HAL	Humidity alarm low limit	0% to 30%	95%
HCA	Humidity calibration	Not specified	0%

Button Operation

Button	Operating	Remarks
+	Press	View parameter value
4+	Press and hold	
Press		
Press and hold for 3 seconds	Setting mode	
Press	View parameter value	
Press and hold		
Press and hold for 5 seconds	Equipment reset setting mode	
Number flashing	Previous parameter	

Introduction

STC-1000Pro TH is an integrated plug-and-play temperature and humidity controller. It has temperature and

humidity integrated probe and is pre-connected to two output sockets to control temperature and humidity simultaneously.
The large LCD screen intuitively displays temperature, humidity, and other parameters. With the three-key design, it enables quick parameter setting, such as alarm limit, calibration, protection time, unit switching, etc.
It is mainly used in aquarium, pet breeding, incubation, seedling mat, greenhouse, and other application scenarios.

Overview

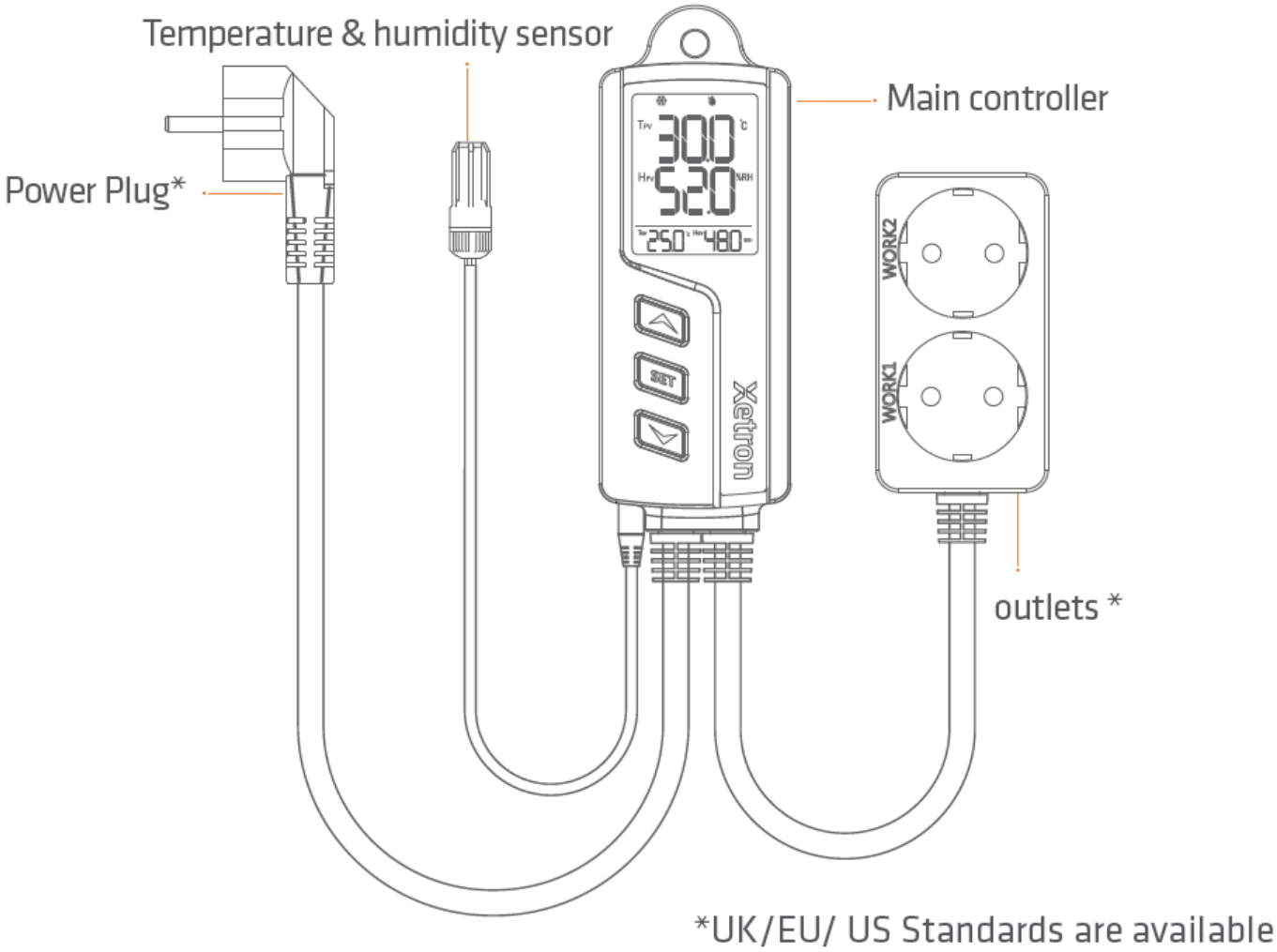

Fig. 1

*WORK1 only for Heating or Cooling, WORK2 only for Humidifying or Dehumidifying

Display Introduction
Please check the instructions below before parameter configuration.

