T62xx-0 Fan Coil Retrofit Thermostat Controller and R-xxxxx-0 Fan Coil Retrofit Relay Packs

Installation Instructions

T620H-0, T620C-0, T621H-0, T621C-0, R-HCC40-0,
R-HCC44-0,R-MPR20-0, R-MPR24-0, R-SFC40-0

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

Applications

The T62xx-0 Series Retrofit Thermostat and R-xxxxx-0 Series Modular Relay Packs provide control of two-pipe and four-pipe fan coil units. This thermostat and relay pack fan coil control system simplifies the retrofit of existing line voltage fan coil thermostats by integrating all of the relay outputs required for fan switching and valve control into one modular package. In retrofit applications, the installation can be further simplified by reusing the existing wires between the old line voltage switching thermostats and the fan coil unit to install the T62xx-0 Thermostat controller.

The R-xxxxx-0 Series Modular Relay Packs locally contain all the relay outputs necessary for fan switching and valve control. Relay pack models are also available for extra monitoring and controlling inputs for fan coil units. The R-xxxxx-0 Series Modular relay packs operate as slave units under the control of a single master T62xx-0 Series Thermostat controller. One T62xx-0 Series Thermostat controller operates as the master of up to 10 R-xxxxx-0 Series Modular Relay packs. Only one relay pack with remote monitoring inputs can be used under a single T62x Thermostat controller. All other slave units must be relay packs **without** remote inputs.

The non-programmable T62x Series Thermostat Controllers provide the user access to parameters such as system mode, fan mode, and temperature setpoints. Additionally, the T62x Series has over 20 configurable parameters enabling the thermostat controllers to adapt to a variety of fan coil applications.

All T62x Series Thermostat controllers use an intuitive, plain text, menu-driven backlit display that makes setup and operation quick and easy.

IMPORTANT: The T62x Series Thermostat Controllers and Relay Packs are intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the thermostat 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 thermostat 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.
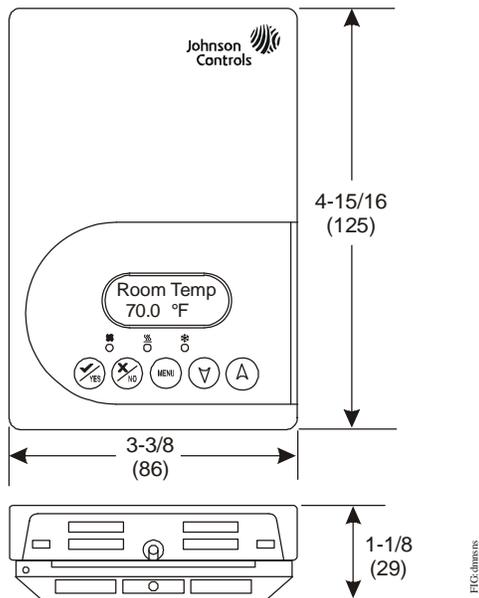
Canada

This Class (A) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.
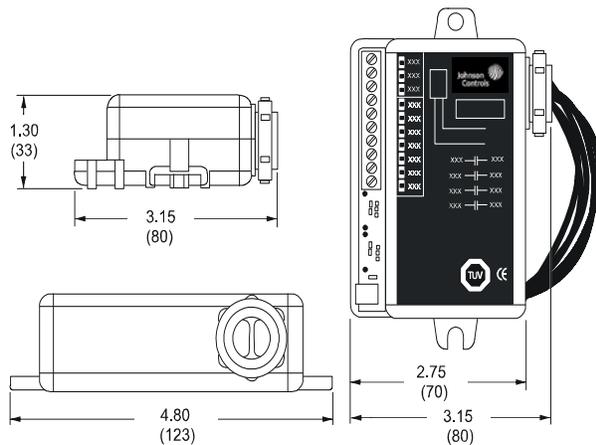
Cet appareil numérique de la Classe (A) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Installation

Dimensions

**Figure 1: T62x Thermostat Controller
Dimensions, in. (mm)**

Figure 2: Relay Pack Dimensions, in. (mm)

Mounting

Location Considerations

Locate the T62x Series Thermostat 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; and from behind doors

- away from steam or water pipes, warm air stacks, unconditioned areas (not heated or cooled), or sources of electrical interference

**Note:** Allow for vertical air circulation to the thermostat controller.

Mounting the Thermostat Controller

To install the thermostat controller:

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

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

2. Pull the bottom edge of the thermostat controller cover and open the thermostat controller as illustrated in Figure 3.
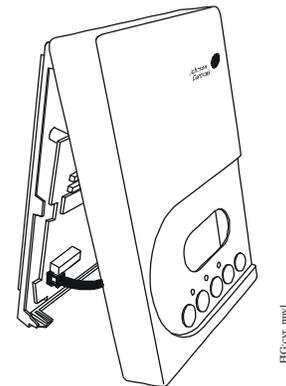
**Figure 3: Removing the
Thermostat Cover**

3. Carefully pull the locking tabs on the right side of the thermostat controller mounting base and unlock the PCB. Open the PCB to the left as illustrated in Figure 4.

PCB Locking Tabs
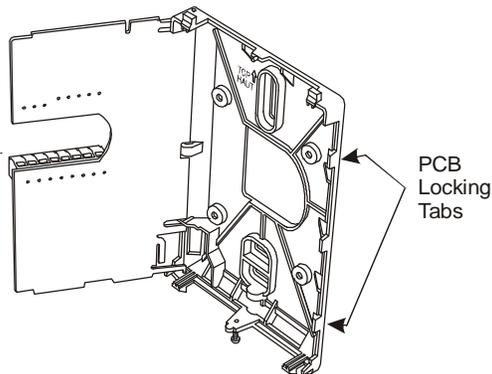
Figure 4: Opening the Thermostat Controller PCB

4. Pull approximately 6 in. (152 mm) of wire from the wall and insert the wire through the hole in the thermostat controller mounting base.

