WTS SERIES

Touch Button Thermostats for FCU Applications

The WTS Series Touch Button thermostat is a temperature control device with an extra-large LCD display, capacitive touch interface with color icons and manual or automatic fan speed selection.

The units monitor the actual room temperature, humidity* and the set temperature in real-time to control the opening / closing of the valves in the fan coil units to regulate the room temperature to the occupant's desired comfort.

Chose from a variety of options including white or black color shell, humidity display, Modbus communications and ECM fan support*.

Its ultra-thin design fits any British Standard (UK/Middle East) wall-mounted installation box. It features built-in temperature and humidity* sensor, anti-freeze protection, lock/unlock operating buttons and timed shutdown function.

The WTS Series Touch Button thermostat is the perfect blend of functionality, design and ease of use.

FEATURES AND BENEFITS

Built-in temperature and humidity* sensor. The unit monitors in real-time the actual room temperature and the set temperature to regulate the room temperature by controlling the opening/ closing of the fan coil unit valve and the fan speed.

Extra-large LCD and intuitive interface making it easy to set temperature to the occupant's desired comfort. Ultra-thin, sleek design with capacitive touch color icons. Available in Black or White shell.

Packed with versatile features designed to help save energy

Automatic fan speed control algorithm calculates the difference between the room and the set value and automatically adjust the fan speed..

Wide range of options to meet most of the requirements in buildings control. Additional functions include keypad lockout, timed shutdown and Modbus communications*.

On selected models, please refer to the part number selection table.

VALVE AND FAN CONTROL

The WTS Series thermostat reads the room temperature from its built-in sensor and maintains the set temperature by sending on/off commands to the valve. There are three fan speeds which can be set manually or automatically. In manual mode, the fan speed is adjusted by High, Medium and Low outputs. In automatic mode, the fan speed will be decided by the difference between the room temperature and the set value. The fan will shut down when the valve is not operating.

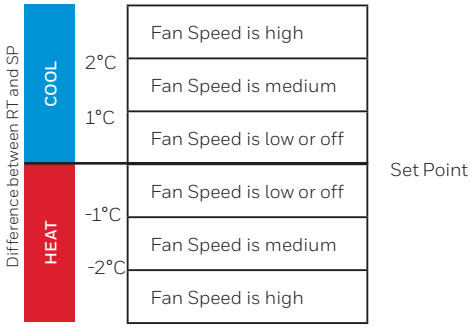


Figure 1. Automatic Fan Speed Control Algorithm

Honeywell

WTS SERIES Technical Specifications

TECHNICAL PARAMETERS

Communication: RS485 MODBUS*
Protocol & Baud Rate: 4800/9600 (Default)/19200/38400 bps
Operating Voltages: 100-240VAC 50/60Hz / 24VAC±10% 50/60Hz
Temperature Setting Range: 10°C-32°C
Temperature Display Range: 0°C-50°C
Control Accuracy: 25°C±1°C
Humidity Measurement Accuracy: 0%~99% RH; ±10% (Only for "/H" models)
Control Signal: Modulating Output
Load Capacity Fan: Resistive Load 5A; Inductive Load 2A
Valve: Resistive Load 5A; Inductive Load 2A
Remote Sensor Type: NTC20K

On selected models, please refer to the part number selection table.

