Tstat8 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 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 humidity / enthalpy.

Highlights

- Bacnet MSTP and Modbus RTU protocols over RS485.
- Baudrates : 9600, 19.2k, 38.4k, 57.6k, 76.8k and 115.2kBaud.
- 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 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,support voltage up to 220V..

Typical Application

Specifications

Tstat8-220V	5 relays x 10amps@220VAC, 8 analog inputs ,2analog outputs 10V@100mA
Operating temperayure	-30-70℃(-22-158°F)
Supply voltage	12~24VAC/DC±20% 50-60HZ
Power consumption	100mA at 12 VDC
Relay contacts	Rating 10A@30VDC,12A UL:file No: E169380
Baudrate	9600,19200,38400,57600,115200
Ambient humidity	10-90%RH
Operating Environment	0~99% humidity non condensing
Plastic Housing	Flammability rating UL94 file E56070
Enclosure rating	IP31
Protocols	Bacnet MSTP and Modbus RTU
Temperature sensor	10K thermister ±0.5℃

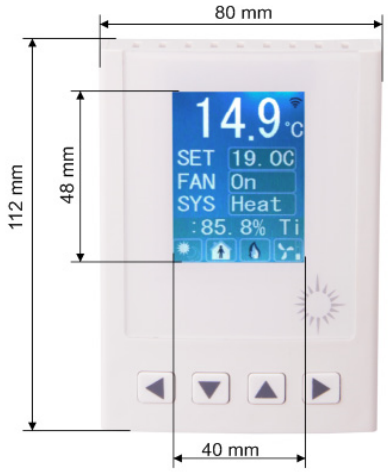
Approvals

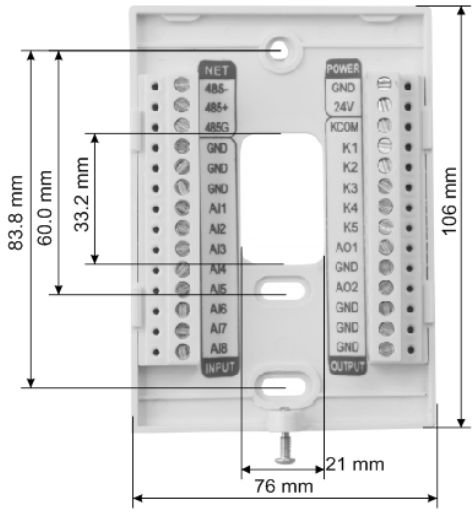
Relay	UL File NO:E169380
Plastic Enclosure	PA66 UL 94V0 File E56070
PCB	FR-4 Eposy Glass Cloth UL479892
Terminal Block	PA66 UL 94V-0

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

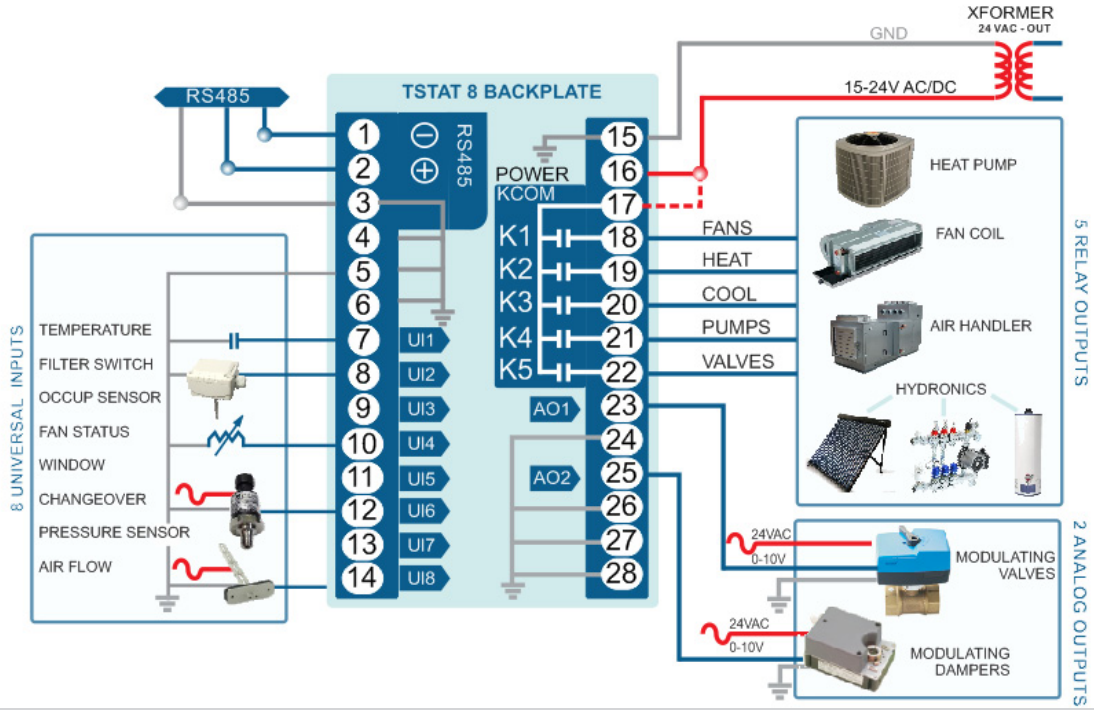
Dimension





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

AV	AV and Description
1	Buadrate 96=9600 192=19200 384=38400 576=57600 1152=115200 unit:bps
2	Station Number
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 mode,2 user mode,3user mode 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 o,system will control by PID,if set to 1,system will be in heat onlt mode,and 2 will be cool only mode.
12	spare
13	Override timer unit:minute
14	Pid loop2 occupied setpint
15	Pid loop2 unoccupied setpint
16	Output manual/auto,each bit indicate each output 0:auto 1:manual

AI	Description
AI1	Analg input1
AI2	Analg input2
AI3	Analg input3
AI4	Analg input4
AI5	Analg input5
AI6	Analg input6
AI7	Analg input7
AI8	Analg input8
AI9	Internal temperature value
AI10	Humidity value
AI11	CO2 value if ti has CO2 Sensor present

