Tstat9 | Bacnet Thermostat

Description

This full-featured thermostat is designed for cooling and heating systems in residential and commercial buildings.The thermostat can be configured for or use with air handlers,fan coils,VAV,modulating valves and practically any HVAC application.All models support bacnet and modbus protocol which allows easy integration with the big name control systems like Niagara, Siemens,Honeywell.Johnson Controls ,Delta,Reliable and Kreuter to name a few

There are five relays outputs.These outputs can be configured using the free software.There are more than 300 settings with many options for each of the settings so its possible to configure these devices for most any application.Once the unit is configured,save the config file for copying to other controllers and backing up project settings.

Options are available for occupancy sensor,wifi,and humidity/enthalpy

Tstat 9 derivative products have light sensor function by default except for basic Tstat9

Highlights

Modbus TCP/IP protocols over WIFI.

Well documented register list for easy integration with other systems.

5 relay outputs, each rated at 100~220V, 5 amps.

Color LCD display

Easily configure the thermostat for practically any application.

Clock with infinite life supercap battery backup.

Uses 32 bit Arm CPU with 12 bit analog readings.

Fits in regular 3in*3in*1.4in(88mm*88mm*35mm) electrical box

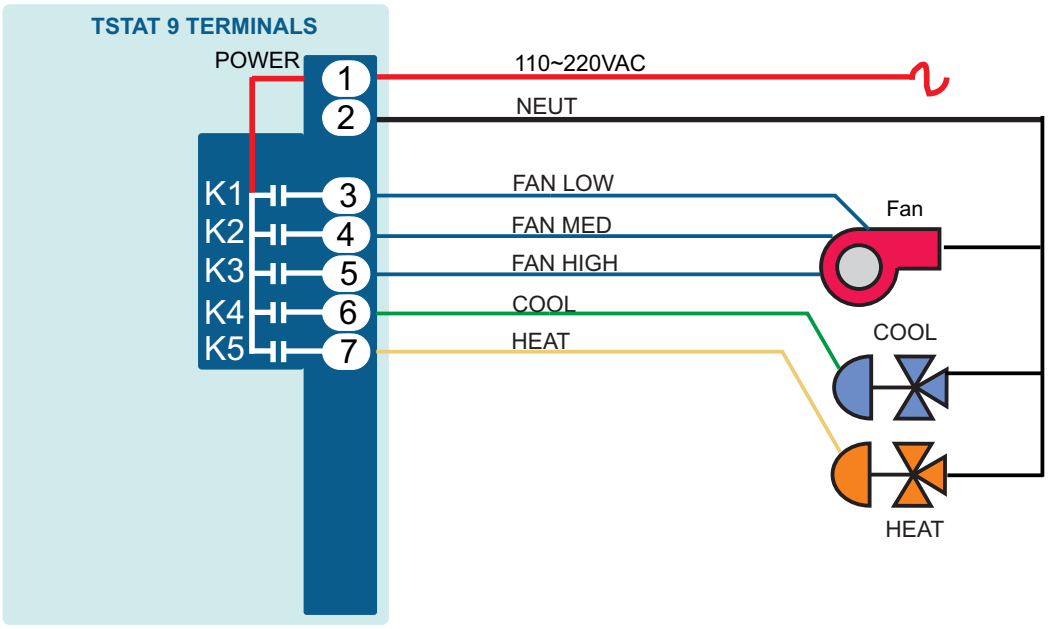
Typical Application

Specifications

Outputs	5 relay outputs
Operating range	-30~70°C(-22~158°F) / 0 to 99% RH
Supply voltage	100~220VAC, 50-60Hz
Power consumption	200mA
Relay contacts	5 relays, 5A @ 220VAC
Plastic Housing	Flammability rating UL 94 file E56070
Enclosure rating	IP31
Protocols	Modbus TCP/IP
Temperature sensor	10K thermistor ±0.5°C
Setup Software	Free, no licensing, open source

