WS3 SERIES WALL MODULE
FOR USE WITH FAN COIL UNITS

PERFORMANCE HIGHLIGHTS

- Extra large LCD and operating interface
- Temperature display selection (room temperature or set temperature)
- Manual or automatic fan speed selection
- Anti-freeze protection
- Operating buttons lock / unlock
- Temperature range setting
- Standard 86 wall-mount installation box
- Modulating valve control
- Support remote temperature sensor
- Support energy saving activation by dry contact (key card)

SCOPE OF APPLICATION

The WS3 Series wall modules are designed for application with 3-speed fan and modulating valve for indoor temperature control in fan coil system.

With temperature set, WS3 Series wall modules will provide modulating signal for valve control to regulate chilled or heated water flow to the occupant desired comfort. The WS3 Series wall modules have selectable automatic or manual control of fan speeds.

The WS3 Series wall module has a large LCD display providing real time display of room temperature or set temperature.

The WS3 Series wall modules support energy saving features through key card (dry contact) input

TECHNICAL PARAMETERS

Operating Voltages:	100VAC~240VAC 50/60HZ 24VAC 50/60HZ
CONTROL ACCURACY:	±1°C
CONTROL SIGNAL:	MODULATING
LOAD CAPACITY:	FAN: RESISTIVE LOAD 3A INDUCTIVE LOAD 1A VALVE: RESISTIVE LOAD 2A
PROTECTION RATING:	IP20
TEMPERATURE SETTING RANGE:	10~30°C
TEMPERATURE DISPLAY RANGE:	-10~50°C
OPERATING TEMPERATURE:	0~49°C
RELATIVE HUMIDITY:	5~90% RH NONCONDENSATING

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ORDERING PART NUMBERS

PART NUMBER.	OPERATING VOLTAGES	APPLICATIONS	BACKLIGHT	VENTILATION MODE
WS3B2WB/U	100-240VAC	2-pipe	White	Yes
WS3B4WB/U	100-240VAC	2/4-pipe	White	Yes
WS3E2WB/U	24VAC	2-pipe	White	Yes
WS3E4WB/U	24VAC	2/4-pipe	White	Yes

PRODUCT DETAILS

OUTLOOK DESIGN

LCD

SCREEN DISPLAY

Key Lock Indicator
Freeze Protection
Set Up
Temperature Display
SET OFF
AUTO
Power Off
Operation Modes
Set Point
Valve Status (flicker when open)
Fan Status
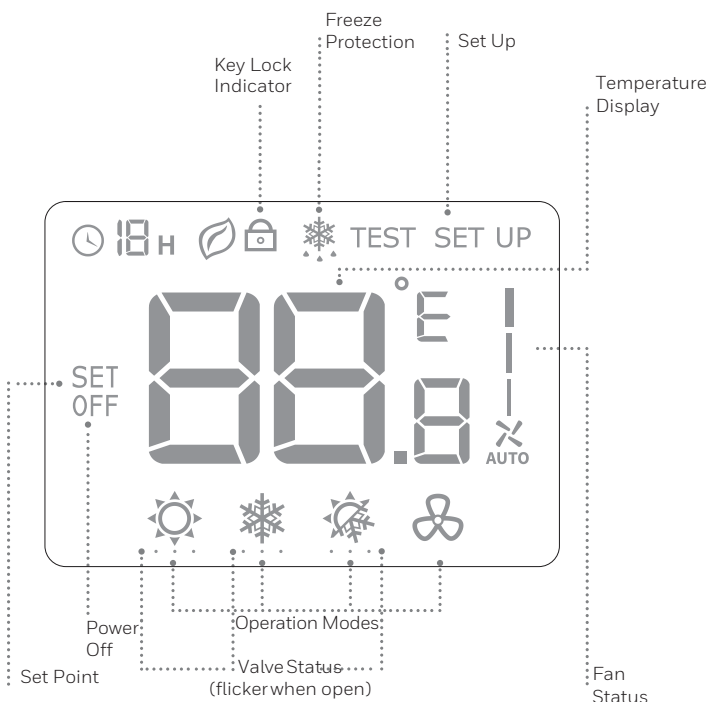
FUNCTION

VALVE AND FAN CONTROL

The wall module obtains room temperature through the built in sensor or remote sensor and regulate to the set temperature by controlling the valve opening.

There are three fan speeds which can be set manually and automatically. Under manual mode, fan speed is adjusted by FH, FM and FL outputs. Under automatic mode, the fan speed will depend on the difference between the room temperature and set temperature.

