

### Product Overview

The VI-PIR Accessory covers with embedded Passive Infra-Red motion detector have been specifically designed to work with all compatible VT7000 series thermostats. Thermostats compatible with VI-PIR covers use the following part number assignments: VT7xxxX5x21(X). The 5 identifies the thermostat base thermostat has the necessary onboard polarized PIR connector and functionality added.

When equipped with a VI-PIR accessory cover or a remote PIR sensor attached to one of the remote input, a VT7000 series thermostat provides advanced active occupancy logic, which will automatically switch occupancy levels from Occupied to Stand-By and Unoccupied as required by local activity being present or not.

This advanced occupancy functionality provides advantageous energy savings during occupied hours without sacrificing occupant comfort.



The range of applications covered with the PIR occupancy logic can be segmented in 2 important categories in terms of functionality. Both use different settings and have different behaviours:

- Hotel and lodging applications
- Standard commercial applications

Typical applications that can be met by the new PIR accessory covers range from:

- Stand-alone lodging FCU applications
- Networks lodging FCU applications fully integrated to a reservation system
- Networked or stand-alone conference rooms
- Networked or stand-alone classrooms units
- Any commercial offices that have random occupancy schedules during occupied hours as dictated by the function of the tenant
- Or any controlled piece of HVAC equipment that may yield energy savings with the introduction of a new automatic stand-by level of occupancy.

The additional following documents are available at: [www.taco-hvac.com](http://www.taco-hvac.com)

- PIR application information and examples, are available on document: PIR Application Guide 102-354
- PIR cover installation information is available on document: PIR Cover Install Guide 102-355
- Information on the LON models (VT73xxX5021E), is available on document 102-221
- Information on the BACnet models (VT73xxX5021B), is available on document 102-222

### VI- PIR Cover Models Available

Taco PIR Cover Part Number	Description	Compatible with the Following Thermostats
COV-PIR-FCU-C-5021	PIR cover with Commercial FCU interface	VT73x0X5021(X)
COV-PIR-FCU-L-5021	PIR cover with Hotel/Lodging interface	VT73x5X5021(X)
COV-PIR-HPUMP-5021	PIR cover for heat pump thermostats	VT76xxH5021(X)x
COV-PIR-RTU-5021	PIR cover for roof-top thermostats	VT76xxX5021(X)
COV-PIR-ZN-5021	PIR cover for zoning thermostats	VT7200X5021(X)

## Configuration Parameters Associated with the Taco PIR Accessory Covers

The following configuration parameters are specifically provided as standard on all VT7000 series thermostats. They are associated with the advanced occupancy functionality introduced with the addition of a PIR cover or a remote PIR sensor. These parameters will allow the installer to set the thermostat occupancy functions exactly as required by the application.

Their functionality only becomes active if a PIR accessory cover is connected or one of the binary/digital input is configured to use a remote PIR sensing device.

