

Description

This full-featured thermostat is designed for cooling and heating systems in residential and commercial buildings. The thermostat can be configured for 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 and two analog outputs as well as 8 universal inputs. These i/o 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, zigbee, and humidity / enthalpy.



Highlights

- Bacnet MSTP and Modbus RTU protocols over RS485.
- Baudrates : 1.2k, 4.8k, 9.6k, 14.4, 19.2k, 38.4k, 57.6k, 76.8k and 115.2k
- Well documented register list for easy integration with other systems.
- 8 universal inputs for external temperature sensors, contacts, etc.
- 5 relay outputs, each rated at 12~24vac, 2 amps.
- 2 analog outputs, 0-10V @ 100ma.
- Color LCD display with scroll bar.
- 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.

Typical Application



Specifications

Outputs	5 relay outputs 2 analog outputs 10V@100mA
8 Universal Inputs	10K therm,contacts,4-20mA,0-5V,0-10V
Operating range	-30-70℃(-22-158°F) / 0 to 90%RH
Supply voltage	12~24VAC/DC±20% 50-60HZ
Power consumption	100mA at 12 VDC
Relay contacts	5Relays 2A@24VAC UL:file No: E169380
Plastic Housing	Flammability rating UL94 file E56070
Enclosure rating	IP31
Protocols	Bacnet MSTP and Modbus RTU
Baudrate	9600,19200,38400,57600,115200
Temperature sensor	10K thermister ±0.5℃
Light sensor accuracy and range	0-1000 lx
Setup Software	Free,nolicensing,open source

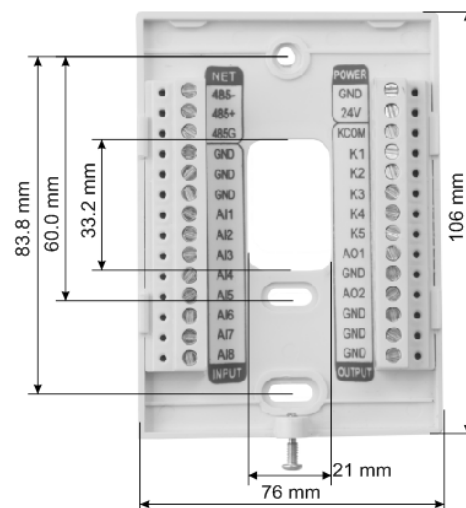
Approvals

Relay	UL File NO:E169380
Plastic Enclosure	PA66 UL 94V0 File E56070
PCB	FR-4 Eposy Glass Cloth UL479892
Terminal Block	PA66 UL 94V-0

Software

- 8 analog inputs,2 analog outputs,5 digital outputs
- Industry standard Bacnet & Modbus protocols
- User screen displays
- Day at home,work time,night at home,sleep,holiday
- 3 PID Controllers

