T606MSx-4 and T606MSx-4+PIR Series Multi-Stage Temperature and Humidity Controllers

Installation Instructions

T606MSN-4, T606MSP-4,
T606MSN-4+PIR, T606MSP-4+PIR

Part No. 24-9890-1354, Rev. A
Issued August 16, 2012
Supersedes December 1, 2010

Refer to the QuickLIT Web site for the most up-to-date version of this document.

Applications

The T606MSN-4 and T606MSN-4+PIR non-programmable and T606MSP-4 and T606MSP-4+PIR programmable temperature and humidity controllers are specifically designed for control of multi-stage commercial heating and cooling equipment with a humidifier and/or dehumidifier.

IMPORTANT: The T606MSx-4 and T606MSx-4+PIR Series Temperature and Humidity Controllers are intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the controller could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the controller.

North American Emissions Compliance

United States

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

Canada

This Class (A) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe (A) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Installation

Location Considerations

Locate the T606MSx-4 or T606MSx-4+PIR Series Temperature and Humidity Controller:

- on a partitioning wall, approximately 5 ft (1.5 m) above the floor in a location of average temperature
- away from direct sunlight, radiant heat, outside walls, outside doors, air discharge grills, or stairwells; or from behind doors
- away from steam or water pipes, warm air stacks, unconditioned areas (not heated or cooled), or sources of electrical interference

For integrated Passive Infrared (PIR) models, be sure that the controller is located centrally, where occupant movement is abundant.

Note: Allow for vertical air circulation to the controller.

To install the controller:

1. Use a Phillips-head screwdriver to remove the security screw if it is installed on the bottom of the controller cover.

   Note: Normally, the security screw is packaged separately in a plastic bag with the controller. Skip this step if the screw is not installed on the bottom of the cover.

2. Pull the bottom edge of the controller cover and open the controller as illustrated in Figure 1.

Note: PIR models have a wiring connection between the cover and the Printed Circuit Board (PCB). This connection allows for proper wiring of the occupancy sensor. Carefully remove the wiring connection from the PCB by pulling up on the connector block. Do not attempt to remove the connector block by pulling on the wires.

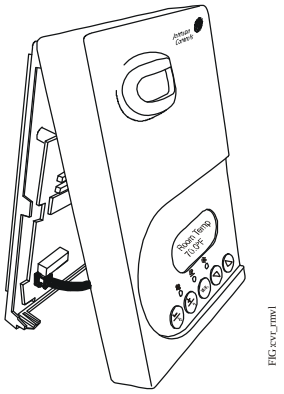


Figure 1: Removing the Cover (T606MSx-4+PIR Model Shown)

3. Carefully pull the locking tabs on the right side of the controller mounting base and unlock the PCB. Open the PCB to the left as illustrated in Figure 2.

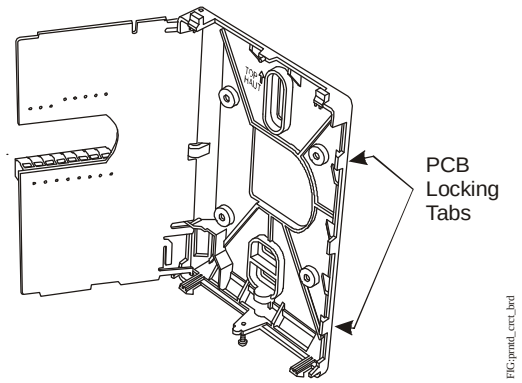


Figure 2: Opening the PCB

4. Pull approximately 6 in. (152 mm) of wire from the wall and insert the wire through the hole in the controller mounting base.
5. Align the controller mounting base on the wall and use the base as a template to mark the two mounting hole locations.
6. Position the controller mounting base so that the arrow on the base points upward to indicate the top of the controller.

Note: If you need to install the thermostat on an electrical junction box, use 2-1/2 x 4 in. (63 x 101 mm) square boxes with mud ring covers, and avoid smaller 1-1/2 x 4 in. (38 x 101 mm) square or 3 x 2 in. (76 x 51 mm) boxes. This procedure ensures you have enough space for cabling and end-of-line devices, if needed.

Note: For surface-mount applications, use durable mounting hardware such as Molly bolt anchors that cannot be easily pulled out of the mounting surface.

7. Secure the base to the wall surface using two mounting screws as illustrated in Figure 3.

Note: Be careful not to overtighten the mounting screws.

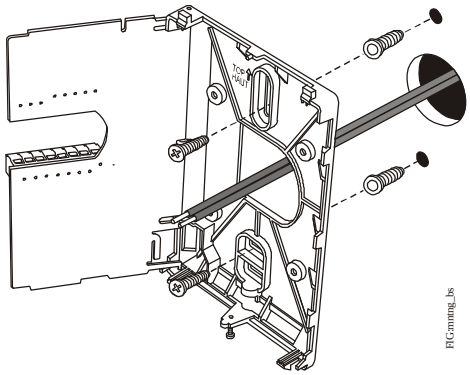


Figure 3: Securing the Mounting Base to the Wall (Example)

8. Swing the PCB back to the right and carefully snap it into the locking tabs on the controller mounting base.
9. Remove the screw terminal blocks that are attached to a disposable adhesive. Figure 4 illustrates the locations of the screw terminal blocks on the controller.

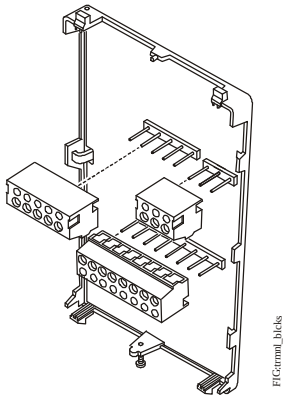


Figure 4: Removing the Screw Terminal Blocks

Wiring

When an existing controller is replaced, remove and label the wires to identify the terminal functions. When a T606MSx-4 or T606MSx-4+PIR Series Controller is replaced, simply remove the old screw terminal blocks and reinsert them onto the PCB of the replacement controller.

CAUTION: Risk of Electric Shock.
Disconnect power supply before making electrical connections to avoid electric shock.

CAUTION: Risk of Property Damage.
Do not apply power to the system before checking all wiring connections. Short circuited or improperly connected wires may result in permanent damage to the equipment.

IMPORTANT: Make all wiring connections in accordance with local, national, and regional regulations. Do not exceed the electrical ratings of the T606MSx-4 or T606MSx-4+PIR Series Temperature and Humidity Controller.

To wire the controller:

1. Strip the ends of each wire 1/4 in. (6 mm) and connect them to the appropriate screw terminals as indicated in Figure 5.
2. Carefully push any excess wire back into the wall.

   Note: Seal the hole in the wall with fireproof material to prevent drafts from affecting the ambient temperature readings.
3. Reinsert the screw terminal blocks onto the PCB. If multiple wires are inserted into the terminals, be sure to properly twist the wires together prior to inserting them into the terminal connectors.
4. For PIR models, carefully reattach the PIR connector to the PCB.
5. Reattach the controller cover to the mounting base (top side first).
6. Use a Phillips-head screwdriver to install the security screw on the bottom of the controller cover if desired. The security screw comes packaged separately in a plastic bag with the controller.