BO	Description
BO1	Binary output1 state 1:on 0:off
BO2	Binary output2 state 1:on 0:off
BO3	Binary output3 state 1:on 0:off
BO4	Binary output4 state 1:on 0:off
BO5	Binary output5 state 1:on 0:off

AO	Description
AO1	Analg output1 value
AO2	Analg output2 value

Tstat8	Count	Register and Description
0 to 3		Serial Number - 4 byte value. Read-only
4 to 5		Software Version– 2 byte value. Read-only
6		ADDRESS. Modbus device address
7		Product Model. This is a read-only register that is used by the microcontroller to determine the product model.
8		Hardware Revision. This is a read-only register that is used by the microcontroller to determine the hardware revision.
9		PIC firmware version
10		PIC version of Humidity module
11		PLUG_N_PLAY_ADDRESS, 'plug n play' address, used by the network master to resolve address conflicts. See VC code for algorithms
12~14		Spare
15		Bau - Baudrate, 0=9.6kbaud, 1=19.2kbaud 2=38.4kbaud 3=57.6kbaud 4=115.2kbaud 5=76.8kbaud 6=1.2kbaud 1=4.8kbaud 1=14.4kbaud
16		Update Register, used to show the status of firmware updates. Writing 143 sets the config back to out of the box except for Modbus ID and baud rate. Write 159 to fix the current config as the user defaults, this is done automatically by T3000 any time a config file is loaded. Writing 175 resets the unit back to the user defaults.
17~19		Spare
20		Hardware Options Register, starting with LSB: Bit0=Clock present or not, Bit1 = Humidity present or not, Bit2 = C02 Sensor, Bit3=CO sensor, Bit4 = Motion Sensor
21		PANID for zigbee devices
22		Device type of zigbee. 0 means coordinator, 1 means router
23~24		Channel of Zigbee, default channel is channel 13, 0x00002000
25		Zigbee module software revision
26~33		Zigbee extented address(MAC address)
34		Set 1 to reboot zigbee module
35~50		Security key
51		The number of zigbee neighbors around
52		The modbus ID of the 1st zigbee neighbor
53		The signal strength of the 1st zigbee neighbor
54		The modbus ID of the 2nd zigbee neighbor
...		

*The register list is very long ,it can be downloaded as an excel spreadsheet (03ModbusBacnetRegisterList.xls) at the following link:*http://tinyurl.com/ybaj9d3u*

Part Number Scheme

Tstat8 – H – OCC – B

Code	Description
Tstat8	Thermostat

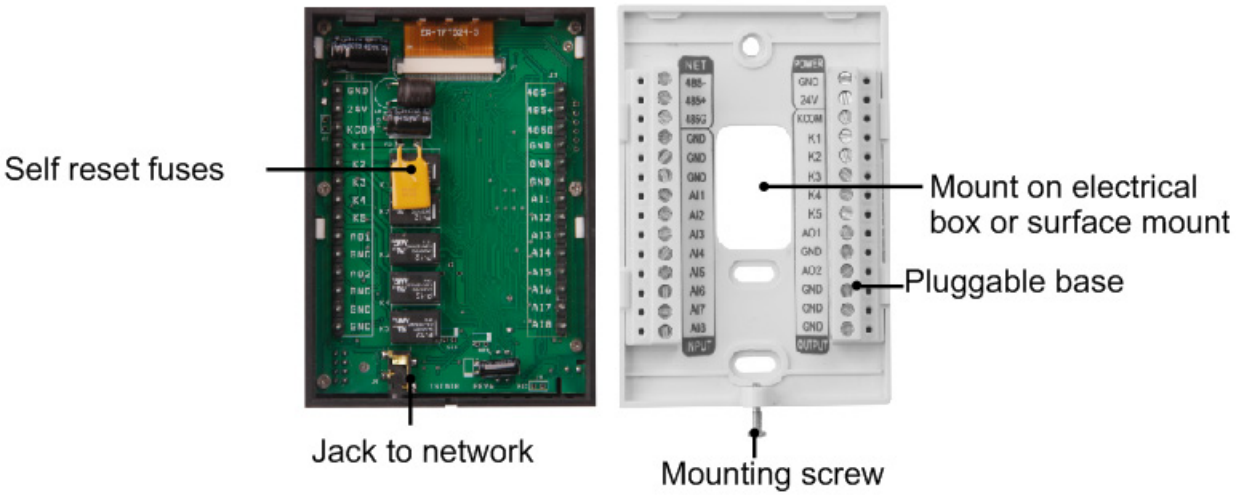
	Description
H	Humidity

	Description
	Basic model temperature and clock
WIFI	WIFI
OCC	Occupancy sensor
220	220V
ZIG	Zigbee