S/N	Icon	Function	Status		
			OFF	Flashing	ON
1		Wi-Fi connection status	Not connected	Resetting	ON
2		Cooling status	OFF	Protection delay	ON
3		Alarm status	No alarm	—	Alarm
4		Heating Status	OFF	Protection delay	ON
5		Humidification status	OFF	Protection delay	ON
6		Dehumidification status	OFF	Protection delay	ON
7		Setting status	Non-setting	—	Setting
8	T_{PV}	Temperature-present value	—	—	—
9	H_{PV}	Humidity-present value	—	—	—
10	—	Parameter code[1]	—	—	—
11	T_{SV}	Temperature-set value	—	—	—
12	H_{SV}	Humidity-set value	—	—	—

Table 1

1 Refer to 2.2 Parameter Table for details.

Parameter Table

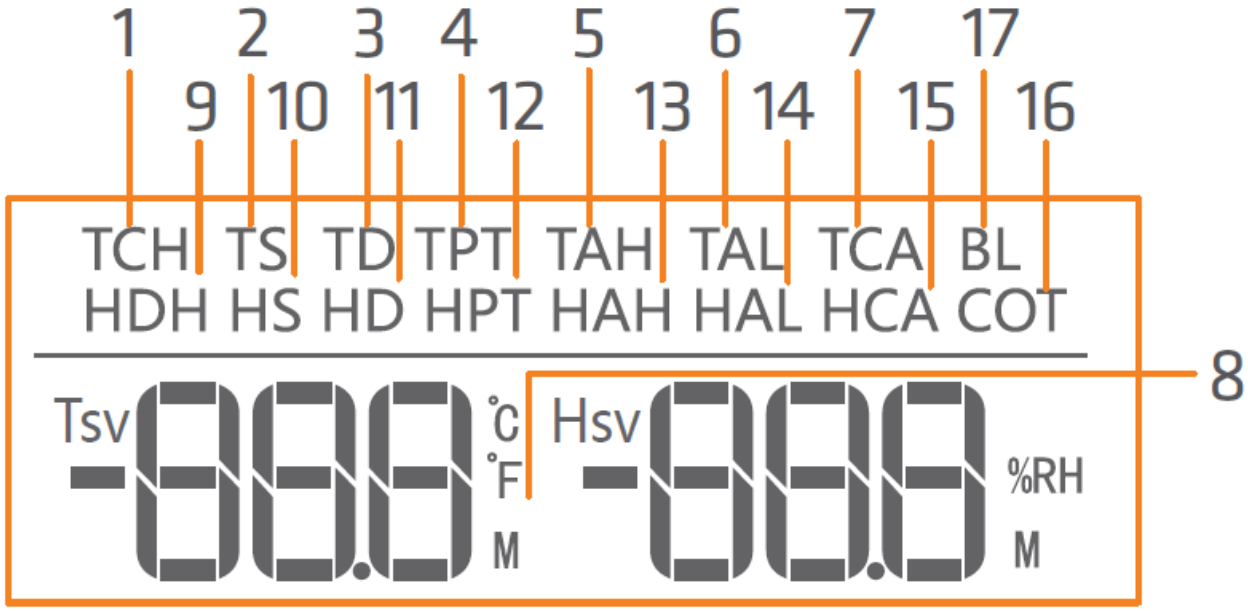
1
2
3
4
5
6
7
17
9
10
11
12
13
14
15
16
TCH
TS
TD
TPT
TAH
TAL
TCA
BL
HDH
HS
HD
HPT
HAH
HAL
HCA
COT
8
Tsv
-88.8
°C
°F
M
Hsv
-88.8
%RH
M

Fig. 3

S/N	Code	Function	Setting range	Default value	
1	TCH	Temperature cooling/heating mode selection	C / H	C	Temperature related parameters
2	TS	Temperature set value	-5 - 70°C	25	
			23 -158°F	75	
3	TD	Temperature differential	0.2 - 15°C	2.0	
			1 - 30°F	3	
4	TPT	Temperature protection time	0 - 10 Min	3	
5	TAH	Temperature alarm high limit	-5 - 70°C	35	
			23 -158°F	95	
6	TAL	Temperature alarm low limit	-5 - 70°C	0	
			23 -158°F	32	
7	TCA	Temperature calibration	-10 - 10°C	0	
			-15 -15°F	0	
8	CF	Temperature unit	C / F	C2	
9	HDH	Dehumidifying/Humidifying mode selection	H / D	H	Humidity related parameters
10	HS	Humidity set value	5 - 99% rF	50	
11	HD	Humidity differential	1 - 30% rF	5	
12	HPT	Humidity protection time	0 - 10 Min	3	
13	HAH	Humidity alarm high limit	5 - 99% rF	99	
14	HAL	Humidity alarm low limit	5 - 99% rF	5	
15	HCA	Humidity calibration	-10- 10% rF	0	
16	COT	Continuous operating time	0 – 999 Min	30	
17	BL	Backlight time	0 - 999 Min	30	

Table 2

2 The default temperature unit for US version is °F, while the UK and European version is °C.

Button Operation

S/N	Button	Operating	Non-setting mode	setting mode		
				Number flashing	Number non-flashing	Remarks
1		Press	View parameter value	Previous parameter	Increases	
		Press and hold	--	--	Continuous increases	
2		Press	--	Previous parameter	Number flashing	
		Press and hold for 3 seconds	Setting mode	Non-setting mode	Non-setting mode	
3		Press	View parameter value	Next parameter	Decreases	
		Press and hold	--	--	Continuous decreases	
4		Press and hold for 5 seconds	Equipment reset	--	--	

Operation

Incorrect operation may cause serious damage to you or your device.
Please make sure you read and understand the following procedures before starting.