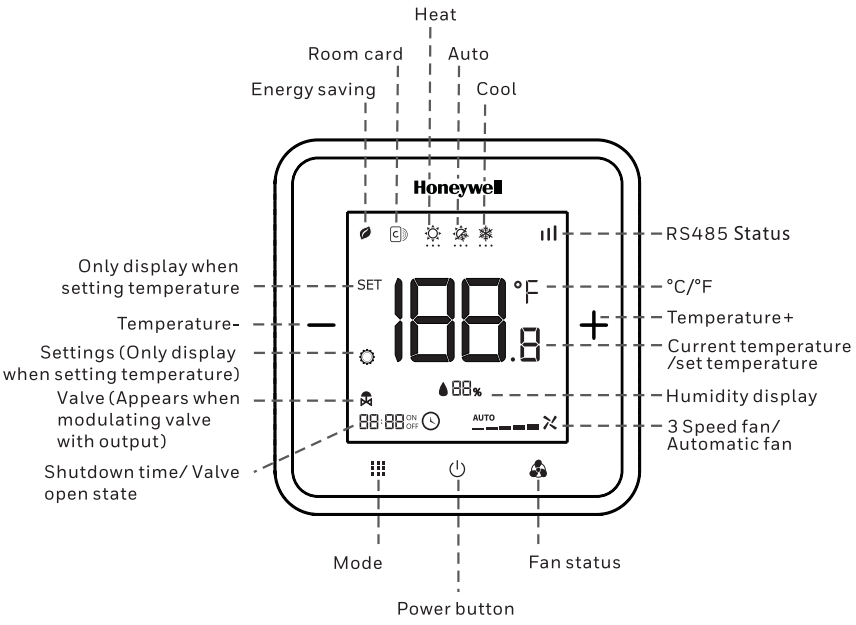
ENVIRONMENTAL

Operating Temperature: -10°C to 60°C
Shipping Temperature: -10°C to 60°C
Relative Humidity: 0 to 95% relative humidity (non-condensing)
Relative Humidity: 0 to 95% relative humidity (non-condensing)
Protection Rating: IP20

PERFORMANCE HIGHLIGHTS

- Extra-large LCD display and operating interface
- Temperature display selection (room temperature or set temperature)
- Built-in temperature sensor
- Manual or automatic fan speed selection
- Anti-freeze protection
- Operating buttons lock/unlock
- Timed Shutdown

OUTLOOK DESIGN AND DISPLAY



TIMED SHUTDOWN

In operating,enter the timed shutdown setting through the combination of keys. Timed shutdown time can be set from 0.5 to 12 hours, with every 0.5 hours in between.

KEYPAD LOCKOUT

Tap "+ " and "- "at the same time for 5 seconds display "LC" to lock buttons and tap "+ " and "- "at the same time for 5 seconds to unlock the buttons.

HUMIDITY DISPLAY

On selected models with humidity sensor, the room humidity can be displayed on the main screen, or this parameter can be hidden through the device setting.

OPERATION MODES

COMFORT MODE

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

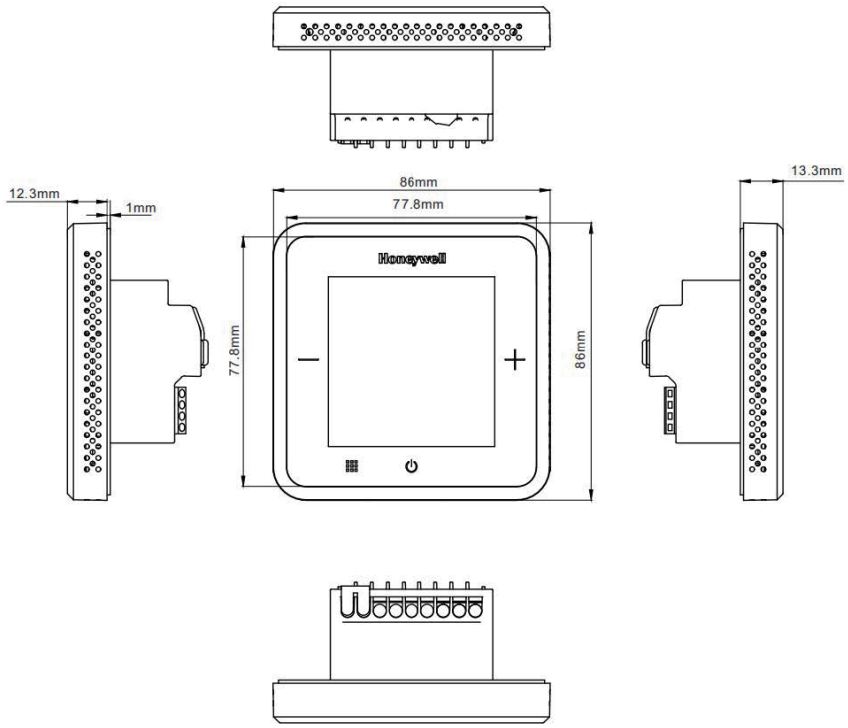
VENTILATION MODE

In ventilation mode, fan only support manual speed control.changeover.