	Description
B	Black color

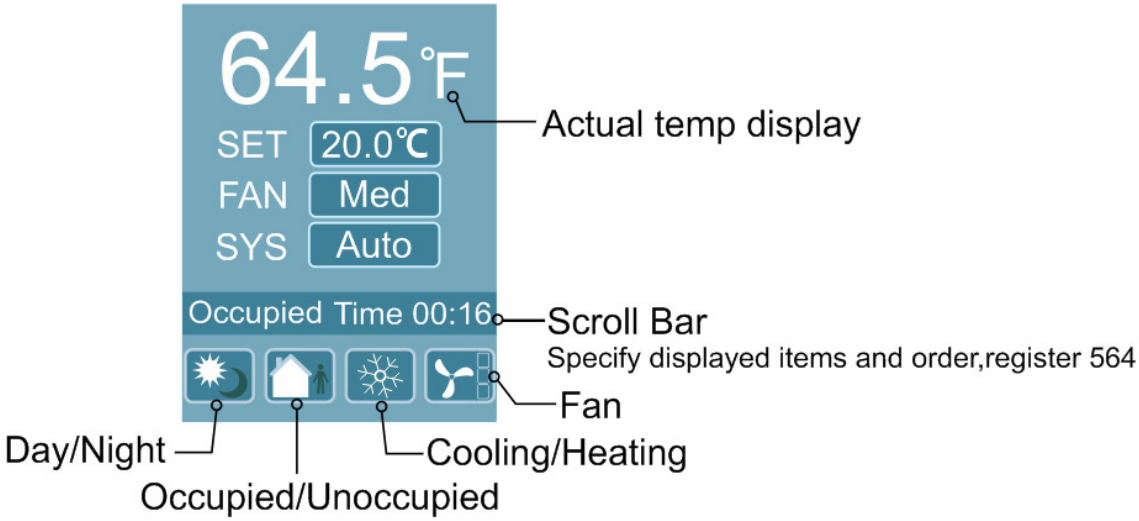
Tstat8-Black : MOQ 50PCS

Highlights



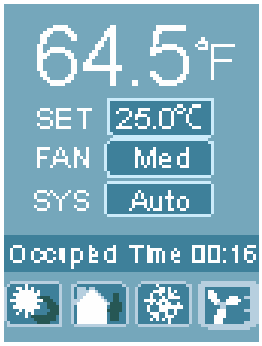
Advanced Menu Item Details

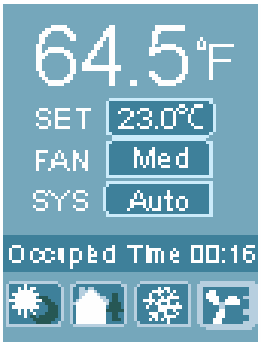
They have several advanced menu items which can be adjusted in the field to suit the application and tune the operation of the thermostat. Generally speaking, all the parameters are set up at the factory on an order-by-order basis and will give satisfactory results out of the box.

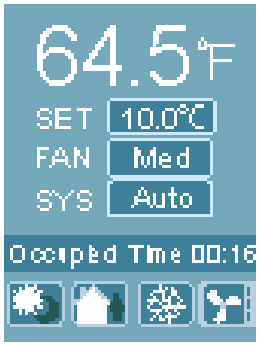


LCD Screen Display

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 automaticly.



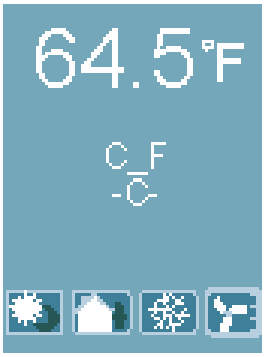




2.In the normal mode, press both ◀ and ▶ at the same time.Hold for several seconds,it will switch to the menu mode. Press ◀ or ▶ to scroll through the menu options such as 'Add', 'CAL', 'bAU', 'UNITS' and many others. To change the values at a particular menu, press ▲ or ▼ ,the chosen value will be stored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