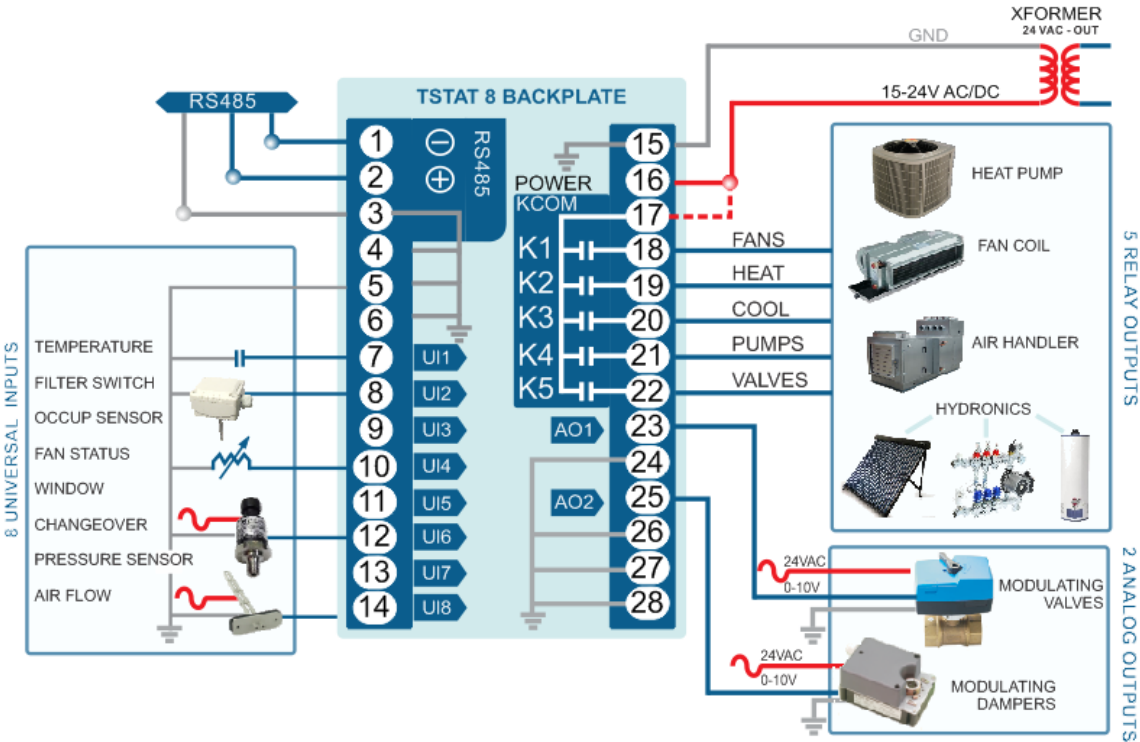
Dimension



Wire Routing



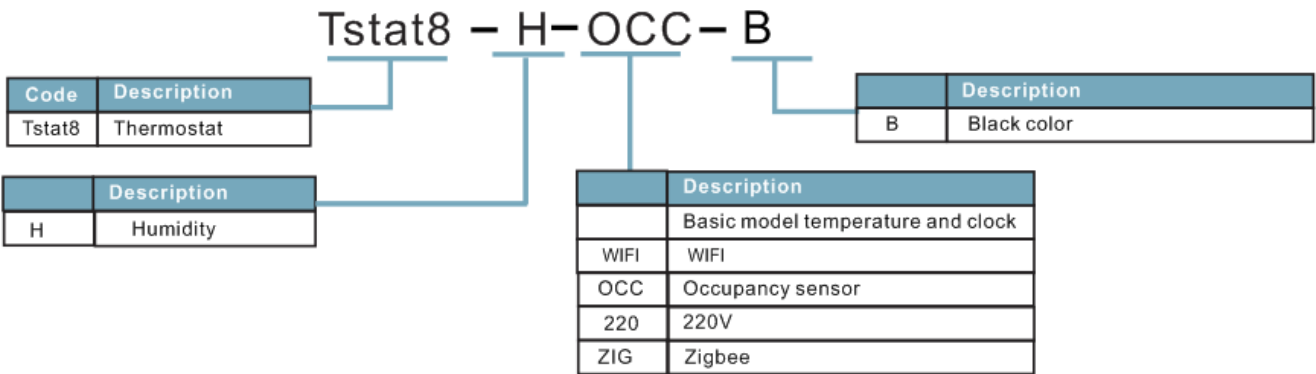
Wiring Diagram



Bacnet Objects

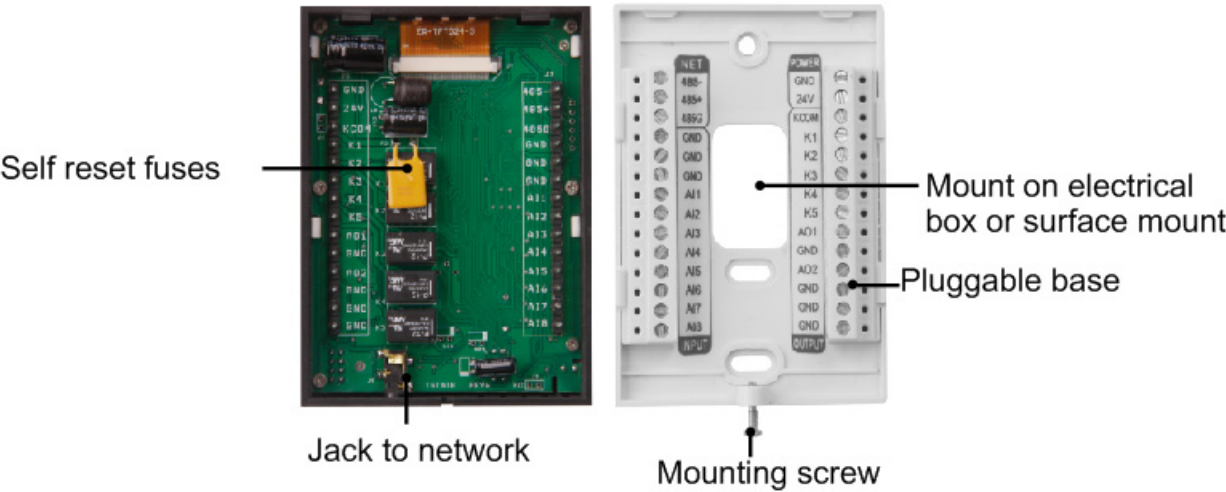
Device	Object identifier;Object name;Object type;Vendor name;Vendor identifier;Model name;Firmware revision;Application software version;Protocol version;Protocol revision;Object list;Max apdu length accepted;Segmentation supported
Universal input	Object identifier;Object name;Description;Object type;Present value;Out of service;Units
Analog Output	Object identifier;Object name;Description;Object type;Present value;Out of service;Units;Priority array
Analog Value	Object identifier;Object name;Description;Object type;Present value;Out of service;Units;Priority array
Binary Output	Object identifier;Object name;Description;Object type;Present value;Out of service;Units;Priority array;Polarity;Relinquish default;Active text;Inactive text

