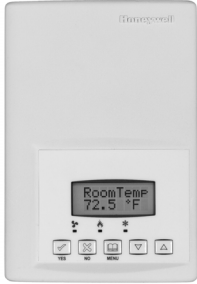


TB7600 Series Communicating RTU Thermostats with Humidity Control

INSTALLATION INSTRUCTIONS

APPLICATION



**TB7600 Series
Thermostat**



**TB7600 Series
Thermostat with
Occupancy Sensor**

The TB7600 Series PI thermostat family is specifically designed for single stage and multi-stage control of heating/cooling equipment such as rooftop and self-contained units with humidifier and/or dehumidifier. The TB7600 Series are communicating thermostats with models available in BACnet® MS/TP and ZigBee® wireless mesh protocols and can be easily integrated into a WEBS-AX building automation system based on the NiagaraAX® platform.

These thermostats feature an embedded complete humidity solution. Accurate temperature and relative humidity control is achieved due to the product's PI time proportional control algorithm, which virtually eliminates temperature offset associated with traditional, differential-based thermostats.

Thermostats equipped with an occupancy sensor cover provide advanced active occupancy logic, which will

automatically switch occupancy levels from Occupied to Unoccupied as required by local activity being present or not. This advanced occupancy functionality provides advantageous energy savings during occupied hours without sacrificing occupant comfort. All thermostats are PIR ready and can be ordered with or without Honeywell occupancy sensor. The occupancy sensor cover is available to order separately if a PIR is needed at a later time.

FEATURES

- Available in BACnet MS/TP and ZigBee wireless protocols
- Backlit LCD display with dedicated function menu keys for simple operation
- Built in default profile set-up for easier start up and commissioning
- Fully integrated advanced occupancy functionality with a PIR accessory cover on some models
- Non-volatile EEPROM memory prevents loss of parameters during power outage
- Programmable smart fan saves energy during night mode
- Humidification and dehumidification control:
 - Embedded humidification sequence (0-10 Vdc output) and dehumidification sequence (dry contact) simplifies installation and reduces installation costs
 - Internal RH sensor
 - Proportional RH high limit override prevents costly damage due to over-humidification
 - Discharge air humidity sensor (0-10 Vdc) can be used to limit supply RH levels
 - Automatic humidity setpoint reset when outside air temperature value is used to prevent window condensation in colder climates and provide energy savings
- Password protection to minimize parameter tampering
- Three levels of keypad lockout to limit access to change user parameters such as setpoints, system mode, etc.
- Compatible with gas, oil, or electric systems
- Automatic frost protection to prevents costly freeze damage



- **Anti short cycle and minimum on/off run time protection to reduce wear and maximize life of mechanical equipment.**
- **Programmable digital input can be used to monitor filter status, activate a remote temporary occupancy switch, and/or used as a general purpose service indicator**
- **Configurable SPST auxiliary output can be used for lighting and/or economizer override**
- **7 day programmable models, 2 or 4 events for use in non-networked applications***
- **Six hour reserve prevents the need to reprogram day/time after a power outage**

* Use programmable models only when installing as standalone thermostats that may eventually be added to a WEBS-AX network. When a programmable thermostat is added to a network, schedules should be applied through the WEBStation-AX.

TB7600 Series Model Selection

Table 1. TB7600 Series Communicating RTU Thermostats with Humidity Control

Product Number	Description	Outputs	Scheduling ¹	Occupancy Sensor ²
BACnet Models				
TB7607B5014B	Humidity Control RTU	2H/2C	No	
TB7607B5514B	Humidity Control RTU	2H/2C	No	X
TB7657B5014B	Humidity Control RTU	2H/2C	Yes	
TB7657B5514B	Humidity Control RTU	2H/2C	Yes	X
Wireless Models				
TB7607B5014W	Humidity Control RTU	2H/2C	No	
TB7607B5514W	Humidity Control RTU	2H/2C	No	X
TB7657B5014W	Humidity Control RTU	2H/2C	Yes	
TB7657B5514W	Humidity Control RTU	2H/2C	Yes	X
Accessories				
TB-PIR-RTU	RTU Occupancy Sensor Cover			
TB-RA-1014	Wireless Remote Antenna Base			
TB-RP5000W	Wireless Repeater for TB7XXX Series Wireless Thermostats			
TBST-5014W	ZigBee Wireless Survey Toolkit			
TB-VWG-APP-1014	TB7XXX Series Wireless Communication Card			
TB-WALL-1014	Room Sensor 10K NTC Type 2			
TB-WALLOVR-1014	Room Sensor with Override 10K NTC Type 2			

1 Use programmable models only when installing as standalone thermostats that may eventually be added to a WEBS-AX network. When a programmable thermostat is added to a network, schedules should be applied through the WEBStation-AX.

2 Thermostats ordered without an occupancy sensor cover can be retrofitted with an occupancy sensor cover later if needed.

More Information

We recommend downloading the appropriate integration reference document (wireless or BACnet) and if installing thermostats with occupancy sensor covers, then also downloading the PIR Application Guide before you begin installation. All documentation is available on <http://customer.honeywell.com>.

- BACnet Integration Manual for TB7600 Series Thermostats (Form No. 63-4523)
- Wireless Installation and Integration Reference Guide for TB7200, TB7300, and TB7600 Thermostats (Form No. 63-4522)
- PIR Application Guide for TB7600 Series Thermostats (Form No. 63-4525)
- Sensors Product Overview Brochure (Form No. 63-9285) for a complete listing of compatible sensors.

THEORY OF OPERATION

The TB7600 uses a proprietary adaptive logic algorithm to control the space temperature. This algorithm controls the heating/air conditioning system to minimize overshoots while still providing comfort. It provides exceptional accuracy due to its unique PI time proportioning control algorithm, which virtually eliminates temperature offset associated with traditional, differential-based on/off thermostats.

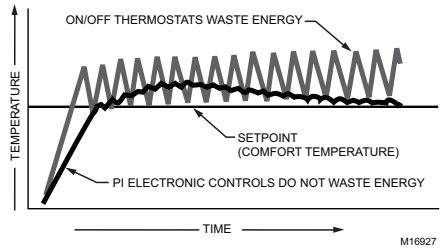


Fig. 1. On/Off mechanical control vs PI electronic control.

INSTALLATION AND WIRING

Mounting Locations

- Do not install on an outside wall.
- Must be installed away from any heat source.
- Should not be installed near an air discharge grill.
- Should not be mounted in direct sun radiation.
- Nothing must restrain vertical air circulation to the thermostat.
- Wall surface must be flat and clean.

IMPORTANT

- If replacing an old thermostat, label the wires before removal of the old thermostat.



CAUTION

Electronic controls are static sensitive devices. Discharge yourself properly before manipulation and installing the thermostat.

Short circuit or wrong wiring may permanently damage the thermostat or the equipment.

Anti-short cycling can be set to 0 minutes for equipment that has an anti-cycling timer. Do not set to 0 unless the equipment has an internal anti-cycling timer or damage to equipment can occur.

All TB7600 Series thermostats are to be used only as operating controls. Whenever a control failure could lead to personal injury and/or loss of property, it becomes the responsibility of the user to add safety devices and/or alarm system to protect against such catastrophic failures.

Thermostat Installation

1. Open up by pulling on the bottom side of thermostat.
(Fig. 2)
2. Remove wiring terminals.
3. Open the thermostat PCB to the left by pressing the PCB retaining tabs. (Fig. 3).
4. Pull cables 6 inches out of the wall.
5. Thread cable through the central hole of the base.
6. Align the base and mark the location of the two mounting holes on the wall. Install proper side of base up.
7. Install anchors in the wall.
8. Insert screws through the mounting holes on each side of the base and mount base on wall. (Fig. 3).
9. Gently swing back the circuit board back to the base and push on it until the tabs lock it in place.
10. Strip each wire 1/4 inch.
11. Wire the terminals. See Table 2 for terminal descriptions and wiring diagram.
12. Gently push back excess cable into hole.
13. Install wiring terminals in correct location (Fig. 4)
14. Reinstall the cover (top first).
15. Install security screw on the bottom, center of the thermostat cover.