Sensor Installation
Plug the probe fully to the bottom of the main controller's headphone jack. Otherwise, a buzzer alarm will be triggered, and the "Err" code will show on the LCD after powering the controller.

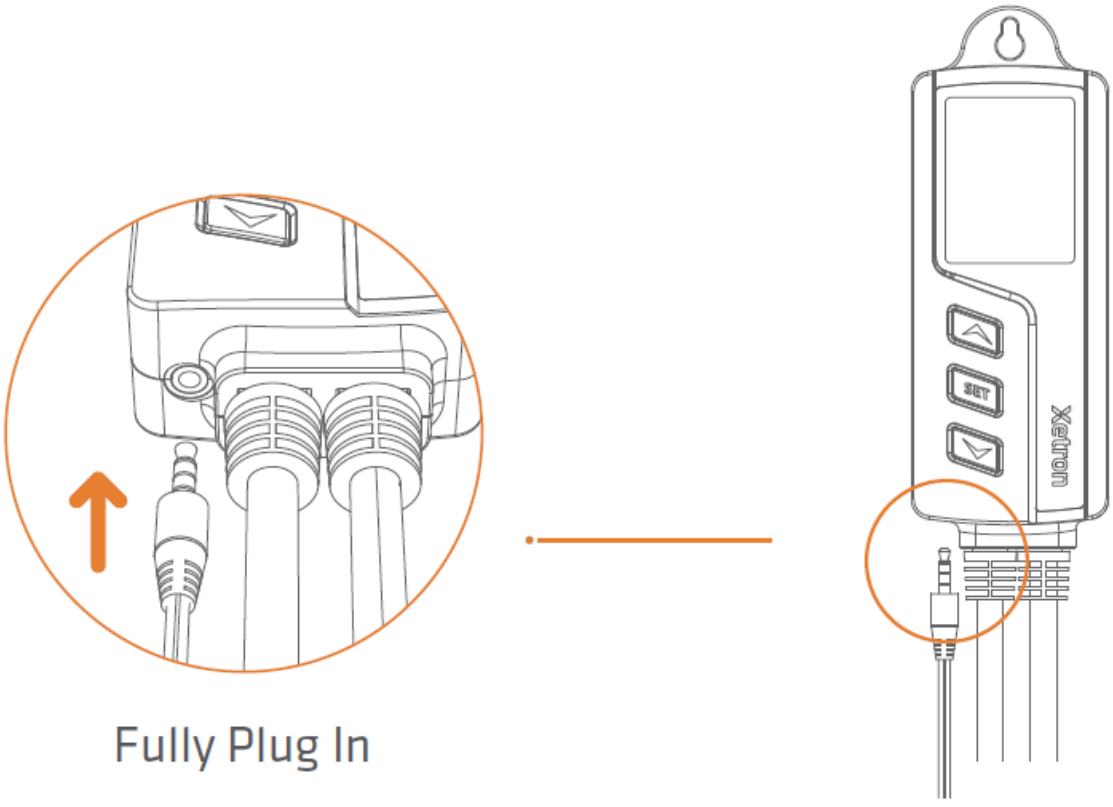

Fig. 4

Power-on
Please insert the power plug into the power socket to power on the controller (within the range of 100-240VAC). The screen will light up and display the temperature, humidity, and other readings.

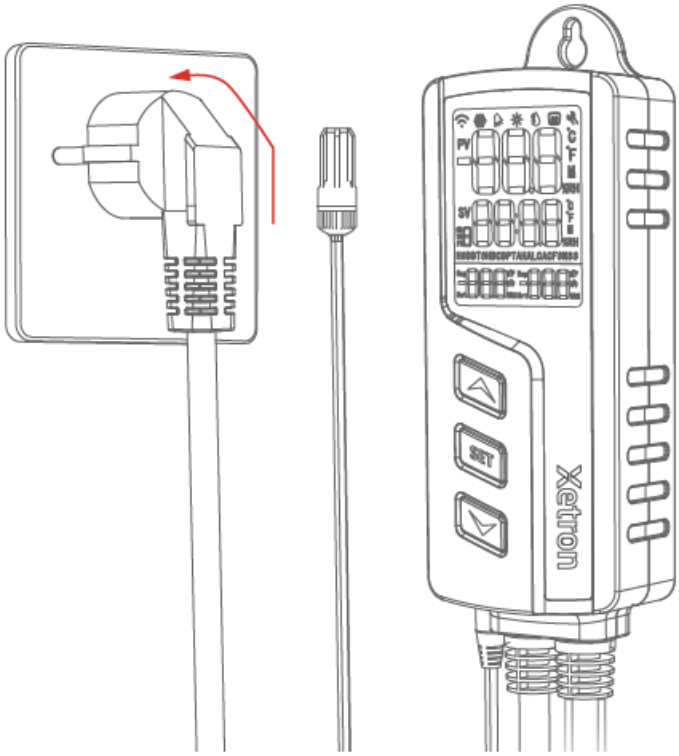

Fig. 5

3.3 Parameter Setting

Press and hold SET button for 3 seconds to enter the parameter setting mode, the buzzer will beep, and the LCD will display icon.