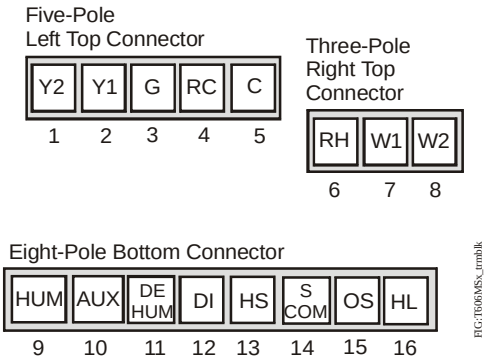
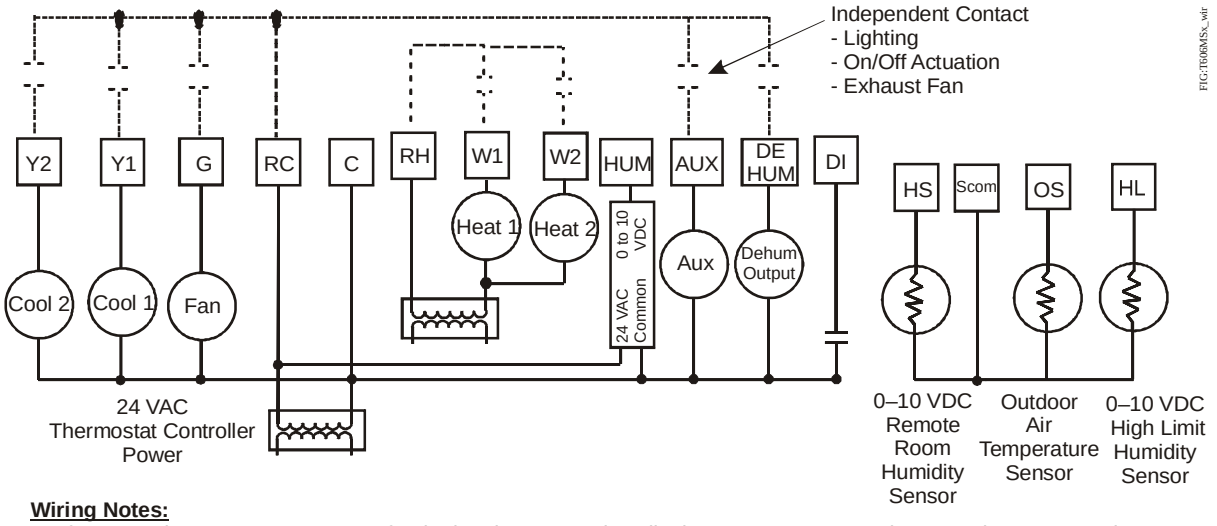


Figure 5: Terminal Blocks

Table 1: Terminal Identification (See Figure 5.)

Number	Label	Function
1	Y2[1]	Energizes on a Call for Second-Stage Cooling
2	Y1[1]	Energizes on a Call for First-Stage Cooling
3	G[1]	Energizes Fan in Accordance with Selected Fan Mode
4	RC	24 VAC from Equipment Transformer
5	C	24 VAC (Common) from Equipment Transformer
6	RH	24 VAC for Heating Stage
7	W1[2]	Energizes on a Call for First-Stage Heating
8	W2[2]	Energizes on a Call for Second-Stage Heating
9	HUM	Humidity Output
10	AUX[1]	Auxiliary Output
11	DEHUM	Dehumidification Output
12	DI	Configurable Digital Input
13	HS	0–10 VDC Remote Humidity Sensor
14	SCOM	Sensor Common
15	OS	Outside Air Temperature Sensor
16	HL	0–10 VDC High Limit Humidity Sensor

1. Provides the voltage from RC through a relay contact.
2. Provides the voltage from RH through a relay contact.



Wiring Notes:

1. If you use the same power source for the heating stages, install a jumper across RC and RH. Maximum current is 2.0 amperes.
2. If you use the auxiliary output to toggle occupancy of the electronic control card inside the equipment, configure the relay parameter (Aux Cont) to the Normally Open (N.O.) setting. A second relay can be added for additional occupancy input functions.
3. The humidifier output uses a half-bridge rectifier. The control signal reference is the controller power supply common (terminal C).
4. Electromechanical contacts are used with the digital input. Electronic triacs cannot be used for input switching. Use terminal C (common) for the switching leg of the digital input.
5. The unit transformer provides power to the controller and the additional loads that are wired to the controller.

Figure 6: Wiring the T606MSx-4 or T606MSx-4+PIR Series Controller

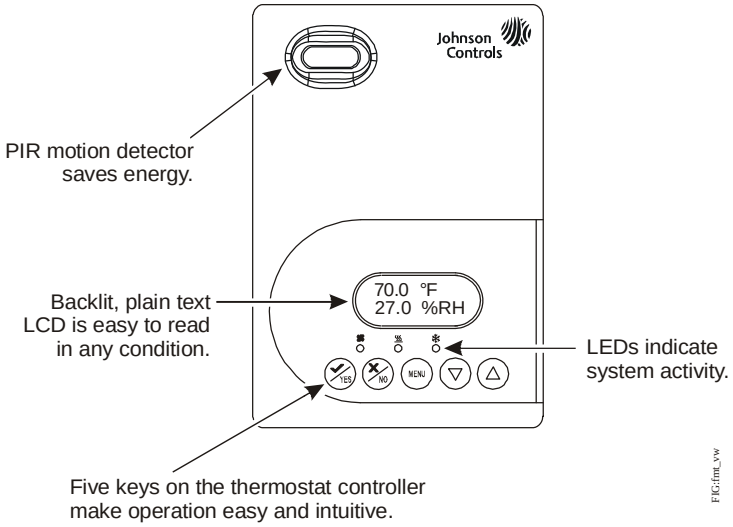


Figure 7: Front Cover of Controller (T606MSx-4+PIR Model Shown)

Setup and Adjustments

Controller User Interface Keys

The T606MSx-4 and T606MSx-4+PIR Series Temperature and Humidity Controller user interface consists of five keys on the front cover (Figure 7). The function of each key is as follows:

- Use the **YES** key to:
  - confirm menu selections and to advance to the next menu item.
  - stop the Status Display Menu from scrolling and to manually scroll to the next parameter on the menu.

Note: When the controller is left unattended for 45 seconds, the controller display resumes scrolling.

- Use the **NO** key to decline a parameter change and to advance to the next menu item.
- Use the **MENU** key to:
  - access the Main User Menu or exit the menu.
  - access the Installer Configuration Menu or to exit the menu (See *Configuring the T606MSx-4 or T606MSx-4+PIR Series Controller* on page 8.)
- Use the **UP/DOWN** arrow keys to change the configuration parameters and to activate a setpoint adjustment.

Backlit LCD

The T606MSx-4 and T606MSx-4+PIR Series Temperature and Humidity Controllers include a 2-line, 8-character backlit display. Low-level backlighting is present during normal operation, and it brightens when any user interface key is pressed. The backlight returns to low level when the controller is left unattended for 45 seconds.

LEDs

Three LEDs are included to indicate the fan status, call for heat, or call for cooling:

- The fan LED is on when the fan is on.
- The heat LED is on when heating is on.
- The cool LED is on when cooling is on.

Integrated PIR Sensor – T606MSx-4+PIR Series Controllers

The integrated PIR sensor allows for automatic switching between fully adjustable Occupied and Unoccupied temperature setpoints without user interaction. This feature generates incremental energy savings during scheduled occupied periods while the space is unoccupied.

Programming Overview

Three menus are used to view, program, and configure the T606MSx-4 and T606MSx-4+PIR Series Temperature and Humidity Controllers: the Status Display Menu, the Main User Menu, and the Installer Configuration Menu.

Status Display Menu

The Status Display Menu is displayed during normal controller operation, and continuously scrolls through the following parameters:

- Room Temperature and Humidity

  Note: %RH disp must be set to ON to display humidity.
- Day and Time (T606MSP-4 and T606MSP-4+PIR Models)
- System Mode
- Schedule Status (Occupied/Unoccupied/Override [PIR Models])
- Outside Temperature – An outside air temperature sensor must be installed and connected.
- Applicable Alarms – The backlight lights up as an alarm condition is displayed.

Note: Press the **YES** key to temporarily stop this menu from scrolling.