Configuration Parameter	Description of Configuration parameter
<b>BI or DI input door setting</b>  Default: None for no function used	<p>It is possible to configure some of the digital or binary inputs to effectively use the advanced functions allowed by the installation of a door switch contact. This function is mostly used with fan coil units in lodging applications</p> <p>When a door contact is used and configured, the Stand-By timer is no longer active. The occupancy toggle between occupied and stand-by is now dictated by both the door contact and the PIR cover.</p> <ul style="list-style-type: none"> <li>• Movement detected by the PIR cover = Always occupied</li> <li>• Door opens / closes detected by the door switch = Stand-by mode</li> </ul>
<b>Stand-by Heating Set point:</b>  Default: 69 °F ( 20.5 °C )	<p>This parameter sets the stand-by heating setpoint value.</p> <p>The set value of this parameter should reside between the occupied and unoccupied heating setpoints and make sure that the difference between the stand-by and occupied value can be recovered in a timely fashion when movement is detected in the zone.</p> <p>Adjustable from 40 to 90 °F ( 4.5 to 32 °C ) in 0.5 degree increments.</p>
<b>Stand-by Cooling Set point:</b>  Default: 78 °F ( 25.5 °C )	<p>This parameter sets the stand-by cooling setpoint value.</p> <p>The set value of this parameter should reside between the occupied and unoccupied cooling setpoints and make sure that the difference between the stand-by and occupied value can be recovered in a timely fashion when movement is detected in the zone.</p> <p>Adjustable from 54 to 100 °F ( 12.2 to 37.8 °C ) in 0.5 degree increments.</p>
<b>Stand-by Time:</b>  Default 0.5 hours	<p>This parameter sets the time delay between the moment where the PIR cover detected the last movement in the area and the time which the thermostat stand-by mode and setpoints become active.</p> <p>Adjustable from 0.5 to 24 hours in .5hr increments</p>
<b>Unoccupied Time:</b>  Default 0.0 hours	<p>If no movement are detected in the area and the current mode is stand-by. This parameter will then set the time delay between the moment where the thermostat toggles to stand-by mode and the time which the thermostat unoccupied mode and setpoints become active.</p> <p>The factory value or <b>0.0 hours</b>: Setting this parameter to its default value of 0.0 hours disables the unoccupied timer. This prevents the thermostat to drift from stand-by mode to unoccupied mode when PIR functions are used</p> <p>Adjustable from 0.0 to 24 hours in .5hr increments</p>

## Important Notes and Things to Know

When reviewing the following document and planning an application using a Taco thermostat with PIR functionality, please remember the important following notes:

- **Configuration of PIR Functions:** All PIR application related configuration parameters are displayed in the configuration menu or available as objects in the network object list. However, the advanced occupancy functionality of a PIR attached to a thermostat is only enabled if either:
  - A Taco VI-PIR cover is installed on the thermostat
  - A remote input is configured as a remote PIR sensor ( **Motion NO or Motion NC** )
- **PIR Cover Warm-Up Period:** When VI-PIR accessory cover is used and a thermostat is powered up; there will be a 1 minute warm up period before any local movements can be detected and acknowledged by the PIR sensing device. The local status LEDs for the VI-PIR cover will also not be active during that one minute period.

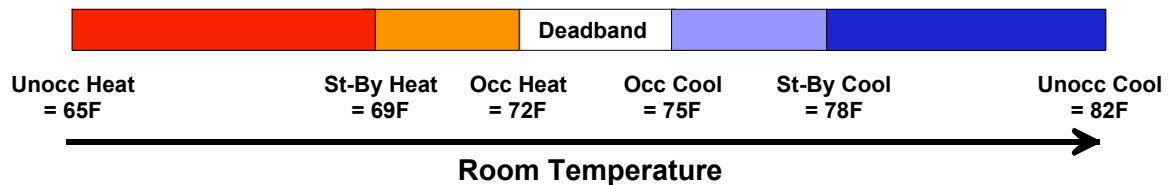
Only when that 1 minute period has elapsed after initial power up of the thermostat will the PIR functionality and local movement status LEDs be activated.

- **Setpoints:** The implemented stand-by setpoints are under the same limitations and restrictions as the occupied and unoccupied ones. This means that:
  - They use exactly the same range:
    - Heating setpoints range are: 40 to 90 °F ( 4.5 to 32.0 °C )
    - Cooling setpoints range are: 54 to 100 °F ( 12.0 to 37.5 °C )
  - They are always limited by the applied minimum deadband configuration
  - They will be limited by the Heat Maximum and Cool Minimum configuration parameters

All individual cooling setpoints and all individual heating setpoints can be set independently. However, A typical arrangement will always have the set value of the stand-by parameters residing between the corresponding occupied and unoccupied setpoint values.

The installer must make sure that the difference between the stand-by and occupied value can be recovered in a timely fashion when movement is detected in the zone and large enough to warrant maximum energy savings.