In the menu setting, press SET button and the Tsv parameter light will be on or flashes. When it is flashing, press or button to switch to the next parameter; when the parameter light is on, press or button to increase or decrease the setting value.

In the menu setting, press and hold SET button for 3 seconds to save settings and exit; or the controller will save and exit setting mode after 30 seconds of idle.
The Tsv displays temperature-related parameters and Hsv displays humidity- related parameters.

For example, set TS and TD parameters into TS = 30°C and TD = 5°C respectively.as shown in Fig. 6.

1. Press SET button and release after the buzzer beeps (about 3 seconds);
2. Press button, and the parameter code will display TS;
3. Press SET button, and will flash, indicates TS parameter is ready to be set;
4. Press (or press and hold) button to change the value to 30;
5. Press SET button, and TPV will appear;

6. Press  button, and the parameter code will display TD;

7. Press  button, and TPV will flash,indicates TD parameter is ready to be set;

8. Press (or press and hold)  button to change the value to 5;

9. Press  button and release after the buzzer beeps (about 3 seconds) to exit the parameter setting.

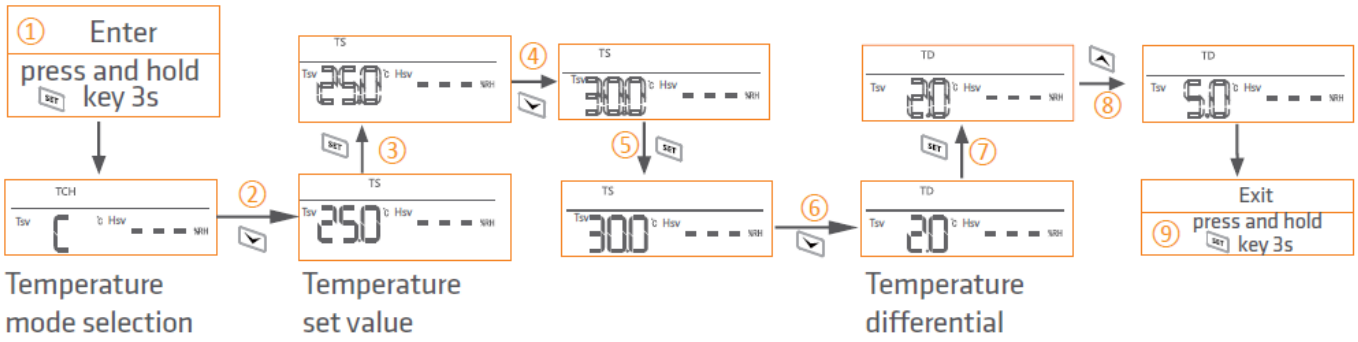

Fig. 6

Note:  Dotted-line in the figure shows the numbers are flashing (ready for setting);
 solid-line shows the numbers stop flashing (value is set).

See the flow chart below to change other parameter values one by one. as shown in Fig. 7.