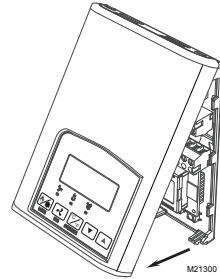


Fig. 2. Remove cover of thermostat

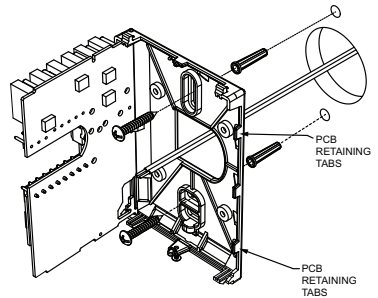


Fig. 3. Location of PCB retaining tabs and mounting screws

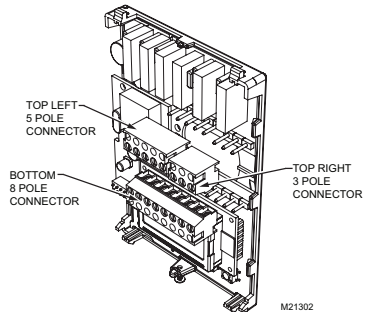


Fig. 4. Terminal blocks

Wiring identification and Screw Terminal Arrangement

Table 2. Terminal identification

Product Number	TB7657B5x14(X)	TB7607B5x14(X)
Programmable	Yes	No
Top left terminal block		
1- Cool Stage 2	Y2	Y2
2- Cool Stage 1	Y1	Y1
3- Fan	G	G
4- 24 V - Hot	RC	RC
5- 24 V - Com	C	C
Top right terminal block		
6- RH	RH	RH
7- Heat Stage 1	W1	W1
8- Heat Stage 2	W2	W2
Bottom terminal block		
9- Humid	HUM	HUM
10- Auxiliary Output	AUX	AUX
11- Dehumid Output	DEHUM	DEHUM
12- Digital Input	DI	DI
13- Remote Humid Sensor	HS	HS
14- Scom	SCOM	SCOM
15- Remote Outdoor Sensor	OS	OS
16- High Limit Humid Sensor	HL	HL

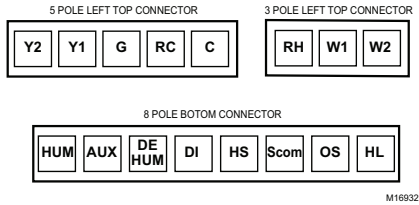


Fig. 5. Screw terminal arrangement

NOTES:

- If auxiliary output is used to toggle occupancy of the electronic control card inside the equipment, configure the relay parameter (**Aux cont**) to the N.O. setting. A second relay can be added for additional functionality of the occupancy output.
- If the same power source is used for the heating stages, install jumper across RC and RH. Maximum current is 2.0 amps.
- Humidifier output uses a half bridge rectifier. Reference of the control signal is the common of the power supply of the thermostat (terminal C).
- Electromechanical contacts are to be used with the digital input. Electronic triacs cannot be used as mean of switching for the input. The switched leg to the input for the input to activate is terminal C (common)
- The transformer of the unit provides power to the thermostat and the additional loads that will be wired to the thermostat.

Detailed wiring diagrams for selected models

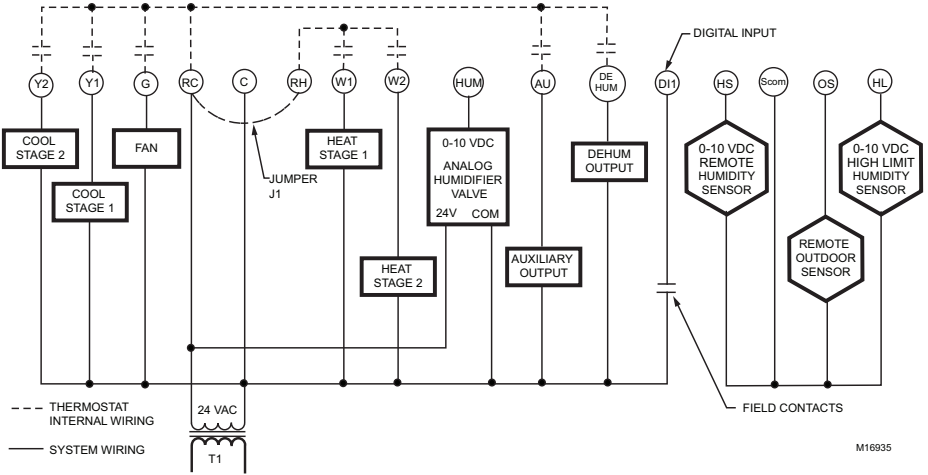


Fig. 6. TB76x7B5x14(X) 2 Heat/2 Cool/Humidifier and Dehumidifier Outputs/ Programmable and Non-Programmable

Remote humidity sensor compatibility and wiring

Room humidity sensor with 0-10 Vdc output.
 Outdoor humidity sensor, selectable 4-20 mA, 0-10 Vdc, or 0-5 Vdc output.

Table 3. Temperature vs Resistance for 10 Kohm NTC thermistor ($R_{25^{\circ}C} = 10K\Omega \pm 3\%$, $B_{25/85^{\circ}C} = 3975K \pm 1.5\%$)

°F	°C	Kohm	°F	°C	Kohm	°F	°C	Kohm	°F	°C	Kohm	°F	°C	Kohm
-40	-40	324.3197	-4	-20	94.5149	32	0	32.1910	68	20	12.4601	104	40	5.3467
-31	-35	234.4009	5	-15	71.2430	41	5	25.1119	77	25	10.0000	113	45	4.3881
-22	-30	171.3474	14	-10	54.1988	50	10	19.7390	86	30	8.0694	122	50	3.6202
-13	-25	126.6109	23	-5	41.5956	59	15	15.6286	95	35	6.5499	131	55	3.0016

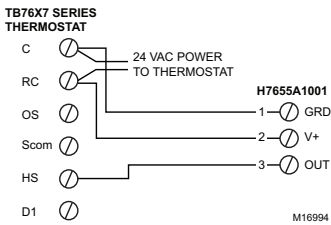


Fig. 7. Wiring example of remote room humidity sensor

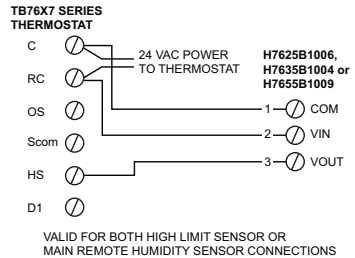


Fig. 8. Wiring example of duct humidity sensor

H7655A1001 is a remote wall mounted room humidity sensor. This sensor can be used for remote return or room air humidity sensing with the sensor mounted on the wall.

H7625B1006, H7635B1004 or H7655B1009 are duct humidity sensors* These sensors can be used for:

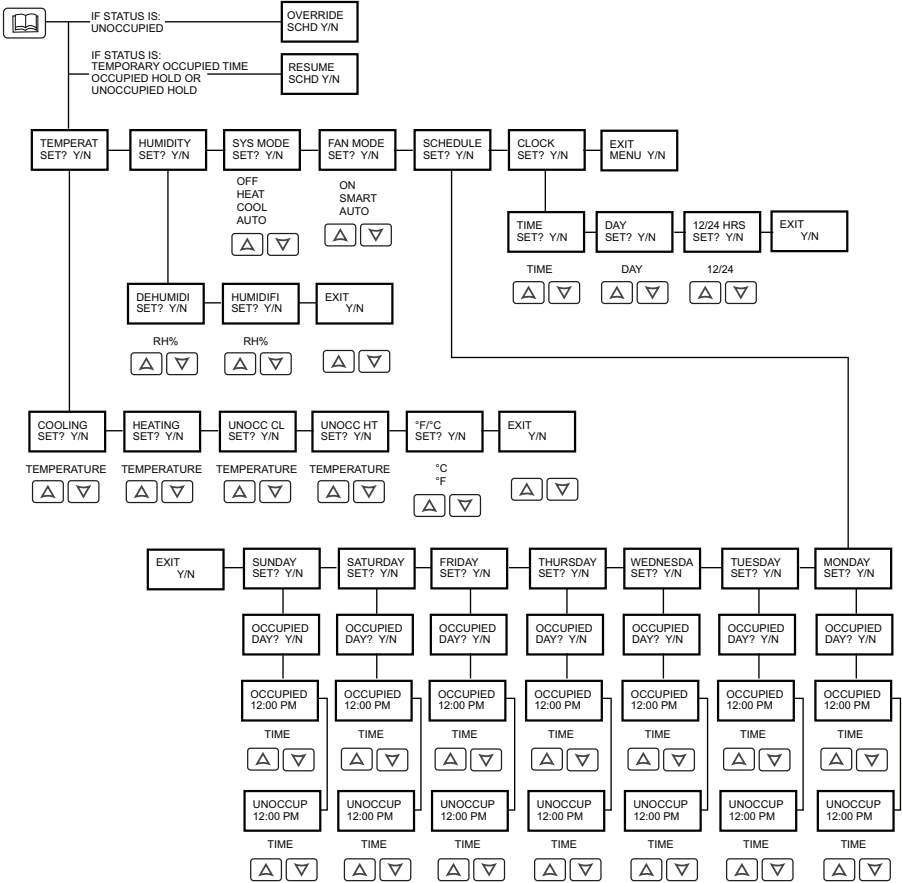
- Remote return air humidity sensing with the sensor mounted on the return air duct.
- Supply air humidity sensor used as a high limit protection.