Ex.:



- **Application Range:** The range of applications covered with the PIR occupancy logic can be segmented in 2 important categories in terms of functionality. Both use different settings and have different behaviours:
  - Hotel and lodging applications
  - Standard commercial applications

**Hotel and Lodging Applications** can benefit the addition of an entry door switch wired to one of the appropriately configured remote input of a thermostat.

When a door contact is used and configured, the Stand-By timer and its configuration are no longer active or used. The occupancy front toggle between occupied and stand-by is now simply dictated by both the door contact and the PIR sensing device used.

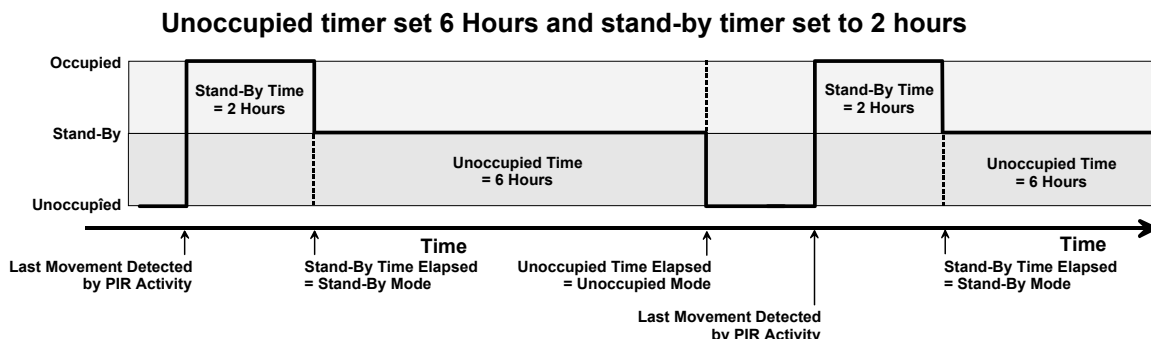
If movements are detected by the PIR cover, the room will always be occupied. The switch back to stand-by mode will only happen if the door switch toggles open / close. Please review attached lodging application examples in the document for more information

**Standard Commercial Applications** would not typically use a remote door switch contact attached to the thermostat.

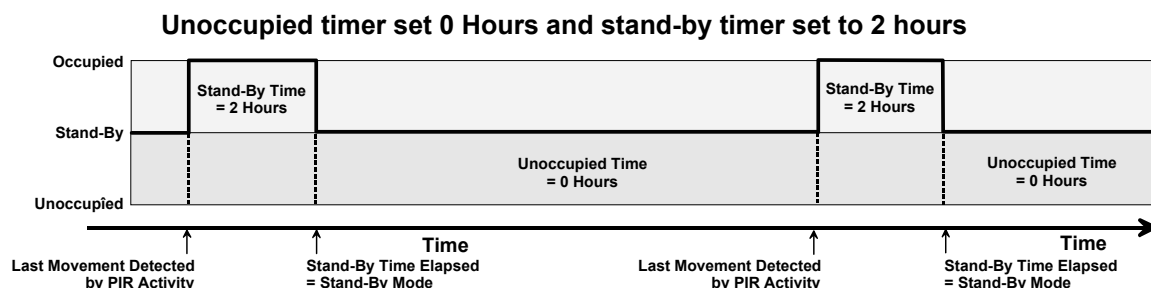
PIR occupancy functionality is simply dictated by both the Stand-By Timer and Unoccupied Timer configuration value and movements being present or not in the area. Please review attached typical commercial application examples in the document for more information

- **Unoccupied Timer Disable:** In certain application cases, it may be desired to never let the local area enter the unoccupied mode and always stay at the stand-by occupancy level when no activity is present.

This allows for advanced flexibility when used in conjunction with a network or in cases when areas always need to be on stand-by status ready to respond to demand at any point in time.