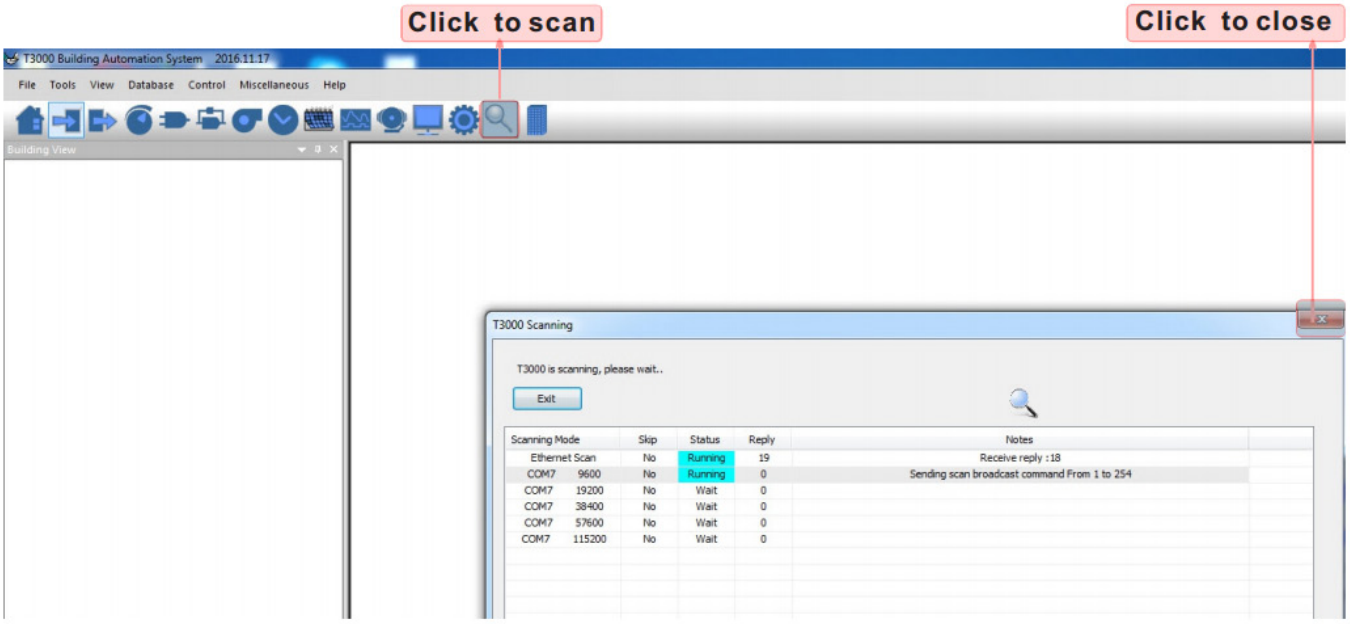
Tstat8

Tstat8-H-OCC

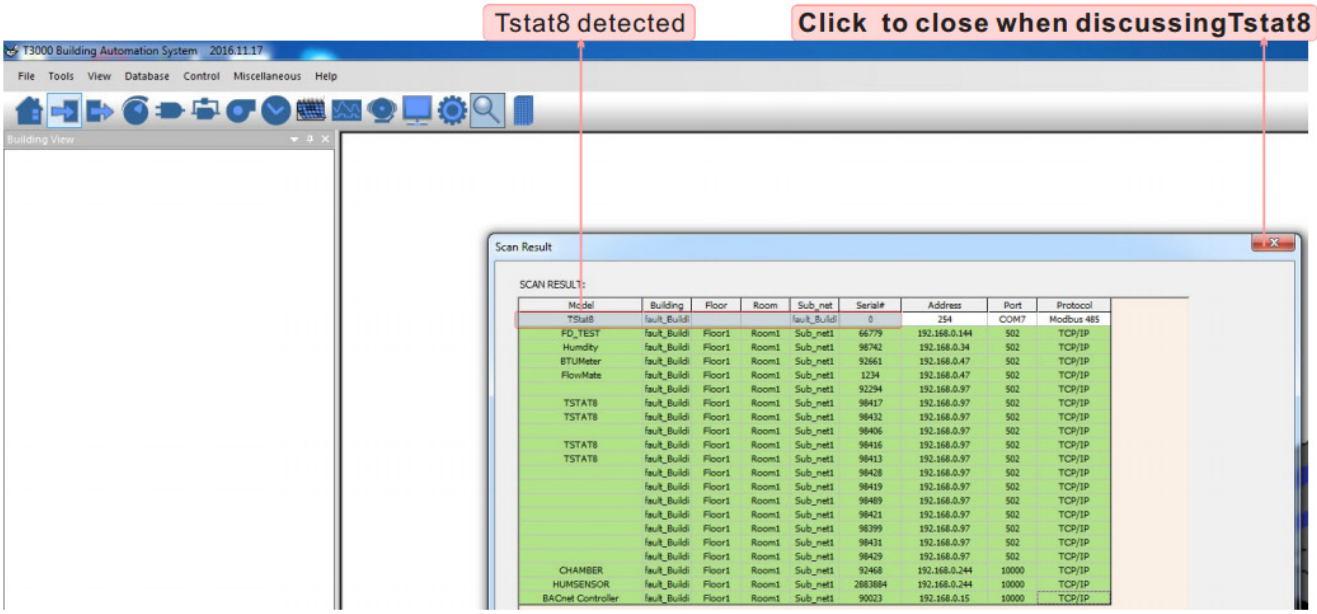
Tstat8-H-Zigbee

T3000 Operation

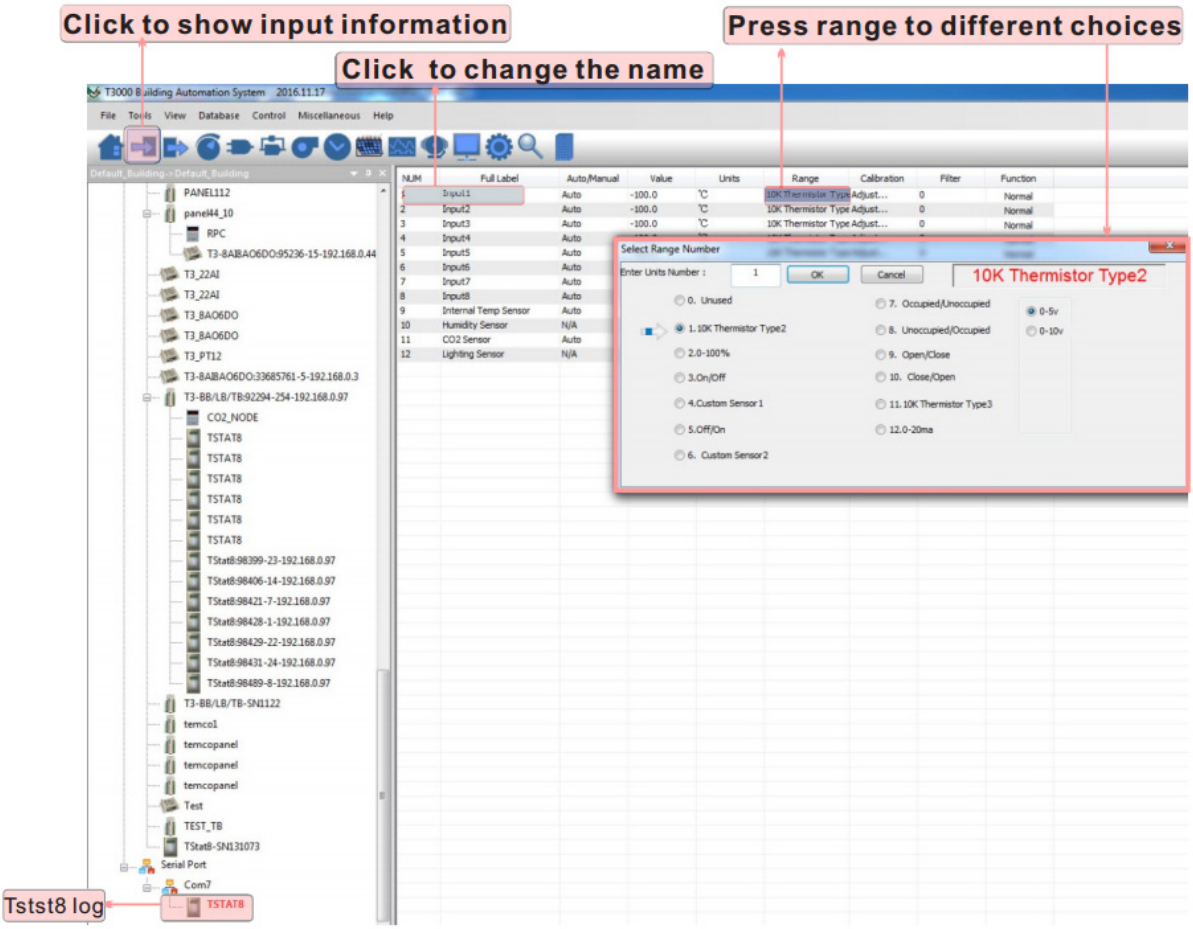
1.Connect Tstat8 to PC by RS485, start T3000 software