*Onboard temperature sensor is not compatible with the TB7600 Series thermostat.

THERMOSTAT USER INTERFACE

User menu flow chart

NOTE: Prompts may not all be present depending on model selected



M16936

Status display

The thermostat features a two-line, eight-character display. There is a low-level backlit level that is always active and can only be seen at night. To turn on the back light to high level, press any key on the front panel. The back lit display will return to low level when the thermostat is left unattended for 45 seconds.

When left unattended, the thermostat has an auto scrolling display that shows the actual status of the system. Use the **MenuScro** in the configuration menu to lockout the scrolling display and to only present the room temperature and conditional outdoor temperature to the user. With this option enabled, no local status is given on the system mode or occupancy.

Each item is scrolled one by one with the back lighting in low level mode. Pressing any key will cause the back light to come on to high level. When left unattended for 10 seconds after changes are made, the display will resume automatic status display scrolling.

Table 4. Sequence and possible display options for the auto-scroll display

Room Temp and Humidity >	Clock status >	System mode >	Schedule status >	Outdoor Temp* >	Alarms
x.x °C or °F xx % RH** RoomTemp x.x °C or °F***	Monday 12.00 AM	Sys mode auto Sys mode off Sys mode heat Sys mode cool	Occupied Occupied hold Unoccup Unoccup hold Override	Outdoor x.x °C or °F	Service Frost ON SetClock Filter Fan lock

* Network value only
 **If humidity display is enabled
 ***If humidity display is not enabled

Manual scroll of each menu item is achieved by pressing the **Yes** (scroll) key repetitively. The last item viewed will be shown on the display for 30 seconds before returning to automatic scrolling. Temperature is automatically updated when scrolling is held.

Outdoor air temperature display is only enabled when outdoor air temperature sensor is connected or a network value is received.

A maximum range status display of 122 F (50 C) indicates a shorted sensor. Associated functions, such as mode lockouts are automatically disabled. A minimum range status -40 F (-40 C) is not displayed and indicates a opened sensor or a sensor not connected. Associated functions, such as mode lockouts are automatically disabled.

If alarms are detected, they will automatically be displayed at the end of the status display scroll. During an alarm message display, the backlit screen will light up at the same time as the message and shut off during the rest of the status display. Two alarms maximum can appear at any given time. The priority for the alarms is as follows:

- **Frost ON:** Indicates that the heating is energized by the low limit frost protection room temperature setpoint 42 F (5.6 C).
- **SetClock:** Indicates that the clock needs to be reset. There has been a power failure which has lasted longer than 6 hours.
- **Service:** Indicates that there is a service alarm as per one of the programmable digital inputs (DI1 or DI2).
- **Filter:** Indicates that the filters are dirty as per one of the programmable digital inputs (DI1 or DI2).
- **Fan lock:** Indicates that the heating and cooling action are locked out due to a defective fan operation.

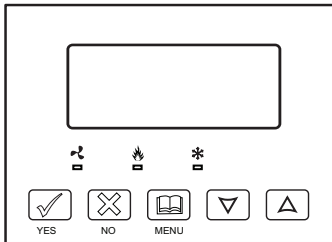


Fig. 9. TB7657 and TB7607 cover

Three status LEDs on the thermostat cover are used to indicate the status of the fan, a call for heat, or a call for cooling as shown in Fig. 9.

- When the fan is on, the FAN LED will illuminate.
- When heating is on, the HEAT LED will illuminate.
- When cooling is on, the COOL LED will illuminate.

User control options






The TB7600 Series thermostats feature an intuitive, menu-driven, backlit LCD display that walks users through the programming steps, making the programming process extremely simple. This menu is typically accessed by the user to set the parameters such as temperature and time events, system mode, fan mode, etc.

It is possible to bring up the user menu at any time by depressing the MENU key. The status display automatically resumes after exiting the user-programming menu.

If the user pauses at any given time during programming, Auto Help text is displayed to help and guide the user through the usage and programming of the thermostat.

User options are accessed and programmed using 5 keys on the thermostat cover and are described in Table 5.

Table 5. User Control with Thermostat Keys

 M16911	The YES key is used to confirm a selection, to move onto the next menu item and to manually scroll through the displayed information.
 M16912	The NO key is used when you do not desire a parameter change, and to advance to the next menu item. Can also be used to toggle between heating and cooling setpoints.
 M16913	The MENU key is used to access the Main User Menu or exit the menu.
 M16914	The down arrow key is used to decrease temperature setpoint and to adjust the desired values when programming and configuring the thermostat.
 M16915	The up arrow key is used to increase temperature setpoint and to adjust the desired values when programming and configuring the thermostat.

When left unattended for 45 seconds, the display will resume automatic status display scrolling.

Table 6. Sequence of user menu

Override Resume	Temperature setpoints	Humidity setpoints	System mode setting	Fan mode setting	Schedules setting	Clock setting
Override schd Y/N**	Temperat set Y/N	Humidity set Y/N	Sys mode set Y/N	Fan mode set Y/N	Schedule set Y/N	Clock set Y/N
Cancel ovrd Y/N***						

**Appears only in unoccupied mode

***Appears only in override mode

There is a default profile set in the thermostat from the factory. This enables the thermostat to operate as a non-programmable unit in day mode operation at start up.

Programmed default temperature and humidity setpoints:

- Occupied cooling setpoint = 24 C (75 F)
- Occupied heating setpoint = 22 C (72 F)
- Unoccupied cooling setpoint = 28 C (82 F)
- Unoccupied heating setpoint = 18 C (65 F)
- Dehumidification setpoint = 70% RH
- Humidification setpoint = 50% RH
- Fahrenheit scale
- Setpoint type = permanent

Programmed default modes:

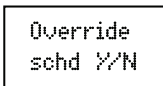
- System mode = Auto
- Fan mode = Smart (for models with a communication module or programmable stand-alone models)
- Fan mode = Auto (for non-programmable stand-alone models)

Programmed default schedules:

- Monday through Sunday
- Occupied time is: 12:00 AM
- Unoccupied time is: 11:59 PM
- Unoccupied time is: 11:59 PM

There will be a 1 minute unoccupied period every night at 11:59 PM with this default configuration.

VERRIDE AN UNOCCUPIED PERIOD



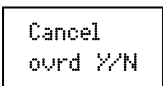
M16937

This menu will appear only when the thermostat is in unoccupied mode. The unoccupied mode is enabled either by the internal timer scheduling or by a remote NSB contact via DI.

If DI is configured to operate as a remote temporary override contact, this menu will be disabled.

Answering yes to this prompt will cause the thermostat to go into occupied mode for an amount of time equal to the parameter **TOccTime** (1 to 12 hours).

RESUME REGULAR SCHEDULING

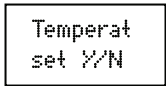


M16938

This menu does not appear in regular operation. It will appear only when the thermostat is in Unoccupied override mode.

Answering **Yes** to this question will cause the thermostat to resume the regular programmed setpoints and scheduling.

TEMPERATURE SETPOINTS



M16939

Permanent setpoint changes

This menu permits the adjustment of all permanent temperature setpoints (occupied and unoccupied) as well as the desired temperature units (°F or °C). Permanent setpoints are written to RAM and EEPROM

Cooling setpoint Occupied mode		Heating setpoint Occupied mode		Cooling setpoint Unoccupied mode		Heating setpoint Unoccupied mode		°F or °C display setting	
Cooling set? Y/N	No next → Yes down ↓	Heating set? Y/N	No next → Yes down ↓	Unocc CL set? Y/N	No next → Yes down ↓	Unocc HT set? Y/N	No next → Yes down ↓	F or C set? Y/N	No next → Yes down ↓
Use ▲ ▼ keys to set value, Yes key to confirm									
Cooling 70.0 F	Use ▲ ▼ To set value	Heating 68.00 F	Use ▲ ▼ To set value	Unocc CL 80.0 F	Use ▲ ▼ To set value	Unocc HT 60.0 F	Use ▲ ▼ To set value	Units F	Use ▲ ▼ To set value

Temporary setpoint changes

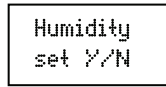
Temporary setpoints can be modified through the Up arrow key (▲) and the Down arrow keys (▼).