Part Number Scheme



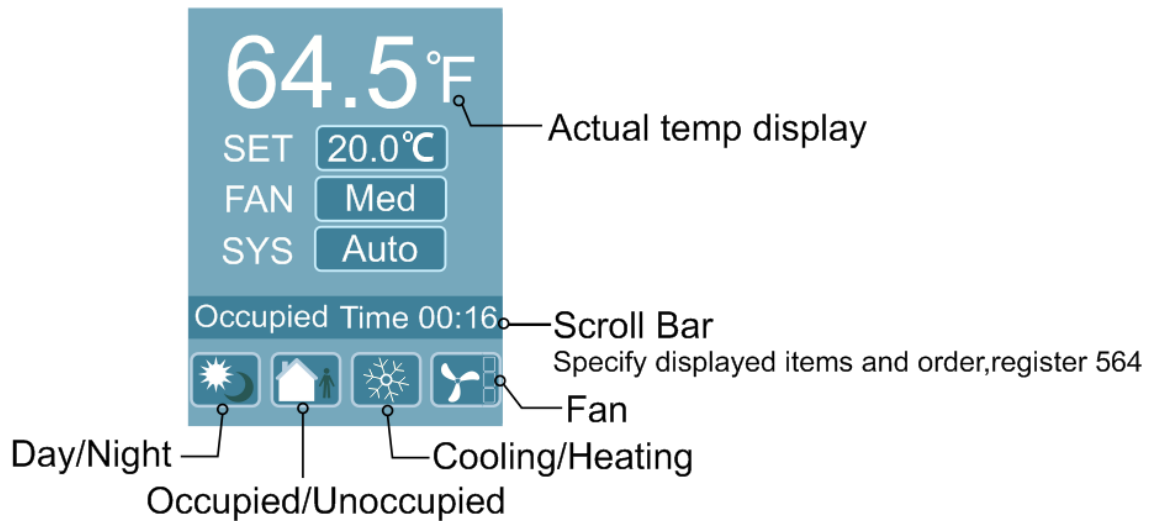
Tstat8-Black : MOQ 50PCS

Highlights





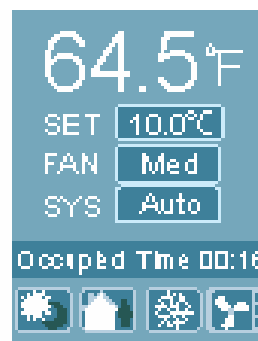
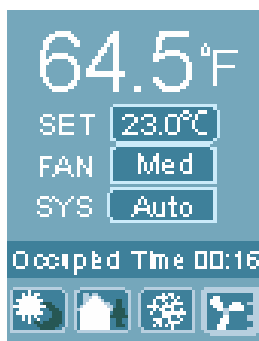
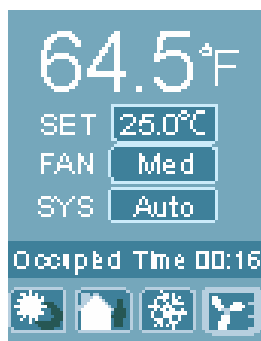
Advanced Menu Item Details







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

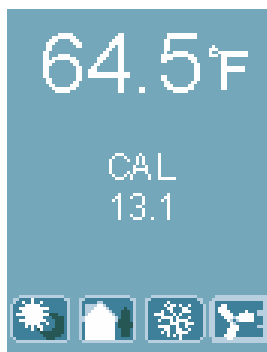
1. When you press  or , it will increase or decrease the set point value. The value will flash two times, then it will confirm the setting automatically.



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.

To change the baudrate, locate 'bAU' within the menu and use  and  to choose 19200 or 9600.