5. Align the thermostat controller mounting base on the wall and use the base as a template to mark the two mounting hole locations.

Note: Be sure to position the thermostat controller mounting base so that the arrow on the base points upward to indicate the top of the thermostat controller.

6. Drill a 3/16 in. (5 mm) hole at each of the two marked locations and tap nylon anchors (included with the thermostat controller) flush to the wall surface.

Note: Other means of anchoring the device may be desired, depending on the wall medium.

7. Position the thermostat controller mounting base on the wall and use the two mounting screws (included with the thermostat controller) to secure the base to the wall surface as illustrated in Figure 5.

Note: Be careful not to overtighten the mounting screws.
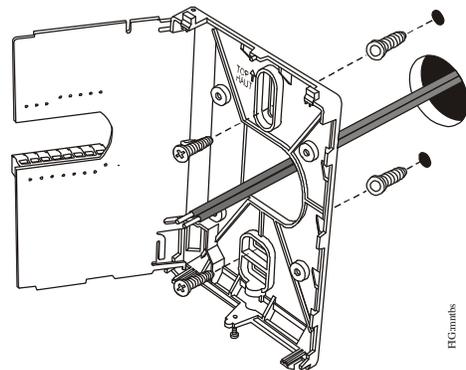
Figure 5: Securing the Thermostat Controller Mounting Base to the Wall

8. Swing the PCB back to the right and carefully snap it into the locking tabs on the thermostat controller mounting base.

9. Remove the screw terminal blocks that are attached to a disposable adhesive. Figure 6 illustrates the locations of the screw terminal blocks on the thermostat controller.
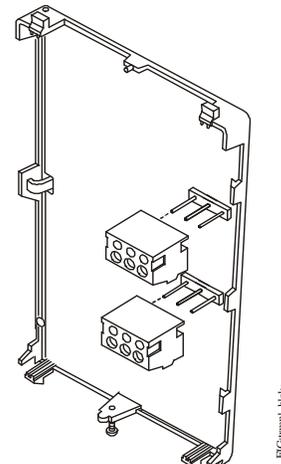
Figure 6: Removing the Screw Terminal Blocks

Mounting the Relay Packs

IMPORTANT: Prevent any static electric discharge to the controller. Static discharge can damage the controller and void the warranties.

The relay packs may be installed in one of two ways: outside of a electrical cabinet or junction box, or enclosed within a low voltage junction box.

Note: If you are replacing an old line voltage fan coil controller, label the wires before removal of the old controller.

Inside Electrical Cabinet

To mount the relay pack within an electrical cabinet:

1. Use the plastic mounting tabs to line up the unit inside of the electrical enclosure.

2. Use screws to secure the relay pack within the electrical cabinet.

3. If necessary, cut one or both plastic mounting tabs if space is required within the electrical enclosure.

4. If necessary, install a low voltage or high voltage metal separator.

Note: Ensure you do not exceed the maximum rated temperature of the relay pack (50°C/122°F).

Outside Electrical Cabinet or Junction Box

To mount the relay pack outside of an electrical cabinet or junction box, using the supplied lock nut, secure the relay pack to the electrical cabinet or junction box of the fan coil unit.
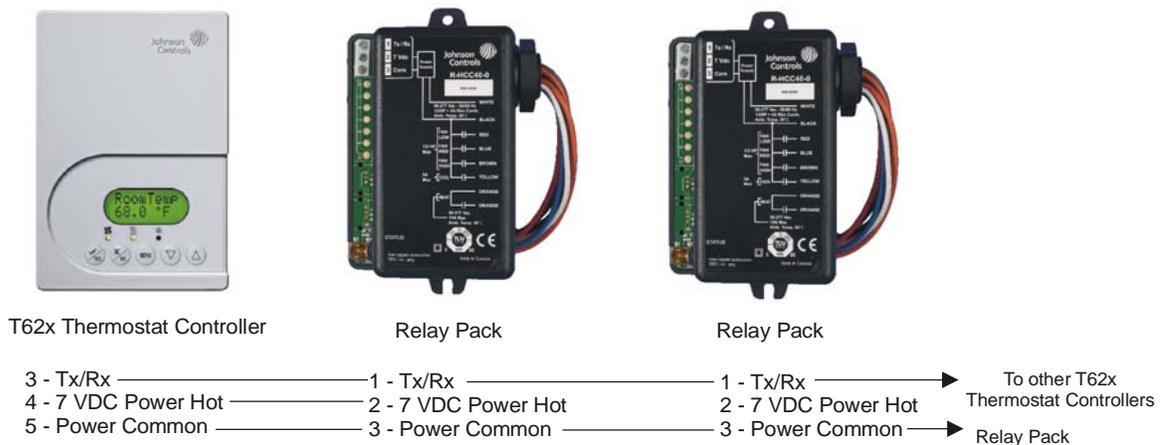
Enclosed Within a Low Voltage Junction Box

To mount within an enclosed low voltage junction box:

1. Install the relay pack inside of a 4 in. x 4 in. junction box.

2. If necessary, cut one or both plastic mounting tabs if space is required within the electrical enclosure.

3. Using the supplied lock nut, secure the relay pack (inside the junction box) to the main electrical junction box or to the electrical cabinet of the fan coil unit.

Wiring

T62x Thermostat Controller

When an existing thermostat controller is replaced, remove and label the wires to identify the terminal functions. When a T62x Series Thermostat Controller is replaced, simply remove the old screw terminal blocks and reinsert them onto the PCB of the replacement thermostat controller.

T62x Thermostat Controller   Relay Pack   Relay Pack

| 3 - Tx/Rx ————————————— 1 - Tx/Rx ————————————— 1 - Tx/Rx ——————➔ To other T62x
| 4 - 7 VDC Power Hot ————————— 2 - 7 VDC Power Hot ————————— 2 - 7 VDC Power Hot   Thermostat Controllers
| 5 - Power Common ——————————— 3 - Power Common ——————————— 3 - Power Common ——➔ Relay Pack

FIG: Wrng

Figure 7: Wiring the Thermostat Controller to Relay Pack

> ⚠ **CAUTION: Risk of Electric Shock.** Disconnect the 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 T62x Series Thermostat Controller.

