resideo

RTF243 Series Digital Thermostat

Fan Coil Unit Control

Features

- Memorized time off
- Random startup
- Remote temperature sensor optional
- Energy saving mode optional
- LCD display with simple user interface
- Room temperature or setpoint temperature display selectable
- Manual or automatic fan speed selectable
- Temperature units in either °C or °F
- User setting can be stored when power loss
- Freeze protection function available
- Keypad lock options
- Heating and cooling setpoint limitation

Specifications

Power supply	24(±10%)VAC, 50/60Hz
Modulating Output	DC 0~10V
Accuracy	±1°C at 21°C
Auto Cycle times	100,000 times
Manual Cycle times	10,000 times
Protection class	IP20
Set point range	10 ~ 32°C
Display range	0 ~ 37°C
Ambient operating limits	0~ +49°C
Ambient storage limits	-30 ~ +60°C
Humidity limits	5~90% RH, non-condensing
Remote temperature sensor	NTC20K
Action Type	1
Pollution Degree	2
Protection against electric shock class	For Class II application
Electronic control software class	Class A
Rated Impulse Voltage	2500V
Maximum Temperature	155°C
Relay wiring	
Wire Sectional area (Recommendation)	1.0~1.5mm^2

Applied altitude up to 2000m above sea level
Rating Capacity
Working current for the whole product :
For Fan current 4(2)A
4A: When the load of the thermostat is resistance
2A: When the load of the thermostat is inductance
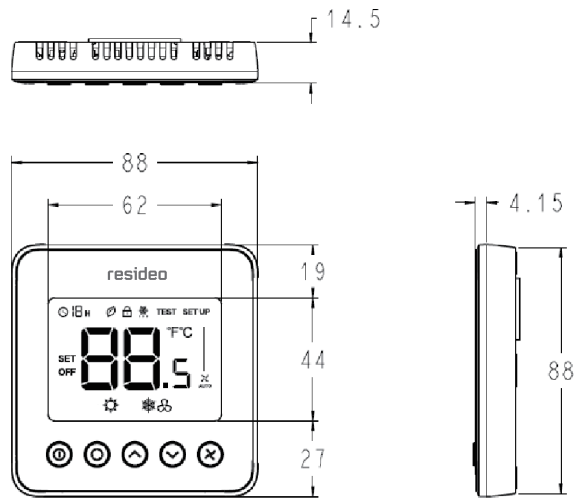For valve control signal: 0-10V 16mA Max

General

The RTF243 series digital thermostat is designed for 3-speed fan and modulating valve control in a fan coil system, including:

- 2-pipe cooling only/heating only/manual changeover
- Ventilation mode
- Manual or automatic 3-speed fan control
- Modulating water valve control

Besides the basic controls, RTF243 series provide **Random Start-up Function** to maintain power grid stability.

In addition, Resideo **Memorized Time Off Function** can automatically turn off the thermostat to save energy.

Model Selection

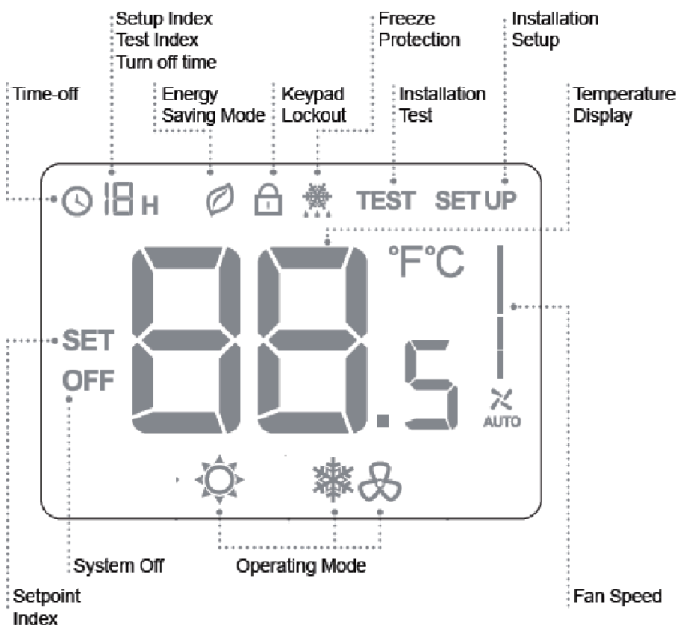| OS#	Backlight	Application	Color	Power	Ventilation	Auto Fan	Package
RTF243WN/U	Yes	2-pipe	White	24VAC; 50/60Hz	Yes	Yes	Unit Package
RTF243DN/U	Yes	2-pipe	Black	24VAC; 50/60Hz	Yes	Yes	Unit Package

Product Design

Thermostat appearance

Dimensions (mm)

LCD display

Function

Valve Control

Thermostat measures the room temperature via integrated sensor or remote temperature sensor and maintains the setpoint by delivering modulating valve control command outputs.
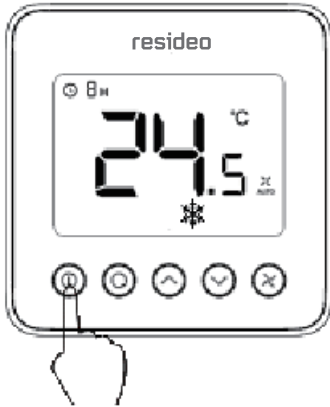
The fan setting can be selected as manual or automatic 3-speed operation. When in "manual" mode, the fan is switched to the selected speed via control output F3 (high),F2 (Medium),F1 (Low).