User will be prompted with the present mode (Heating or Cooling) of the thermostat and its setpoint. The Up (▲) arrow key will increment the setpoint by 0.5 degree (F or C). The Down (▼) arrow key will decrement the setpoint by 0.5 degree (F or C). Press the **Yes** key to accept the new setpoint.

Local changes to the heating or cooling setpoints made by the user directly using the up or down arrow are temporary. They will remain effective for the duration specified by **ToccTime**. Setpoints will revert back to their default value after internal timer **ToccTime** expires.

If a permanent change to the setpoints is required, use the **Temperat set ?** menu

HUMIDITY SETPOINTS



M16962

This menu permits the adjustment of humidification and dehumidification setpoints.

Dehumidification setpoint		Humidification setpoint	
Dehumidi set? Y/N	No next → Yes down ↓	Humidifi set? Y/N	No next → Yes down ↓
Use ▲ ▼ keys to set value, Yes key to confirm			
Dehumidi 70 %	Use ▲ ▼ To set value	Humidifi 50 %	Use ▲ ▼ To set value

To prevent overlap, a minimum fixed deadband of 5% RH will always prevail between the humidification and dehumidification setpoints. For example, if the humidification setpoint is 50% RH and the dehumidification setpoint is changed from 70% RH to 45% RH, the humidification setpoint will be modified to 45% RH by the thermostat.

Humidification process

Humidification process will only be allowed when the thermostat is in heating mode (System Mode = Heat or System Mode = Auto and effective mode at the thermostat is heat). If there is a humidification demand and the fan is OFF, the fan is first turned ON and the humidifier output is then activated.

Other than having the RH setpoint, the following events can stop the humidification process at any time: RH sensor is out of range, System Mode is switched to Off or Cool and the System Mode = Auto but the room's effective mode changes from Heat to Cool

Dehumidification process

If **Dehumidification Lockout (Dhu LCK) Functions** is set to **On** (Enabled), the dehumidification process will only be allowed when the thermostat is in cooling mode (System Mode = Cool or System Mode = Auto and effective mode at the thermostat is cool). If there is a dehumidification demand and the fan is OFF, the fan is first turned ON and the dehumidification output is then activated.

Other than reaching the dehumidification setpoint, the following events can stop the dehumidification process at any time:

- RH sensor is out of range
- System Mode is switched to **Off**, Heat or System Mode = **Auto** and effective mode at the thermostat is **Heat**
- The room temp drops below the cooling setpoint minus the deadband value
- The Outside air temp is below the **Dhu OALK** parameter

If **Dehumidification Lockout (Dhu LCK) Functions** is set to **Off** (Disabled), the Dehumidification process is allowed when the thermostat operates in all system modes except Off. If there is a dehumidification demand. If the fan is OFF, the fan is first turned ON and the dehumidification output is then activated.

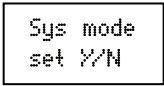
Other than reaching the dehumidification setpoint, the following events can stop the dehumidification process at any time:

- RH sensor is out of range
- System Mode is switched to **Off**
- The Outside air temp is below the **Dhu OALK** parameter

There is NO active temperature lockout protection in this mode. If the dehumidification process causes the room temperature to rise or fall, the thermostat will react by either activating the cooling or heating outputs based on its current system mode settings.

SYSTEM MODE SETTING

This menu is accessed to set system mode operation. Use ▲ ▼ to set value, **Yes** key to confirm

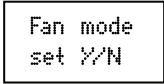


M16940

- **Sys mode auto:** Automatic changeover mode between heating and cooling operation
- **Sys mode cooling:** Cooling operation mode only
- **Sys mode heating:** Heating operation mode only
- **Sys mode off:** Normal cooling or heating operation disabled. If enabled in installer parameters, only the automatic heating frost protection at 42 F (5.6 C) is enabled

FAN MODE SETTING

This section of the menu is permits the setting of the fan mode operation. Use ▲ ▼ to set value, **Yes** key to confirm



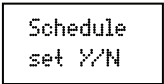
M16941

- **Fan mode On:** Fan is on continuously, even when system mode is OFF.
- **Fan mode Auto:** Fan cycles on a call for heating or cooling for both occupied and unoccupied periods.
- **Fan mode Smart:** During occupied periods, fan is on continuously. In unoccupied mode, fan cycles on a call for heating or cooling.

This selection is available on all models with a communication module, on all stand-alone programmable models or if DI1 or DI2 is set to RemNSB on stand-alone non-programmable models

SCHEDULE SET (2 OR 4 EVENTS)

The scheduling option at the thermostat can only be used if the thermostat is not connected to the WEBS-AX building control network. Once the thermostat is connected to the network, all scheduling should be done through the WEBS-AX Workbench/Supervisor. Schedules set through the network cannot be viewed on the thermostat. Thermostats with local scheduling can have 2 or 4 events per day. Whether 2 or 4 events per day are allowed is set in the configuration parameter 2/4 event.



M16942

If set for 2 events, the user can set two events per day, establishing occupied and unoccupied times. If set for 4 events, the user can set four events per day, establishing occupied and unoccupied times. Each day can be tailored to specific schedules if needed.

NOTE:12:00 PM = Noon

2 Event Schedule Setup and Examples

Table 7. Set 2 Events Per Day Menu Navigation

Monday timer Schedule set		Tuesday timer Schedule set		Wednesday timer Schedule set		Other days are identical
Monday set? Y/N	No next → Yes down ↓	Tuesday set? Y/N	No next → Yes down ↓	Wednesday set? Y/N	No next → Yes down ↓	Selects the day to be programmed or modified
Yes key to access day scheduling, No key to jump to next day						
Occupied Day? Y/N	No next → Yes down ↓	Occupied Day? Y/N	No next → Yes down ↓	Occupied Day? Y/N	No next → Yes down ↓	Yes = Daily schedules will be accessed No = Unoccupied mode all day
Yes key to access day scheduling, No key to jump to next day						
		Copy Y/N Previous	No next → Yes down ↓	Copy Y/N Previous	No next → Yes down ↓	Yes = Will copy previous day schedule No = Daily schedules will be accessed
Yes key to copy previous day, No key to set new time value for each day						
Occupied 00:00 AM	Use ▲ ▼ To set value	Occupied 00:00 AM	Use ▲ ▼ To set value	Occupied 00:00 AM	Use ▲ ▼ To set value	Sets Event # 1 Occupied time Will activate occupied setpoints
Use ▲ ▼ to set value, Yes key to confirm						
Unoccup 00:00 AM	Use ▲ ▼ To set value	Unoccup 00:00 AM	Use ▲ ▼ To set value	Unoccup 00:00 AM	Use ▲ ▼ To set value	Sets Event # 2 Unoccupied time Will activate unoccupied setpoints
Use ▲ ▼ to set value, Yes key to confirm						

Table 8. Example 1 - Office building closed all weekend

Event	Period #1 - Event #1		Period #1 - Event #2		Daily Occupancy
	Occupied		Unoccupied		
	Cool	Heat	Cool	Heat	
Setpoint	72 F	70 F	80 F	62 F	
Monday	7.00 AM		6.00 PM		Day time only
Tuesday	7.00 AM		6.00 PM		Day time only
Wednesday	7.00 AM		6.00 PM		Day time only
Thursday	7.00 AM		6.00 PM		Day time only
Friday	7.00 AM		6.00 PM		Day time only
Saturday	12.00 PM *		12.00 PM *		Unoccupied
Sunday	12.00 PM *		12.00 PM *		Unoccupied

* Programming consecutive events to the same time will cause the thermostat to choose the last event as the time at which it will set its schedule. In the above example, the thermostat will control to the unoccupied set point until 7:00 AM Monday.

Table 9. Example 2 - Commercial building that is occupied all weekend

Event	Period #1 - Event #1		Period #1 - Event #2		Daily Occupancy
	Occupied		Unoccupied		
	Cool	Heat	Cool	Heat	
Setpoint	72 F	70 F	80 F	62 F	
Monday	8.00 AM		5.00 PM		Day time only
Tuesday	8.00 AM		5.00 PM		Day time only
Wednesday	8.00 AM		5.00 PM		Day time only
Thursday	8.00 AM		5.00 PM		Day time only
Friday	8.00 AM		5.00 PM		Day time only
Saturday	12.00 AM **		11.59 PM **		Occupied
Sunday	12.00 AM **		11.59 PM **		Occupied

**To program a day as occupied for 24 hours, set that day Occupied time to 12:00 AM and Unoccupied time to 11:59 PM There will be a 1 minute unoccupied period every night at 11:59 PM with this schedule configuration.