To wire the thermostat controller:

1. Strip the ends of each wire a 1/4 in. (6 mm) and connect them to the appropriate screw terminals as indicated in Table 1.

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.

Note: 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. Reattach the thermostat controller cover to the mounting base (top side first).

5. Use a Phillips-head screwdriver to reinstall the security screw on the bottom of the thermostat controller cover if desired. The security screw comes packaged separately in a plastic bag with the thermostat controller.

Table 1: T62x Thermostat Controller Terminal Identification

Terminal Number	Function
3	Tx-Rx Communication
4	Power Hot 7.0 VDC
5	Power Common
13	BI 1 (Configurable)
14	Scom
15	BI 2 (Configurable)

Relay Packs

Only one relay pack controller with remote monitoring inputs can be used under a single T62x controller. All other slave units must be relay packs **without** remote inputs.

Wiring from the T62xx Thermostat Controller to the First Relay Pack

To wire from the T62xx Thermostat Controller to the first relay pack, use:

• existing or new field wires

• 3 minimum required 14-22Ga solid or stranded, shield not necessary

Note: Ensure total wiring does not exceed 400 feet in length.

Wiring from the T62x Thermostat Controller to All Other Relay Packs

To wire from the T62x Thermostat Controller to all the other relay packs, use:

• existing or new field wires

• 2 minimum required 14-22 Ga solid or stranded. Shield not necessary

• connect only common and Tx/Rx communication

**Note:** Ensure total wiring does not exceed 400 feet in length.

Wiring the Remote Inputs to Relay Pack

Table 2 describes how to wire remote inputs to the relay pack.

Table 2: Relay Pack Terminal Identification

Remote Input	By Configuration
RUI I	None (Monitoring Only)
	Local Changeover Sensor (10K Type 2 COS)
	Local Changeover Contact (COC NO or COC NC)
	Service Alarm (Service)
	Filter Alarm (Filter)
RBI 2	None (monitoring only)
	Service Alarm (Services)
	Filter Alarm (Filter)
SS Supply Sensor	10K Type 2 Monitoring Only
	Auto Detected
RS Return Air Sensor	10K Type 2 Main Temperature Control
	Auto Detected (Bypasses the T62x Thermostat Controller)

Figure 8 shows the relay pack remote inputs wiring example.
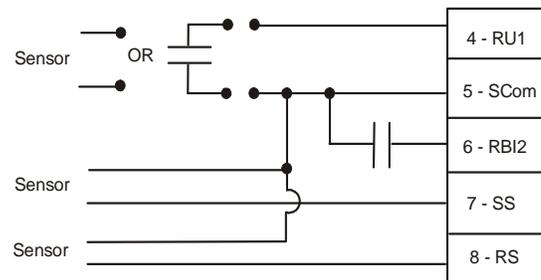
Figure 8: Wiring Relay Pack Remote Inputs

Relay Pack LED Operation

Table 3 describes the Relay Pack Status LED operation.

Table 3:   Relay Pack LED Operation

Status LED Condition	Possible Cause	Possible Solution
2 Short Blinks	No communication between the T62x thermostat controller and the relay pack. The relay pack resumes the output **no communication active** status.	Check communication wiring and/or power cycle the controllers.
2 Short Blinks and a Longer Blink	Normal communication between the T62x thermostat controller and the relay pack.	—

Figure 9 shows the LED Time Status operation.
Figure 10 displays how to wire the high side of the R-MPR2x-0 Relay Pack. Figure 11 shows how to wire SSR Reheat.
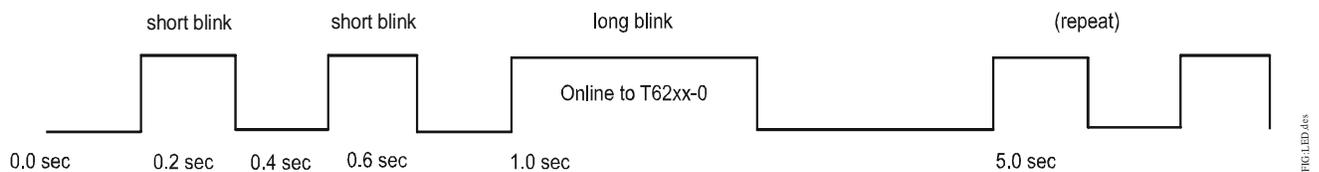
Figure 9: LED Time Status
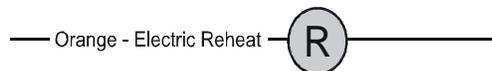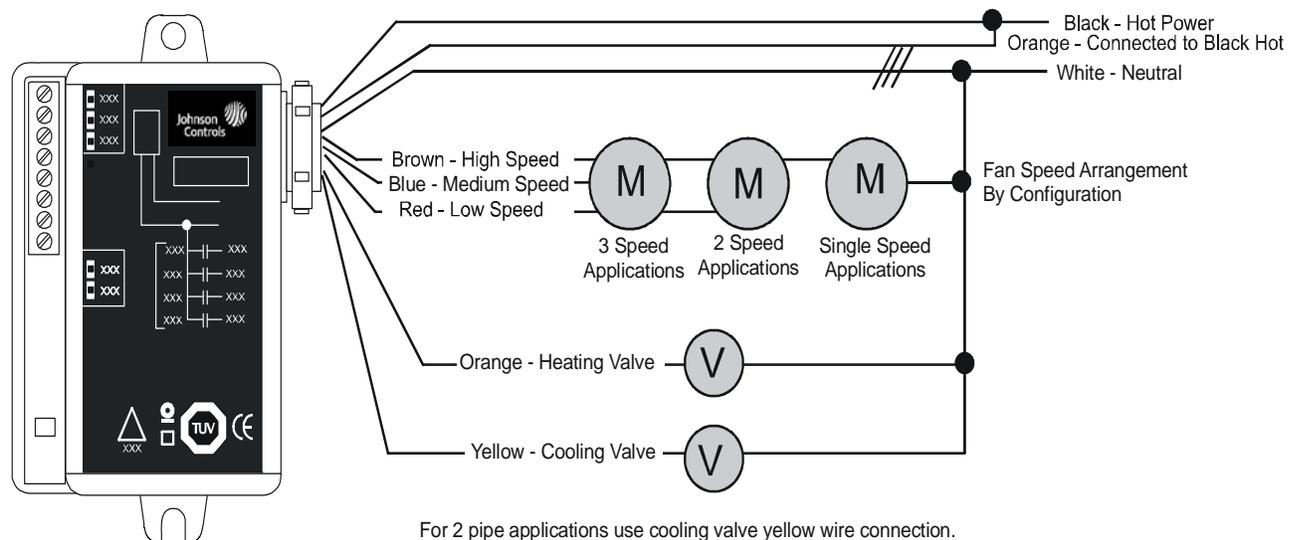
Figure 10: Relay Pack Wiring Example