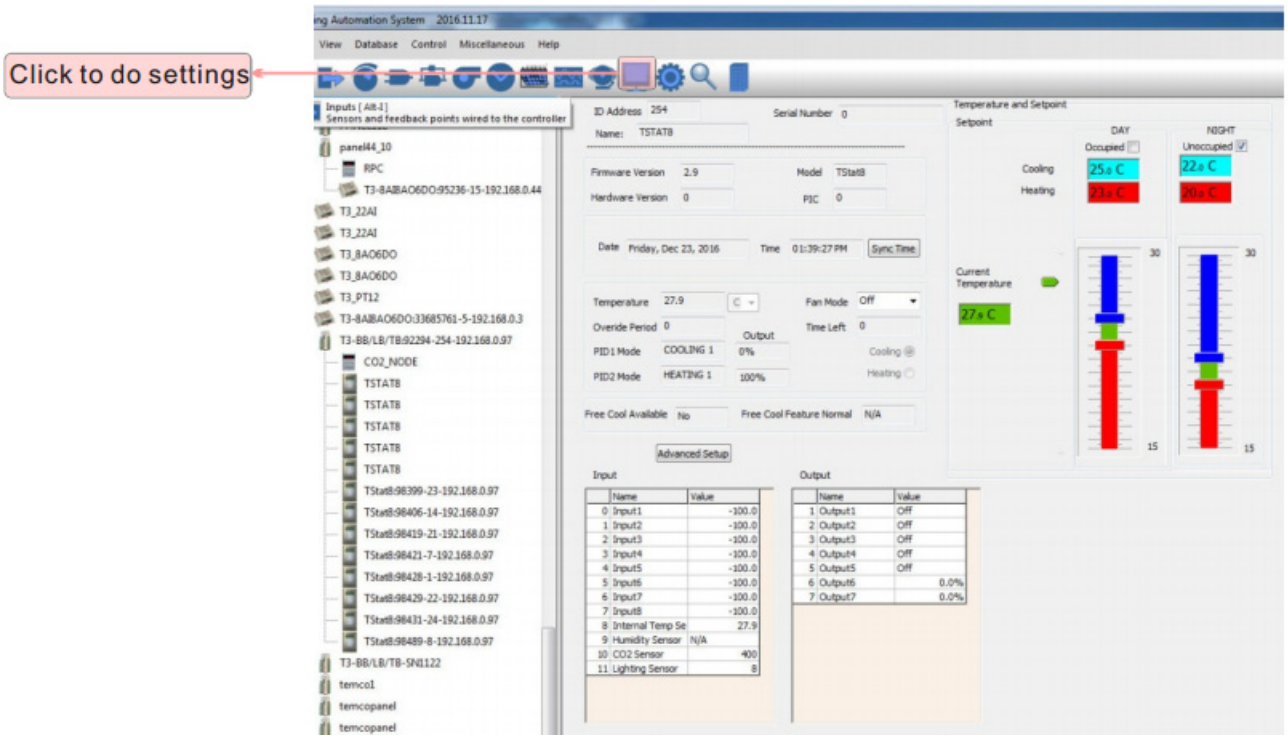
2.Click the button to scan, the following view will appear and close it as the picture indicates. When discussing Tstat8,close the view.



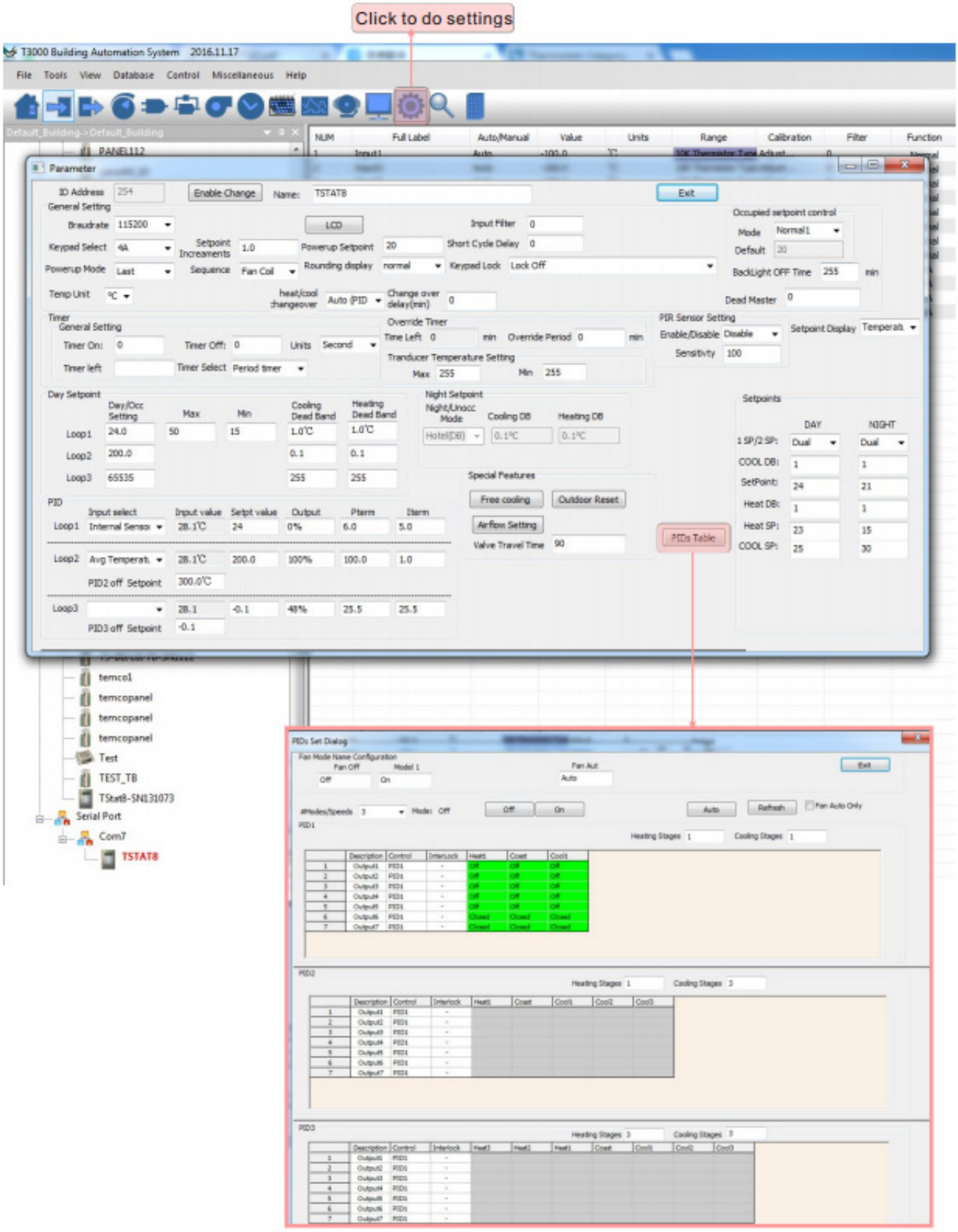
3.Click the button  to scan, the following view will appear and close it as the picture indicates. When discussing Tstat8,close the view.



