resideo

RT6800 Series Digital Thermostat
2-pipe fan coil control

Features

- Super modern appearance design, suitable for office, hotel and residential building
- Horizontal and vertical model available for variant application
- Slim design, direct installation on 86 size box
- Big LCD with English and icon display
- Easy to install and set-up
- Selectable room temperature or setpoint temperature display
- Manual or automatic fan speed selection by button press
- Remote temperature sensor
- Energy saving mode activation by button press or dry contact (key card)
- Cycle per Hour (CPH) function
- Adjustment of display room temperature
- Temperature unit either °C or °F
- User setting can be kept when power off
- Freezing protection function available
- Lock or unlock keys or part of keys in Installer Set-up
- Heat and cool setpoint limitation for energy saving

Application
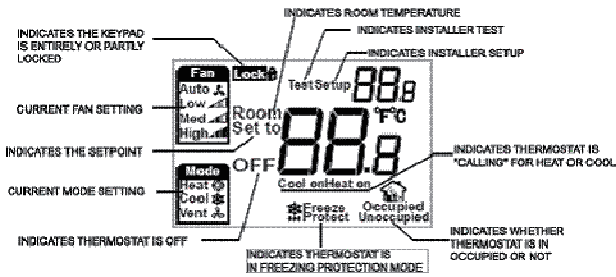
RT6800 digital thermostats are designed for application of 3-speed fan and valves in 2-pipe fan coil system.

Including:

2-pipe cool only/heat only/manual changeover between heat and cool

Ventilation mode

 Manual or automatic 3-speed fan control

Water valve control

Fan speed can be selected to automatic or manual 3-speed control mode.

In ventilation mode, fan only support manual speed control.

Model Summary

Model	Horizontal/ Vertical	2-pipe/ 4-pipe	Operating Voltage(Vac)	Energy Saving	Ventilation	Manual/ Automatic Fan	Remote Sensor
RT6800H2WN	Horizontal	2	220/230	Y	Y	Y	Y
RT6800V2WN	Vertical	2	220/230	Y	Y	Y	Y

Mechanical Design

Thermostat appearnce

FAN BUTTON
POWER BUTTON
MODE BUTTON

DIGITAL DISPLAY
UP BUTTON
DOWN BUTTON

LCD display

INDICATES THE KEYPAD IS ENTIRELY OR PARTLY LOCKED
CURRENT FAN SETTING
INDICATES THE SETPOINT
CURRENT MODE SETTING
INDICATES THERMOSTAT IS OFF
INDICATES ROOM TEMPERATURE
INDICATES INSTALLER TEST
INDICATES INSTALLER SETUP
INDICATES THERMOSTAT IS "CALLING" FOR HEAT OR COOL
INDICATES WHETHER THERMOSTAT IS IN OCCUPIED OR NOT
INDICATES THERMOSTAT IS IN FREEZING PROTECTION MODE

Function

Valve control

Thermostat acquires the room temperature via its in-tegrated sensor or external temperature sensor and maintains the setpoint by delivering on/off valve control commands output.

PRESS THE MODE BUTTON TO SELECT HEAT, COOL OR VENT

Fan Operation

PRESS THE FAN BUTTON TO SELECT LOW, MED, HIGH OR AUTO

Fan can be selected as manual or automatic 3-speed operation. In Manual mode, the fan is switched to the selected speed via control output Gh, Gm, Gl. While in automatic mode, fan speed depends on the difference between room temperature and setpoint. When room temperature reaches setpoint, valve will be closed and meanwhile, fan will be closed either.

Fan speed ramping control algorithm
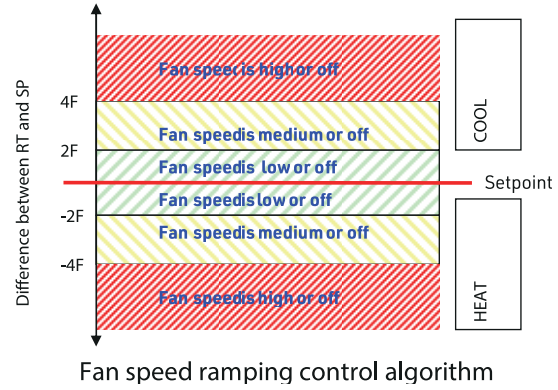
Temperature display

The displayed temperature can be set to acquired room temperature or setpoint. The setting can be made during Installer Set-Up process.

Cycle per hour (CPH)

In order to get a more accurate temperature control, CPH function may enable the thermostat to open the valve for several times per hour even the temperature is close to setpoint (difference less than ½ P-band). The default value is 4 for heating and 3 for cooling and can be changed in Installer Set-Up process.

Remote temperature sensor

RT6800 provides control either depending on the acquired room temperature or depends on the return air temperature

Keypad lock

Keypad lock can be set in ISU with default status is all keys available. You may change into mode button locked out, Fan and mode buttons locked out and All buttons locked out by changing the ISU.

Operating modes

The following operating modes are available:

Comfort mode

In comfort mode, the setpoint can be changed by pressing up and down button. Different applications include cool only, heat only and manual heat/cool changeover.