Note: An option is available within the Installer Configuration Menu to lock out the scrolling display and show only the Room Temperature parameter.

Main User Menu

Use the Main User Menu to access and change the basic operating parameters of the controller. Access the menu by pressing the **MENU** key during normal controller operation.

Installer Configuration Menu

Use the Installer Configuration Menu to set up the controller for application-specific operation. To access the menu, press and hold the **MENU** key for approximately 8 seconds.

Humidification Operation

Humidification operates only when the controller is in heating mode (system mode = Heat, or system mode = Auto and mode at the controller is Heat). If a call for humidification occurs and the fan is off, the fan is first turned on, then the humidifier output is activated.

In addition to reaching the humidity setpoint, the following events can stop humidification operation:

- RH sensor is out of range
- System mode switches to Off or Cool
- System mode is Auto, but the controller mode changes from Heat to Cool

Humidity Setpoint Reset

The humidity setpoint reset function minimizes condensation found on windows and building structures during the colder months. An outdoor air sensor connected at the controller is required for humidity setpoint reset function.

When the outdoor air temperature falls below the selected high temperature setpoint (RH HT), the humidity setpoint decreases. The lowest humidity setpoint is reached at the selected low temperature setpoint (RH LT).

The Reset Humidity Setpoint (RE Sp) determines the difference between the original setpoint and the lowest setpoint. For example, in Figure 8, the reset humidity setpoint is set to 20%; therefore, the humidity setpoint decreased from 45% to 20%.

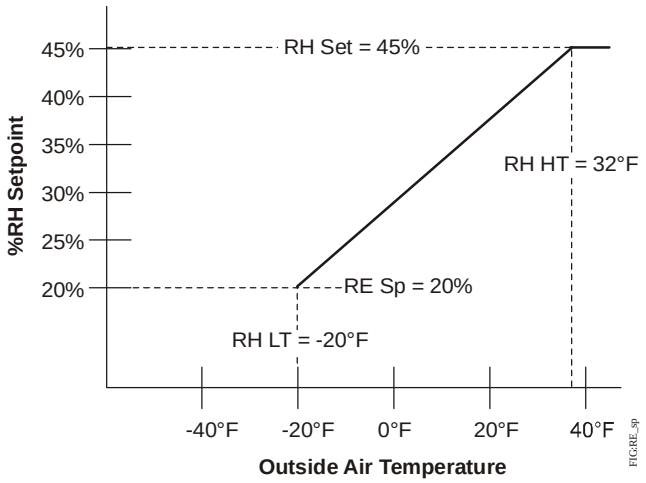


Figure 8: Humidity Setpoint Reset by Outdoor Air Temperature

High Limit Humidity Sensor Operation

The T606MSx-4(+PIR) Series Temperature and Humidity Controller includes a high limit sequence. This sequence allows the use of a remote 0 to 10 VDC humidity sensor to keep the humidifier from saturating the supply air. The remote sensor throttles the output of the Proportional plus Integral plus Derivative (PID) loop if the high limit sensor measures humidity in the duct over the high limit value (85%) less the proportional band of the high limit PID loop. If no sensor is detected at the high limit (HL) connector, this sequence is disabled at the controller.

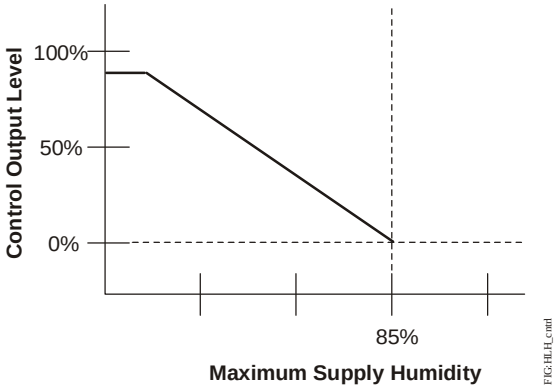


Figure 9: High Humidity Limit versus Control Output Level Curve

Dehumidification Operation

Dehumidification operation depends upon the dehumidification lockout setting.

If Dehumidification Lockout (Dhu LCK) is set to On:

Dehumidification operates when the controller is in cooling mode (system mode = Cool, or system mode = Auto and the mode at the controller is Cool). If a dehumidification demand exists and the fan is off, the fan is first turned on, then the dehumidification output is activated.

In addition to reaching the dehumidification setpoint, the following events can stop dehumidification operation:

- RH sensor is out of range
- System mode is switched to Off or Heat
- System mode is Auto but controller mode is Heat
- Room temperature falls below the cooling setpoint less the deadband value
- Outside air temperature falls below the dehumidification outside air temperature lockout value

If Dehumidification Lockout (Dhu LCK) is set to Off:

Dehumidification operates when the controller is in any mode except Off. If a dehumidification demand exists and the fan is off, the fan is first turned on, then the dehumidification output is activated.

In addition to reaching the dehumidification setpoint, the following events can stop dehumidification operation at any time:

- RH sensor is out of range
- System mode is switched to Off
- Outside air temperature falls below the dehumidification outside air temperature lockout value

No active temperature lockout protection is available while the system is in dehumidification mode. If dehumidification operation causes the room temperature to fluctuate, the controller reacts by either activating the cooling or heating outputs based on the current system mode setting.

Occupancy Sensor Operation – T606MSx-4+PIR Series Controllers

A T606MSx-4+PIR Series Controller (or a T606MSx-4 Series Controller equipped with a PIR accessory cover) provides advanced occupancy logic.

Note: The PIR strategy is an occupied strategy. If the controller is programmed to be Unoccupied, the PIR function does not have an effect on the occupancy strategy.

The controller automatically switches the occupancy level between Occupied and Unoccupied as required, when local movement is sensed. In the Occupied mode, if no movement is detected beyond the **Unocc TM** parameter setting, the mode changes to Unoccupied. Once movement is detected, the mode changes back to Occupied.

Occupancy sensing is enabled only if a PIR cover is installed. The PIR cover, when installed, is auto detected.

PIR Diagnostic LEDs

The diagnostic LEDs inside the PIR lens brighten when movement is detected within the first 30 minutes after powerup. The LEDs do not light up or brighten after the initial 30-minute period.

Setpoints

The installer must be certain that the difference between the Occupied and Unoccupied setpoints can be recovered within a timely fashion to ensure occupancy comfort. In addition, the difference between the two setpoints must be large enough to warrant maximum energy savings.

These setpoints and Unoccupied timers are adjustable to allow for customization, as dictated by the individual space requirements. See Figure 10 for an example of increasing room temperature setpoints.

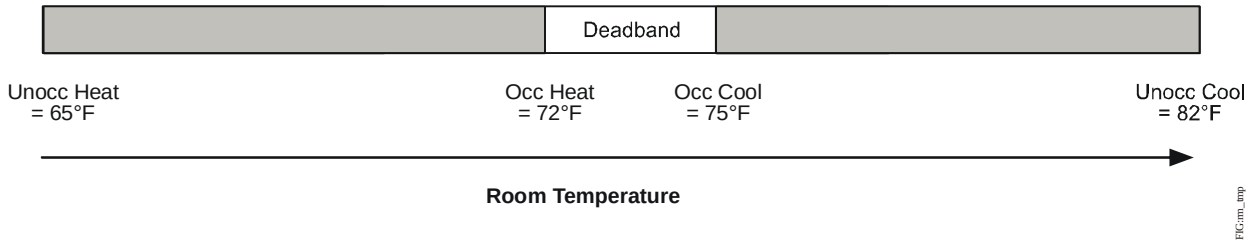


Figure 10: Increasing Room Temperature Setpoints

Configuring the T606MSx-4 or T606MSx-4+PIR Series Controller

The T606MSx-4 and T606MSx-4+PIR Series Controllers ship from the factory with default settings for all configurable parameters. The default settings are shown in Table 2. To reconfigure the parameters via the controller, follow the steps in this section.