Figure 11: Wiring Electric Heat SSR Example

Setup and Adjustments

**Figure 12: Front Cover to T62 Thermostat Controller
(T62x Model)**

Thermostat Controller Operation Overview
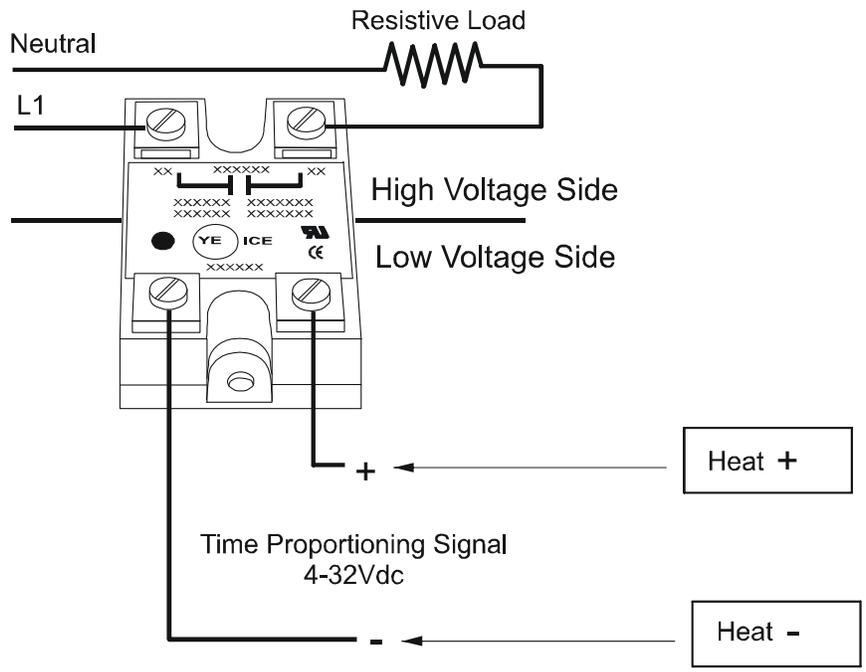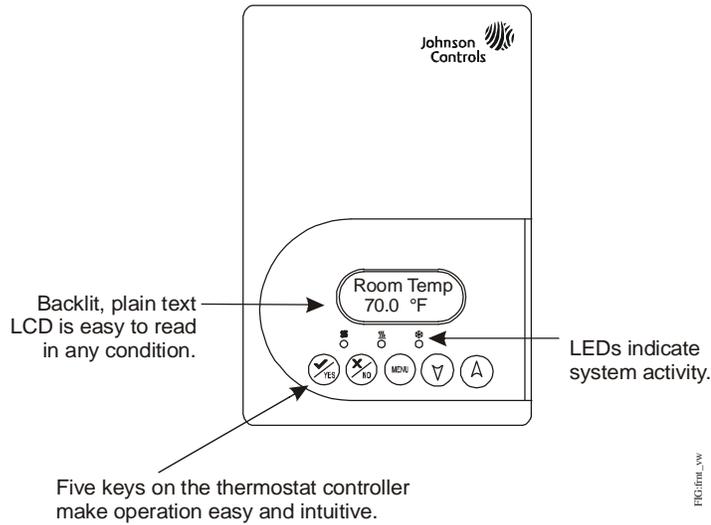
This section details the T62x Thermostat Controller features.

Thermostat Controller User Interface Keys

The T62x Series Thermostat Controller user interface consists of five keys on the front cover (as illustrated in Figure 12). The function of each key is as follows:

- Use the **MODE** key to toggle among the system modes available, as defined by selecting the appropriate operation sequence in the Installer Configuration Menu (for example, Off, Heat, Cool, Auto).

  Note: If the automatic changeover function (auto function) is enabled in the sequence of operation (**SeqOpera**), then automatic changeover heating or cooling demand overrides the mode when **MODE** = **off**.

- Use the **FAN** key to toggle among the fan modes available, as defined by selecting the appropriate fan menu options defined in the Installer Configuration Menu (for example, Low, Med, High, Auto).

- Use the **°C/°F** key (on T620H-0 and T621H-0 models) or the **Override** key (on T620C-0 and T621C-0 models) to change the temperature scale to either Celsius or Fahrenheit and allow access to the Installer Configuration Menu. See the *Configuring the T62xx Series Thermostat Controllers* section.

- Use the **UP/DOWN** arrow keys to change the configuration parameters and to activate a setpoint adjustment.

Backlit LCD

The T62x Series Thermostat 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 thermostat 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.