While in "automatic" mode, fan speed depends on the modulating duty cycle. When the modulating duty cycle reaches 0%, the valve will be closed and the fan will be closed in the meanwhile.

2

Memorized Time Off

The time off feature will automatically turn off the thermostat after a selectable amount of time. To change the time setting, press and hold the power button for more than 3 seconds and press "up" and "down" button to change the value when the thermostat is working .

NOTE: The setting range is from 0 to 12 hours. The step is 1 hour and the default value is 0.

Backlight

To turn on the backlight, press any key. The backlight will timeout 8 seconds after the last key is pressed. When in ISU and Installation test mode, the backlight will timeout 60 seconds after the last key is pressed.

Keypad Lockout

Keypad lockout can be set in ISU and the default status is "All keys are available". Keypad lock can be optioned to "system button locked out", "Fan and system buttons locked out", "all buttons (except power button) locked out" and "all buttons are locked".

Temperature Display

The displayed temperature can be set to room temperature or setpoint. The setting can be changed during ISU (Installation Set Up) process.

Operating Mode

Comfort Mode

In comfort mode, the setpoint and fan speed can be changed by pressing corresponding buttons. Comfort mode including 2-pipe cooling only/heating only/manual changeover.
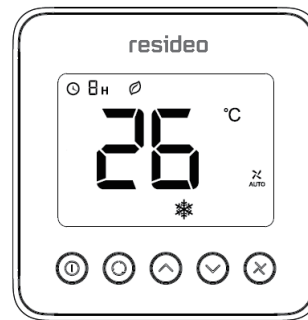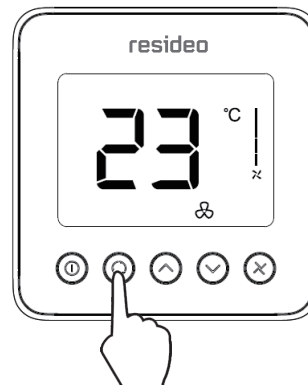
Energy Saving Mode

A dry contact (such as hotel card) or button press (press and hold the "mode" button for more than 3 seconds) can activate the energy saving mode. The dry contact can be selected as normal open or normal close in ISU.

If activated by dry contact, all buttons will be locked except the multi-key for ISU. If activated by button press, any button press can stop energy saving mode.

The setpoint will change to the remote setback heating/cooling setpoint when the energy saving mode is enabled. The heating setpoint range is 10ºC to 21ºC and the default is 18ºC. The cooling setpoint range is 22ºC to 32ºC and the default is 26ºC.

Ventilation Mode

Press "mode" button to enter "ventilation" mode. In "ventilation" mode, no output for valve while the fan will operate at selected fan speed.
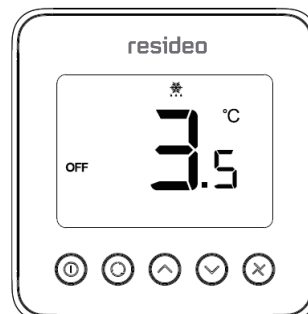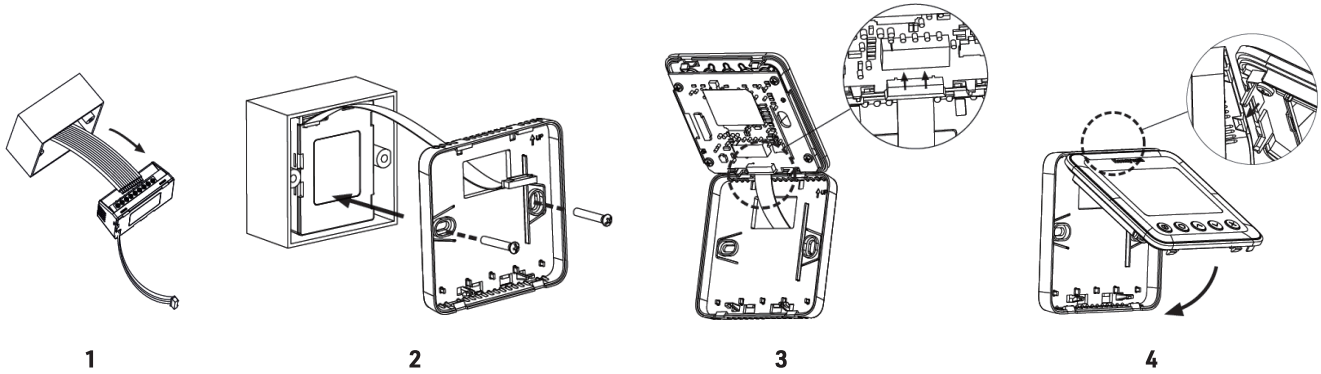
Freeze Protection Mode

Freeze protection can be selected as disabled or enabled (default) in the ISU. In freeze protection mode (only in heating applications), when thermostat is off and the temperature is below 6ºC, the thermostat will activate heating mode until the temperature rises to 8ºC.