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.



More Detailed Manual

Description

Code	Description (Range,Default)
Modbus Address	Modbus Device Address(1-254,254) This is the modbus address of the tstat.It is the address to which the statw illre spond when receiving serial communication.
Temperature Calibrate	Calibration of the Selected Temperature Sensor (0-1000, 500) To calibrate the temperatureshow non the tstatdisplay youw illneed a handheld mercurythermometer or digital thermometer.Hold the meter close to the thermostatand allow it to come to equilibrium. Use the keypadto get into the menu mode until CAL is shown on the display.Now you can adjust the display using the up and dow n buttons till the temperature show nmatches the handheld meter.When you are done, just let the display time out to normal operation, the display w illstop ?ashingand w illshow the current room temperature. Youcan repeat this sequenceif necessarytill the readings on the thermostat and meter agree.The thermostat will storethe calibration?gureseventhroughextendedpow eroutagesandshouldnot needto beadjustedformany years.The main point to keep in mind w hen calibratingis to let everythingcometo equilibrium. The thermostat shouldbe pow eredup for 5 minutes prior to any calibrationand the thermometer shouldbe leftnear the thermostatfor aboutthe same amount of time. The calibration valueis centeredaround500 (50.0°) This means that anythingabove500w illbe added on to the raw temperature and anything below 500 w ill be subtractedfromthe raw temperature.Calibration units are in increments of 0.1° (i.e. 500 means 50.0°) and are in the same units (Cor F) as the tstat Some calibration tips: *The main error in calibration comes fromnot w aitinglong enoughfor the handheldthermometer to cometo equilibrium. *Calibrate using the customer's thermometer,even if it is not an accurate one so that all subsequentmeasurements are compared to the same benchmark. *The sensor insidethe thermostatis a digital chip capableof resolvingdow nto 0.06°Cso thew eaklink in calibrating is usually the procedure usedratherthan the tstataccuracy. *Make sure the tstat is mounted in a location freeof drafts.
Temperature Select	Temperature Sensor Select (0-3, 0) The tstat has an extrainput for usew ithan externaltemp sensor. tSS = 0: The tstat w ill use the internaltemperaturesensorICfor the display and PID calculations tSS = 1: The tstat w ill use an externalthermistorw hichis show non the display and usedfor PID calculations. tSS = 2: The tstat w ill use an internalthermistorw hichis show non the display and usedfor PID calculations. tSS = 3: The tstat w ill use an averageof internalthermistorand externalthermistorw hichis show non the display and usedfor PID calculations.

Code	Description (Range,Default)
Temperature Filter	Temperature Sensor Filter (0-10, 5) Filter used for the rawtemperaturebeingread by the sensor. This con?guresthe w eightedaverageusedw hen?lteringthe raw tempera-ture.0 correspondsto no ?lter.10 correspondsto a high level of ?ltering. Set this to a low valueif youw anttheinput to respondquickly,a high valuew illsmooth the readingsmore butmake them respond more slow ly.
Baudrate Select	19200, 9600
Short Cycle Delay	Short Cycle Delay (0-20, 0) This parameter adjuststhe delay betw eencyclingofthe mode of operation.It is the number of minutes afterenteringcoastingmode until the tstat can re-enterthe mode it came from. For example, if the tstat is in Cooling1 mode, and then enters Coasting mode, it w ill take a delay,dSCminutes, until it can re-enter into Cooling1 mode. This value is in increments of 1 min.
Change Over Delay	Changover Delay (0-200, 0) This parameter adjusts the delay betw eensw itchingfroma heating mode of operationto a cooling mode of operationor viceversa. It is the number of minutes after leaving cooling or heating mode before the tstat can enter the opposite mode. This value is in increments of 1 min.

Code	Description (Range,Default)
Proportional Term	Proportional Term (10-255, 20) The proportional term is the ‘P’ term of the familiar PID control strategy and determines how fast a valve will react to a deviation from setpoint at a par-ticular instant in time. The default value of 2.0° (Cor F) is ne for most appli-cations, where a 2.0° deviation is required to make the valve respond100%. For example,with the PPr term set to 2.0 (°C) and the cooling setpoint is set to 20°C,the valve w ill be open 100% by the time the room hits 22°C. A larger PPr term w ill make the valve lazy since the deviation from setpoint w ill have to be greater before it opens 100%.A smaller value makes the valve respond more quickly.The factory setting of 2.0° (Cor F) is ne where the thermostat is located out of the directair?owin an office sizeroom. For a smaller room or if the thermostat is located directly under the airvent, a slower acting valve is required to avoid short cycling,so set the value of PPr to 3.0° or 4.0°. The PPr term acts in cooperation with the PIn term which is described next. The P value is in increments of0.1° (i.e. 20 means 2.0°)andis in the same units (Cor F) as the tstat.