Status Display Menu

The Status Display Menu is displayed during normal thermostat controller operation. This menu continuously scrolls through the following parameters:

- Room Temperature (All Models) and Humidity (T621H-0 and T621C-0 Models)

Note: For models with dehumidification capability, the default setting is no humidity reading on the display (**%RH disp** parameter is set to **off**). The **%RH disp** parameter must be set to **on** to display the current humidity reading.

- System Mode

- Applicable Alarms – The backlight lights up as an alarm condition is displayed.

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

Dehumidification Operation — T621C-0 and T621H-0 Thermostat Controller Models

Dehumidification activates when the room humidity is above the adjustable humidity setpoint as sensed by the integral humidity sensor.

Note: Dehumidification operation functions only in the Cooling mode; dehumidification operation does not function in either the Off or the Heating mode.

The minimum deadband between the Heating and Cooling setpoints is adjustable from 2.0F°/1.0C° to 5.0F°/2.5C°, as defined by the **Deadband** parameter in Table 4. If the room temperature resides in the deadband between the Heating and Cooling setpoints:

- the thermostat controller forces the fan to low speed

- the chilled water valve opens to the specified maximum value set by **CoolMax**

- the thermostat controller stages Heating to maintain the room temperature at the Cooling setpoint, as sensed by the thermostat controller

If the room temperature falls below the result of the formula **1 + Cooling Setpoint – Deadband**, then the thermostat controller disables dehumidification operation.

If the thermostat controller is in Cooling demand:

- the chilled water valve opens to 100%

- the thermostat controller stages Heating to maintain the room temperature at the Cooling setpoint, as sensed by the thermostat controller

If the thermostat controller is in Cooling demand and the room temperature rises 2F°/1C° above the Cooling setpoint, the thermostat controller automatically disables dehumidification operation. Likewise, if the thermostat controller is in Cooling demand and the room temperature falls below the current Heating setpoint, the thermostat controller disables dehumidification operation.

Configuring the T62xx Series Thermostat Controllers

The T62xx Series Thermostat Controller comes from the factory with default settings for all configurable parameters. The default settings are shown in Table 4. To reconfigure the parameters via the thermostat controller, follow the steps in this section.

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

Note: If the **Password** parameter is configured, Password 0 appears on the thermostat 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 **MODE** key to proceed through the Installer Configuration Menu parameters.

2. Once the Installer Configuration Menu begins, press and release the center key to scroll through the parameters listed in Table 4.

3. When the desired parameter is displayed, use the **UP/DOWN** arrow keys to choose the desired selection option.

4. Press and release the center key to continue scrolling through the parameters.

Note: Pressing the **FAN** key during configuration restarts the list of displayed parameters at the first parameter listed in Table 4.

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

Configuring Inputs BI1 and BI2

When BI1 and BI2 are 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.

Each input can be configured to the selection options included in Table 4.

Configuring the Sequence of Operation (SeqOpera)

Choose the appropriate sequence of operation using Table 4. The modes presented are user-dependent on the sequence of operation selected.

Configuring Automatic Fan Speed

Use the **Fan Menu** parameter in the Installer Configuration Menu to set the available fan mode options. Use the **FAN** key to select the desired fan mode option.

When selection option **(2): Low-Med-High-Auto** is chosen in the **Fan Menu** parameter, the fan operates. When selection option **(3): Low-High-Auto** is chosen in the **Fan Menu** parameter, the fan operates at only the low and high settings and ignores the medium setting. This operation applies to the Occupied mode when the fan is set to **Auto**.

Table 4: Installer Configuration Menu (Part 1 of 7)

Parameter Appearing on Display	Description and Default	Selection Options
PswrdSet	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**
BI1	Configuration of Binary Input 1. Default: **None**	**(None):** No function is associated with an input. **(Rem NSB):** Remote Night Setback (NSB) via a time clock input, an occupancy sensor, or from a voltage-free contact. Contact open = Occupied; contact closed = Unoccupied. **(MotionNO*):** Temporary occupancy request via a motion detector input. Contact open = Unoccupied. When the contact closes, the thermostat controller goes into the Occupied mode for a specified TOccTime. Once the TOccTime begins, the thermostat controller remains in the Occupied mode if the contact is open, until the TOccTime expires. **(MotionNC*):** Temporary occupancy request via a motion detector input. Contact closed = Unoccupied. When the contact opens, the thermostat controller goes into the Occupied mode for a specified TOccTime. Once the TOccTime begins, the thermostat controller remains in the Occupied mode if the contact is closed, until the TOccTime expires. **(Window):** Forces the system to disable any current heating or cooling action by the thermostat controller. The mode stays the same and the current setpoints are the same Occupied setpoints. Only the outputs are disabled. A Door/Window alarm displayed on the thermostat controller to indicate to the local tenant that the door/window needs to be closed for cooling or heating in order to resume. * These settings disable any local override function.
BI2	Configuration of Binary Input 2. Default: **None**	**(None):** No function is associated with an input. **(Door Dry)**: Door contact only has an effect if BI1 is set to MotionNO or MotionNC (See the _BI1_ parameter) or if the PIR is used. The occupancy is now dictated via BI1, BI2. Any motion detected sets the zone to Occupied status. The thermostat controller remains in the Occupied mode until the door contact switch opens momentarily, at which point the thermostat controller goes into Stand-By mode. If more movements are detected, the Occupied mode resumes. Use a Normally Closed (N.C.) switching device. (Contact open = door open; contact closed = door closed.) **(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 thermostat controller. **(Filter):** A Filter alarm is displayed. This alarm can be connected to a differential pressure switch that monitors a filter. (Contact open = no alarm; contact closed = alarm displayed). **(Service):** A Service alarm is displayed on the thermostat controller when the input is energized. This input can be tied into the air conditioning unit control card, which provides an alarm should there be a malfunction. (Contact open = no alarm; contact closed = alarm displayed).