4 Event Schedule Setup and Examples

Table 10. Set 4 Events Per Day Menu Navigation

Monday timer Schedule set		Tuesday timer Schedule set		Wednesday timer Schedule set		Other days are identical	
Monday set? Y/N	No next → Yes down ↓	Tuesday set? Y/N	No next → Yes down ↓	Wednesday set? Y/N	No next → Yes down ↓	Selects the day to be programmed or modified	
Yes key to access day scheduling, No key to jump to next day							
Occupied Day? Y/N	No next → Yes down ↓	Occupied Day? Y/N	No next → Yes down ↓	Occupied Day? Y/N	No next → Yes down ↓	Yes = Daily schedules will be accessed No = Unoccupied mode all day	
Yes key to access day scheduling, No key to jump to next day							
	Copy Y/N Previous	Yes next → No down ↓	COPY Y/N PREVIOUS	Yes next → No down ↓	Yes = Will copy previous day schedule No = Daily schedules will be accessed		
Yes key to copy previous day, No key to set new time value for each day							
Occupied 00:00 AM	Use ▲ ▼ To set value	Occupied 00:00 AM	Use ▲ ▼ To set value	Occupied 00:00 AM	Use ▲ ▼ To set value	Sets Event # 1 Occupied time Will activate occupied setpoints	
Use ▲ ▼ to set value, Yes key to confirm							
Unoccup 00:00 AM	Use ▲ ▼ To set value	Unoccup 00:00 AM	Use ▲ ▼ To set value	Unoccup 00:00 AM	Use ▲ ▼ To set value	Sets Event # 2 Unoccupied time Will activate unoccupied setpoints	
Use ▲ ▼ to set value, Yes key to confirm							
Occupie2 00:00 AM	Use ▲ ▼ To set value	Occupie2 00:00 AM	Use ▲ ▼ To set value	Occupie2 00:00 AM	Use ▲ ▼ To set value	Sets Event # 3 Occupied time Will activate occupied setpoints	
Use ▲ ▼ to set value, Yes key to confirm							
Unoccup2 00:00 AM	Use ▲ ▼ To set value	Unoccup2 00:00 AM	Use ▲ ▼ To set value	Unoccup2 00:00 AM	Use ▲ ▼ To set value	Sets Event # 4 Unoccupied time Will activate unoccupied setpoints	
Use ▲ ▼ to set value, Yes key to confirm							

Table 11. Example 1 - Four event retail establishment schedule

Event Setpoint	Period 1 - Event 1		Period 1 - Event 2		Period 2 - Event 3		Period 2 - Event 4		Daily Occupancy
	Occupied		Unoccupied		Occupied		Unoccupied		
	Cool 72 F	Heat 70 F	Cool 80 F	Heat 62 F	Cool 72 F	Heat 70 F	Cool 80 F	Heat 62 F	
Monday	7.00 AM		5.00 PM		12.00 PM *		12.00 PM *		Day time only
Tuesday	7.00 AM		5.00 PM		12.00 PM *		12.00 PM *		Day time only
Wednesday	7.00 AM		5.00 PM		12.00 PM *		12.00 PM *		Day time only
Thursday	7.00 AM		5.00 PM		7.00 PM		10.30 PM		Day/evening time only
Friday	7.00 AM		5.00 PM		7.00 PM		10.30 PM		Day/evening time only
Saturday	12.00 PM *		12.00 PM *		12.00 PM *		12.00 PM *		Unoccupied
Sunday	12.00 PM *		12.00 PM *		12.00 PM *		12.00 PM *		Unoccupied

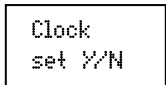
* Programming events to the same time will cancel the last period and leave the thermostat in unoccupied mode

Table 12. Example 2 - Residential

Event	Period 1 - Event 1		Period 1 - Event 2		Period 2 - Event 3		Period 2 - Event 4		Daily Occupancy
	Occupied		Unoccupied		Occupied		Unoccupied		
	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat	
Setpoint	72 F	70 F	80 F	62 F	72 F	70 F	80 F	62 F	
Monday	6:00 AM		8:00 AM		4:00 PM		10:00 PM		Day/evening time only
Tuesday	6:00 AM		8:00 AM		4:00 PM		10:00 PM		Day/evening time only
Wednesday	6:00 AM		8:00 AM		4:00 PM		10:00 PM		Day/evening time only
Thursday	6:00 AM		8:00 AM		4:00 PM		10:00 PM		Day/evening time only
Friday	6:00 AM		8:00 AM		4:00 PM		11:30 PM		Day/evening time only
Saturday	8:00 AM *		8:00 AM *		8:00 AM *		11:59 PM *		Day time only
Sunday	12:00 AM *		12:00 AM *		12:00 AM *		11:59 PM *		Occupied all day

* Programming consecutive events to the same time will cause the thermostat to choose the last event as the time at which it will set its schedule. In the above example for Saturday, the thermostat will control to the occupied set point from 8:00 AM until 11:59 PM. Since it is desired to be in occupied mode throughout the night, then it is necessary to program the first event on Sunday at 12:00 AM. The thermostat will force a one minute unoccupied period for a one minute period (between 11:59 PM and 12:00 AM on Saturday).

CLOCK/DAY SETTINGS



This section of the menu permits the user to set the time and day. This option is only available on programmable models.

M16943

Time setting		Day setting		Time format setting	
Time set? Y/N	No next → Yes down ↓	Day set? Y/N	No next → Yes down ↓	12/24hrs set? Y/N	No = exit Yes down ↓
Time 0:00	Use ▲ ▼ To set value	Day Monday	Use ▲ ▼ To set value	12/24hrs 12 hrs	Use ▲ ▼ To set value

INSTALLER CONFIGURATION PARAMETER MENU

This section describes the parameters available for TB7600 Series thermostat configuration. The TB7600 Series can be programmed at the thermostat or through WEBStation-AX, with the following exception: Wireless models must have the **Com Addr**, **PAN ID**, and **Channel** set at the thermostat before adding to the wireless network or doing any programming in WEBStation-AX.

To program the thermostat through WEBStation-AX, refer to the BACnet Integration Reference Guide for BACnet models (Form No. 63-4524) or the Wireless Installation and Integration Reference Guide for TB7200, TB7300, TB7600 Thermostats (Form No. 63-4522) for wireless models.

Local configuration:

1. To enter configuration, press and hold the middle button **Menu** for 8 seconds
2. If a password lockout is active, **Password** is prompted. Enter password value using the **▲** and **▼** arrows and press **Yes** to gain access to all configuration properties of the thermostat. A wrong password entered will prevent local access to the configuration menu.
3. Once in the configuration menu, press the **No** button repetitively to scroll between all the available parameters.
4. When the desired parameter is displayed, press **Yes** to adjust it to the desired value using **▲** and **▼** arrows. Once set, press **Yes** to scroll to the next parameter.

Table 13. Configuration Parameters

Configuration parameters	Significance Default value	Adjustments
Pswrd	Configuration parameters menu access password Default value = 0 (no password prompted) Range is: 0 to 1000	This parameter sets a protective access password to prevent unauthorized access to the configuration menu parameters. A default value of "0" will not prompt a password or lock the access to the configuration menu.
Com addr	Thermostat networking address Default value = 254 Range is: 0 to 254	If the thermostat is installed as a stand-alone unit, this parameter will not be used or displayed For BACnet models valid range to use is from 0 to 127. Default value of 254 disables BACnet communication for the thermostat. For wireless models valid range is 0 to 254 with a maximum of 30 thermostats per WEB-2xx controller and 50 thermostats per WEB-6xx/-7xx controller.
PAN ID	Personal Area Network Identification Default value = 0 Range is: 0 to 500	Conditional parameter to wireless models (TB76xxX5x14W) This parameter will only appear on wireless thermostats. If the thermostat is BACnet, this parameter will not be used or displayed. This parameter (Personal Area Network Identification) is used to link specific thermostats to a single specific WEBs controller with a wireless communication card (TB-VWG-APP-1014). For every thermostat reporting to a WEBs controller and wireless communication card (maximum of 30 thermostats per WEB-2xx controller and 50 thermostats per WEB-6xx/-7xx controller) be sure you set the SAME PAN ID value both at the wireless communication card and the thermostat(s). The default value of 0 is NOT a valid PAN ID. The valid range of available PAN ID is from 1 to 500
Channel	Channel selection Default value = 10 Set to: 15 or 25 Range is: 10 to 26	Conditional parameter to wireless models (TB76xxX5x14W) This parameter will only appear when a wireless network adapter is present. If the thermostat is installed as a stand-alone unit or is a BACnet model, this parameter will not be used or displayed. This parameter (Channel) is used to link specific thermostats to a specific WEBs controller with a wireless communication card. For every thermostat reporting to a gateway (maximum of 30 thermostats per WEB-2xx controller and 50 thermostats per WEB-6xx/-7xx controller) be sure you set the SAME channel value both at the wireless communication card and the thermostat(s). Honeywell recommends using only the channels 15 (2425 MHz) or 25 (2575 MHz). The default value of 10 is NOT a valid channel. Although the valid range of available channels is from 11 to 26 use only channel 15 or 25 to avoid interference with other wireless devices.