When the local PIR occupancy routine is running at the thermostat, the zone will drift into unoccupied mode when the unoccupied timer is set above its factory default value of 0.0 hours



When the local PIR occupancy routine is running at the thermostat, the zone will never drift into unoccupied mode when the unoccupied timer is set to its factory default value of 0.0 hours

- **Network Priority and Local Occupancy Routine:**

The internal PIR occupancy logic implementation in conjunction with network commands has been conceived to give the most flexibility while allowing for simple implementation and use.

**Network Occupancy Commands:** All VT700 series thermostat have 3 occupancy command levels. This is valid for all network variations available for the thermostats: LON, BACnet-MS-TP or Wireless.

The 3 levels occupancy state level commands are:

State Occupancy Command Levels	Function
Local occupancy	<ul style="list-style-type: none"> <li>- Releases the thermostat to its own occupancy schemes</li> <li>- This may be a PIR sensing device, a local schedule or an occupancy routine done by one of the digital input</li> <li>- This state command level is used to effectively release the thermostat to use the PIR functions</li> </ul>
Occupied	<ul style="list-style-type: none"> <li>- Leaves the thermostat in occupied mode and cancels any local occupancy functions, including the PIR occupancy routine</li> <li>- This state command level is used to force the zone to be always occupied</li> </ul>
Unoccupied	<ul style="list-style-type: none"> <li>- Leaves the thermostat in unoccupied mode and cancels any local occupancy functions, including the PIR occupancy routine</li> <li>- This state command level is used to force the zone to be always unoccupied.</li> <li>- The only local possible command is a local override if the thermostat is equipped with such an option or if the local keypad lockout allows so</li> </ul>

Stand-by is never a commandable level. It only exists as a feedback status level.

**Network Occupancy Feedback Status:** All VT700 series thermostats have 4 occupancy feedback levels. This is valid for all network variations available for the thermostats: LON, BACnet-MS-TP or Wireless.

State Occupancy Command Levels	Function
Override / By-Pass	Indicates that the zone is currently local occupied override mode from the unoccupied state  This function will operate like a normal local override and its time value is as dictated by the ToccTime configuration parameter setting
Occupied	Indicates that the zone is currently occupied  This effective feedback state may be driven by a local occupancy routine like a PIR sensor or by an occupied network command
Stand-By	Indicates that the zone is currently in stand-by mode  This effective feedback state <u>can only</u> be driven by a local PIR occupancy routine
Unoccupied	Indicates that the zone is currently unoccupied  This effective feedback state may be driven by a local occupancy routine like a PIR sensor or by an unoccupied network command

### 1) BACnet Object Used for Occupancy Commands and Feedback

Object Name	Object ID	BACnet Index	Text
Occupancy Command	MV 13	1	Local Occupancy ( PIR or Internal Schedule )
		2	Occupied
		3	Unoccupied
Effective Occupancy	MV 83	1	Occupied
		2	Unoccupied
		3	Temporary Occupied
		4	Stand-By