Table 4: Installer Configuration Menu (Part 2 of 7)

Parameter Appearing on Display	Description and Default	Selection Options
RUI 1	Configuration of Remote Universal Input 1. Default: **None**	**(None)**: No function is associated with an input. **(Filter):** A Filter alarm is displayed. This alarm can be connected to a differential pressure switch that monitors a filter. (Contact open = no alarm; contact closed = alarm displayed). **(Service):** A Service alarm is displayed on the thermostat controller when the input is energized. This input can be tied into the air conditioning unit control card, which provides an alarm should there be a malfunction. (Contact open = no alarm; contact closed = alarm displayed). **(COC/NH)**: Changeover Contact/Normally Heat: A dry contact input is used to signal seasonal hot/cold water changeover. The contact closes when cold water is present. Valid only for two-pipe systems. **(COC/NC)**: Changeover Contact/Normally Cool: A dry contact input is used to signal seasonal hot/cold water changeover. The contact closes when hot water is present. Valid only for two-pipe systems. **(COS)**: Changeover Analog Sensor: Used for hot/cold water changeover switching. Valid only for two-pipe systems. (Parameter Pipe No is set to 2.0.) If the water temperature is greater than 78°F/ 26°C, hot water is present. If the water temperature is less than 75°F/ 24°C, cold water is present. **Note:** Choose the selection option (0): Cooling Only for the SeqOpera parameter to allow changeover to occur between Cooling Only and Heating Only. The changeover sensor does not operate in Cooling and Reheat, Heating and Reheat, or Cool/Heat Four-Pipe and Reheat applications.
RBI 2	Configuration of Remote Binary Input_2. Default: **None**	**(None):** No function is associated with an input. **(Filter):** A Filter alarm is displayed. This alarm can be connected to a differential pressure switch that monitors a filter. (Contact open = no alarm; contact closed = alarm displayed). **(Service):** A Service alarm is displayed on the thermostat controller when the input is energized. This input can be tied into the air conditioning unit control card, which provides an alarm should there be a malfunction. (Contact open = no alarm; contact closed = alarm displayed).
MenuScro	Gives the option of having the display continuously scroll the parameters. Default: **on**	**(off):** The scroll is inactive. **(on):** The scroll is active.

Table 4: Installer Configuration Menu (Part 3 of 7)

Parameter Appearing on Display	Description and Default	Selection Options			
AutoMode	Enables the auto function to be visible within the **MODE** key menu. (The **MODE** key is the key at the far left of the thermostat controller cover.) Default: **on**	**(on):** The auto function is active (Off-Auto-Heat-Cool). Provides automatic changeover between heating and cooling. **(off):** The auto function is inactive (Off-Heat-Cool). For sequences, 2, 4, and 5 only.			
		Selection Option		**Mode Menu**	
		0	Cooling Only	Off - Cool	
		1	Heating Only	Off - Heat	
		2	Cooling/ Heating Cooling with Electric Reheat	Off - Heat - Cool	
		3	Heating with Electric Reheat	Off - Heat	
		4	Electric Reheat Only	Off - Heat	
C or F	Sets the scale for T62x Thermostat Controller Default: **°F**	**°F** for Fahrenheit scale **°C** for Celsius scale On T62xH-0 thermostat controller models, this sets the default value upon startup.			
%RH disp Local %RH disp	Displays the current humidity reading (T621 models). Default: **off**	**(on):** Displays the current humidity reading in % RH. **(off):** Does not display the current humidity reading.			
Lockout	Selectable Lockout Levels for limiting end-user keypad interaction. Default: **0**	**Lockout Level**	**Function**		
			Mode Setting	**Fan Setting**	**Local Override**	**Occupied Temperature Setpoints**
		(0)	Access	Access	Access	Access
		(1)	Access	Access	No Access	Access
		(2)	No Access	No Access	Access	Access
		(3)	No Access	No Access	No Access	Access
		(4)	No Access	No Access	Access	No Access
		(5)	No Access	No Access	No Access	No Access
Pipe No	Selectable number of pipes in the system. Default: **4.0 Pipes**	**(2.0 Pipes):** Limits the number of sequences of operation available from 0 to 4, and enables heat/cool operation from the same output. **(4.0 Pipes):** Allows access to all sequences of operation from 0 to 2, and enables heat/cool operation from different outputs.			
PulsedHt	Determines VDC output configuration Default: **Off**	**(off):** Regular on-off control for R-MPR2x-0 models only. Use with 2-pipe and 4-pipe applications. **(on):** VDC SSR electric heat 10 second pulsed time base modulation for R-MPR2x-0 thermostat controllers.			

Table 4: Installer Configuration Menu (Part 4 of 7)

Parameter Appearing on Display	Description and Default	Selection Options			
SeqOpera	Determines the sequence of operation. Default: **1**	**Sequence of Operation**		**Default Based on AutoMode Parameter Setting**	
				2-Pipe[1]	**4-Pipe**
		(0): Cooling Only		Available	Available
		(1): Heating Only		Available	Available
		(2): Cooling/Heating or Cooling with Electric Reheat		Available Cooling with Electric Reheat	Available Cooling/ Heating
		(3): Heating and Electric Reheat		Available	Not Available
		(4): Electric Reheat Only		Available	Not Available
		Note: For 2-Pipe output applications, the system access is limited if RUI1 is configured for local changeover COS, COC/NC or COC/NC. The available system mode for the local configuration or network write is then limited by the current water temperature detected by the RUI1. For sequences 2 and 3, set PulsedHt to On to enable pulsed electric reheat applications with T62xx-0 thermostat.			
Fan Menu	Sets the fan mode options. Default: **4**	**(0):** Low-Med-High: Three-speed configuration using three fan relays (L-M-H). The default is **High**. **(1):** Low-High: Two-speed configuration using two fan relays (L-H). The default is **High**. **(2):** Low-Med-High-Auto: Three-speed configuration with Auto Fan speed mode using three fan relays (L-M-H). The default is **High**. **(3):** Low-High-Auto: Two-speed configuration with Auto Fan speed mode using two fan relays (L-H). The default is **High**. **(4):** On-Auto: One-speed configuration, (H) Auto is for Fan on demand and On is for Fan on all the time. The default is **Auto**.			
DHumiLCK	Locks out the dehumidification capability (T621x models). Default: **on**	**(off):** Dehumidification is locked out. **(on):** Dehumidification is allowed.			
%RH set[2]	Sets the dehumidification setpoints (T621x models). This parameter can be used only if the dehumidification sequence is enabled. Default: **50.0% RH**	Range: **30.0** to **95.0% RH**			
DehuHyst[2]	Sets the dehumidification hysteresis (T621x models). This parameter can be used only if the dehumidification sequence is enabled. Default: **5.0% RH**	Range: **2.0** to **20.0% RH**			
DehuCool[2]	Sets the maximum dehumidification cooling output (T621x models). This parameter can be used only if the dehumidification sequence is enabled. Default: **100%**	Range: **20.0** to **100.0%** **Note:** This parameter can be used to balance smaller reheat loads installed with regard to the capacity of the cooling coil.			