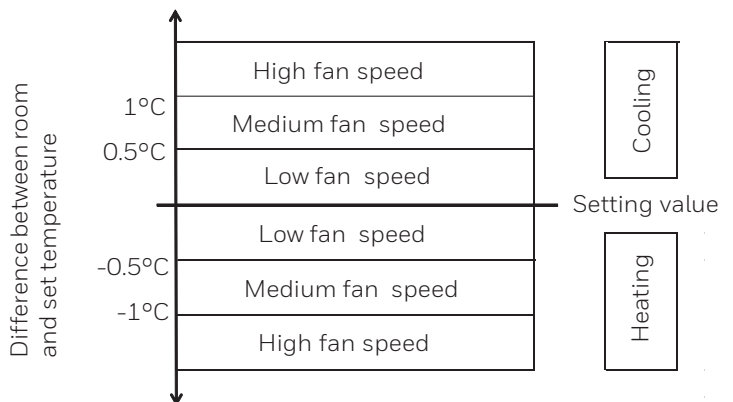The fan will shut down when the valve is not operating.

Figure 1. Automatic Fan Speed Control Algorithm

TEMPERATURE DISPLAY

Either room temperature or set temperature can be displayed. This is to be set up during the installation and set up process of the wall module.

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BACKLIGHT

The backlight will be activated when any button is pressed and will last for 8 seconds upon the last button pressed. In setting mode, the backlight will remain turn on for 60 seconds upon the last button pressed.

KEYPAD LOCKOUT

It is possible to lock or unlock the keypad while the device is not in setting mode. When in lock mode, the keypad will be inactive when pressing any button.

ENERGY-SAVING MODE

Energy-Saving mode can be activated by pressing the power on button for 3 seconds or by the dry contact which can be connected with normally closed or normally open device.

In the Energy-Saving mode activated by the dry contact, all buttons will be locked (except the Set Up buttons).

In the Energy-Saving mode activated by the power key, pressing any button will exit the mode.

In the Energy-Saving mode, the set temperature of the room will be automatically adjusted to the specified temperature under the mode, which means the default temperature in heating mode is 18°C and adjustable from 10°C to 21°C, while the default temperature in cooling mode is 26°C and adjustable from 22°C to 30°C.
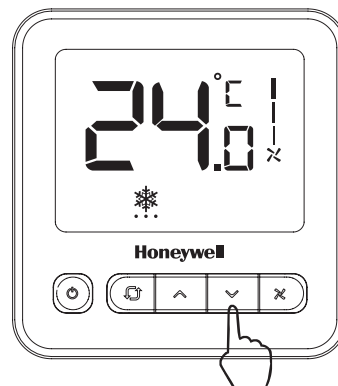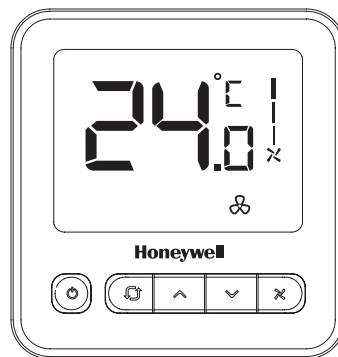
PRODUCT SIZE (mm)
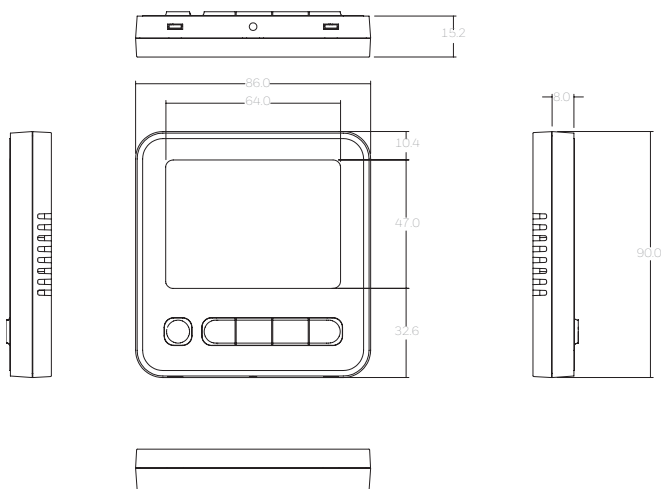
OPERATION MODES

COMFORT MODE

In the comfort mode, press the Up or Down button to set the temperature. The comfort mode is included in cooling, heating and automatic.