Table 13. Configuration Parameters (Continued)

Configuration parameters	Significance Default value	Adjustments
%RH disp	Local RH Display Default value = Off	Enables the display of humidity below the room temperature on the display. On = Display %RH Off = No display of %RH
Get From	Get From another thermostat configuration utility Default value = 255 Range is: 0 to 254	Conditional parameter to wireless models (TB76xxX5x14W) This parameter is only available for wireless thermostats. This parameter lets you to copy the configuration parameter settings from a like Honeywell TB7200 thermostat. To use this command, the thermostat you want to copy parameters from must be on the wireless network with a network address (Com addr) and must be the same model number as the thermostat you want to copy to. On the thermostat you want to copy parameters to, enter the network address (Com addr) of the thermostat you want to copy parameters from. This process can be completed locally at the thermostat or using the WEBStation-AX. If the parameters copy successfully, the Get From address returns to 255 . If the parameters do not copy successfully, 254 is displayed. If the copy was not successful, verify the following: <ul style="list-style-type: none"> The thermostat to be copied is the same model as the one being copied to. The thermostat to be copied is on the network. The correct network address (Com addr) value for the thermostat to be copied was entered. Leaving the Get From parameter value at 255 means that configuration parameters will be set manually.
DI	Digital input no.1 configuration Open contact input = function not energized Closed contact input = function energized Default value = None	None - No function will be associated with the input. Rem NSB - remote NSB timer clock input. Will disable the internal scheduling of the thermostat. The scheduling will now be set as per the digital input. The time is still displayed as information, but the menu part related to scheduling is disabled and no longer accessible. <ul style="list-style-type: none"> Open contact = occupied setpoints. Closed contacts = unoccupied setpoints. RemOVR - Temporary override remote contact. Disables all override menu function of the thermostat. The override function is now controlled by a manual remote momentarily closed contact. When configured in this mode, the input operates in a toggle mode. With this function enabled it is now possible to toggle between unoccupied and occupied setpoints for the amount of time set by parameter (TOccTime) temporary occupancy time. When Override is enabled, an Override status message will be displayed. Filter - a back-lit flashing Filter alarm will be displayed on the thermostat LCD screen when the input is energized. Service - a back-lit flashing Service alarm will be displayed on the thermostat LCD screen when the input is energized. Fan lock - a back-lit flashing Fan lock alarm will be displayed on the thermostat LCD screen when the input is not energized. Used in conjunction with a local airflow sensor connected to the input. Locks out the thermostat heating and cooling action if no airflow is detected 10 seconds after the fan (G terminal) is energized. <ul style="list-style-type: none"> Open contact = no airflow. Closed contacts = airflow present.
MenuScro	Menu scroll Default value = On = Scroll active	Removes the scrolling display and only presents the room temperature to the user. With this option enabled, no status is given of mode, schedule and outdoor temperature. Outdoor temperature only displays if a network variable is received. On = Scroll active Off = Scroll not active
Lockout	Keypad lockout levels Default value = 0 No lock	0 = No lock 1 = Low level 2 = High level See Table 14 for Lockout level details

Table 13. Configuration Parameters (Continued)



Configuration parameters		Significance Default value		Adjustments																													
Table 14. Keypad Lockout Levels																																	
Level	Resume/ Override scheduling	Permanent Occupied and Unoccupied Setpoints	Temporary setpoints using arrows	Humidity Setpoints	System mode setting	Fan mode setting	Schedules setting	Clock setting	Permanent hold																								
	Resume sched Y/N	Temperat set Y/N	Up key (▲) Down key (▼)	Humidity set Y/N	Sys mode set Y/N	Fan mode set Y/N	Schedule set Y/N	Clock set Y/N	Schedule hold Y/N																								
0	Yes access	Yes access	Yes access	Yes access	Yes access	Yes access	Yes access	Yes access	Yes access																								
1	Yes access	No access	Yes access	No Access	No access	No access	No access	Yes access	No access																								
2	No access	No access	No access	No Access	No access	No access	No access	Yes access	No access																								
Pwr del		Power-up delay Default value = 10 seconds		On initial power up of the thermostat (each time 24 Vac power supply is removed and re-applied) there is a delay before any operation is authorized (fan, cooling or heating). This can be used to sequence start up multiple units/thermostats in one location. 10 to 120 seconds																													
Frost pr		Frost protection enabled Default value = Off On heat pump models the system mode will be forced to EMERGENCY mode if frost protection is activated.		Off: no room frost protection. On: room frost protection enabled in all system mode at: 42 F (5.6 C). Frost protection is enabled even in system Off mode. Off or On																													
Heat max		Maximum heating setpoint limit Default value = 90 F (32 C)		Maximum occupied and unoccupied heating setpoint adjustment. Heating setpoint range is: 40 to 90 F (4.5 to 32.0 C).																													
Cool min		Minimum cooling setpoint limit Default value = 54 F (12 C)		Minimum occupied and unoccupied cooling setpoint adjustment. Cooling setpoint range is: 54 to 100 F (12.0 to 37.5 C)																													
Pband		Proportional Band setting Default value = 2.0 F (0.6 C)		Adjust the proportional band used by the thermostat PI control loop.  CAUTION Please note that the default value of 2.0 F (0.6 C) gives satisfactory operation in most normal installation cases. The use of a superior proportional band different than the factory one is normally warranted in applications where the thermostat location is problematic and leads to unwanted cycling of the unit. A typical example is a wall mounted unit where the thermostat is installed between the return and supply air feeds and is directly influenced by the supply air stream of the unit.																													
				<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Value</th> <th>F scale Pband</th> <th>C scale Pband</th> </tr> </thead> <tbody> <tr><td>2</td><td>2 F</td><td>1.1 C</td></tr> <tr><td>3</td><td>3 F</td><td>1.7 C</td></tr> <tr><td>4</td><td>4 F</td><td>2.2 C</td></tr> <tr><td>5</td><td>5 F</td><td>2.8 C</td></tr> <tr><td>6</td><td>6 F</td><td>3.3 C</td></tr> <tr><td>7</td><td>7 F</td><td>3.9 C</td></tr> <tr><td>8</td><td>8 F</td><td>4.4 C</td></tr> </tbody> </table>						Value	F scale Pband	C scale Pband	2	2 F	1.1 C	3	3 F	1.7 C	4	4 F	2.2 C	5	5 F	2.8 C	6	6 F	3.3 C	7	7 F	3.9 C	8	8 F	4.4 C
Value	F scale Pband	C scale Pband																															
2	2 F	1.1 C																															
3	3 F	1.7 C																															
4	4 F	2.2 C																															
5	5 F	2.8 C																															
6	6 F	3.3 C																															
7	7 F	3.9 C																															
8	8 F	4.4 C																															
Anticycle		Minimum on/off operation time for stages Default value = 2 minutes.		Minimum on/off operation time of cooling and heating stages.  CAUTION Anti-short cycling can be set to 0 minutes for equipment that has an anti cycling timer. Do not set to 0 unless the equipment has internal anti-cycling timer or damage to equipment can occur. 0, 1, 2, 3, 4 and 5 minutes																													

Table 13. Configuration Parameters (Continued)