Table 4: Installer Configuration Menu (Part 5 of 7)

Parameter Appearing on Display	Description and Default	Selection Options	
St-By HT	Sets the Stand-By heating setpoint. Default: **69.0°F/20.5°C**	The value of this parameter should reside between the Occupied and Unoccupied heating setpoints, and ensure that the difference between the Stand-By and Occupied value can be recovered in a timely fashion when movement is detected in the zone. Range: **40.0°F/4.5°C** to **90.0°F/32.0°C**	
St-By CL	Sets the Stand-By cooling setpoint Default: **78.0°F/25.5°C**	The value of this parameter should reside between the Occupied and Unoccupied cooling setpoints, and ensure that the difference between the Stand-By and Occupied value can be recovered in a timely fashion when movement is detected in the zone. Range: **54.0°F/12.0°C** to **100.0°F/37.5°C**	
Unocc HT	Sets the Unoccupied heating setpoint value. Default: **62.0°F/16.5°C**	Range: **40.0°F/4.5°C** to **90.0°F/32.0°C**	**Note:** When adjusting the temperature, press the UP/DOWN arrow keys to change the temperature in 0.5F°/0.5C° increments; press and hold the UP/DOWN arrow keys to change the temperature in 5.0F°/5.0C° increments.
Unocc CL	Sets the Unoccupied cooling setpoint value. Default: **80.0°F/26.5°C**	Range: **54.0°F/12.0°C** to **100.0°F/37.5°C**	
Heat max	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	Sets the Occupied and Unoccupied minimum cooling setpoint values. Default: **54.0°F/12.0°C**	Range: **54.0°F/12.0°C** to **100.0°F/37.5°C**	
Pband	Sets the proportional band used by the thermostat controller Proportional-Integral (PI) control loop. Default: **3.0F°/1.7C°** **Note:** The proportional band default setting of 3.0F°/1.7C° provides satisfactory thermostat controller operation in most instances. A proportional band setting other than the default is normally used in installations where the location of the thermostat controller is problematic, leading to unwanted cycling. An example of a problematic installation is a wall-mounted thermostat controller installed between the return and supply air feeds, that is directly influenced by the supply air stream.	**(3):** 3.0F°/1.2C° **(4):** 4.0F°/1.7C° **(5):** 5.0F°/2.2C° **(6):** 6.0F°/2.8C° **(7):** 7.0F°/3.3C° **(8):** 8.0F°/3.9C° **(9):** 9.0F°/5.0C° **(10):** 10.0F°/5.6C°	
Set type	Provides the option of temporarily changing the heating or cooling setpoint by pressing the UP/DOWN arrow keys. Default: **permnent**	**(temporar):** Local changes to the heating or cooling setpoints are temporary, and remain effective for the specified TOccTime. **(permnent):** Local changes to the heating or cooling setpoints are permanently stored in the thermostat memory.	

Table 4:   Installer Configuration Menu (Part 6 of 7)

Parameter Appearing on Display	Description and Default	Selection Options
Spt Func	Determines the operation and usage of the local setpoint interface by the user. Default: **Dual Stp**	**(Attch Stp):** Single Occupied Setpoint Adjustment. The displayed setpoint is the setpoint from the last action taken by the thermostat controller, or the setpoint currently in use. Both the heating and cooling setpoints are changed simultaneously, while respecting the minimum configured deadband. If one setpoint is desired over the other, use the MODE key to toggle between the two setpoints. **(Dual Stp):** Dual Occupied Setpoint Adjustment. The displayed setpoint is the setpoint from the last action taken by the thermostat controller, or the setpoint currently in use. The heating and cooling setpoints can be separated individually, allowing the minimum configured deadband to expand. If one setpoint is desired over the other, use the MODE key to toggle between the two setpoints.
TOccTime	Sets the duration of the Temporary Occupancy Time when the heating or cooling setpoints in the Occupied mode are established by: • an override function enabled from a remote override (when the thermostat controller is in the Unoccupied mode) • a temporary heating or cooling setpoint Default: **2.0 hrs**	Range: **0.0** to **24.0 hrs** adjustable in 1-hour increments
Deadband	Sets the minimum deadband between the heating and cooling setpoints. Default: **2.0F°/1.0C°**	Range: **2.0F°/1.0C°** to **5.0F°/2.5C°** adjustable in 1.0F°/0.5C° 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°**	Range: **-5.0F°/-2.5C°** to **5.0F°/2.5C°** adjustable in 1.0F°/0.5C° increments
Cal RH	Sets the desired humidity sensor calibration (offset). The offset can be added to or subtracted from the actual displayed room humidity (T621x models). This parameter can be used only if the dehumidification sequence is enabled. Default: **0.0% RH**	Range: **-15.0% RH** to **15.0% RH** adjustable in 1% RH increments
Auto Fan	Affects the auto mode of operation for the following **Fan Menu** parameter selection options only: • **(2):** Low-Med-High-Auto • **(3):** Low-High-Auto Default: **AS**	**(AS AD):** The fan is on Auto during occupied periods. The Med and High speeds operate automatically on a temperature error from the setpoint. The Low speed operates Auto on demand. When there is no demand, the Low speed shuts down. The Low speed is only re-activated when there is a heating or cooling demand. **(AS):** The fan is always on during occupied periods. The fan is on Auto during unoccupied periods. The Low, Med, and High speeds operate automatically on a temperature error from the setpoint.
Cool Cph	Sets the maximum number of cooling cycles per hour (T621x models). Default: **4.0 Cph**	Range: **3.0** to **8.0** cycles per hour