ANTI-FREEZE MODE

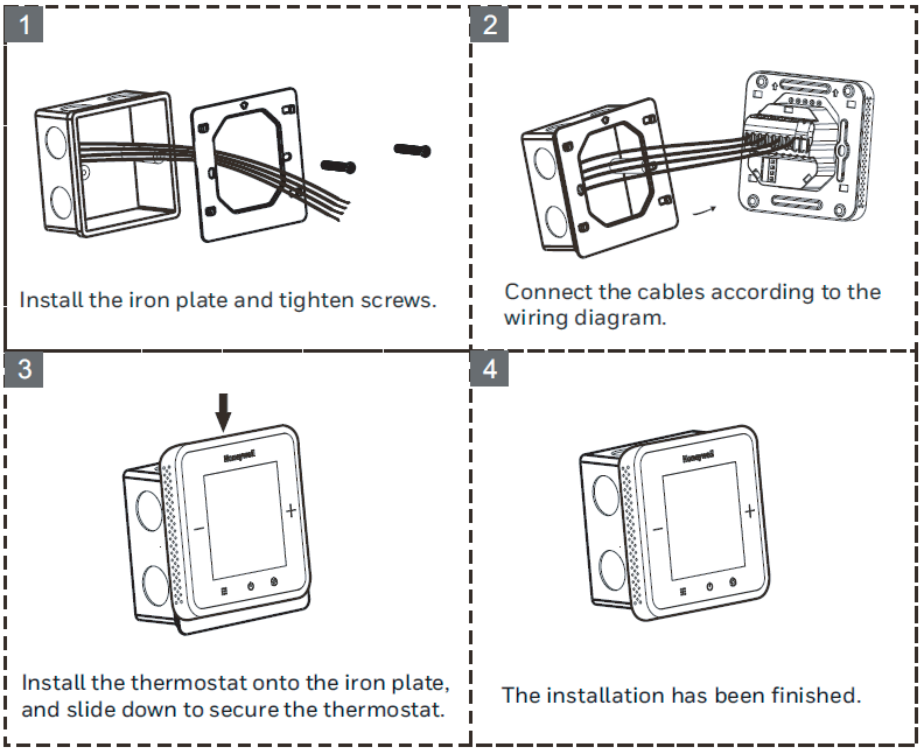
Freezing protection can be disabled (default) or enabled. If freezing protection is enabled (it is not available in cool only application) and thermostat is in OFF mode while the room temperature is below 5°C, the thermostat will open heating device before the temperature rises to 8°C.

DIMENSIONS



DIMENSIONS

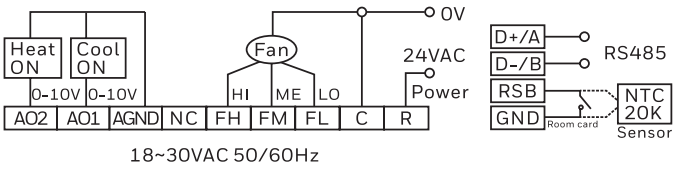
Please follow below drawings for wiring and ensure the connection reliable.
Ensure to tighten the terminal screws to prevent the wire from falling off.



WIRING DIAGRAMS

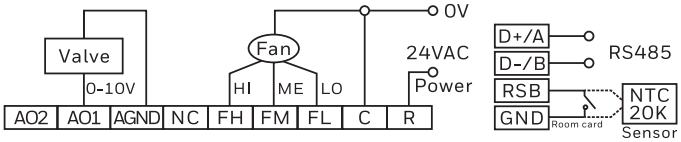
PART NUMBER: WTS3BXXXXX/WTS3EXXXXX SERIES

4-Pipe, PI(0-10V) Valve, 3-Speed Fan, 24VAC Power Supply



18~30VAC 50/60Hz

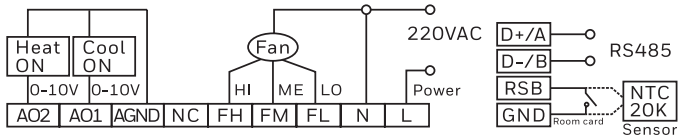
2-Pipe, PI(0-10V) Valve, 3-Speed Fan, 24VAC Power Supply



18~30VAC 50/60Hz

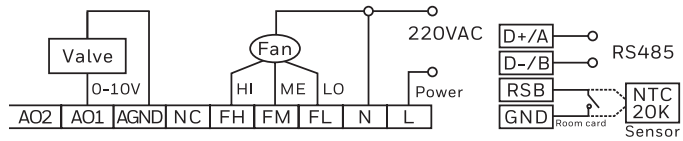
Note: WTS3E4XMB/H and WTS3E4XMB/N do not support RS485 communication.