Configuration parameters	Significance Default value	Adjustments
Heat cph	Heating stages cycles per hour Default value = 4 cph	Will set the maximum number of heating stage cycles per hour under normal control operation. It represents the maximum number of cycles that the equipment will turn ON and OFF in one hour. Note that a higher cph will represent a higher accuracy of control at the expense of wearing mechanical components faster. 3, 4, 5, 6, 7 and 8 cph
Cool cph	Cooling stages cycles per hour Default value = 4 cph	Will set the maximum number of cooling stage cycles per hour under normal control operation. It represents the maximum number of cycles that the equipment will turned on and off in one hour. Note that a higher cph will represent a higher accuracy of control at the expense of wearing mechanical components faster. 3 or 4 cph
Deadband	Minimum deadband Default value = 2.0 F (1.1 C)	Minimum deadband value between the heating and cooling setpoints. If modified, it will be applied only when any of the setpoints are modified. 2, 3 or 4 F (1.0 to 2.0 C)
Fan cont	Fan control Default value = On	Fan control in heating mode. When selecting On ; the thermostat in all cases will always control the fan (terminal G). Valid for On or Auto fan mode. When selecting Off ; the fan (terminal G), when heating stages (terminals W1 and W2) are solicited, will not be energized. The fan in this case will be controlled by the equipment fan limit control. Valid only for Auto fan mode. On fan mode will leave the fan always on. On or Off
Fan del	Fan delay Default value = Off	Fan delay extends fan operation by 60 seconds after the call for heating or cooling ends. Valid only for Auto fan mode. On fan mode will leave the fan always on. Off or On
TOccTime	Temporary occupancy time Default value = 3 hours	Temporary occupancy time with occupied mode setpoints when override function is enabled. When the thermostat is in unoccupied mode, function is enabled with either the menu or DI1 or DI2 configured as remote override input. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 hours
Cal RS	Room air temperature sensor calibration Default value = 0.0 F or C	Offset that can be added/subtracted to actual displayed room temperature. ± 5.0 F (± 2.5 C)
Cal OS	Outside air temperature sensor calibration Default value = 0.0 F or C	Offset that can be added/subtracted to actual displayed outside air temperature. ± 5.0 F (± 2.5 C)
H stage	Number of heating stages. Applicable to 2 stage models only Default value = 2 stages	Will revert the operation of 2 stages thermostat to single stage operation only when the second heating step is not needed. 1 or 2 stages
C stage	Number of cooling stages 2 stages model only Default value = 2 stages	Will revert the operation of 2 stage thermostat to single stage operation only when the second cooling step is not needed. 1 or 2 stages
H lock	Outside air temperature heating lockout Default value = 120 F (49 C)	Disables heating stage operation based on outdoor air temperature. Function will only be enabled if OS (outside air temperature sensor) is connected. From -15 F up to 120 F (-26 C up to 49 C)
C lock	Outside air temperature mechanical cooling lockout. Default value = -40 F (-40 C)	Disables cooling stage operation based on outdoor air temperature. On economizer model, free cooling will not be disabled by this function. Function will only be enabled if OS (outside air temperature sensor) is connected. From -40 F up to 95 F (-40 C up to 35 C)
Unocc TM	Unoccupied Timer value Default 0.5 hours	Time delay between the moment where the thermostat toggles from occupied to unoccupied after the last movement has been detected by the PIR. Range is: 0.5 to 24.0 hours in 0.5 hr increments

Table 13. Configuration Parameters (Continued)

Configuration parameters	Significance Default value	Adjustments									
2/4event	Number of events configuration Default value = 2 event	Available only on models with schedules and for use only when thermostat is not networked. Used only if set up as a standalone, non-networked thermostat. For networked thermostats, schedules should be applied through the WEBS-AX Workbench. 2 events , will set up programming for the following Event 1 is for Occupied setpoints Event 2 is for Unoccupied setpoints 4 events , will set up programming for the following Event 1 is for Occupied setpoints Event 2 is for Unoccupied setpoints Event 3 is for Occupied setpoints Event 4 is for Unoccupied setpoints									
Aux cont	Auxiliary contact configuration Default value = N.O. normally open	This contact can be used to energize peripheral devices such as: lighting equipment, exhaust fans, economizers, etc. This contact will operate in parallel with the internal occupied/unoccupied schedule of the thermostat or the remote NSB contact if DI is used. When the system is in OFF mode , the contact will remain in its unoccupied status independently of the occupied/unoccupied schedule. <table border="1" data-bbox="487 630 951 755"> <thead> <tr> <th>Configured</th> <th>Contact occupied status</th> <th>Contact unoccupied status</th> </tr> </thead> <tbody> <tr> <td>N.O.</td> <td>Closed</td> <td>Opened</td> </tr> <tr> <td>N.C.</td> <td>Opened</td> <td>Closed</td> </tr> </tbody> </table>	Configured	Contact occupied status	Contact unoccupied status	N.O.	Closed	Opened	N.C.	Opened	Closed
Configured	Contact occupied status	Contact unoccupied status									
N.O.	Closed	Opened									
N.C.	Opened	Closed									
Prog rec	Progressive recovery enabled Default value = Off Progressive recovery is automatically disabled if DI is configured as Remote NSB	Available only on models with schedules and for use only when thermostat is not networked. Off , = no progressive recovery The programmed occupied schedule time is the time at which the system will restart. On , = progressive recovery active. The programmed occupied schedule time is the time at which the desired occupied temperature will be attained. The thermostat will automatically optimize the equipment start time. In any case, the latest a system will restart is 10 minutes prior to the occupied period time.									
RH LT	Reset RH lower outside temperature setpoint Default value = -20 F (-29 C)	Minimum outside air temperature for RH setpoint reset. Only valid if an outdoor air sensor is connected at the thermostat or a network value is transmitted to the thermostat. See RH HT and RE Sp . From -40 F up to 15 F (-40 C to -9.5 C)									
RH HT	Reset RH higher outside temperature setpoint Default value = 32 F (0 C)	Maximum outdoor air temperature for RH setpoint reset. Only valid if an outdoor air sensor is connected at the thermostat or a network value is transmitted to the thermostat. See RH LT and RE Sp . From 20 F up to 55 F (-6.5 C to 13 C)									
HL Sp	RH High limit setpoint Default value = 85% RH	High humidity limit in the supply. Only valid if a 0-10 Vdc sensor is connected at the thermostat – otherwise this feature is disabled automatically. From 50% RH up to 90% RH									
Dhu OALK	Dehumidification outside air temperature lockout Default value = 32 F (0 C)	Outside air temperature under which the dehumidification sequence is disabled. Only valid if an outdoor air sensor is connected at the thermostat or a network value is transmitted to the thermostat. From -40 F up to 122 F (-40 C to 50 C)									

Table 13. Configuration Parameters (Continued)

Configuration parameters	Significance Default value	Adjustments
Dhu LCK	Dehumidification Lockout Functions Default value = On	Enables or disables the lockout functions for the dehumidification control process of the output. On - will restrict the dehumidification process based on the following: <ul style="list-style-type: none"> • System mode = Needs to be Cool or Auto (currently operating in cooling only) • Low ambient room temperature protection enabled Off - will not restrict the dehumidification process: <ul style="list-style-type: none"> • System mode = Needs to be Cool, Heat or Auto • There is no ambient room temperature protection enabled
DehuHyst	Dehumidification hysteresis Default value = 5% RH	Dehumidification control hysteresis. Used only if dehumidification sequence is enabled. From 2% RH up to 20% RH
RE Sp	Reset humidity setpoint Default value = 20% RH	The RH setpoint will be reset from the user setpoint to this value when the RH LT outside air temperature value is reached. Only valid if an outdoor air sensor is connected at the thermostat or a network value is transmitted to the thermostat. See RH LT and RE HT . From 10% RH up to 90% RH
RH cal	Humidity sensor calibration Default value = 0 %RH	Offset that can be added/subtracted to actual displayed humidity by ± 15.0 %RH. This calibration applies to the internal humidity sensor if no remote humidity sensor is connected. This calibration applies to the remote humidity sensor when one is connected. From -15% RH up to 15% RH
Display HL	Display the high limit sensor value	Used as diagnostic/service help to troubleshoot and diagnose sensor/humidifier operation

NOTE: When the outside air sensor is not connected or is shorted, the thermostat bypasses:

- The heating lockout
- The cooling lockout
- The dehumidification lockout
- The humidity setpoint reset

Humidity Setpoint Reset by Outside Air Temperature

If an outdoor air sensor is connected at the thermostat or a value is received from the network, it can be used to reset the humidity setpoint during the cold season to minimize condensation on windows and building structures.

When the outdoor temperature falls below the selected high temperature, parameter **RH HT** (32 F in the example Fig. 10), the humidity setpoint will start to decrease. The lowest humidity setpoint will be reached at selected low temperature, parameter **RH LT** (-20 F).

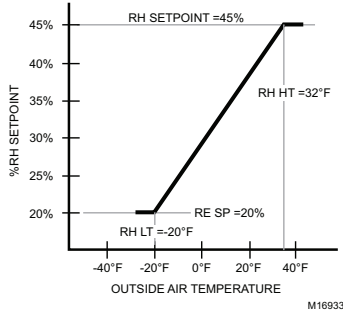


Fig. 10. Humidity setpoint reset by outside air temperature

The setpoint decrease from original setpoint to the lowest setpoint determined by the parameter **RE Sp**. In the example, Fig. 10, **RE Sp** was set to 20%, therefore the humidity setpoint dropped from 45% to 20%.