1. To access the Installer Configuration Menu, press and hold the **MENU** key for approximately 8 seconds.

Note: If the **Password** parameter is configured, Password 0 appears on the controller display indicating that the configured password is required to proceed. Use the **UP/DOWN** arrow keys to indicate the configured password, then press the **YES** key to proceed through the Installer Configuration Menu parameters.

2. Once the Installer Configuration Menu begins, press the **NO** key to scroll through the parameters listed in Table 2.
3. When the desired parameter is displayed, use the **YES** key to choose the desired selection option.
4. Press the **YES** key and then the **NO** key to continue scrolling through the parameters.

To exit the Installer Configuration Menu at any time, press the **MENU** key, then at the exit prompt, press the **YES** key. To pass over a parameter without changing it, press the **NO** key.

When the controller is in the Installer Configuration Menu and left unattended for approximately 8 seconds, the controller reverts to the Status Display Menu.

Configuring the Digital Input

When DI is configured for an alarm condition, an alarm condition is displayed locally when the input is closed. An alarm message is included on the scrolling Status Display Menu and when the message is displayed, the backlight momentarily lights up.

The input can be configured to the Selection Options included in Table 2.

Table 2: Installer Configuration Menu (Part 1 of 6)

Parameter Appearing on Display	Description and Default	Selection Options
Pswrd	Sets the protective access password to prevent unauthorized access to the Installer Configuration Menu. Default: **0** **Note:** The default setting does not lock out access to the Installer Configuration Menu.	Range: **0** to **1,000**
%RH disp	Enables the display of humidity (%RH) below the room temperature on the controller display. Default: **Off**	**(On):** Display %RH. **(Off):** No %RH display.
DI[1]	Configures digital input. Open Contact Input = function not energized. Closed Contact Input = function energized. Default: **None**	**(None):** No function is associated with an input. **(Service):** A Service alarm is displayed on the controller when the input is energized. Tie this input into the air conditioning unit control card, which provides an alarm if a malfunction occurs. **(Filter):** A Filter alarm is displayed. This alarm can be connected to a differential pressure switch that monitors a filter. **(RemOVR):** Temporary occupancy request via a remote input. This override function is controlled by a manual remote occupancy override. When enabled, this condition disables the override capability of the controller. **(RemNSB):** Remote Night Setback (NSB) via a time clock input, an occupancy sensor, or from a voltage-free contact. Contact open = Occupied; contact closed = Unoccupied. **(Fan lock):** A backlit flashing Fan lock alarm is displayed on the controller when the input is not energized. This alarm is used in conjunction with a local airflow sensor connected to the input. The controller heating or cooling action is locked out if no airflow is detected 10 seconds after the fan (Terminal G) is energized. Contact open = no airflow; contact closed = airflow present.

Table 2: Installer Configuration Menu (Part 2 of 6)

Parameter Appearing on Display	Description and Default	Selection Options			
MenuScro	Gives the option of having the display continuously scroll the parameters. Default: **on**	**(off):** The scroll is inactive. **(on):** The scroll is active.			
Lockout	Selectable Lockout Levels for limiting end-user keypad interaction. Default: **0**	**Function**	**Lockout Level**		
			(0)	**(1)**	**(2)**
		Occupancy Override	Access	Access	No Access
		Permanent Temperature Setpoints	Access	No Access	No Access
		Temporary Temperature Setpoints	Access	Access	No Access
		Humidity Setpoints	Access	No Access	No Access
		System Mode Setting	Access	No Access	No Access
		Fan Mode Setting	Access	No Access	No Access
		Schedules Setting[2]	Access	No Access	No Access
		Clock Setting[2]	Access	Access	Access
		Permanent Hold[2]	Access	No Access	No Access
Pwr del[3]	Sets the delay time period at controller powerup, or each time power is removed and reapplied, before any operation (fan, heating, or cooling) is authorized. Also can be used to sequence the startup of multiple units in one location. Default: **10.0 sec**	Range: **10.0** to **120.0 sec**			
Frost pr	Provides a minimum heating setpoint of 42.0°F/5.5°C to prevent freezing in the zone controlled by the controller. Default: **off**	**(on):** Enabled **(off):** Disabled			
Heat max[4]	Sets the Occupied and Unoccupied maximum Heating setpoint values. Default: **90.0°F/32.0°C**	Range: **40.0°F/4.5°C** to **90.0°F/32.0°C**			
Cool min[4]	Sets the Occupied and Unoccupied minimum Cooling setpoint values. Default: **54.0°F/12.2°C**	Range: **54.0°F/12.2°C** to **100.0°F/37.7°C**			

Table 2: Installer Configuration Menu (Part 3 of 6)

Parameter Appearing on Display	Description and Default	Selection Options
Pband	Sets the proportional band used by the controller Proportional-Integral (PI) control loop. Default: **2.0F°/1.1C°** **Note:** The proportional band default setting of 2.0F°/1.1C° provides satisfactory controller operation in most instances. A proportional band setting other than the default is normally used in installations where the location of the controller is problematic, leading to unwanted cycling. An example of a problematic installation is a wall-mounted controller installed between the return and supply air feeds, that is directly influenced by the supply air stream.	**(2):** 2.0F°/1.1C° **(3):** 3.0F°/1.7C° **(4):** 4.0F°/2.2C° **(5):** 5.0F°/2.8C° **(6):** 6.0F°/3.3C° **(7):** 7.0F°/3.9C° **(8):** 8.0F°/4.4C°
Anticycl	Anti-Short Cycle timer sets the minimum on/off times for heating and cooling. Default: **2.0 min** **Note:** Set the anti-short cycle timer to 0.0 min for equipment that already has its own anti-short cycle timer.	Range: **0.0** to **5.0 min** adjustable in 1-minute increments
Heat cph	Sets the maximum number of Heating cycles per hour. Default: **4.0**	Range: **3.0** to **8.0** cycles per hour
Cool cph	Sets the maximum number of Cooling cycles per hour. Default: **4.0**	Range: **3.0** or **4.0** cycles per hour
Deadband	Sets the minimum deadband between the heating and cooling setpoints. Default: **2.0F°/1.0C°**	Range: **2.0F°/1.0C°** to **4.0F°/2.0C°** adjustable in 1.0F°/0.5C° increments
Fan cont	Determines how the fan is activated in response to a call for heating. Default: **on** **Note:** The **Fan cont** parameter applies to W1 and W2 when the fan is in the Auto mode only. The **Fan cont** parameter does not affect fan operation on a call for cooling (Y1 and Y2).	**(off):** The controller does not activate the fan in response to a call for heating. The fan is activated by the equipment fan and limit control. **(on):** Enables the controller to activate the fan in response to a call for heating.
Fan del	Fan delay extends fan operation after a heating or cooling cycle has ended. Default **off** **Note:** The fan delay is only active when the fan is in the Auto mode.	**(on):** Extends fan operation by 60 seconds after a heating or cooling cycle has ended. **(off):** No extension of fan operation after a heating or cooling cycle has ended.