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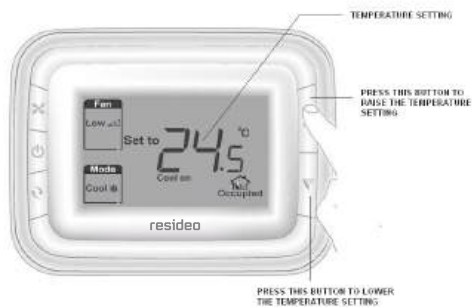
Ventilation mode

Press mode button to enter ventilation mode. In ventilation mode, no output for valve while the fan will operate according to selected fan speed.

Energy saving mode

A potential-free dry contact (such as hotel key card) or button press (pressing mode button for continuous 3 seconds) can activate the energy saving mode with

 icon appearing on screen. The dry contact can be selected as normal open or normal close type in ISU.

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

For heating mode, if the energy saving function is enabled, the setpoint will change to remote setback heating setpoint. The range of remote setback heating setpoint is from 10°C to 21°C and default value is 18°C. The value may change in ISU with step of 0.5°C.

For cooling mode, if the energy saving function is enabled, the setpoint will change to remote setback cooling setpoint. The range of remote setback cooling setpoint is from 22°C to 32°C and default value is 26°C. The value may change in ISU with step of 0.5°C.

Freezing protection mode

Freezing protection can be selected as disabled (default) or enabled. In freezing protection mode (no such mode in cool only application), when thermostat is in OFF mode while the acquired temperature is below 6°C,the thermostat will start heat mode until the temperature rises to 8°C or the thermostat is turned on.

On/off mode

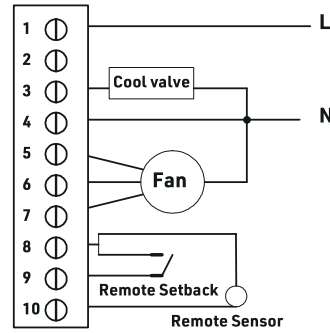Pressing power button can switch between on and off mode.

Technical specification

Power supply	230(+10%, -15%)VAC
Frequency	50/60Hz
Control algorithm	PI, On/off output
Accuracy	+/-1°C at 21°C
Rating capacity	For 220V power supply:
	4(2)A for fan load, 2(1)A for zone valve
Cycle times	100,000 times
Setpoint range	10~32°C
Display range	0~37°C
Installation	Installed on 86x86mm junction box
	or US2x4 inch.
Protection Class	IP20

Environmental Conditions

Operation temperature	-18~49°C
Shipping temperature	-35~65°C
Relative humidity	5~90%

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Terminal Designations

Item	Terminal	Description
1	L	AC Power
2	Ch/Cc	Heating close/Cooling close
3	W/Y	Heating open/Cooling open
4	N	AC Ground
5	Gh	High speed fan relay
6	Gm	Medium speed fan relay
7	Gl	Low speed fan relay
8	Sc	Ground for remote sensor and remote setback
9	RSB	Remote set back
10	Rs	Remote sensor

Wiring diagrams

Application 1: 2 pipes heat only wiring diagram
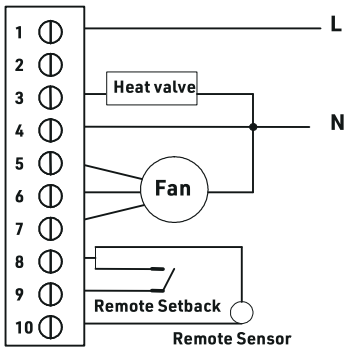
Typical wiring for ON/OFF control in 2 pipe heating only (RVC4013)
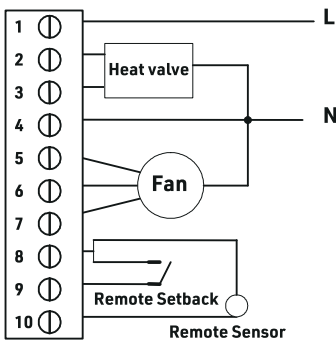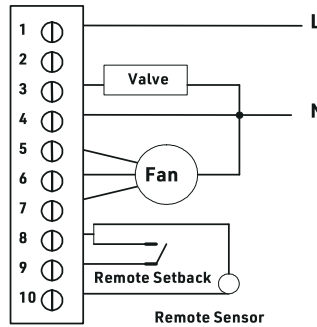

Typical wiring for 3-wire control in 2 pipe heating only (RVN6013)

Application 2: 2 pipes Cool only wiring diagram

Typical wiring for ON/OFF control in 2 pipe cooling only (RVC4013)
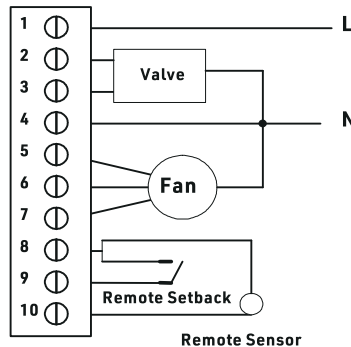

Typical wiring for 3-wire control in 2 pipe cooling only (RVN6013)

Application 3: 2 pipes 1 stage Heat or 1 stage Cool MCO wiring diagram

Typical wiring for ON/OFF control in 2 pipes 1H1C (RVC4013)

Typical wiring for 3-wire control in 2 pipes 1H1C (RVN6013)