4-Pipe, PI(0-10V) Valve, 3-Speed Fan, 220VAC Power Supply



100~240VAC 50/60Hz

2-Pipe, PI(0-10V) Valve, 3-Speed Fan, 220VAC Power Supply



100~240VAC 50/60Hz

Note: WTS3B4XMB/H and WTS3B4XMB/N do not support RS485 communication.

TERMINAL DESCRIPTION

(WTS3BXXXXX/WTS3EXXXXX series)

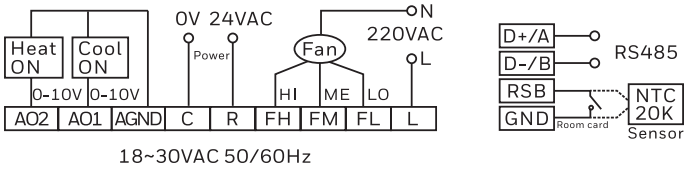
SYMBOL	Description
L or R	Live wire(220/24VAC)
N or C	Neutral wire
FL	Low fan speed
FM	Medium fan speed
FH	High fan speed
NC	Standby
AGND	Analog signal ground wire
AO1	Cooling valve on / Heating valve on (Analog PI 0-10 VDC output 1)
AO2	Heating valve on (Analog PI 0-10 VDC output 2)
(D+/A)/ NC	RS485 A+ / Standby
(D-/B)/ NC	RS485 B- / Standby
RSB	Room card signal/external sensor(NTC20K B4200, RVVP 2 x 0.75mm² cable type, recommended maximum lenght of sensor is no more than 50m)
GND	Room card/sensor common terminal. not RS485 common terminal.

Note :

- *Input voltage: 100~240VAC(18~30VAC)50/60Hz, the thermostat must be equipped with overload protection.*
- *Communication cable: RVSP2*1.0mm², connected no more than 32 thermostats in one RS485 loop.*
- *Don't route signal / communication cables with high voltage cables in a same conduit. Refer to Electrical Wiring Safety Regulations.*
- *All device in the same RS485 loop, not mix connect R and C cable, Otherwise, it may lead to device damage.*
- *Recommended Modbus Gateway Configuration: Response timeout≥1s, retry count≥2, single read /write register, Max Rx Inter Character Delay≥500ms.*
- *Recommended to connect only the same type of thermostat on a rs485 bus.*

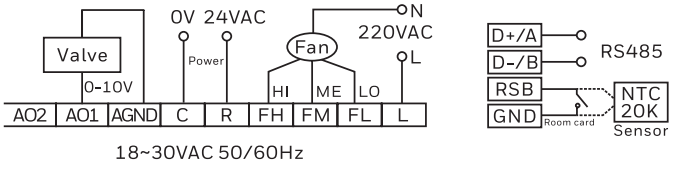
PART NUMBER: WTS3EXXXXX-B SERIES

4-Pipe, PI(0-10V) Valve, 3-Speed Fan(220VAC), 24VAC Power Supply



18~30VAC 50/60Hz

2-Pipe, PI(0-10V) Valve, 3-Speed Fan(220VAC), 24VAC Power Supply



18~30VAC 50/60Hz

Note: WTS3E4XMB/H-B and WTS3E4XMB/N-B do not support RS485 communication.

TERMINAL DESCRIPTION

(WTS3EXXXXX-B series)

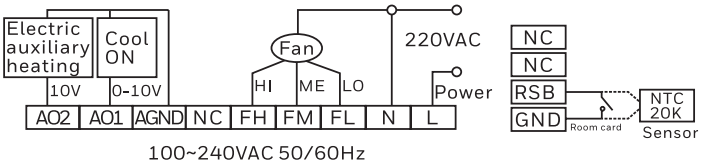
SYMBOL	Description
L	Live wire(220VAC)
FL	Low fan speed(220VAC)
FM	Medium fan speed(220VAC)
FH	High fan speed(220VAC)
R	24VAC Live wire
C	24VAC Neutral wire(0V)
AGND	Analog signal ground wire
AO1	Cooling valve on / Heating valve on (Analog PI 0-10 VDC output 1
AO2	Heating valve on (Analog PI 0-10 VDC output 2)
(D+/A)/NC	RS485 A+ / Standby
(D-/B)/NC	RS485 B- / Standby
RSB	Room card signal/external sensor(NTC20K B4200, RVVP 2 x 0.75mm² cable type, recommended maximum lenght of sensor is no more than 50m)
GND	Room card/sensor common terminal. not RS485 common terminal.

