WATTS®

Heating Touch screen Thermostat Manual

Product Summary

This thermostat has large LCD display. Easy operation, complete functions. It can be control motorized ball valve, motorized valve, thermal valve, solenoid valve, heater, electric heating film, electric heating carbon crystal. It is used for floor heating.

Function	WS-3021 classic black	WS-3021 classic white	WS-3025 diamond black
WI-FI	optional	optional	optional
RS 485	optional	optional	optional

Technical Data

- ❖ Power Supply: AC200-240V, 50/60HZ
- ❖ Load Current: 3A (Water Heating); 12A/16A (Electric Heating)
- ❖ Accuracy: ±0.5 ℃
- ❖ Set-point Temperature Range: 5 ℃ - 60 ℃
- ❖ Limit Temperature Range: 5-99℃
- ❖ Consumption: <0.3W
- ❖ Temperature Sensor: NTC
- ❖ Size: 86*86*17mm (H*W*D)

Features

- ❖ Large LCD touch screen with blue backlight display and double temperature display mode
- ❖ Time display (minutes, hours, weeks)
- ❖ 6 periods programmable controlling temperature setting
- ❖ Internal and external temperature sensor for choice
- ❖ Room temperature display precision is 0.5, inner precision is 0.1
- ❖ Setting temperature meet user's demand of room temperature
- ❖ Memory function when power failure, protect your setting from power failure
- ❖ Room temperature automatically calibration function
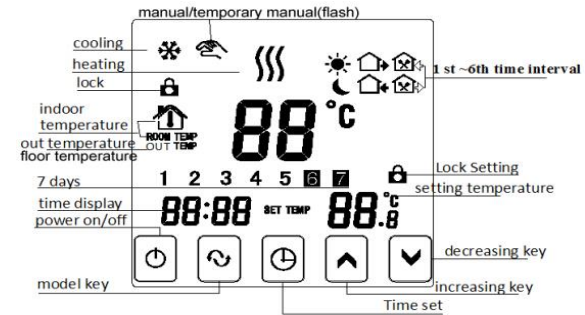
Button description

NO.	signal	Description
1	⏻	on / off
2	↻	Mode key: switch over auto/manual time interval control and temporary manual, long press enter into time interval setting function
3	🕒	Time setting: hours, minutes, weeks setting.
4	∧	Higher temperature setting,∧+↻ and ∧+🕒 to increase programmable parameter
5	∨	Lower temperature setting,∨+↻ and ∨+🕒 to decrease programmable parameter

Function and display

" ✍ "manual control(temporary manual control when flashing, auto control when no this sign display);

" (((" it is heating;   "❄" open anti-freezing function;

" ☀ " get up in morning, the first time interval;   " ⌂↑ " go out in morning, the second time interval;

" ⌂↓ " back home at noon, the third time interval;" ⌂↑ " go out at noon, the fourth time interval;

" ⌂↓ " back home at night, the fifth time interval; " ☾ " sleep at night, the sixth time interval;

Operation diagram

Time and time interval setting

1)Time setting

Press time key"🕒", time zone display minute, hour, week, press key"∧"or"∨"to adjust time.

2)Time interval temperature auto control setting

First step, select time interval first, press "↻" screen display "LooP"(cycle control),then press "∧",screen display"12345"(Monday to Friday control mode); press "∧" for 2 times, screen display"123456"(Monday to Saturday control mode);press "∧" for 3 times, screen display"123456、7"(Monday to Sunday control mode);

Second step, time interval time and temperature setting, when screen display "12345"or"123456"or123456、7",press "↻"enter into time interval temperature setting, press "🕒" enter into time interval time setting, press"∧"or "∨" to adjust and save automatically.

Note: when auto control "✍"will disappear, if need re-set temperature when auto control, can press "∧"or "∨" to adjust.

3)Modify interval time control setting

Press"↻" first, then press "🕒"switch to the time option to modify time of time interval.