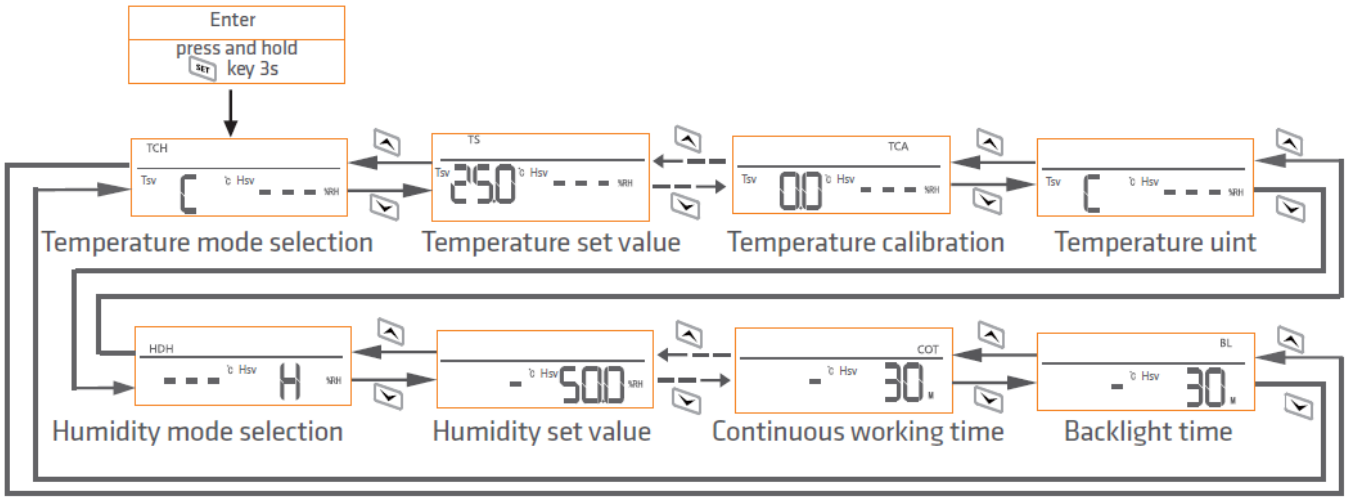

Fig. 7

Function Description

Temperature Setting – TCH, TS, TD
Cooling mode (TCH = C)
When TPV (temperature-present value) is higher than TS + TD (temperature-set value + temperature differential),  will appear, work1 will be turned on, and cooling will begin; When TPV (temperature-present value)  is lower than TS (temperature -set value), will disappear, work1 will be turned off, and cooling will stop.
For example: TS = 15°C, TD = 5°C, as shown in Fig. 8.

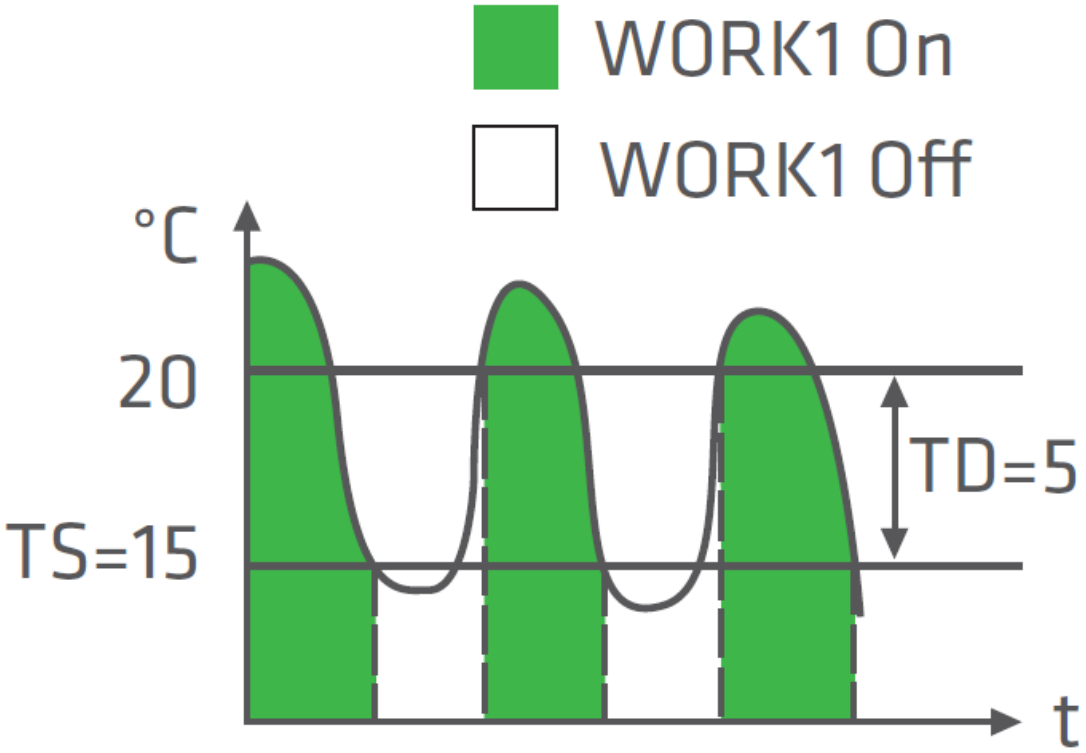

Fig. 8

Heating mode (TCH = H)

When TPV (temperature-present value) is lower than TS – TD (temperature-set value – temperature differential), will appear, work1 will be turned on, and heating will begin;

When TPV (temperature – present value) is higher than TS (tempera-ture -set value) , will disappear, work1 will be turned off, and heating will stop.

For example: TS = 15°C, TD = 5°C, as shown in Fig. 9.