Note :

- *Input voltage: 18~30VAC 50/60Hz, the thermostat must be equipped with overload protection.*
- *Communication cable: RVSP2*1.0mm², connected no more than 32 thermostats in one RS485 loop.*
- *Don't route signal / communication cables with high voltage cables in a same conduit. Refer to Electrical Wiring Safety Regulations.*
- *All device in the same RS485 loop, not mix connect R and C cable, Otherwise, it may lead to device damage.*
- *Recommended Modbus Gateway Configuration: Response timeout≥1s, retry count≥2, single read /write register, Max Rx Inter Character Delay≥500ms.*
- *Recommended to connect only the same type of thermostat on a rs485 bus.*

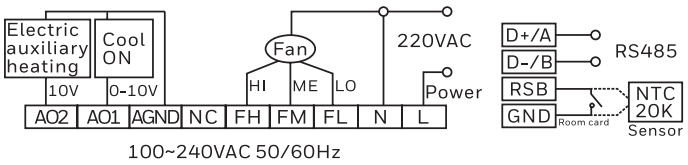
PART NUMBER: WTS3B4RMXXX SERIES

2-Pipe cooling PI(0-10V) Valve, 3-Speed Fan, Electric auxiliary heating, 220VAC Power Supply



The Wiring diagram applicable models: WTS3B4RMB/N WTS3B4RMB/H

2-Pipe, cooling PI(0-10V) Valve, 3-Speed Fan, Electric auxiliary heating, 220VAC Power Supply, with RS485



The Wiring diagram applicable models: WTS3B4RME/N WTS3B4RME/H

TERMINAL DESCRIPTION (WTS3B4RMXXX SERIES)

SYMBOL	Description
L	Live wire(220VAC)
N	Neutral wire
FL	Low fan speed
FM	Medium fan speed
FH	High fan speed
NC	Standby
AGND	Analog signal ground wire
AO1	Cooling valve (Analog PI 0-10 VDC output 1)
AO2	Heating valve (Analog PI 0-10V output 2) / Electric auxiliary heating (10V output)
(D+/A)/NC	RS485 A+ / Standby
(D-/B)/NC	RS485 B- / Standby
RSB	Room card signal/external sensor(NTC20K B4200, RVVP 2 x 0.75mm² cable type, recommended maximum lenght of sensor is no more than 50m)
GND	Room card/sensor common terminal. not RS485 common terminal.

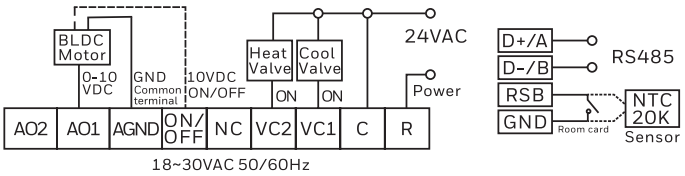
Note :

- *Input voltage: 100~240VAC 50/60Hz, the thermostat must be equipped with overload protection.*
- *Communication cable: RVSP2*1.0mm², connected no more than 32 thermostats in one RS485 loop.*
- *Don't route signal / communication cables with high voltage cables in a same conduit. Refer to Electrical Wiring Safety Regulations.*
- *Recommended Modbus Gateway Configuration: Response timeout≥1s, retry count≥2, single read /write register, Max Rx Inter Character Delay≥500ms.*
- *Recommended to connect only the same type of thermostat on a rs485 bus.*

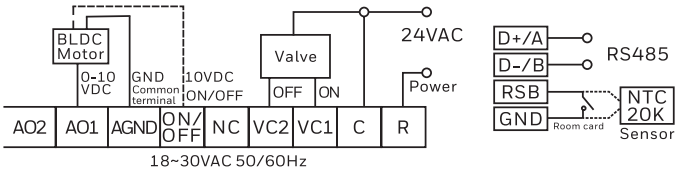
WTS SERIES Technical Specifications

PART NUMBER: WTS6EXXXXX/WTS6BXXXXX SERIES

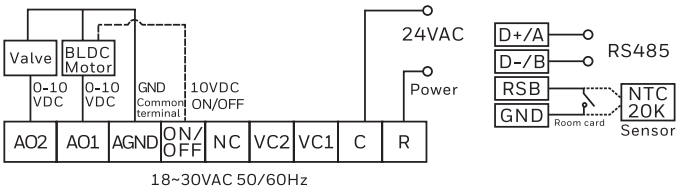
4-Pipe, 2-Wire Valve, BLDC Motor, 24VAC Power Supply