Table 2: Installer Configuration Menu (Part 4 of 6)

Parameter Appearing on Display	Description and Default	Selection Options
TOccTime	Sets the duration of the Temporary Occupancy Time (when the controller is in the Unoccupied mode) when a Schedule Override Function is enabled using either the Main User Menu or DI1 or DI2 configured as a temporary override remote contact (RemOVR). Sets the effective duration of the Temporary heating or cooling setpoints set using the **UP/DOWN** arrow keys. Default: **3.0 hrs**	Range: **0.0** to **12.0 hrs** adjustable in 1-hour increments
Cal RS	Sets the desired room air temperature sensor calibration (offset). The offset can be added to or subtracted from the actual displayed room temperature. Default: **0.0F°/0.0C°C**	Range: **-5.0F°/-2.5C°** to **5.0F°/2.5C°** adjustable in 1.0F°/0.5C° increments
Cal OS	Sets the desired outside air temperature sensor calibration (offset). The offset can be added to or subtracted from the actual displayed room temperature. Default: **0.0F°/0.0C°**	Range: **-5.0F°/-2.5C°** to **5.0F°2.5C°** adjustable in 1.0F°/0.5C° increments
H stage	Reverts the operation of a two-stage controller to a single-stage controller when the second heating stage is not needed. Default: **2.0**	**(1.0):** One Stage **(2.0):** Two Stages
C stage	Reverts the operation of a two-stage controller to a single-stage controller when the second cooling stage is not needed. Default: **2.0**	**(1.0):** One Stage **(2.0):** Two Stages
H lock	Disables heating stage(s) operation when the outside air temperature is greater than the configured value. If the fan mode is set to Auto or Smart, the fan output is also disabled. Requires that an outside air temperature sensor be installed and connected. Default: **120°F/49°C**	Range: **-15°F/-26°C** to **120°F/49°C** adjustable in 5F°/5C° increments
C lock	Disables cooling stage(s) operation when the outside air temperature is less than the configured value. If the fan mode is set to Auto or Smart, the fan output is also disabled. Requires that an outside air temperature sensor be installed and connected. Default: **-40°F/-40°C**	Range: **-40°F/-40°C** to **95°F/35°C** adjustable in 5F°/5C° increments

Table 2: Installer Configuration Menu (Part 5 of 6)

Parameter Appearing on Display	Description and Default	Selection Options
Unocc TM	Sets the time delay between the moment when the controller toggles from the Occupied mode to the Unoccupied mode after the last motion is detected by the occupancy sensor. Default: **0.5 hours**	Range: **0.5 hours** to **24.0 hours** adjustable in 0.5 hour increments
2/4event[2]	Sets the number of events within a 24-hour period. Default: **2.0**	**(4.0):** Four events (two Occupied and two Unoccupied) within a 24-hour period **(2.0):** Two events (one Occupied and one Unoccupied) within a 24-hour period
Aux cont	Energizes peripheral devices (lighting equipment and exhaust fans). Default: **n.o.** **Note:** The contact toggles with the internal Occupied/Unoccupied schedule (or the NSB contact on one of the digital inputs, if used).	**(n.c.):** Contact open = Occupied; contact closed = Unoccupied **(n.o.):** Contact closed = Occupied; contact open = Unoccupied
Prog rec[2]	Provides the desired occupied temperature either at the start of the Occupied schedule or after the Occupied schedule begins. Default: **off** **Note:** Progressive recovery is disabled if DI is configured as remote NSB.	**(on):** Enabled (provides the desired occupied temperature at the start of the Occupied schedule) **(off):** Disabled (provides the desired occupied temperature after the Occupied schedule begins)
RH LT[5]	Sets minimum outside air temperature for RH setpoint reset. Default: **-20°F/-29°C**	Range: **-40°F/-40°C to 15°F/-9.5°C**
RH HT	Sets maximum outside air temperature for RH setpoint reset. Default: **32°F/0°C**	Range: **20°F/-6.5°C to 55°F/13°C**
HL Sp	Sets high humidity level setpoint when 0 to 10 VDC sensor is connected at the controller. Default: **85% RH**	Range: **50 to 90% RH** **Note:** Feature is automatically disabled if no sensor is connected to the controller
Dhu OALK[5]	Sets outside air temperature under which dehumidification operation is disabled. Default: **32°F/0°C**	Range: **-40°F/-40°C to 122°F/50°C**
Dhu LCK	Enables or disables dehumidification lockout control. Default: **On**	**(On):** Dehumidification operation is restricted based on the following conditions: • System mode must be Cool or Auto • Low ambient room temperature protection is enabled **(Off):** Dehumidification process not restricted, the following conditions are present: • System mode must be Cool, Heat or Auto • Ambient room temperature protection is not enabled
DehuHyst	Controls dehumidification hysteresis when dehumidification sequence is enabled. Default: **5% RH**	Range: **2 to 20% RH**

Table 2: Installer Configuration Menu (Part 6 of 6)

Parameter Appearing on Display	Description and Default	Selection Options
RE Sp[5]	Provides RH setpoint when the RH LT outside air temperature value is reached. Default: **20% RH**	Range: **10 to 90% RH**
RH Cal[6]	Sets humidity offset from actual displayed humidity. Default: **0% RH**	Range: **-15% to 15% RH**
Display HL	Displays the high limit sensor value and helps troubleshoot and diagnose sensor/humidifier operation. Default (when no sensor present): **0% RH**	Range: **0 to 100% RH**

1. Setting DI to RemNSB disables schedules and stops the Schedule menu display. Any other setting enables schedules and the Schedule menu (T606MSP-4 and T606MSP-4+PIR models).
2. T606MSP-4 and T606MSP-4+PIR models.
3. When adjusting the numeric value, press the **UP/DOWN** arrow key to change the value by single increments; press and hold the **UP/DOWN** arrow key to change the numeric value in increments of ten.
4. When adjusting the temperature, press the **UP/DOWN** arrow key to change the value in 0.5F°/0.5C° increments; press and hold the **UP/DOWN** arrow key to change the value in 5.0F°/5.0C° increments.
5. This value is valid only when an outdoor air sensor is connected at the controller or a network value is transmitted to the controller.
6. Calibration applies to the internal humidity sensor if no remote humidity sensor is connected. If a remote humidity sensor is connected, calibration applies to that sensor.

Operation

Setup/Operation of the T606MSx-4 or T606MSx-4+PIR Series Controller

Once the controller is configured via the Installer Configuration Menu, set up its operating parameters via the Main User Menu. Access this menu by pressing the **MENU** key during normal controller operation. The Main User Menu contains the basic operating features of the controller.

The Main User Menu also uses Auto Help, which is displayed automatically in the menu when there is a pause in setup activity. To exit Auto Help, continue with the setup selection. When the controller is in the Main User Menu and is left unattended for 45 seconds, the menu reverts to the Status Display Menu.

Follow the steps in Table 3 to set up the controller.

Table 3: Setting Up the T606MSx-4 or T606MSx-4+PIR Series Controller (Part 1 of 2)

Controller Display	Description
RoomTemp 75.0 °F	Press the **MENU** key while in the Status Display Menu to enter the Main User Menu.
Override schd Y/N	Overrides Unoccupied Setpoints Only Appears if Controller is in Unoccupied State See *Enabling Temporary Override Schedule* on page 14.
Cancel ovrd Y/N	Cancels Override Mode
Temperat set? Y/N	Sets the Temperature Setpoints See *Entering Permanent Temperature Setpoints* on page 14.

Table 3: Setting Up the T606MSx-4 or T606MSx-4+PIR Series Controller (Part 2 of 2)

Controller Display	Description
Humidity set? Y/N	Sets the Humidity Setpoints. See *Entering Humidity Setpoints* on page 16.
Sys mode set? Y/N	Selects the System Mode Default: Automatic (auto) See *Entering Humidity Setpoints* on page 16.
Fan mode set? Y/N	Selects the Fan Mode Default: Automatic (auto) for T606MSN-4 and T606MSN-4+PIR Models Smart (smart) for T606MSP-4 and T606MSP-4+PIR Models See *Selecting the Fan Mode* on page 16.
Schedule set? Y/N	Sets the Occupied and Unoccupied Time Periods See *Programming the Daily Schedule – Two-Event (T606MSP-4 and T606MSP-4+PIR Models)* on page 17 and *Programming the Daily Schedule – Four-Event (T606MSP-4 and T606MSP-4+PIR Models)* on page 18.
Clock set? Y/N	Sets the Day and Time See *Setting the Day and Time (T606MSP-4 and T606MSP-4+PIR Models)* on page 19.
Schedule hold? Y/N	Sets a Permanent Hold on the Schedule or Resumes the Schedule See *Setting Schedule Hold* on page 20.