Time interval programming

Touch version: in the shutdown state, first press the "🕒", and press "⏻", enter the advanced settings, and then press"↻",

select advanced options;

Key version: in the shutdown state, first press the "∨", and press "🕒", enter the advanced settings, and then press"↻" select

advanced options;

Period		Icon	Default Period Time	Default Period Temperature
Working Day	1	☀	06:00	20℃
	2	🏠▸	08:00	15℃
	3	🏠◂	11:30	15℃
	4	🏠▸	12:30	15℃
	5	🏠◂	17:30	22℃
	6	🌙	22:00	15℃
Weekend	1	☀	08:00	22℃
	2	🌙	23:00	15℃

1, The factory default temperature value of time interval 3 and 4 are the same as period 2,please modify

default temperature when it's necessary.
2, Setting temperature is "00", this time interval is shutdown.
3, View out temperature value (floor temperature)
(1)Touch screen version: when internal control temperature and external limit temperature (high temperature protection), under power on state, press time key not move first, then press on/off key together to switch and view external temperature (this time measure temperature display zone displays OUT TEMP temperature value), press time key to display room temperature;
(2)Button version: when internal control temperature and external limit temperature (high temperature protection), under power on state, press mode key not move first, then press on/off key together to switch and view external temperature (this time measure temperature display zone displays OUT TEMP temperature value), press mode key to display room temperature;

Advanced Setting (suggestion: operated by technician)

(1)Touch screen version: under power off state, first press "⊕",then press "⊙" enter into advanced setting.
(2)Button version: under power off state, first press "⌄",then press "⊙" enter into advanced setting.

No.	Symbols	Setting Item	Parameter Setting Function	Factory Default
1	SEN	Sensor control option	0: internal sensor 1: external sensor 2: internal control temperature, external limit temperature	0: internal sensor
2	OSV	Limit temperature value of external sensor	5-99℃	42℃
3	dIF	Return difference of limit temperature value of external sensor	1-9℃	2℃
4	SVH	Set upper limit temperature value	5-99℃	35℃
5	SVL	Set lower limit temperature value	5-99℃	5℃
6	AdJ	Measure temperature	Measure temperature, check and calibration	0.1℃ precision Calibration (actual temperature)

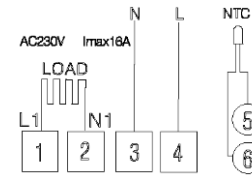| 7	FrE	Anti-freezing function	00: anti-freezing function shut down 01:anti-freezing function open	00: anti-freezing function shut down
8	POn	Power on memory	00: Power on no need memory 01:Power on need memory	00:Power on no need memory
9	FAC	Factory default	08: just display, no other meaning 00:Restore factory default	08

Note: hysteresis (return temperature) description: the factory default of external sensor limit temperature(OSV) set as 42℃, external sensor limit temperature hysteresis(dIF) set as 2, when temperature up to 44℃, relay stop output, when temperature drops to 40℃,relay output again and heating.(operation when room temperature lower than setting temperature)
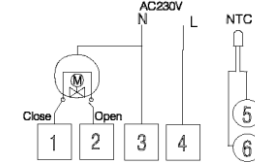
Sensor fault hint

Please select internal, external sensor working mode correctly. If it is choose wrong or sensor is fault (breakdown),LCD interface will display "Err", temperature controller stops heating until fault is eliminated. Special Hint: installation cable
Please select: water heating selects 1.5-2.5mm2 rigid line; electric heating select above 2.5mm2 rigid line.
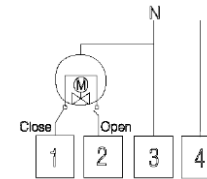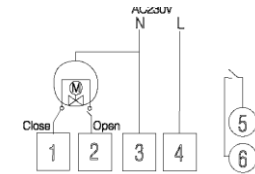
Power wiring diagram

Electric heating wiring diagram

Water heating wiring diagram
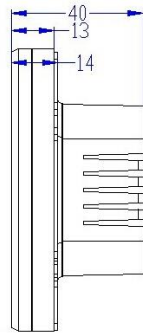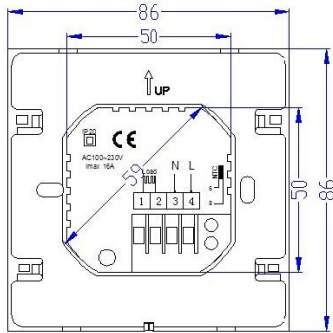(disconnection when electric valve close)

Water heating no external sensor wiring diagram
(disconnection when electric valve close)

Water heating no contact wiring diagram
(disconnection when electric valve close)

Installation

Warning: please wiring right strictly according to the wiring diagram, do not make water, mud and other debris into the thermostat, otherwise it will cause thermostat damage!

1,open main control panel, with 3.5mm slotted point screwdriver along the inclined plane until to card depths of 4mm, pry up slightly to open the card hook	2,connect back panel and power,wire as per wiring diagram,fasten back panel on cassette with M4 screw	3,connect winding displacement of back panel and upper panel	4,Hang up with 30° to 2 hooks,press on the 2 bottom corners,stuck on the upper shell, installation finished.