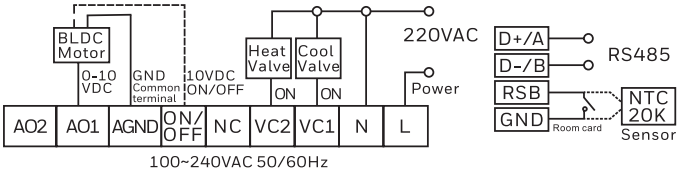
2-Pipe , 3-Wire Valve, BLDC Motor, 24VAC Power Supply



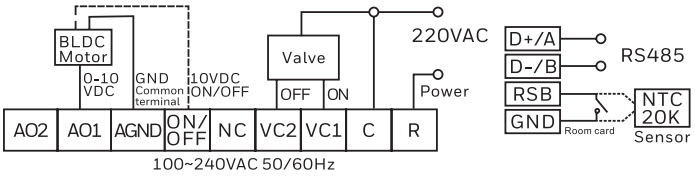
2-Pipe, PI(0-10V) Valve, BLDC Motor, 24VAC Power Supply



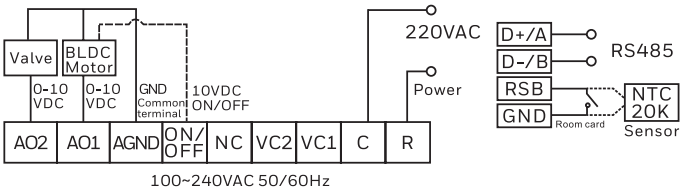
4-Pipe, 2-Wire Valve, BLDC Motor, 220VAC Power Supply



2-Pipe , 3-Wire Valve, BLDC Motor, 220VAC Power Supply



2-Pipe, PI(0-10V) Valve, BLDC Motor, 220VAC Power Supply



TERMINAL DESCRIPTION

(WTS6XXXXXX series)

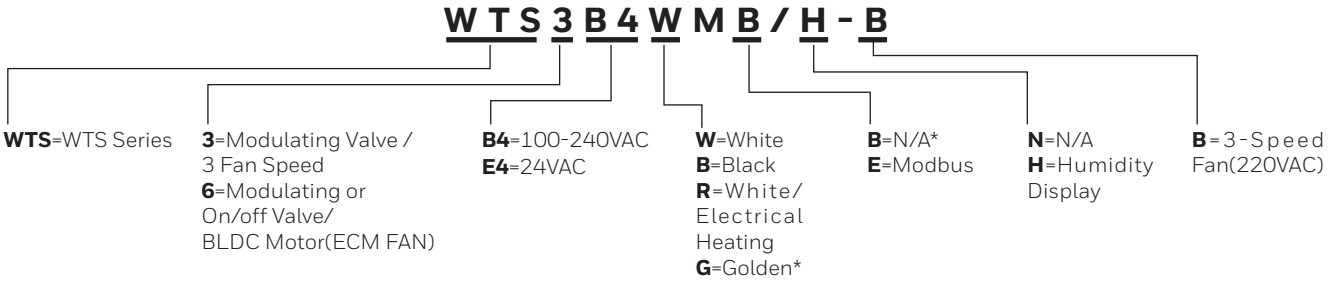
SYMBOL	Description
L or R	Live wire(220/24VAC)
N or C	Neutral wire
VC1	Cooling valve on/ Valve on
VC2	Heating valve on/ Valve off
ON/OFF	BLDC motor (10VDC switch), no switch and no need to connect
NC	Standby
AGND	Analog signal ground wire
AO1	BLDC motor (Analog PI 0-10 VDC output 1)
AO2	Valve on (Analog PI 0-10 VDC output 2)
(D+/A)	RS485 A+
(D-/B)	RS485 BRoom
RSB	Room card signal/external sensor(NTC20K B4200, RVVP 2 x 0.75mm² cable type, recommended maximum lenght of sensor is no more than 50m)
GND	Room card/sensor common terminal. not RS485 common terminal.