Size

Wiring Diagram



Approvals

Plastic Enclosure	PA66 UL 94 V0 file E56070
PCB	FR-4 Epoxy Glass Cloth UL E479892
Terminal Block	PA66 UL 94V-0

Software

5 digital outputs

Industry standard Modbus protocols

User screen displays

Day at home, work time, night at home, sleep, holiday

3 PID controllers

Bacnet Objects

Variable	variable and Description
0	Baudrate 96 =9600 192=19200 384=38400 576=57600 1152=115200 unit:bps
1	Station Number
2	Protocol switch. 0 = MODBUS,1=MSTP.
3	Instance Number
4	Schedule enable/disable 1:enable 0:disable
5	Occupied/Home/Day setpoint
6	Unoccupied/Work/Night setpoint
7	Fan mode setting 0:unoccupied mode,1:user mode1,2:user mode2,3:user mode3,4:occupied mode
8	Firmware Version
9	Current Mode of Operation 0:coast mode 1:cool mode 2:heat mode
10	Temperature Unit 0:degree C 1:degree F
11	System Mode 0:auto 1:heat 2:cool, if set to 0, system will control by PID, if set to 1, system will be in heat only mode,and 2 will be cool only mode
12	spare
13	Override Timer Unit:minute
14	Pid loop2 occupied setpoint
15	Pid loop2 unoccupied setpoint
16	Output Manual/Auto, each bit indicate each output 0:auto 1:manual

AI	description
AI1	Analog input 1
AI2	Analog input 2
AI3	Analog input 3
AI4	Analog input 4
AI5	Analog input 5
AI6	Analog input 6
AI7	Analog input 7
AI8	Analog input 8
AI9	Internal temperature value
AI10	Humidity value
AI11	CO2 value if it has CO2 sensor present

DI	description
DI1	Digital output1 state 1: on 2:off
DI2	Digital output2 state 1: on 2:off
DI3	Digital output3 state 1: on 2:off
DI4	Digital output4 state 1: on 2:off
DI5	Digital output5 state 1: on 2:off

AO	description
AO1	Analog output1 value
AO2	Analog output2 value

Part Number Scheme

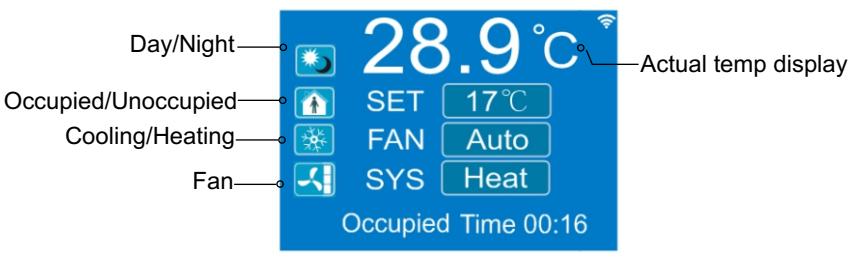
Tstat9 – H

Code	Description
Tstat9	Thermostat

Code	Description
H	Humidity
O	Occupancy sensor
H-WIFI	Humidity-WIFI
WIFI	WIFI

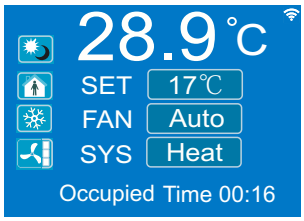
Advanced Menu Item Details

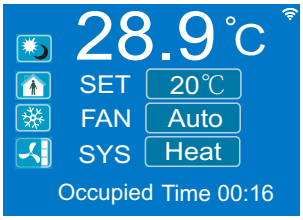
They have several advanced menu items which can be adjusted in the field to suit the application and tune the operation of the thermostat. Generally speaking, all the parameters are set up at the factory on an order-by-order basis and will give satisfactory results out of the box.