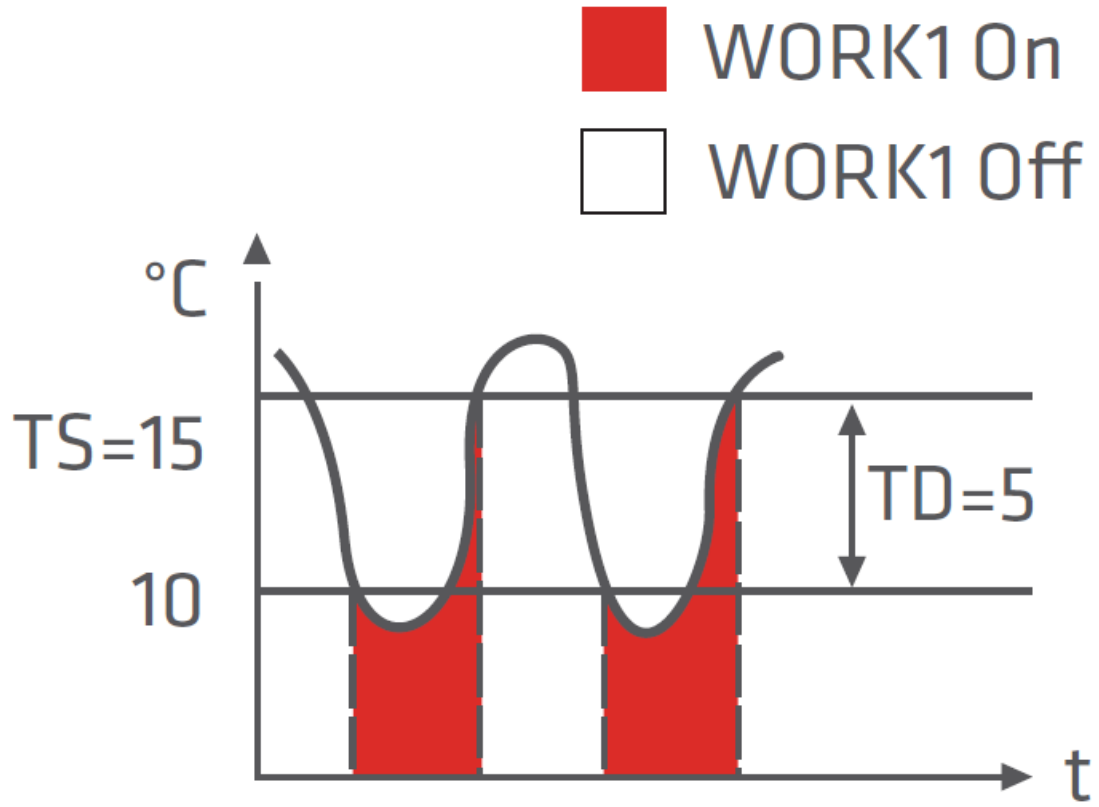

Fig. 9

Temperature Protection Time – TPT

WORK1 is a temperature socket and the time interval from its power-off to power-on again should meet the time requirement for TPT. If not, or will flash.

Temperature Alarm Limit- TAH, TAL

When TPV (temperature-present value) is higher than TAH (temperature alarm high limit), the temperature alarm high limit will be triggered and EHH code will be displayed;
When TPV (temperature-present value) is lower than TAL (temperature alarm low limit), the temperature alarm low limit will be triggered and EHL code will be displayed;
During the alarm, the buzzer makes a sound of “bi-bi-Biii” until the temperature is back to the normal temperature range; or press any button to mute the alarm. During the temperature alarm limit, the output of WORK1 socket is not affected.

Temperature Calibration – TCA

The temperature can be calibrated if the temperature-present value deviates from the actual temperature.
TPV (temperature – present value after calibration) = TPV (temperature – present value before calibra-tion) + TCA (temperature calibrated value).

Temperature Unit – CF

The temperature unit can be switched between Celsius and Fahrenheit. The temperature related parameter values will be restored to factory default values after the temperature unit is changed.

Humidity Settings – HDH, HS, HD

Dehumidifying mode (HDH = D)

When HPV (humidity-present value) is higher than HS + HD (humidity set value + humidity differential), will appear, work2 will be turned on, and Dehumidifying will begin;

When HPV (humidity-present value) is lower than HS (humidity set value), will disappear, work2 will be turned off, and dehumidifying will stop.
For example: HS = 50% RH, HD = 10% RH, as shown in Fig. 10.

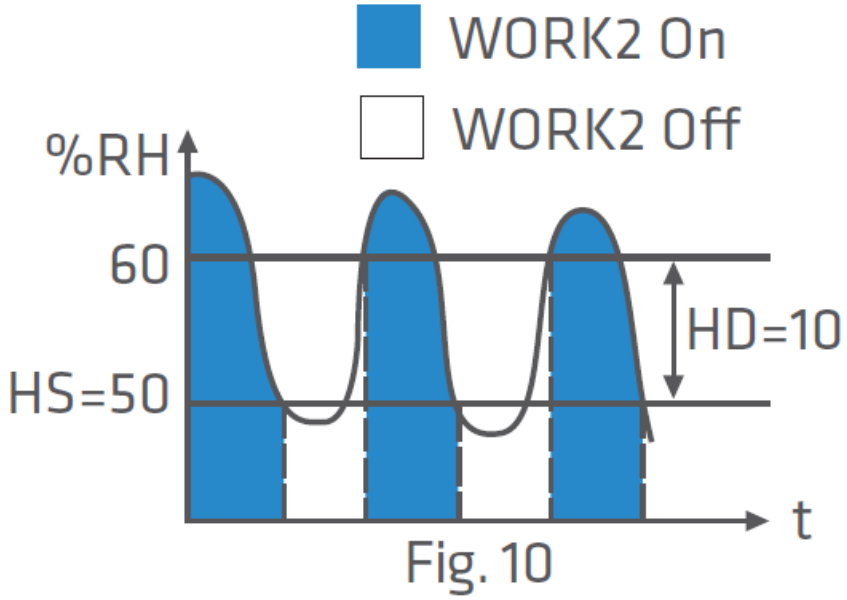

Fig. 10

Humidifying Mode (HDH = H)

When HPV (humidity-present value) is lower than HS-HD (humidity set value – humidity differential), will appear, work2 will be turned on, and Humidifying will begin;

When HPV (humidity-present value) is higher than HS (humidity set value), will appear, work2 will be turned off, and humidifying will stop.
For example: HS = 50%RH, HD = 10%RH, as shown in Fig. 11.