Note: Schedule Set and Clock Set are available on the T606MSP-4 and T606MSP-4+PIR models only.

Enabling Temporary Override Schedule

Note: The Override Schedule function is available on the T606MSN-4 and T606MSN-4+PIR models only when DI is configured as a remote NSB.

Note: The Override Schedule prompt only appears when in the Unoccupied (Unoccup) or Unoccupied Hold (Unoccup hold) mode.

The override schedule prompt only appears when the controller is in the Unoccupied state. This menu selection gives the user the option of overriding the Unoccupied setpoints with the Occupied setpoints for the amount of time specified under the **TOccTime** parameter. See *Configuring the T606MSx-4 or T606MSx-4+PIR Series Controller* on page 8.

Note: If DI is configured to operate as a remote override contact, this menu is disabled.

To override the Unoccupied state while in the Main User Menu:

1. Press the **NO** key for all prompts until the Override Schedule prompt appears. If the controller is in the Unoccupied state, this is the first prompt.
2. Press the **YES** key to enable the temporary override. The controller returns to the Status Display Menu.

When scrolling through the Status Display Menu, Override now appears for the schedule status parameter.

Canceling the Temporary Override

The Cancel Override (Cancel ovrd) prompt only appears when the controller is in the Unoccupied override mode.

To resume the schedule while in the Main User Menu:

1. Press the **NO** key for all prompts until the Cancel ovrd prompt appears. If the controller is in the override state, this is the first prompt.
2. Press the **YES** key to resume the programmed schedule.

The controller returns to the Status Display Menu.

Entering Permanent Temperature Setpoints

The first prompt appearing in the Main User Menu of the controller when in the Occupied state sets the permanent temperature setpoint.

To enter the permanent heating and cooling setpoints for the Occupied and Unoccupied modes, follow the steps in Table 4. When changing the temperatures, press and release the keys to change the temperature in 0.5F°/0.5C° increments; press and hold down the keys to change the temperature in 5.0F°/5.0C° increments.

Table 4: Entering Permanent Temperature Setpoints (Part 1 of 2)

Controller Display	Description
RoomTemp 75.0°F	Press the **MENU** key while in the Status Display Menu to enter the Main User Menu.
Temperat set? Y/N	Press the **NO** key for all prompts until the temperature setpoint prompt appears on the display (it may be the first prompt). Press the **YES** key to enter the temperature setting menu.
Cooling set? Y/N	Press the **YES** key to change the Occupied cooling setpoint. Press the **NO** key to advance to the Occupied heating setpoint menu.
Cooling 75.0°F	Press the **UP/DOWN** arrow keys to set the temperature. Press the **YES** key to store the value and advance to the next menu.
Heating set? Y/N	Press the **YES** key to change the Occupied heating setpoint. Press the **NO** key to advance to the Unoccupied cooling setpoint menu.
Heating 68.0°F	Press the **UP/DOWN** arrow keys to set the temperature. Press the **YES** key to store the value and advance to the next menu.
Unocc CL set? Y/N	Press the **YES** key to change the Unoccupied cooling setpoint. Press the **NO** key to advance to the Unoccupied heating setpoint.
Unocc CL 80.0°F	Press the **UP/DOWN** arrow keys to set the temperature. Press the **YES** key to store the value and advance to the next menu.
Unocc HT set? Y/N	Press the **YES** key to change the Unoccupied heating setpoint. Press the **NO** key to advance to the temperature display units.

Table 4: Entering Permanent Temperature Setpoints (Part 2 of 2)

Controller Display	Description
Unocc HT 62.0°F	Press the **UP/DOWN** arrow keys to set the temperature. Press the **YES** key to store the value and advance to the next menu.
°F/°C set? Y/N	Press the **YES** key to set the display units to °F or °C. Press the **NO** key to advance to the temperature setpoint type menu.
Exit? Y/N	Press the **YES** key to return to the Status Display Menu or press the **NO** key to re-enter the temperature setting menu.

Entering Temporary Temperature Setpoints

The user can temporarily change the temperature setpoints for the Occupied and Unoccupied heating and cooling modes. To temporarily change the setpoint, press the **UP/DOWN** arrow keys to change the temporary setpoint for the current mode of operation.

Note: Whether the controller is heating or cooling, the respective setpoint is temporarily adjusted. To toggle between the temporary heating and cooling setpoints, press the **NO** key while changing the temporary setpoints.

Ending Temporary Temperature Setpoints

The temporary setpoints remain in effect for the duration set in the **TOccTime** parameter or until manually released.

Note: Setting the **TOccTime** parameter to 0.0 hrs prevents the temporary setpoints from taking effect.

To manually release the temporary setpoint, while in the Main User Menu:

1. Press the **NO** key for all prompts until the Temperat set prompt appears. If the controller is in the Occupied state, this is the first prompt.
2. Press the **YES** key to cancel all temporary setpoints.
3. Press the **MENU** key again and press the **YES** key to exit the Main User Menu.

The setpoint reverts to the Permanent Temperature Setpoint.

Entering Humidity Setpoints

You can enter setpoints for humidification and dehumidification after configuring the temperature setpoints. A fixed 5% RH deadband is present between the humidification and dehumidification to prevent overlap in these humidity 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 is automatically changed to 40% RH by the controller.

To enter humidity setpoints, follow the steps in Table 5.

Table 5: Entering Humidity Setpoints

Controller Display	Description
RoomTemp 75.0°F	Press the **MENU** key while in the Status Display Menu to enter the Main User Menu.
Humidity set? Y/N	Press the **NO** key for all prompts until the humidity setpoint prompt appears on the display. Press the **YES** key to enter the humidity setting menu.
Dehumidi set? Y/N	Press the **YES** key to change the dehumidification setpoint. Press the **NO** key to advance to the humidification setpoint menu.
Dehumidi 70 %	Press the **UP/DOWN** arrow keys to set the dehumidification setpoint. Press the **YES** key to store the value and advance to the next menu.
Humidifi set? Y/N	Press the **YES** key to change the humidification setpoint. Press the **NO** key to advance to the next menu.
Humidifi 50 %	Press the **UP/DOWN** arrow keys to set the humidification setpoint. Press the **YES** key to store the value and advance to the next menu.
Exit? Y/N	Press the **YES** key to return to the Status Display Menu or press the **NO** key to re-enter the humidity setting menu.

Selecting the System Mode

The controller has four system modes:

- **Automatic Mode (auto):** Automatic changeover between heating and cooling. This is the default setting.
- **Cooling Mode (cool):** Cooling operation only.
- **Heating Mode (heat):** Heating operation only.
- **Off Mode (off):** The controller is off; however, when the frost protection (**Frost pr** parameter) is enabled, the controller still calls for heat if the temperature falls below 42°F/5.5°C.

To set the system mode, follow the steps in Table 6:

Table 6: Selecting the System Mode

Controller Display	Description
RoomTemp 75.0 °F	Press the **MENU** key while in the Status Display Menu to enter the Main User Menu.
Sys mode set? Y/N	Press the **NO** key for all prompts until the system mode prompt appears on the display. Press the **YES** key to enter the system mode setting menu.
Sys mode auto	Press the **UP/DOWN** arrow keys to locate the desired system mode. Press the **YES** key to select the desired system mode (example for auto mode shown)
Exit? Y/N	Press the **YES** key to return to the Status Display Menu or press the **NO** key to return to the system mode selection menu.