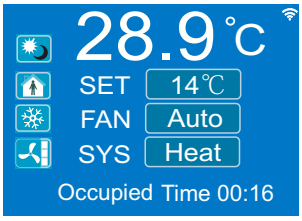


LCD Screen Display

1.When you press ▼ or ▲ , it will decrease or increase the set point value. The value will flash two times, then it will confirm the setting automaticlly.

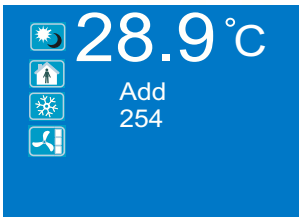


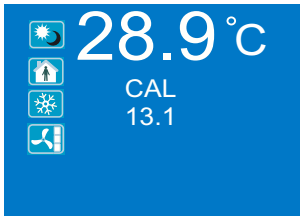


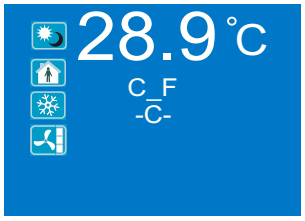


2.In the normal mode, press both ◀ and ▶ at the same time.Hold for several seconds,it will switch to the menu mode. Press ◀ or ▶ to scroll through the menu options such as 'Add', 'CAL', 'bAU', 'UNITS' and many others. To change the values at a particular menu, press ▲ or ▼,the chosen value will be stored automatically.

To change the unit's address,scroll through the menu until you reach 'Add'. Press ▲ or▼ to increase or decrease the unit's address from 1 to 254.