Integral Term	Integral Term (0-255, 50) The integral term is the ‘I’ term of the familiar PID control strategyand determines how fasta valve w ill react to a deviation from setpoint over time. For example with the room slightly above setpoint,the ‘P’ term may be basically satisfied, but a small deviation still exists.This deviation is summed up or ‘Integrated’ overtime and the Iterm w ill gradually open the valveto make up the ?nal small deviation fromsetpoint. The default value of 5.0 (%/Degminute) is ?ne formost applicationsand w illcausethevalveto open 5% for one degree(Cor F) of error per minute. For example,when thePIn termset to the default of 5.0 (%/Degminute), the cooling setpoint is set to 20°C, and the room temperature is 21°C, the valve w ill be open partially due to the “P” term described earlier but the condition continue sand we would like the valve to be opening up slowly to make up the nal temperature error.If this situation of 1.0°Cerrorcontinuesforone minute, the error accumulates and the Itermnudges the valve open an additional 5%.If the previous explanation is not clear,a coupleof helpfulreminders are as follow s:-thinkof the Iterm as the opposite of the Pterm, -”a biggerImeans fastervalve,smallerImeans lazier valve”.-The default value of 5% willwork fine for most applications.-If the valve is short cycling,make the I termlazier (smaller). The Ivalue is in increments of 0.1 %/°min (i.e. 50 means 5.0%/°min) and is in the same units (Cor F) as the tstat.
Heat Cool Config	Heating Cooling Mode Configuration (0-5, 0) This item con?gures the method by w hichthe tstatdetermines the heatingor coolingmode. HC = 0: mode is controlled automaticallyby the PID. PID > 52 is heating mode, PID < 48 is cooling mode. HC = 1: mode is controlled by the keypad or serialcommunication. This is for keypad con?gurationsin w hichthe useror serialcomcan manually set heating or cooling. HC = 2: mode is controlled by the activehigh digital input. High is heating, low is cooling. HC = 3: mode is controlled by the activelow digital input. High is cooling, low is heating. HC = 4: mode is controlled by differencein temperature of setpoint and analog in1 sensor. If the temperature of the sensor is greater than the setpoint, the tstat w illbe in cooling mode, and if the temperature of the sensoris less than the setpoint,the tstat w illbe in heating mode. This is primarily used for2-pipe systems. HC = 5: same as mode 4, but using the analog in2 sensor insteadof analog-in1.

Operation Sequency	Sequence of Operations (0-2, 1) The Sequence of operationis normally set at the factoryand does not need to be adjusted. The thermostat supports?eld adjustmentof the operation to suit differentvariationsof mechanicalequipment. Setting this valueto a differentvalue w illcausethe thermostatto stop w orkingproperly,sobe carefulnot to adjustthis value unlessyouare familiarw iththe varioussequences. Standard Operation: When SOP is set to 1, the sequence of operationsis stored in a table that allow s for basicallyany arbitrarysequenceof operation,for example the tstat could be set up to control 5 stages of cooling,5 stages of heating, or anythingin betw een.Each output is individually assigned to be activein any particularsectionof the coolingor heatingcycle. There are7 discreetsteps,Heat3, Heat2, Heat1, Coasting, Cool1, Cool2 and Cool3. So the table is a 5 outputs x 7 steps spread-sheetarrangementand you ?ll in the blanks to suit the application. The settings can be storedin an externaltext ?le that is easily readand modi?edin a text editor.The “TstatFactory”softw areutility on our w ebsite(http://w w w .temcocontrols.com/ftp/tstat5softw are.zip)allow syou to sendyourfavoritesequenceof operationstableto a new tstat speeding up the con?gurationprocess. TransducerMode: Setting SOP to 2, puts the Tstatinto transducermode. In this mode, the cool-ing analog output correspondsdirectly to the roomtemperature in degrees C(i.e. at 25°C, the output w ouldbe 2.5V). The heating analog output corre-spondsdirectly to the setpointin degrees C. And relay1 correspondsto the occupied/unoccupiedmode (occupied= relay-1ON, unoccupied= relay1OFF). TestMode: A special sequenceof operationsis embedded in the tstat that assistsin com-missioning of the installation and testingof the tstats.When SOP is set to ‘0’ this is the testing sequenceand the unit w illcyclethe relay outputs on and offin a slow rotation.The analog outputs are also cycled in a slow ramp, the cooling goes from0-10Vw hilethe heating-goes in reversefrom10 to 0V.The duty cycleof this rotationis approximately 20 seconds,be surethe mechanicalsystemis able to handle this sortof cyclingbeforeusingthis feature.

Code	Description (Range,Default)
Heating Deadband Cooling Deadband	Heating & Cooling Deadbands (1-200, 10) If there is one setpoint, the heating setpointfollow sthe coolingsetpointand is calculatedby: Heating Setpoint = Setpoint - Heating Deadband. Cooling Setpoint = Setpoint + Cooling Deadband If there are tw osetpoints,heatingand coolingare separatelyadjusted.The setpoints arecalculatedas follow s: Heating Setpoint = Max(Cooling Setpoint + Cooling Deadband , Heating Setpoint) Cooling Setpoint = Min(Cooling Setpoint, Heating Setpoint - Cooling Deadband) The min value for Cdb is 1.0° (Cor F) to ensure that simultaneousheating and coolingis neverallow ed.The maximumvalue is arbitrarily set to 20.0°. The deadband values are in increments of 0.1° (i.e. 20 means 2.0°) and are in the same units (Cor F) as the tstat.
Degree C/F	Degrees C/Degrees F (0-1, -) The display can be sw itchedto showDegrees Cor Degrees F. 0 = C, 1 = F.
FanSpeed Select	Number of Fan Speeds to show on the display (0-3, 3) The number of fan speedsallow ed.Fan = 3, user w illsee “Off,-1-, -2-,-3-, Aut”Fan = 2, user w illsee “Off,-1-, -2-, Aut”Fan = 1, user w ill see “Off,-1- , Aut”, Fan = 0, user w illsee “Off,On”
NightHeat Deadband	Night Heating Deadband (0-35, 10) for deg C, (0-95, 10) for deg F
NightHeat Deadband	Night Cooling Deadband (0-99, 10) for deg C and F When the tstat is in unoccupied mode, and APPis set to 0, the heating setpoint is adjusted dow nw ardsby the amount of the nHd. The cooling setpoint is adjustedupw aredsby the amount of nCd. The night deadband valuesare in increments of 1° (i.e. 10 means 10°) and are in the same units (Cor F) as the tstat. Note: The night heating setpoint is preventedthroughan internalsoftw are-interlockfrombeing setbelow 5°C, regardless of the user heating setpoint and the value storedin NHS.
NightHeat Setpoint NightCool Setpoint	Set night heating setpoint and night cooling setpoint, could be degree C or degree F
Applicatio Mode	Application (0-1, 0) 0 - OFFICE applications mode The night time setpoints arespeci?ed value Night Heating Setpoint = nHS value. Night Cooling Setpoint = nCS value. 1 - HOTEL or RESIDENTIAL applications mode The night time setpoints area speci?eddeadbandin relationw iththe day time setpoints Night Heating Setpoint = Cooling Setpoint - nHd value. Night Cooling Setpoint = Cooling Setpoint + nCd value.