Custom Enclosures and Logos



Black



Tstat8



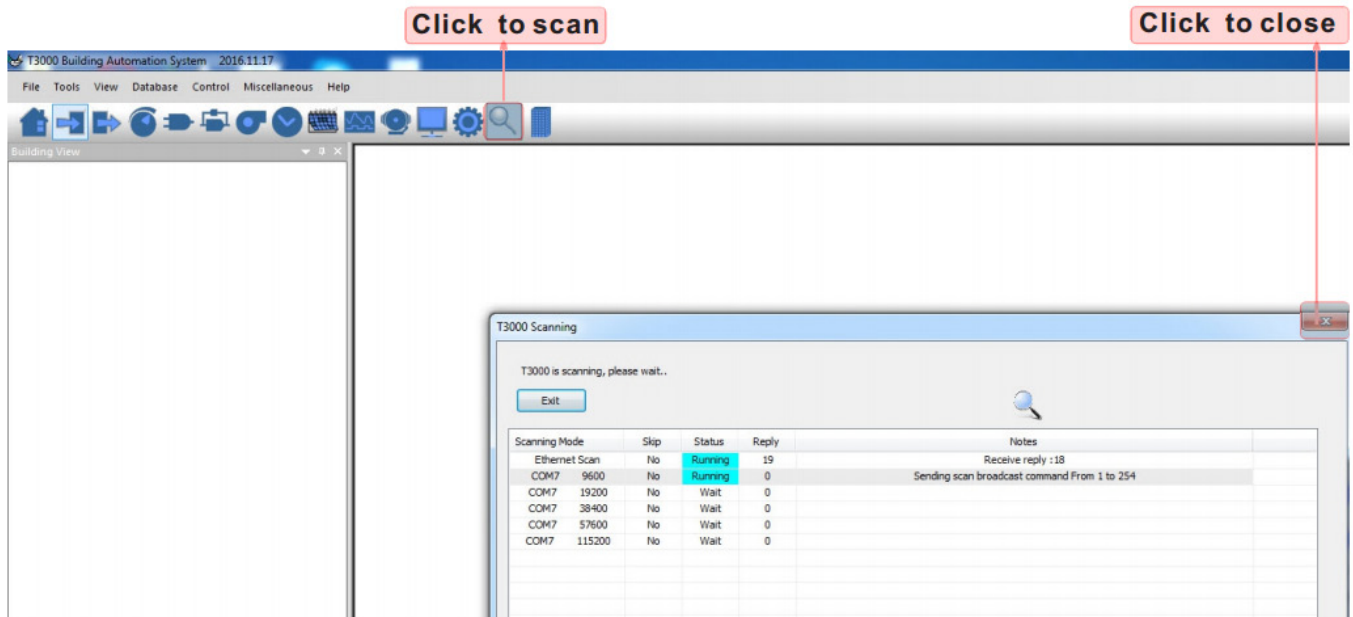
Tstat8-H-OCC




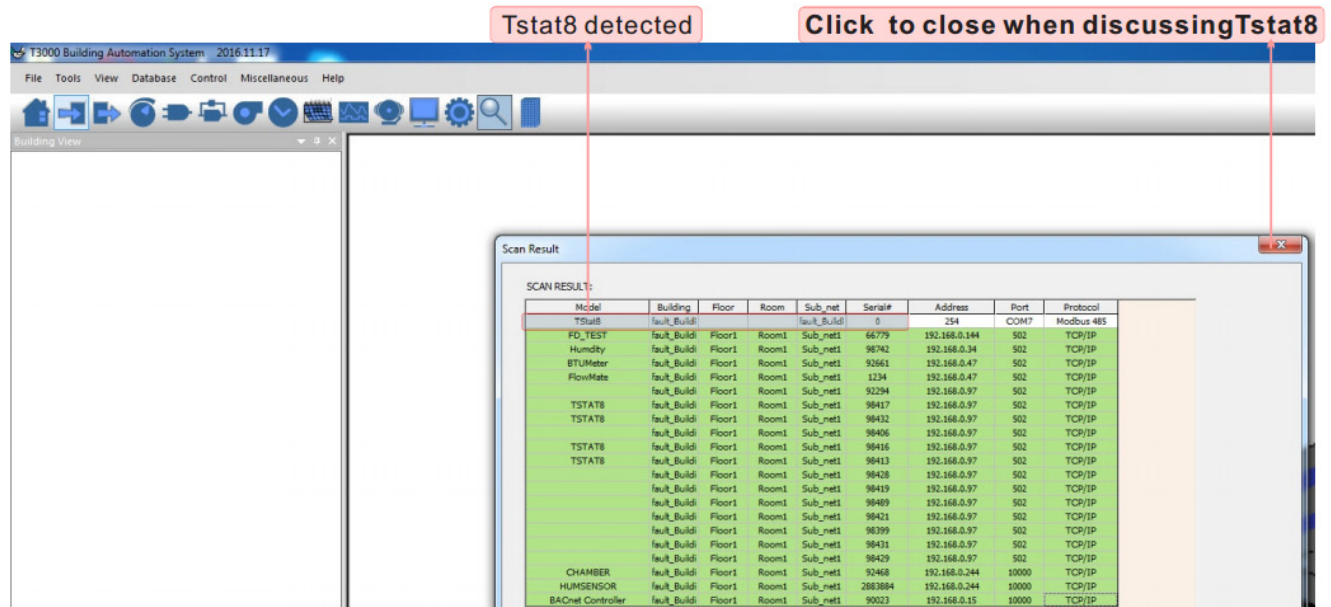