Note :

- *Input voltage: 100~240VAC(18~30VAC)50/60Hz, the thermostat must be equipped with overload protection.*
- *Communication cable: RVSP2*1.0mm², connected no more than 32 thermostats in one RS485 loop.*
- *Don't route signal / communication cables with high voltage cables in a same conduit. Refer to Electrical Wiring Safety Regulations.*
- *All device in the same RS485 loop, not mix connect R and C cable, Otherwise, it may lead to device damage.*
- *Recommended Modbus Gateway Configuration: Response timeout≥1s, retry count≥2, single read /write register, Max Rx Inter Character Delay≥500ms.*
- *Recommended to connect only the same type of thermostat on a rs485 bus.*

PART NUMBER SELECTION

WTS3/6



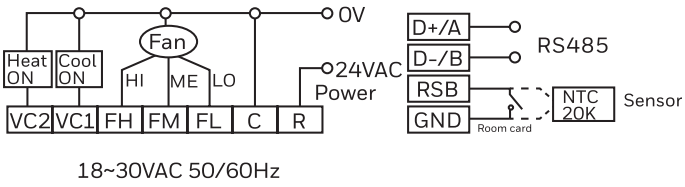
PART NUMBER	OPERATING VOLTAGE	APPLICATION	CONTROL SIGNAL	FAN SPEED	SHELL COLOR	MODBUS	BLDC	HUMIDITY DISPLAY
WTS3								
WTS3B4WMB/H	100-240VAC	2/4pipe	Modulating	Low / Medium / High / Auto	White	No	No	Yes
WTS3B4WMB/N								No
WTS3B4WME/H						Yes		Yes
WTS3B4WME/N								No
~~WTS3E4WMB/H~~	~~24VAC Support 3-Speed Fan(24VAC)~~				~~White~~	~~No~~		~~Yes~~
~~WTS3E4WMB/N~~								~~No~~
~~WTS3E4WME/H~~						~~Yes~~		~~Yes~~
~~WTS3E4WME/N~~								~~No~~
WTS3B4BMB/H	100-240VAC				Black	No		Yes
WTS3B4BMB/N								No
WTS3B4BME/H						Yes		Yes
WTS3B4BME/N								No
~~WTS3E4BMB/H~~	~~24VAC Support 3-Speed Fan(24VAC)~~				~~Black~~	~~No~~		~~Yes~~
~~WTS3E4BMB/N~~								~~No~~
~~WTS3E4BME/H~~						~~Yes~~		~~Yes~~
~~WTS3E4BME/N~~								~~No~~
WTS3B4RMB/H	100-240VAC	2/4pipe, Electrical Heating		Low/ Medium/ High/Auto	White	No		Yes
WTS3B4RMB/N								No
WTS3B4RME/H						Yes		Yes
WTS3B4RME/N								No
WTS3E4WMB/H-B	24VAC, Support 3-Speed Fan(220VAC)	2/4pipe	Modulating	Low/ Medium/ High/Auto	White	No		Yes
WTS3E4WMB/N-B								No
WTS3E4WME/H-B						Yes		Yes
WTS3E4WME/N-B								No
WTS3E4BMB/H-B					Black	No		Yes
WTS3E4BMB/N-B								No
WTS3E4BME/H-B						Yes		Yes
WTS3E4BME/N-B								No
WTS6								
WTS6B4WMB/H	100-240VAC	2/4pipe	Modulating or On/Off	ECM Fan (0-10Vdc)	White	Yes	Yes	Yes
WTS6B4WMB/N								No
WTS6E4WMB/H	24VAC							Yes
WTS6E4WMB/N								No
WTS6B4BMB/H	100-240VAC				Black			Yes
WTS6B4BMB/N								No
WTS6E4BMB/H	24VAC							Yes
WTS6E4BMB/N								No

Note: The default Baud rate is 9,600bit/s.
** MOQ=2,000 for Golden*
**WTS6 only has Modbus version*

WIRING DIAGRAMS

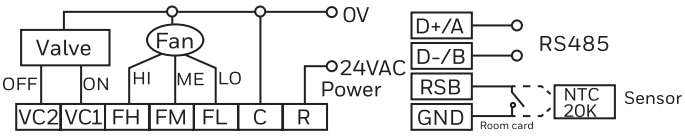
PART NUMBER: WTS9E4XXXX WTS8E4XXXX

4-Pipe, 2-Wire valve, 3-Speed fan, 24VAC power supply



18~30VAC 50/60Hz

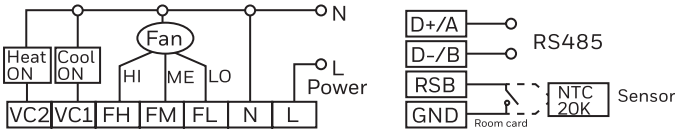
2-Pipe, 3-Wire valve, 3-Speed fan, 24VAC power supply