RFT-O13-02S-EN01

Installation and Wiring

⚠️ RTF243 Series can be installed in standard 86 size junction box directly.

The screws must be locked tightly to avoid wire break off from the terminals.
The wire should not be tangled and stucked between front case assembly and back case

1   2   3   4
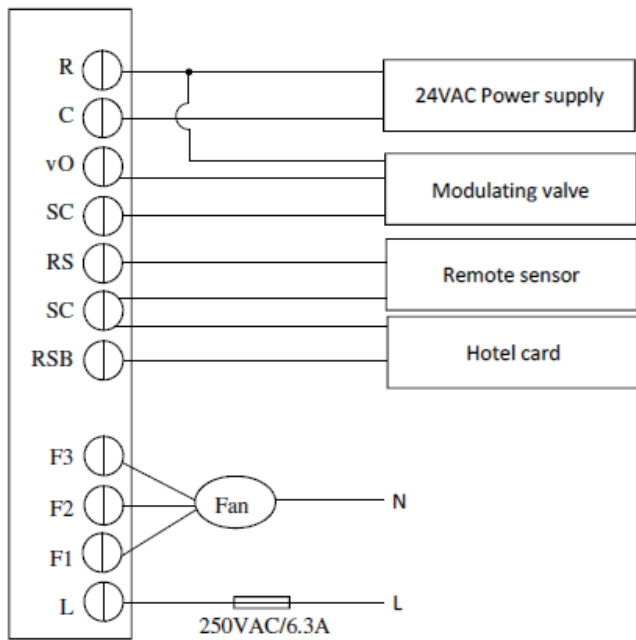
Wiring Diagram

Fig. 2. RVC7931 Wiring

Note: The 24Vac power supply should meet Class 2
SELV and less than 100VA
A Fuse or breaker is necessary before L terminal (Fuse
range is 5.0 A to 6.3A)

Terminal Designations

Terminal	Description
R	24Vac operating voltage
C	Common GND
vO	0~10V Modulating signal output for valve
SC	Ground for remote sensor/ remote setback /valve
RS	Remote sensor input
SC	Ground for remote sensor / remote setback/valve
RSB	Remote setback input
F3	High speed fan output
F2	Medium speed fan output
F1	Low speed fan output
L	230Vac line voltage for fan input

ISU (Installation Setup)

Press and hold the "mode" and "up" buttons together for more than 3 seconds to enter or exit ISU. Change the ISU code by pressing the "mode" button and then change the option setting by pressing the "up" and "down" button refer to the following introduction.

ISU Code	Description	Options
1	System Type	0 Heating only
		1 Cooling only
		2 Two pipes heating/cooling manual (Default)
2	Remote Sensor	**0 Onboard sensor (Default)**
		1 Remote sensor (NTC20K)
3	Temp. Scale	0 °F
		1 °C (Default)
4	Fan Control Type	0 Auto only
		1 Manual only (3 speed: Low→Med→High→Low)
		2 Users can choose auto or manual (Default)
8	Display Temp. Adjustment	-2~2°C, 0.5°C. **Default 0°C** (-4~4°F, 1°F. **Default 0°F**)
9	Temp. Display	**0 Room temp. (Default)**
		1 Set point

ISU Code	Description	Options
10	Heating Range Stops	10~32°C. **Default 32°C** (50~90°F. **Default 90°F**)
11	Cooling Range Stops	10~32°C **Default 10°C** (50~90°F. **Default 50°F**)
12	Keypad Lockout	**0 All keys are available (Default)**
		1 System button locked out
		2 Fan and system buttons locked out
		3 All buttons locked out except power button
		4 All buttons are locked
13	Remote Setback Enable Method	0 Hotel card NO
		1 Hotel card NC
		2 Button (Default)
14	Remote Setback Heating Setpoint	10~21°C. **Default 18°C** (50~70°F. **Default 64°F**)
15	Remote Setback Cooling Setpoint	22~32°C. **Default 26°C** (72~90°F. **Default 79°F**)
16	Freeze Protection	0 Disabled
		1 Enabled (Default)
17	Power Recovery Status	0 OFF
		1 Previous status (Default)
19	Fan Mode in ES Mode	**0 Run as Auto when ISU_4=2 (Default)**
		1 Run as low when ISU_4=2

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