Tstat8-H-Zigbee


T3000 Operation

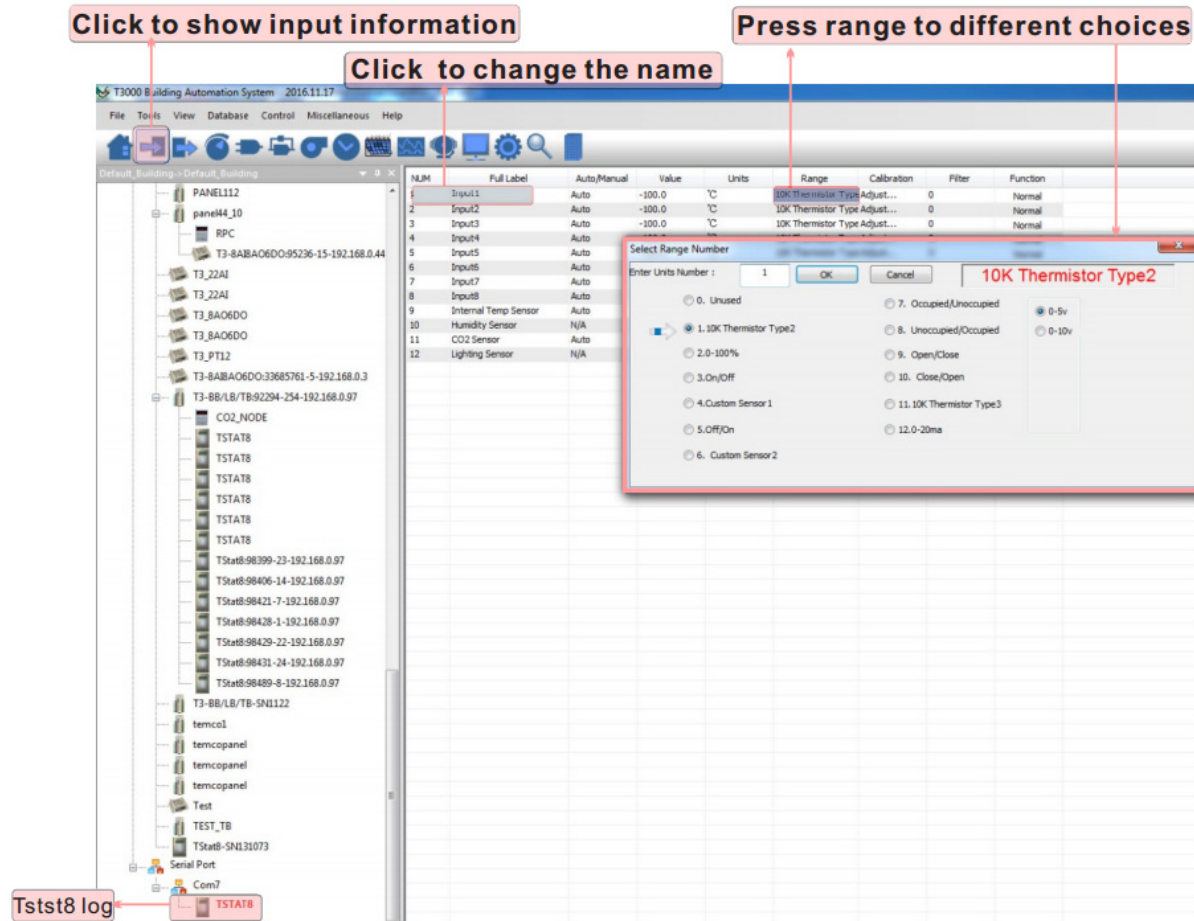
1.Connect Tstat8 to PC by RS485, start T3000 software




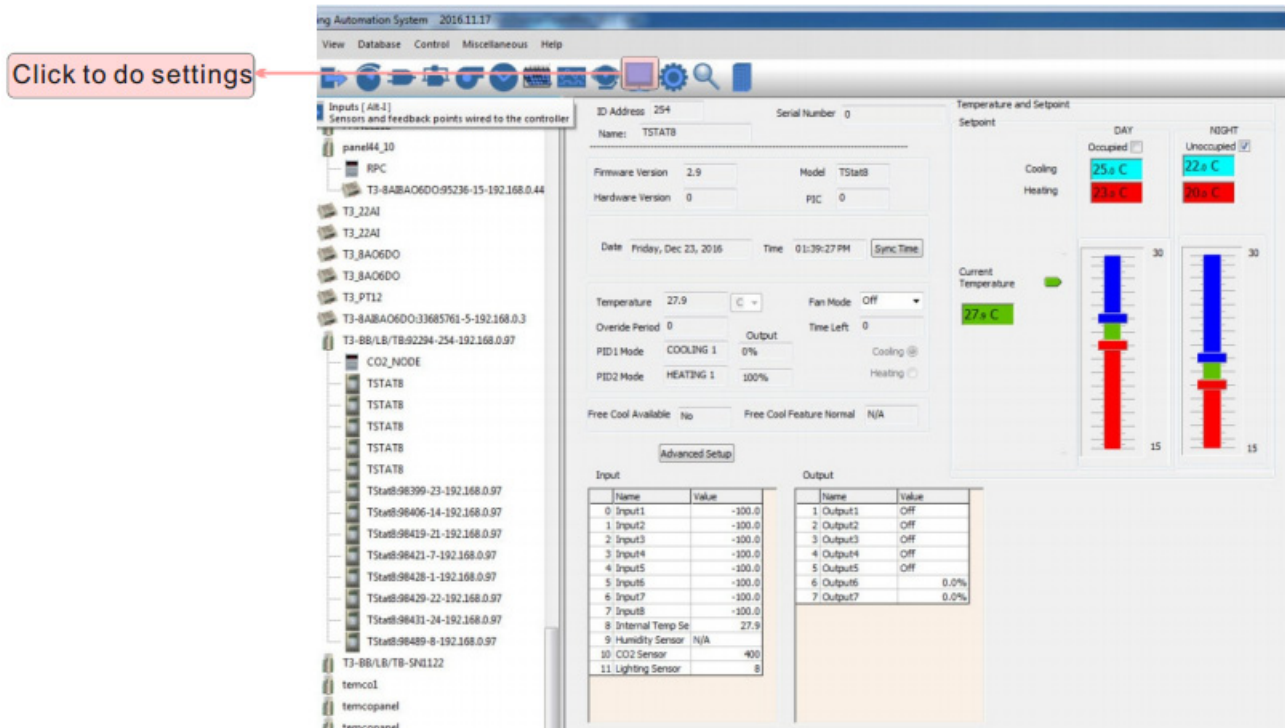
2.Click the button  to scan, the following view will appear and close it as the picture indicates. When discussing Tstat8,close the view.