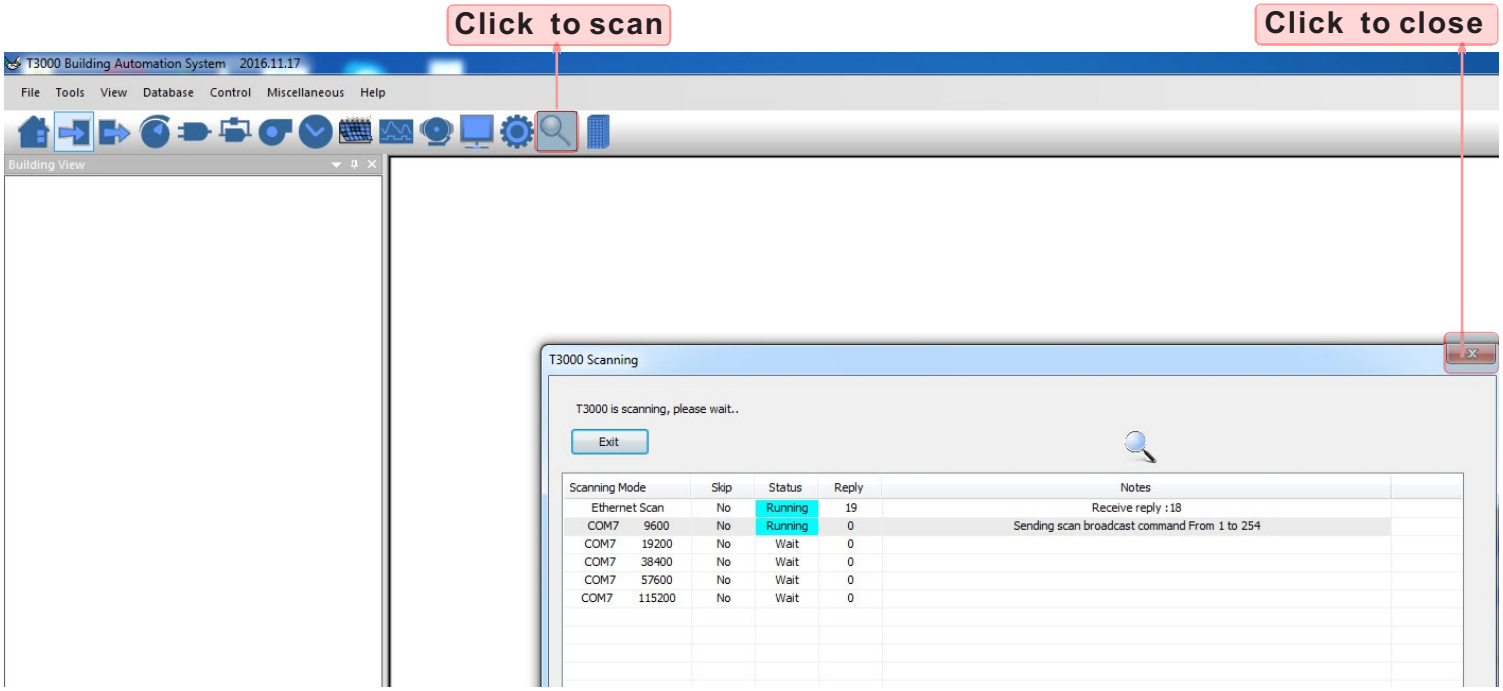




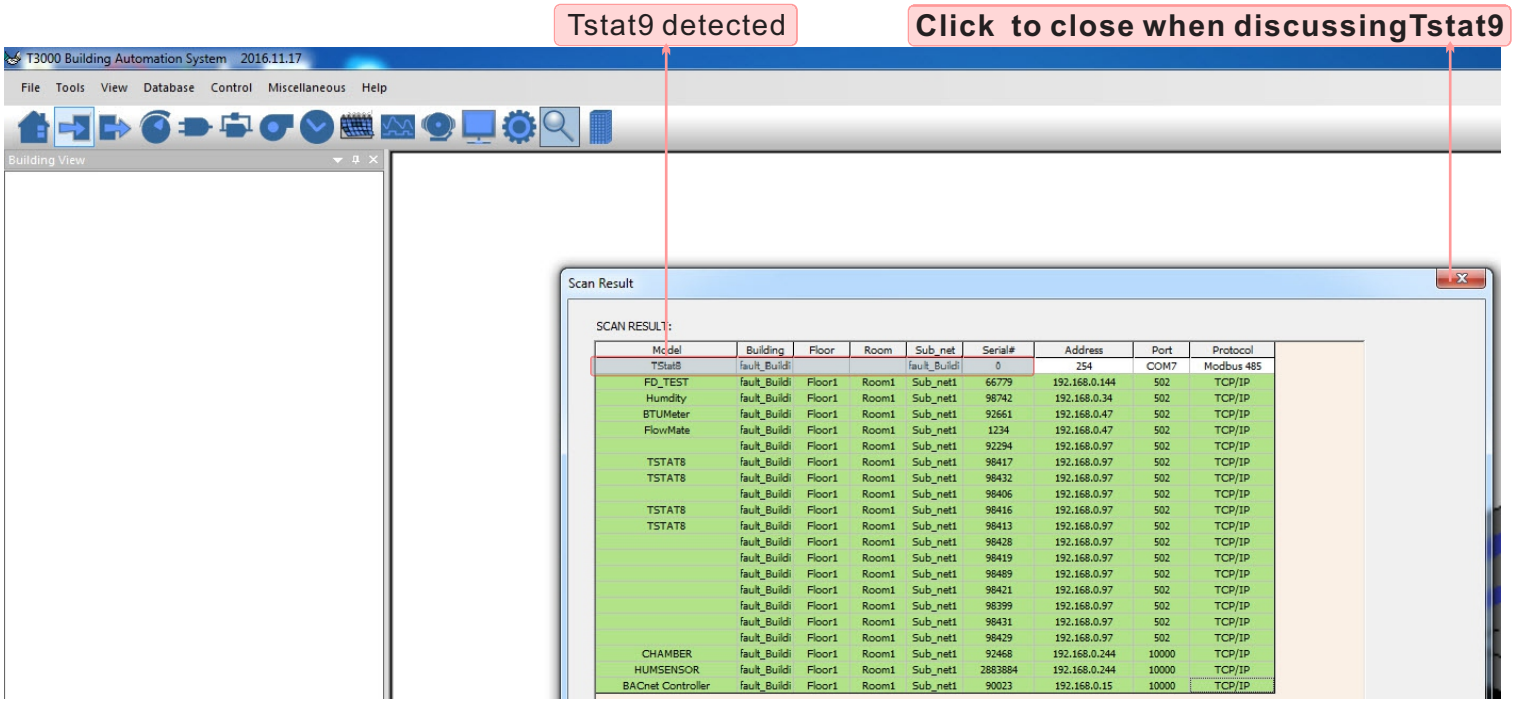


T3000 Operation

1.Connect Tstat9 to PC by RS485, start T3000 software

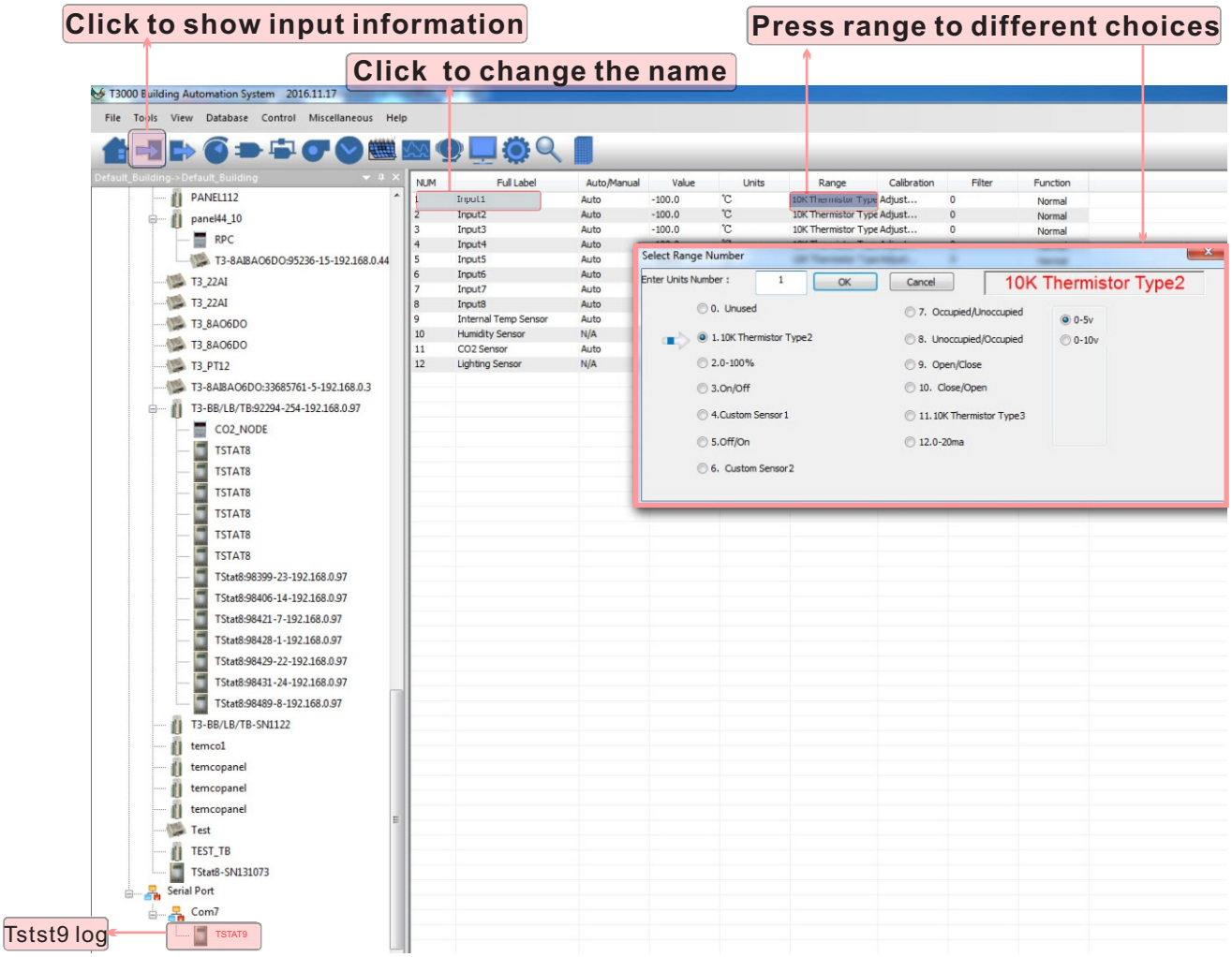


2.Click the button to scan, the following