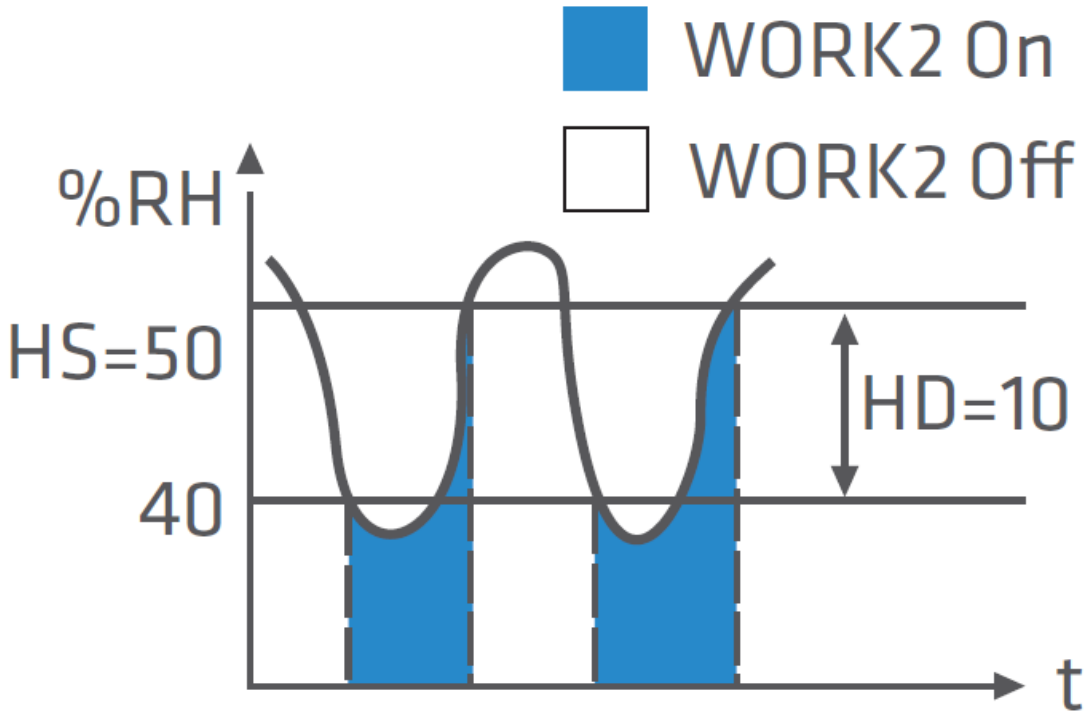

Fig. 11

Humidity Protection Delay – HPT
WORK2 is a humidity socket and the time interval from its power-off to power-on again should meet the time requirement for HPT. If not, or light will flash.
This protection time requirement should also be satisfied when the controller is just powered on.

Humidity Alarm High Limit – HAH, HAL
When HPV (humidity-present value) is higher than HAH (humidity alarm high limit), the humidity alarm high limit will be triggered and EHH code will be displayed;
When HPV (humidity-present value) is lower than HAL (humidity alarm lower limit), the humidity alarm lower limit will be triggered and EHL code will be displayed;
During the alarm, the buzzer makes a sound of “bi-bi-Biii” until the humidity is back to the normal humidity range; or press any button to mute the alarm. During the humidity alarm high limit, the output of WORK2 socket is not affected.

Humidity Calibration – HCA
The humidity can be calibrated if the humidity-present value deviates from the actual humidity. HPV (humidity-present value after calibration) = HPV (humidity-present value before calibration) + HCA (humidity calibrated value).

Continuous Operating Time – COT
During humidity control, when COT≠0 and output conditions are met, WORK2 socket will work in on-off-on-off…. mode. COT is time on as well as time off.
eg, if COT=10, the WORK2 output socket will turn on for 10 minutes and off for 10 minutes, then repeat. When COT = 0 and output conditions are met, WORK2 output socket will not be affected by COT.

Backlight Time – BL
BL is the screen display time. When BL=0 indicates display is always on.

Equipment Installation

As a safety precaution, it is recommended to power on the equipment after the installation is completed.