Selecting the Fan Mode

The controller has three fan mode settings:

- **On Fan Mode (on):** Energizes the fan all the time for both Occupied and Unoccupied states, even if the system mode is set to off.
- **Automatic Fan Mode (auto):** Energizes the fan only on a call for heating or cooling, for both Occupied and Unoccupied states. This is the default setting for the T606MSN-4 and T606MSN-4+PIR models.

Note: The setting for the **Fan cont** parameter may affect the fan operation on a call for heating.

- **Smart Fan Mode (smart):** Energizes the fan all the time for Occupied states, and only on a call for heating or cooling in Unoccupied states. This is the default setting for the T606MSP-4 and T606MSP-4+PIR models.

To select the fan mode, follow the steps in Table 7:

Table 7: Selecting the Fan Mode

Controller Display	Description
RoomTemp 75.0 °F	Press the **MENU** key while in the Status Display Menu to enter the Main User Menu.
Fan mode set? Y/N	Press the **NO** key for all prompts until the fan mode prompt appears on the display. Press the **YES** key to enter the fan mode setting menu.
Fan mode Smart	Press the **UP/DOWN** arrow keys to locate the desired fan mode. Press the **YES** key to select the desired system mode (example for smart mode shown)
Exit? Y/N	Press the **YES** key to return to the Status Display Menu or press the **NO** key to return to the system mode selection menu.

Programming the Daily Schedule – Two-Event (T606MSP-4 and T606MSP-4+PIR Models)

The schedule-setting menu is used to enter the Occupied or Unoccupied states for each day of the week. The schedule-setting menu reflects either a two- or a four-event schedule per day, based on what was selected in the **2/4event** parameter during the configuration process. If the schedule-setting menu does not reflect a two-event schedule, select two events in the **2/4event** parameter of the Installer Configuration Menu.

When changing the time, press and release the **UP/DOWN** arrow keys to change the time in 1-minute increments; press and hold down the keys to change the time in 30-minute increments.

Note: Programming one of the digital inputs to remote NSB disables the menu.

To set the time schedule for a two-event schedule, follow the steps in Table 8. See Table 10, Events 1 and 2, for an example of a two-event office schedule.

Table 8: Programming the Daily Schedule – Two-Event (Part 1 of 2)

Controller Display	Description
RoomTemp 75.0°F	Press the **MENU** key while in the Status Display Menu to enter the Main User Menu.
Schedule set? Y/N	Press the **NO** key for all prompts until the schedule set prompt appears on the display. Press the **YES** key to enter the scheduling menu.
Monday set? Y/N	Press the **YES** key to set the schedule for Monday or press the **NO** key to advance to Tuesday.
Occupied day? Y/N	Press the **YES** key to set the Occupied start time for Monday or press the **NO** key to advance to Tuesday. Selecting **NO** leaves the controller in the Unoccupied state for the entire day.
Occupied 12:00 AM	Press the **UP/DOWN** arrow keys to set the Occupied start time. Press the **YES** key to enter the time.
Unoccup 12:00 AM	Press the **UP/DOWN** arrow keys to set the Unoccupied start time. Press the **YES** key to enter the time.
Tuesday set? Y/N	Press the **YES** key to set the schedule for Tuesday or press the **NO** key to advance to Wednesday.
Copy Y/N previous	Press the **YES** key to copy the schedule from the previous day. Press the **NO** key to set a different schedule.
Wednesda set? Y/N	If the **YES** key was pressed, the next prompt is for Wednesday. Repeat the procedure for the rest of the days of the week.

Table 8: Programming the Daily Schedule – Two-Event (Part 2 of 2)

Controller Display	Description
Exit? Y/N	After setting the schedule for all the days of the week, following the last entry for Sunday, press the **YES** key to return to the Status Display Menu or press the **NO** key to start again at Monday.

Programming the Daily Schedule – Four-Event (T606MSP-4 and T606MSP-4+PIR Models)

The schedule-setting menu is used to enter the Occupied and Unoccupied states for each day of the week. The schedule-setting menu reflects either a two- or four-event schedule per day, based on what was selected in the **2/4event** parameter during the configuration process. If the schedule-setting menu does not reflect a four-event schedule, select four events in the **2/4event** parameter of the Installer Configuration Menu.

When changing the time, press and release the **UP/DOWN** arrow keys once to change the time in 1-minute increments; press and hold down the keys to change the time in 30-minute increments.

Note: Programming one of the digital inputs to remote NSB disables the menu.

To set the time schedule for a four-event schedule, follow the steps in Table 9. See Table 10 for an example of a four-event office schedule.

Table 9: Programming the Daily Schedule – Four-Event (Part 1 of 2)

Controller Display	Description
RoomTemp 75.0°F	Press the **MENU** key from the Status Display Menu to enter the Main User Menu.
Schedule set? Y/N	Press the **NO** key for all prompts until the schedule set prompt appears on the display. Press the **YES** key to enter the scheduling menu.
Monday set? Y/N	Press the **YES** key to set the schedule for Monday or press the **NO** key to advance to Tuesday.

Table 9: Programming the Daily Schedule – Four-Event (Part 2 of 2)

Controller Display	Description
Occupied day? Y/N	Press the **YES** key to set the Occupied start time for Monday or press the **NO** key to advance to Tuesday. Selecting **NO** leaves the controller in the Unoccupied state for the entire day.
Occupied 12:00 AM	Press the **UP/DOWN** arrow keys to set the first Occupied start time. Press the **YES** key to enter the time.
Unoccup 12:00 AM	Press the **UP/DOWN** arrow keys to set the first Unoccupied start time. Press the **YES** key to enter the time.
Occupie2 12:00 AM	Press the **UP/DOWN** arrow keys to set the second Occupied start time. Press the **YES** key to enter the time.
Unoccup2 12:00 AM	Press the **UP/DOWN** arrow keys to set the second Unoccupied start time. Press the **YES** key to enter the time.
Tuesday set? Y/N	Press the **YES** key to set the schedule for Tuesday or press the **NO** key to advance to Wednesday.
Copy Y/N previous	Press the **YES** key to copy the schedule from the previous day. Press the **NO** key to set a different schedule.
Wednesda set? Y/N	If the **YES** key was pressed, the next prompt is for Wednesday. Repeat the procedure for all days of the week.
Exit? Y/N	After setting the schedule for all the days of the week, following the last entry for Sunday, press the **YES** key to return to the Status Display Menu or press the **NO** key to start again at Monday.

Table 10: Four-Event Office Schedule

Event	Event 1		Event 2		Event 3		Event 4	
	Occupied		Unoccupied		Occupied 2		Unoccupied 2	
	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
	72°F (22°C)	70°F (21°C)	80°F (27°C)	62°F (17°C)	72°F (22°C)	70°F (21°C)	80°F (27°C)	62°F (17°C)
Monday	7:00 A.M.		5:00 P.M.		12:00 P.M.[1]		12:00 P.M.[1]	
Tuesday	7:00 A.M.		5:00 P.M.		12:00 P.M.[1]		12:00 P.M.[1]	
Wednesday	7:00 A.M.		5:00 P.M.		12:00 P.M.[1]		12:00 P.M.[1]	
Thursday	7:00 A.M.		5:00 P.M.		7:00 P.M.		10:30 P.M.	
Friday	7:00 A.M.		5:00 P.M.		7:00 P.M.		10:30 P.M.	
Saturday	12:00 P.M.[1]		12:00 P.M.[1]		12:00 P.M.[1]		12:00 P.M.[1]	
Sunday	12:00 P.M.[1]		12:00 P.M.[1]		12:00 P.M.[1]		12:00 P.M.[1]	

1. Programming different events to the same time for that day cancels those events and leaves the controller in the Unoccupied state.

Setting the Day and Time (T606MSP-4 and T606MSP-4+PIR Models)

Upon initial powerup (or after a power loss of greater than 6 hours), a SetClock alarm appears on the controller display. As the controller scrolls through the Status Display Menu, the SetClock alarm message causes the backlight to light up until the clock is set.