18~30VAC 50/60Hz

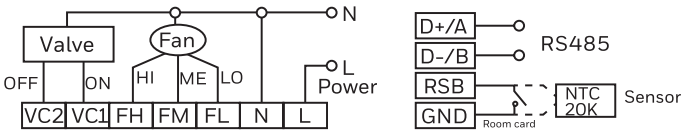
Note: WTS8 series does not support RS485 communication

4-Pipe, 2-Wire valve, 3-Speed fan, 220VAC power supply



100~240VAC 50/60Hz

2-Pipe, 3-Wire valve, 3-Speed fan, 220VAC power supply



100~240VAC 50/60Hz

Note: WTS8 series does not support RS485 communication

TERMINAL DESCRIPTION

SYMBOL	Description
L or R	Live wire(220VAC/24VAC)
N or C	Neutral wire or 0V
FL	Low fan speed
FM	Medium fan speed
FH	High fan speed
VC1	Cooling valve on / Heating valve on
VC2	Cooling valve on / Heating valve on Heat valve on (Four pipe only)
(D+/A)/NC	RS485 A+ / Standby
(D-/B)/NC	RS485 B- / Standby
RSB	Room card signal/external sensor(NTC20K B4200, RVVP 2 x 0.75mm² cable type, recommended maximum lenght of sensor is no more than 50m)
GND	Room card/sensor common terminal. not RS485 common terminal.

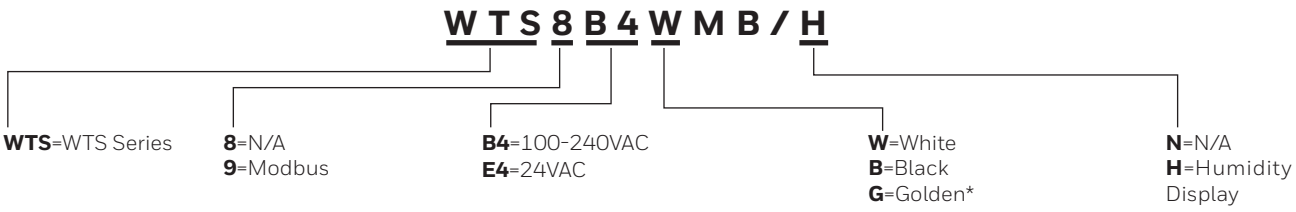
Note :

- *Input voltage: 100~240VAC(18~30VAC)50/60Hz, the thermostat must be equipped with overload protection.*
- *Communication cable: RVSP2*1.0mm², connected no more than 32 thermostats in one RS485 loop.*
- *Don't route signal / communication cables with high voltage cables in a same conduit. Refer to Electrical Wiring Safety Regulations.*
- *All device in the same RS485 loop, not mix connect R and C cable, Otherwise, it may lead to device damage.*
- *Recommended Modbus Gateway Configuration: Response timeout≥1s, retry count≥2, single read /write register, Max Rx Inter Character Delay≥500ms.*
- *Recommended to connect only the same type of thermostat on a rs485 bus.*

WTS SERIES Technical Specifications

PART NUMBER SELECTION

WTS8/9



PART NUMBER	OPERATING VOLTAGE	APPLICATION	CONTROL SIGNAL	FAN SPEED	SHELL COLOR	MODBUS	BLDC	HUMIDITY DISPLAY
WTS8								
WTS8B4WMB/H	100-240VAC	2/4pipe	On/Off	Low/ Medium/ High/Auto	Black	No	No	Yes
WTS8B4WMB/N								No
WTS8E4WMB/H	24VAC							Yes
WTS8E4WMB/N								No
WTS8B4BMB/H	100-24VAC							Yes
WTS8B4BMB/N								No
WTS8E4BMB/H	24VAC							Yes
WTS8E4BMB/N								No
WTS9								
WTS9B4WMB/H	100-240VAC	2/4pipe	On/Off	Low/ Medium/ High/Auto	Black	Yes	No	Yes
WTS9B4WMB/N								No
WTS9E4WMB/H	24VAC							Yes
WTS9E4WMB/N								No
WTS9B4BMB/H	100-24VAC							Yes
WTS9B4BMB/N								No
WTS9E4BMB/H	24VAC							Yes
WTS9E4BMB/N								No

Note: The default Baud rate is 9,600bit/s.
** MOQ=2,000 for Golden*

For more information
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