The only installation method is by hanging the equipment. Please check the installation distance and screw size according to its application scenario before installation.
The schematic diagram of equipment installation is shown below:

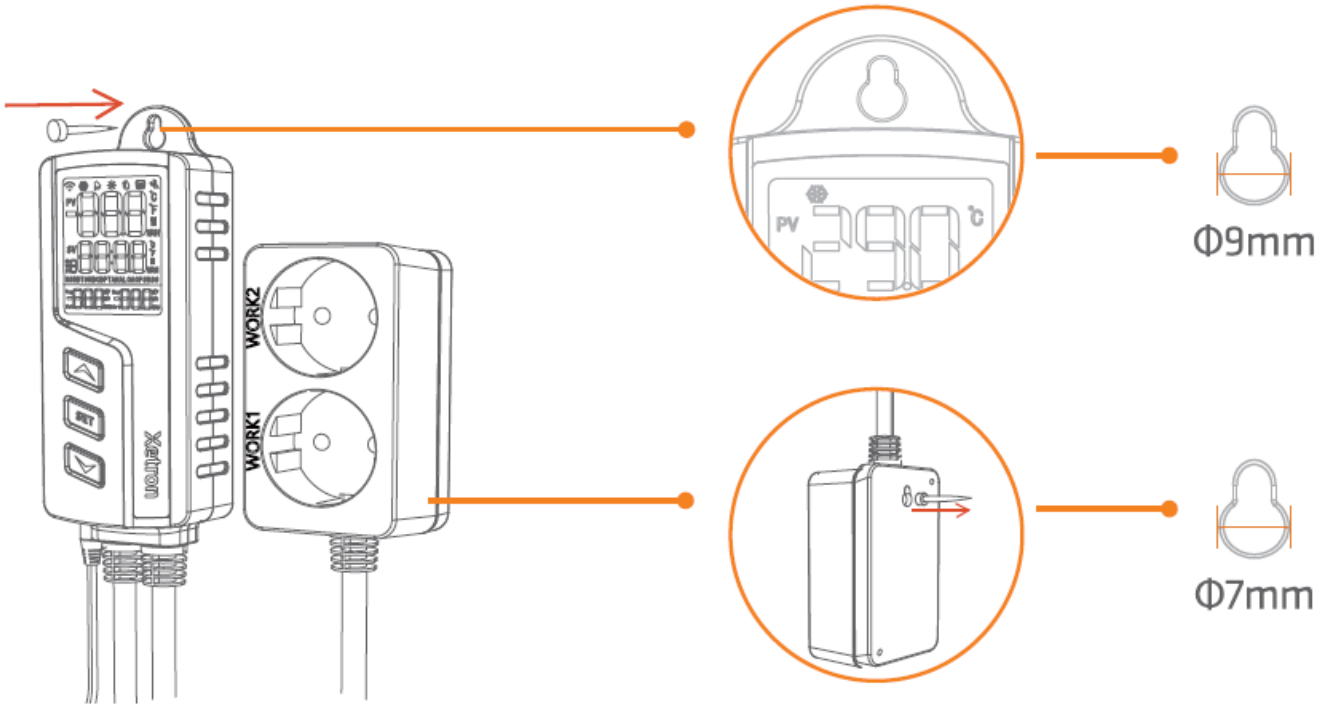

Fig. 12

Alarm

In the following circumstances during operation, the buzzer will give a “bi-bi-Biii” alarm, and at the same time, the alarm symbol on the screen will appear. Press any button to mute the alarm.

S/N	Code	Function	Socket output status
1	Err	Sensor failure	Outputs terminated
2	ETH	Temperature alarm high limit	Outputs unchanged
3	ETL	Temperature alarm low limit	Outputs unchanged
4	EHH	Humidity alarm high limit	Outputs unchanged
5	EHL	Humidity alarm low limit	Outputs unchanged

Restore Operation Function

Restore Factory Settings

When the controller is powered on and in non-setting parameter status, please press + + buttons simultaneously on the main controller and release until the screen turns off automatical-ly. Wait for the equipment to restart automatically and restore to factory settings.

Technical Parameters

- **Working voltage:** 100~240VAC, 50/60Hz
- **Temperature measurement range:** -5~70°C / 23~158°F
- **Temperature control range:** -5~70°C / 23~158°F
- **Temperature measurement accuracy:** ±0.5°C /±1°F
- **Temperature resolution:** 0.1°C /0.1°F
- **Humidity measurement range:** 5~99%RH
- **Humidity control range:** 5~99%RH
- **Humidity measurement accuracy:** ±5%RH
- **Humidity resolution:** 0.1%RH
- **Relay contact output capacity:** 10A (resistive) / 100 ~ 240VAC
- **Output power:** 2200W (resistive) in total / 200W (inductive) per channel @220VAC, 1100W (resistive) in total / 100W (inductive) per channel @110VAC
- **Total power consumption:** <5W
- **Working environment temperature:** 0°C~60°C / 32~140°F
- **Storage temperature:** -10°C~70°C / 14~140°F
- **Length of power probe:** 1.5m
- **Length of output power probe:** 0.3m
- **Enclosure size:** 165 x 60 x 32 mm
- **Length of sensor cable:** 2m (including probe length)
- **Best viewing angle of LCD screen:** 6 O'clock direction

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Please scan the QR code to get the multilingual product manual

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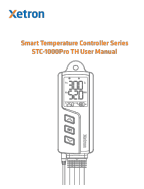
Documents / Resources

	**Xetron STC-1000ProTH Smart Temperature Controller** [pdf] User Manual STC-1000ProTH Smart Temperature Controller, STC-1000ProTH, Smart Temperature Controller , Temperature Controller, Controller

References

- Xetron Shop
- User Manual