If you don't want to use this feature, set the **RE Sp** parameter to 90% RH.

High limit humidity sensor

The TB7600 Series with humidity includes a high limit sequence. This allows the use of a remote 0 to 10 Vdc humidity sensor to limit the humidity in the supply air. If no sensor is detected at the HL connector, this sequence is disabled at the thermostat.

NOTE: This high limit function is not a safety device. For critical situations, provide installation with normal protections required to ensure a safe operation.

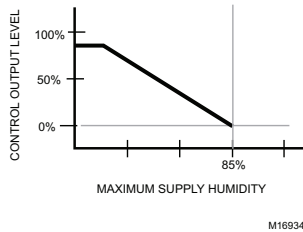


Fig. 11. High humidity limit vs Control output level curve

TROUBLESHOOTING

Table 15. Troubleshooting guide

Symptom	Possible Cause	Corrective Action
No display on the thermostat	Absent or incorrect supply voltage	<ul style="list-style-type: none"> Check power supply voltage between C and RC to be from 19-30 Vac Check for tripped fuse or circuit breaker
	Overloaded power transformer	Verify that the transformer used is powerful enough (enough VA's) to supply all controlled devices including the thermostat
Keyboard menu does not access all functions	Keyboard locked	Change configuration parameter LOCKOUT to value "0" to access all levels of the menu
Temperature setpoints revert to original value after a certain time period	Temporary setpoint option selected	<ul style="list-style-type: none"> The thermostat needs to be in Permanent setpoint mode for the new setpoint to be kept and memory and used all the time Go to the Set temperature menu. The last prompt is setpoint type. Set it to Permanent setpoint
Thermostat will not call for heating	Wrong mode selected	Select heating mode
	Thermostat in Unoccupied mode	Select Occupied Hold in Schedule hold or Override to force the thermostat Occupied heating setpoint
	Anticycle delay active	Wait, the anticycling period will end and the equipment will start
	Heating setpoint is satisfied	Raise the Heating setpoint
	Heating lockout attained	<ul style="list-style-type: none"> Mode is locked out based on outside air temperature Change configuration parameter H Lock to value 120 F (49 C) to by-pass lockout
	Wiring error	<ul style="list-style-type: none"> Start the Fan by forcing the Fan ON mode Put a jumper across terminals RH and W1. The heating should come ON. If it does not, verify wiring and check if a jumper is required between RC and RH
Thermostat will not call for cooling	Wrong mode selected	Select cooling mode
	Thermostat in Unoccupied mode	Select Occupied Hold in Schedule hold or Override to force the thermostat Occupied cooling setpoint
	Anticycle delay active	Wait, the anticycling period will end and the equipment will start
	Cooling setpoint is satisfied	Lower the cooling setpoint
	Cooling lockout attained	<ul style="list-style-type: none"> Mode is locked out based on outside air temperature Change configuration parameter C Lock to value -40 F (40 C) to by-pass lockout
	Wiring error	<ul style="list-style-type: none"> Start the Fan by forcing the Fan ON mode Put a jumper across terminals RC and W1. The cooling should come ON. If it does not, verify wiring
The thermostat will not turn on the fan	Wrong mode selected	<ul style="list-style-type: none"> Start the Fan by forcing the Fan ON mode
	Wiring error	<ul style="list-style-type: none"> Put a jumper across terminals RC and G. The fan should come ON. If it does not, verify wiring
Digital display shows missing digits or erratic segments	Defective display	Replace thermostat
Thermostat will not call for humidification	RH sensor is out of range	Verify the remote RH sensor or the internal RH sensor
	System Mode in Cool or Off	Change the system mode parameter to heat
	System Mode in Auto but a cooling demand at the thermostat	Wait: when a heating demand will occur at the thermostat, humidification will resume
	High limit sensor is controlling the humidifier output by forcing it to 0%	Wait: when the supply humidity will drop below the high limit setpoint, humidification will resume.
Thermostat will not call for dehumidification	RH sensor is out of range	Verify the remote RH sensor or the internal RH sensor
	System Mode in Heat or Off	Change the system mode parameter to cool
	System Mode in Auto but a heating demand at the thermostat	Wait: when a cooling demand will occur at the thermostat, dehumidification will resume
	Outside air temperature is below the Dhu OALK parameter	Change the Dhu OALK parameter to a value that will enable the dehumidification, if desired.

SPECIFICATIONS

Network Protocol: Models available in BACnet MS/TP or ZigBee wireless mesh

WEBS-AX Controllers: Compatible with WEB-2xx, WEB-6xx, and WEB-7xx

Platform:

WEB-2xx and WEB-6xx - WEBStation-AX 3.0 or later
 WEB-7xx - WEBStation-AX 3.5 or later

Thermostat power requirements:

19-30 Vac 50 or 60 Hz; 2 VA (RC and C) Class 2
 RC to RH jumper 2.0 Amps 48 VA maximum

Operating conditions:

32 F to 122 F (0 C to 50 C)
 0% to 95% R.H. non-condensing

Storage conditions:

-22 F to 122 F (-30 C to 50 C)
 0% to 95% R.H. non-condensing

Temperature sensor: 10 K NTC thermistor on board

Resolution:

Temperature: ± 0.2 F (± 0.1 C)
 Humidity: $\pm 0.1\%$

Control accuracy:

Temp: ± 0.9 F (± 0.5 C) @ 70 F (21 C) typ. calibrated
 Humidity: $\pm 5\%$ RH from 20 to 0% RH at 50 to 90 F (10 to 32 C)

Humidification setpoint range: 10% RH to 90% RH

Dehumidification setpoint range: 15% RH to 95% RH

Occupied and unoccupied setpoint range cooling: 54 to 100 F (12.0 to 37.5 C)

Occupied and unoccupied setpoint range heating: 40 F to 90 F (4.5 C to 32 C)

Room and outdoor air temperature range: -40 F to 122 F (-40 C to 50 C)

Proportional band for room temperature control: Factory set, heating and cooling at: 2.0 F (1.1 C)

Digital input: Relay dry contact only across C terminal to DI1

Analog high limit and remote humidity inputs: 0 to 10 Vdc into 10K Ω input load

Contact output rating:

Each relay output: (Y1, Y2, G, W1, W2 and AU)
 30 Vac, 1 Amp. maximum
 30 Vac, 3 Amp. in-rush

Humidification analog output rating: 0 to 10 Vdc into 2K Ω resistance min.

Humidification analog output accuracy: $\pm 3\%$ typical

Wire gauge: 18 gauge maximum, 22 gauge recommended

Dimensions: see Fig. 12.

Approximate shipping weight: 0.75 lb (0.34 kg)

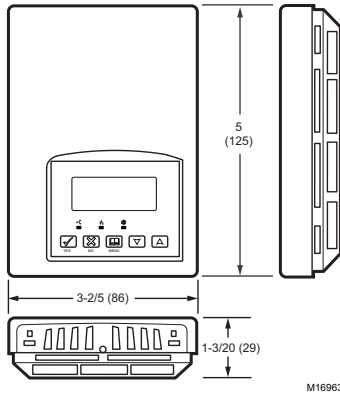


Fig. 12. Thermostat dimensions in inches (mm)

Agency Approvals all models:

UL: UL 873 (US) and CSA C22.2 No. 24 (Canada), File E27734 with CCN XAPX (US) and XAPX7 (Canada)

Industry Canada: ICES-003 (Canada)

FCC: Compliant to CFR 47, Part 15, Subpart B, Class A (US)

CE: EMC Directive 89/336/EEC (Europe Union)

C-Tick: EN55022:2006, IEC 61326-1:2005

Agency Approvals wireless models

FCC: Compliant to: Part 15, Subpart C. This device complies with part 15 of the FCC rules. operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Agency Approvals BACnet models

BTL

IMPORTANT

All TB7600 series controls are for use as operating controls only and are not safety devices. These instruments have undergone rigorous tests and verifications prior to shipment to ensure proper and reliable operation in the field. Whenever a control failure could lead to personal injury and/or loss of property, it becomes the responsibility of the user/installer/electrical system designer to incorporate safety devices (such as relays, flow switch, thermal protections, etc...) and/or alarm system to protect the entire system against such catastrophic failures. Tampering of the devices or miss application of the device will void warranty.

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