3. Click the button  to scan, the following view will appear and close it as the picture indicates. When discussing Tstat8, close the view.

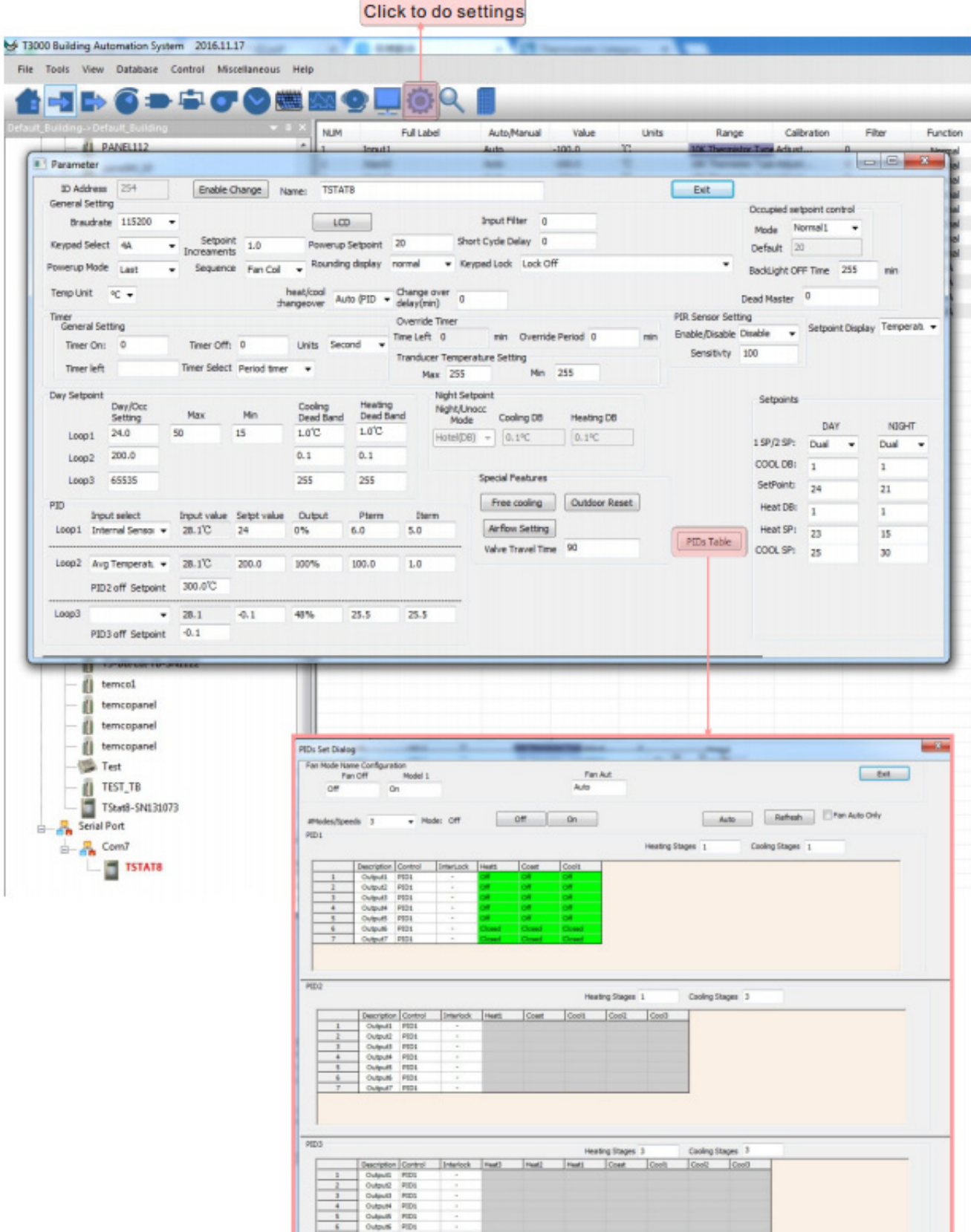


4. Click the button  to scan, the following view will appear and close it as the picture indicates. When discussing Tstat8, close the view.



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

Click to do settings



Parameter Dialog (TSTAT8)

General Setting: Braudrate 115200, Keyed Select 4A, Powerup Mode Last, Temp Unit °C, Input Filter 0, LCD, Setpoint Increments 1.0, Powerup Setpoint 20, Short Cycle Delay 0, Rounding display normal, Keypad Lock Lock Off, Occupied setpoint control Mode Normal1, Default 20, Backlight OFF Time 255 min, Dead Master 0.

Timer General Setting: Timer On 0, Timer Off 0, Units Second, Timer left, Timer Select Period timer, Override Timer Time Left 0 min, Override Period 0 min, Transducer Temperature Setting Max 255 Min 255.

Day Setpoint: Loop1 24.0 50 15, Loop2 200.0, Loop3 65535. Night Setpoint: Night/Unocc Mode Hotel[DB], Cooling DB 0.1°C, Heating DB 0.1°C.

PID Table:

Loop	Input select	Input value	Setpt value	Output	Pterm	Iterm
Loop1	Internal Sensor	28.1°C	24	0%	6.0	5.0
Loop2	Avg Temperat	28.1°C	200.0	100%	100.0	1.0
Loop3		28.1	-0.1	48%	25.5	25.5

PIDs Set Dialog

Fan Mode Home Configuration: Fan Off, Model 1, Fan Auto, #Rodes/Speeds 3, Mode: OFF, Auto, Refresh, Fan Auto Only.

PID1 Heating Stages 1 Cooling Stages 1

Description	Control	InterLock	Heat	Coast	Cool1
1 Output1 PID1	-	-	On	On	On
2 Output2 PID1	-	-	On	On	On
3 Output3 PID1	-	-	On	On	On
4 Output4 PID1	-	-	On	On	On
5 Output5 PID1	-	-	On	On	On
6 Output6 PID1	-	-	On	On	On
7 Output7 PID1	-	-	On	On	On


PID2 Heating Stages 1 Cooling Stages 3

Description	Control	InterLock	Heat	Coast	Cool1	Cool2	Cool3
1 Output1 PID2	-	-					
2 Output2 PID2	-	-					
3 Output3 PID2	-	-					
4 Output4 PID2	-	-					
5 Output5 PID2	-	-					
6 Output6 PID2	-	-					
7 Output7 PID2	-	-					

PID3 Heating Stages 3 Cooling Stages 3

Description	Control	InterLock	Heat1	Heat2	Heat3	Coast	Cool1	Cool2	Cool3
1 Output1 PID3	-	-							
2 Output2 PID3	-	-							
3 Output3 PID3	-	-							
4 Output4 PID3	-	-							
5 Output5 PID3	-	-							
6 Output6 PID3	-	-							
7 Output7 PID3	-	-							

Set Up Tstat8-WIFI via T3000

1. Visit <https://temcocontrols.com/ftp/software/09T3000Software.zip>, download T3000 software and install it;
2. Start T3000 software, click  to scan