view will appear and close it as the picture indicates.When discussing Tstat9,close the view.

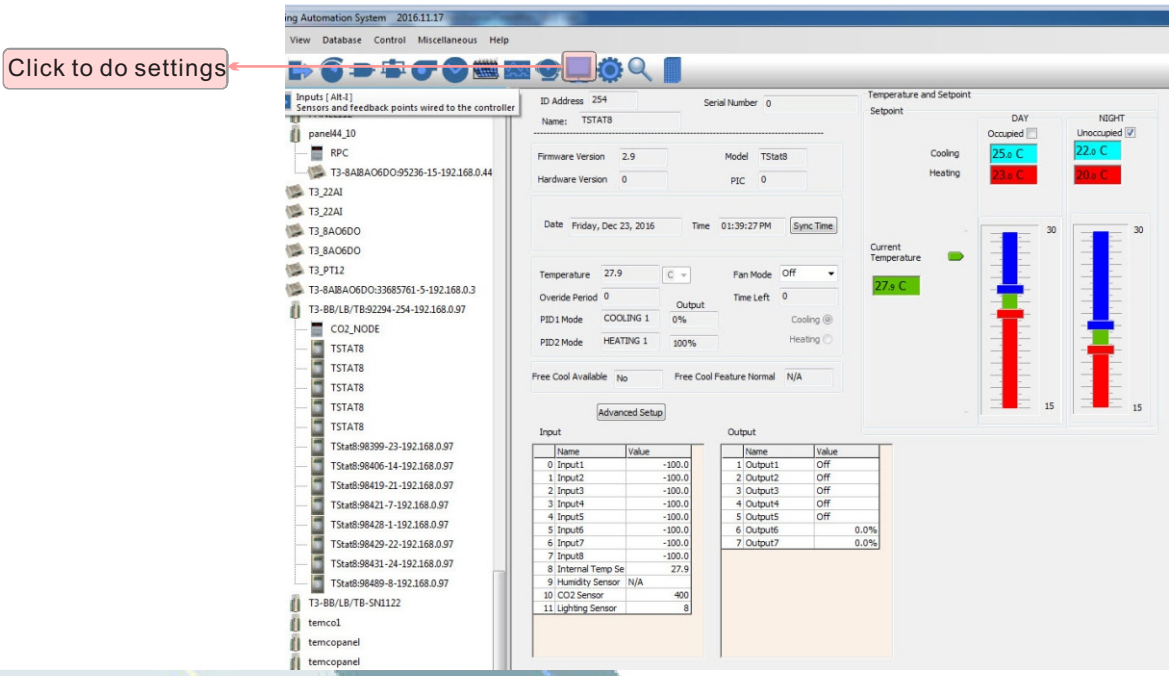


T3000 Operation

3.Click Tstat9 log,then click “input”  ,the T3000 will show all the information of it.To change name or choices,click as below.



4.Click  to do settings,you can see a tab below about setpoint and temperature.



T3000 Operation

5.Click  to do settings,you can see a tab below about parameter.Click PIDs tables,you can find PIDs set Dialog.