VENTILATION MODE

Press the mode key to enter the ventilation mode. In ventilation mode, the fan speed will run as manually set with the valve stop.

ANTI-FREEZE MODE

The anti-freeze mode is an option under the heating mode. If selected, when the room temperature falls below 6°C, the wall module (in its off status) will be activated in heating mode automatically until the room temperature reaches 8°C.
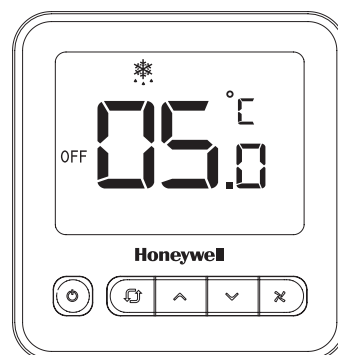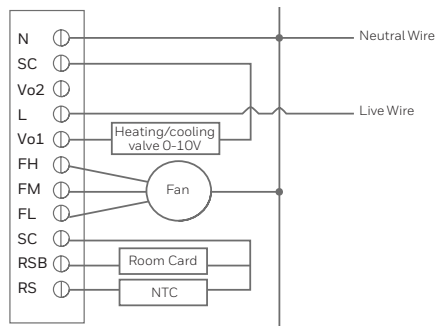

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PRODUCT WIRING DIAGRAM
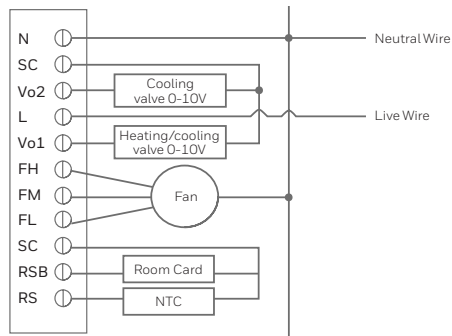
Part number: WS3B2WB/U
Two-Pipe Application

220Vac, motorized valve wiring diagram

Part number: WS3E2WB/U
Two-Pipe Application

24Vac, motorized valve wiring diagram

Part number: WS3B4WB/U
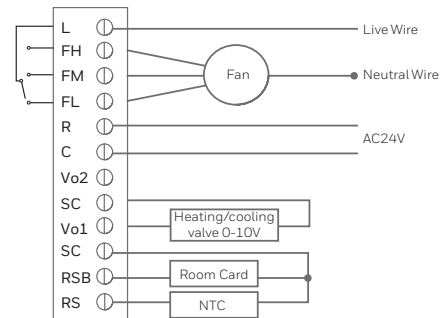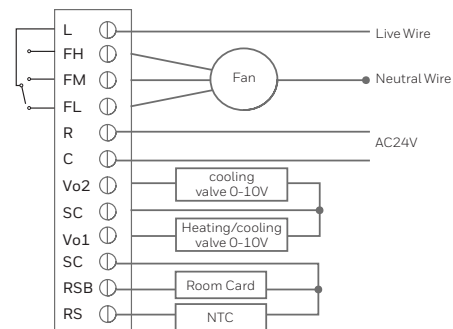## Four-Pipe Application

220Vac, motorized valve wiring diagram

Part number: WS3E4WB/U
Four-Pipe Application

24Vac, motorized valve wiring diagram

TERMINAL DEFINITION

SYMBOL	DESCRIPTION
vC2	Cooling valve is closed (four-pipe only)
vO2	Cooling valve is opened (four-pipe only)
N	Power neutral wire
vC1	Heating/cooling valve is closed
vO1	Heating/cooling valve is opened
L	Power live wire
FH	High fan speed
FM	Medium fan speed
FL	Low fan speed

TROUBLESHOOTING

SYMPTOM		SOLUTION
☼	FAILS TO ACTIVATE	• Pressing ⟳ to set the operation mode to ☼ heating mode). • Check whether the setting temperature is higher than the room temperature. • Check whether the valve status indicator is flickering. • Wait for 5 minutes, check whether the heating system starts.
❄	FAILS TO ACTIVATE	• Pressing ⟳ to set the operating mode to ❄ cooling mode). • Check whether the setting temperature is lower than the room temperature. • Check whether the valve status indicator is flickering. • Wait for 5 minutes, check whether the cooling system starts.
⟳	NOT WORK	• Check whether the buttons are locked. • Check whether the module is in the OFF state.
⌒⌵	NOT WORK	• Check whether the buttons are locked. • Check whether is in ⛄ mode • Check whether is in the OFF state.

All specifications are subject to change without notice.

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