When changing the time, press and release the **UP/DOWN** arrow keys once to change the time in 1-minute increments; press and hold down the keys to change the time in 30-minute increments.

To set the day and time, follow the steps in Table 11:

Table 11: Setting the Day and Time (Part 1 of 2)

Controller Display	Description
RoomTemp 75.0°F	Press the **MENU** key while in the Status Display Menu to enter the Main User Menu.
Clock set? Y/N	Press the **NO** key for all prompts until the clock set prompt appears on the display. Press the **YES** key to enter the clock set menu.
Time set? Y/N	Press the **YES** key to set the time or press the **NO** key to advance to the day set menu.

Table 11: Setting the Day and Time (Part 2 of 2)

Controller Display	Description
Time 0:00	Press the **UP/DOWN** arrow keys to adjust the time. When the correct time is displayed, press the **YES** key to store the time.
Day set? Y/N	Press the **YES** key to enter the day set menu or press the **NO** key to enter the clock format menu.
Day Monday	Press the **UP/DOWN** arrow keys to adjust the day. When the correct day is displayed, press the **YES** key to store the day.
12/24hrs set? Y/N	Press the **YES** key to choose the time format or press the **NO** key to access the Main User Menu exit prompt.
12/24hrs 12 hrs	Press the **UP/DOWN** arrow keys to select the desired time format. Press the **YES** key to enter the format.
Exit? Y/N	Press the **YES** key to return to the Status Display Menu or press the **NO** key to return to the time set menu.

When the controller scrolls through the day and time, the new day and time should show on the display and no alarm or backlight should be present. If the day or time is incorrect, repeat the *Setting the Day and Time (T606MSP-4 and T606MSP-4+PIR Models)* procedure.

Setting Schedule Hold

The schedule hold menu sets a permanent hold on the internal scheduling or resumes the schedule. The permanent hold is typically used for non-scheduled events that extend for long periods of time.

Note: The Override Schedule function is available on the T606MSN-4 and T606MSN-4+PIR models only if DI is configured for remote NSB.

Note: The Schedule Hold menu is also displayed if DI is configured for remote NSB.

The schedule hold menu has the following selections:

- **Permanent Occupied Hold (occ hold):** This selection puts the controller into a permanent Occupied state via the Occupied setpoints. Occupied hold appears in the Status Display Menu when this selection is active.
- **Permanent Unoccupied Hold:** This selection puts the controller into a permanent Unoccupied state via the Unoccupied setpoints. Unoccup hold appears in the Status Display Menu when this selection is active.
- **Resume:** This selection cancels the permanent hold and enables the regular program schedule.

To enable or cancel the permanent hold feature while in the Main User Menu:

1. Press the **NO** key for all prompts until the schedule hold prompt appears on the display. Press the **YES** key to set the schedule hold type.
2. Press the **UP/DOWN** arrow keys to locate the desired permanent hold type (or resume schedule). Press the **YES** key to enter the selection.
3. Press the **YES** key to return to the Status Display Menu or press the **NO** key to change the schedule hold selection again.

Accessories

All the accessories in Table 12 include mounting hardware; contact the nearest Johnson Controls® representative to order any of these parts.

Note: Review the technical specifications of the accessories prior to their use in an application.

Repair Information

If the T606MSx-4 or T606MSx-4+PIR Series Controller fails to operate within its specifications, replace the unit. For a replacement controller, contact the nearest Johnson Controls representative.

Table 12: Accessories (Order Separately)

Code Number	Description
Hx-67 Series[1]	Duct- or Wall-mount Humidity Sensor
TE-6361M-1[2]	Duct Mount Air Temperature Sensor
TE-636S-1[2]	Strap-Mount Temperature Sensor
TE-6363P-1[2]	Outside Air Temperature Sensor
TEC-3-PIR[3]	Cover with Occupancy Sensor

1. The humidity sensor must have a 0 to 10 VDC output. Remote wall-mounted versions may be used for remote return or room air humidity sensing with the sensor mounted on the wall. Remote duct-mounted humidity sensor may be used for remote return air humidity sensing with the sensor mounted on the return air duct or as a supply air humidity sensor used as a high limit protection.
2. Additional TE-636xx-x Series 10k ohm Johnson Controls Type II Thermistor Sensors are available; refer to the *TE-6300 Series Temperature Sensors Product Bulletin (LIT-216320)* for more details.
3. The TEC-3-PIR Accessory Cover can be used to replace the existing cover on a non-PIR T606MSx-4 Series Controller to provide occupancy sensing capability.

Table 13: Display Messages

Display	Function
Service	Indicates that there is a service alarm in accordance with the programmable Digital Input (DI).
Filter	Indicates that the filter(s) is dirty in accordance with the programmable Digital Input (DI).
Frost on	Indicates that the heating is energized by the low limit frost protection room temperature setpoint.
SetClock	Indicates that there has been a power failure greater than 6 hours and the clock needs to be reset (T606MSP-4 and T606MSP-4+PIR models).
Fan lock	Indicates that the controller heating or cooling action is locked out because no airflow was detected 10 seconds after the fan (Terminal G) was energized.

Technical Specifications

T606MSx-4 and T606MSx-4+PIR Series Temperature and Humidity Controllers

Power Requirements		19 to 30 VAC, 50/60 Hz, 2 VA (Terminals RC and C) at 24 VAC Nominal, Class 2 or Safety Extra-Low Voltage (SELV)
Relay Contact Rating (Y2, Y1, G, W1, W2, and AUX)		19 to 30 VAC, 1.0 A Maximum, 15 mA Minimum 3.0 A Inrush, Class 2 or SELV
Digital Inputs		Voltage-Free Contacts across Terminal C to Terminal DI
Humidification Analog Output Rating		0 to 10 VDC into 2k ohm Resistance Minimum
Wire Size		18 AWG (1.0 mm Diameter) Maximum, 22 AWG (0.6 mm Diameter) Recommended
Temperature Sensor Type		Local 10k ohm Johnson Controls Type II Negative Temperature Coefficient (NTC) Thermistor Sensor
Temperature Range	**Backlit Display**	-40.0°F/-40.0°C to 122.0°F/ 50.0°C in 0.5° Increments
	Heating Control	40.0°F/4.5°C to 90.0°F/32.0°C
	Cooling Control	54.0°F/12.0°C to 100.0°F/38.0°C
Accuracy	**Temperature**	±0.9F°/±0.5C° at 70.0°F/21.0°C Typical Calibrated
	Humidity	±5% RH from 30 to 70% RH at 50 to 90°F (10 to 32°C)
Minimum Deadband		2F°/1C° between Heating and Cooling
Ambient Conditions	**Operating**	32 to 122°F (0 to 50°C); 95% RH Maximum, Noncondensing
	Storage	-22 to 122°F (-30 to 50°C); 95% RH Maximum, Noncondensing
Compliance	**United States**	UL Listed, File E27734, CCN XAPX, Under UL 873, Temperature Indicating and Regulating Equipment
		FCC Compliant to CFR 47, Part 15, Subpart B, Class A
	Canada	UL Listed, File E27734, CCN XAPX7, Under CAN/CSA C22.2 No. 24, Temperature Indicating and Regulating Equipment
		Industry Canada, ICES-003
CE	**Europe**	CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.
	Australia and New Zealand	C-Tick Mark, Australia/NZ Emissions Compliant
Shipping Weight		**T606MSx-4 Models:** 0.75 lb (0.34 kg) **T606MSx-4+PIR Models:** 0.77 lb (0.35 kg)

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

Johnson Controls

Building Efficiency
507 E. Michigan Street, Milwaukee, WI 53202

Published in U.S.A. www.johnsoncontrols.com