Table 4: Installer Configuration Menu (Part 7 of 7)

Parameter Appearing on Display	Description and Default	Selection Options
Heat Cph	Sets the maximum number of heating cycles per hour (T621x and on/off CntrlTyp models) Default: **4.0 Cph**	Range: **3.0** to **8.0** cycles per hour
CoolNoNc	Sets the normally open or close device Default: **NC**	**(NC)**: valve is normally closed when no power is present **(NO)**: valve is normally opened when no power is present
HeatNoNc	Sets the normally open or close device Default: **NC**	**(NC)**: valve is normally closed when no power is present **(NO)**: valve is normally opened when no power is present
Fan Cont	Sets the fan control Default: **on**	Fan control in heating mode. **(on):** The controller, in all cases, always controls the fan (terminals Low-Med-Hi Fan Speed). Valid in any fan sequences and all the available fan modes. **(off Auto):** The controller, in all cases, disables the fan (terminals Low-Med-Hi Fan Speed). Only when the local fan mode is set to Auto. Valid in all fan sequences with auto mode. **(off All):** The controller, in all cases, disables the fan (terminals Low-Med-Hi Fan Speed). When the local fan mode is set to ANY mode. Valid in all fan sequences and all local fan modes.

1. For 2-Pipe output applications, the system access is limited if the RUI 1 is configured for local changeover COS, COC/NC or COC/NC. The current water temperature detected by the RUI 1 then limits the system mode available for the local configuration network write.
2. 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.

Accessories

All the accessories in Table 5 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 T62xx Series Thermostat Controller fails to operate within its specifications, replace the unit. For a replacement thermostat controller, contact the nearest Johnson Controls representative.

Table 5: Accessories (Order Separately)

Code Number	Description
SEN-600-1	Remote Inside Air Temperature Sensor
TE-6361M-1	Duct Mount Air Temperature Sensor
TE-636S-1	Strap-Mount Temperature Sensor

Technical Specifications

T62xx Series Thermostat Controllers

Power Requirements		7 VDC, 2.4 watts (minimum) Terminals 4 (+) and 5 (Com) supplied by first relay pack
Wire Size		18 AWG (1.0 mm Diameter) Maximum, 22 AWG (0.6 mm Diameter) Recommended
Binary Inputs		Voltage-Free Contacts across Terminal Scom to Terminals BI1 or BI2
Temperature Senor Resolution		±0.2F° (±0.1C°)
Temperature Sensor Type		Local 10k ohm 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
Dehumidification Setpoint Range		30% to 95% RH
Accuracy	Temperature	±0.9F°/±0.5C° at 70.0°F/21.0°C Typical Calibrated
	Humidity	±5% RH from 20 to 80% RH at 70.0°F/21.0°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	cTUVus Listed, Tested to UL 873, Temperature Indicating and Regulating Equipment
		FCC Compliant to CFR 47, Part 15, Subpart B, Class A
	Canada	cTUVus Listed, Tested to UL 873, 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		0.75 lb (0.34 kg)

Relay Packs (Part 1 of 2)

Line Voltage Electrical Connections	
Power Requirements	Black: Hot Wires, White: Neutral Wires 90 to 277 VAC Universal, 50-60 Hz
Fan Relay Output Rating	Brown: High Wires, Blue: Medium Wires, Red: Low Wires
Cooling Valve	Yellow Wire 5 A at 277 VAC Maximum
Heating Valve	Isolated Orange Wires 10 A at 277 VAC Maximum
Low Voltage Electrical Ratings	
Terminal 1: Tx/Rxz	Digital Serial Communications to Thermostat (5 VDC)
Terminal 2: 7 VDC	7 VDC Output, 4 W Maximum, Powers One Thermostat
Terminal 3: Com	Power and Serial Communications Common
Terminal 4: RUI 1	Remote Universal Input: NTC Thermistor, 10K Ohm Type 2 Voltage-Free Dry Contact
Terminal 5: SCom	Signal Common for Terminals

Relay Packs (Part 2 of 2)

Terminal 6: RBI 2		Remote Binary Input; Voltage-Free Dry Contact
Terminal 7: SS		Supply Air Sensor; NTC Thermistor, 10K Ohm Type 2
Terminal 8: RS		Return Air Sensor; NTC Thermistor, 10K Ohm Type 2
Terminal 9: Heat (-)		Pulsed DC Output, SInking/Open-Drain: Connect to (-) Terminal of Opto-Isolator 10 Second Pulse Width with Variable Duty Cycle (0 to 100% at 1% Increments)
Terminal 10: Heat (+)		Voltage Source Connect to (+) Terminal of Opto-Isolator Tolerance = 6.8 to 7.4 VDC Maximum Allowable Load Current = 45 mA (150 Ohm at 6.8 VDC)
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 CE	**United States**	cTUVus Listed, Tested to UL 873, Temperature Indicating and Regulating Equipment
		FCC Compliant to CFR 47, Part 15, Subpart B, Class A
	Canada	cTUVus Listed, Tested to UL 873, Temperature Indicating and Regulating Equipment
		Industry Canada, ICES-003
	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		0.75 lb (0.34 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.

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Installation Instructions
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