PowerUp Setpoint	Power on setpoint (0-255, 20) for deg C, (0-255, 68) for deg F Certain applications require the thermostat to power up with a known set-point that is stored through a power outage.This feature is useful in some of the transducer modes where the central DDCco-ntroller can cycle the pow erto the thermostats to reset the room setpoints to a know n value everyday.The power on setpoint value is in incrementsof1° (i.e. 20 means 20°) and is in the same units (Cor F) as the tstat.
PowerUp On/Off	Power on Mode (0-3, 3) This setting allows the thermostat to power up in one of three modes: 0 = power off,1 = power up in on mode, 2 = last value (default),3 =auto mode. The on and off settings are self explanatory and are useful in certain DDC applications where the central controller can cycle the power to each thermostat to sweep the moff each evening for example. The default value is “last value” and will cause the thermostat to pow er up in whatever state it was in before the power outage.

Code	Description (Range,Default)
AnalogOut1 Setting **AnalogOut2 Setting**	Output settings (0-4, 0) Sets the full-scalevoltageof the analog outputs. Ou1 sets analog out 1 (Cooling). Ou2 sets analog out 2 (Heating).This setting is used to match the analog outputs to various types of actuators,transducersor other controllers.For example, by setting the output range to act over a 5VDCscale you can set the tstat up as a trans-ducer to interface into a master DDC controller.Or perhaps you have a valve that operates over the 2-10VDCrange, this ‘out-put’ type setting lets you tailor the tstat to theparticular application.OuX = 0, the output will act in on/off mode. There are 4 types of tstats. Only the Tstat5Aand Tstat5CMhave analog output capability.For Tstat5Band Tstat5C,the rmware recognizes the relay sand this will be permanently set to 0 and is not adjustable. For Tstat5Aand Tstat5CM with analog outputs,the output willbe 0V when OFF and 10V when ON. This is useful only if you happen to have a Tstat5Aor5CM and need a couple of extra on/off outputs. OuX = 1, the outputs will modulate from0V to 10V over the 0-100%rangeof any particular stage of heating or cooling. OuX = 2, same as the ‘1’ setting but the output modulates over the 0-5V scale OuX = 3, same as the ‘1’ setting but the output modulates over the 2-10V full scale OuX = 4, same as the ‘1’ setting but the output modulates in reverse i.e. 10V-0V Note: For a 4-20ma actuator it is simple to convert the 2-10VDCsignal to a 4-20ma signa by tying in a 250 ohmresistor in series withthe output and making sure the grounds of the actuator and tstat are common.

Max Setpoint **Min Setpoint**	Setpoint Minimum (0-255, 15) for deg C, (0-255, 55) for deg F Setpoint Maximum (0-255, 50) for deg C, (0-255, 99) for deg F Rev24: The maximum and minimum allow able user setpoint settings.The occupants cannot adjust the setpoint above or below these settings. The min and max setpoint values arein increments of 1° (i.e. 20 means 20°) and arein the same units (Cor F) as the tstat. Note: the heating and cooling deadbands act in a way that reduces these settings by the amount of the deadband. For example, if the highest setpoint allowed is 'SHI' = 30°C and the heating deadband 'Hdb' = 2°C, heating w ill actually only be active up to 28°C. Similarly,if the 'Cdb' cooling deadband parameter is at 2°Cand the minimum setpoint is at 20°C, then cooling takes place only as low as 22°C.
MenuLock mode	Keypad lockout (0-3, 0) Rev25 only: This setting is useful to keep the building occupants from experimenting in the menu system. When the LOC parameter is set to '1' the keypad will be locked out from all menu operations. The normal operation of the keypad is not affected; the fan and setpoint buttons work as usual.When the LOC parameter is set to '2'the keypad will be locked out from partial menu operations allowing maintenance personnel to access some of the less critical menu parameters while maintaining a LOC on functions reserved for the primary administrator.This option allows access to calibration of the internal and external temperature sensor(CALand CAE) and the override time parameter (ORT).LOC= 3,The user can not do anything from keypad except enter menu mode.In menu mode,the user can set setpoint,fan speed,calibration and override timer.When the menu system is locked out, the only way to adjust the tstat parameters is through the network portor through the communications jack at the bottom of the tstat. The parameter can be set back to '0' only though the communications ports as well.
Valve Travl Time	Valve Transient Time (10-255, 0) This setting allow sthe userto adjust the valvetransienttime fromfully open to fully closed. Valuerangesfrom10 (10s) to 255 (255s)
RS485/ZGB Select	Selet RS485 or ZIGBEE communication mode
MODBUS BACNET	Switch modbus protocol or bacnet protocal
WIFI Mode	Select ADHOC mode or Infra mode network. This only for Tstat wifi product
Factory Default	Factory Default Setting (0-1, 0) This allow s the user to get the factory default setting back