### 2) LON Snivets Used for Occupancy Commands and Feedback

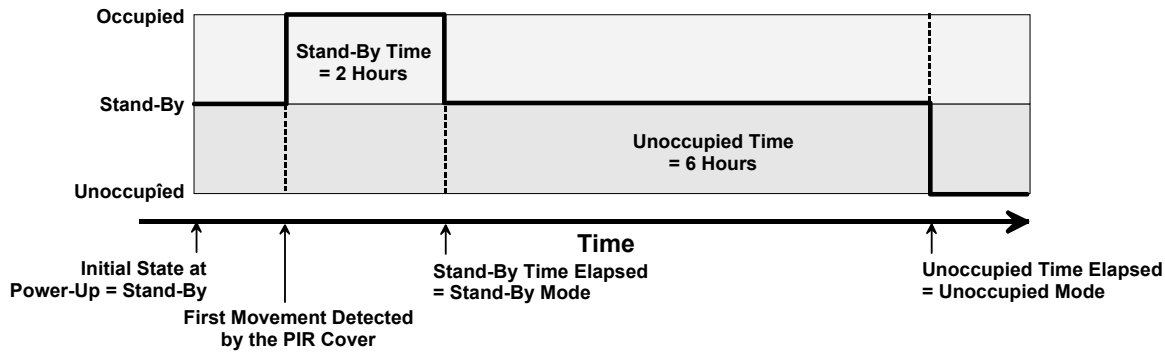
Snivet Name	Notes and Indexes
network input SNVT_occupancy <b>nviOccCmd</b>	<ul style="list-style-type: none"> <li>➤ Default Null Value: OC_NUL = 0xFF Releases the thermostat to its internal Occupancy function: Internal scheduling, PIR, etc....</li> <li>➤ Valid Range: <ul style="list-style-type: none"> <li>0 = OC_OCCUPIED</li> <li>1 = OC_UNOCCUPIED</li> <li>2 = OC_BYPASS – <b>Not Used</b></li> <li>3 = OC_STANDY – <b>Not Used</b></li> <li>0xFF = OC_NUL (Release to PIR or internal schedule)</li> </ul> </li> </ul>
network output SNVT_occupancy <b>nvoEffectOccup</b>	<ul style="list-style-type: none"> <li>➤ This output network variable is used to indicate the actual occupancy mode of the unit. This information is typically reported to a supervisory controller or provided to another Space Comfort Controller to coordinate the operation of multiple units</li> <li>➤ Valid Range: <ul style="list-style-type: none"> <li>0 = OC_OCCUPIED</li> <li>1 = OC_UNOCCUPIED</li> <li>2 = OC_BYPASS<sup>1</sup></li> <li>3 = OC_STANDBY</li> </ul> </li> </ul> <p>Note 1: OC_BYPASS can be initiated by local override. NvoEffectOccup will only be in OC_BYPASS for the duration of the ToccTime (nciGenOpts), until reinitiated by either a transition of the local input or an update to nviOccManCmd.</p>

- **Initial State, PIR Occupancy Routine:** The initial effective occupancy state on power-up with either a PIR cover is present or one of the inputs is configured for a remote PIR sensor is always:
  - In stand-alone applications at power-up: Local occupancy mode = Stand-by

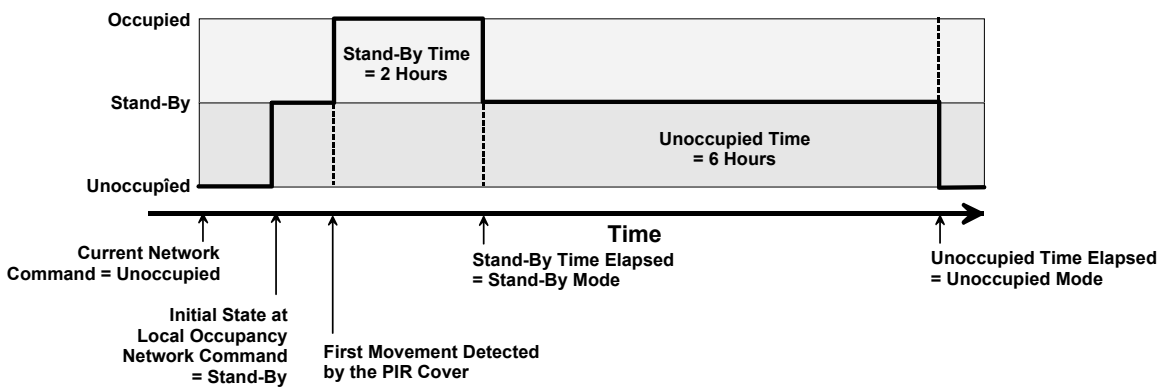
When the network effectively releases a thermostat to its local PIR routine from a previous occupied or unoccupied network state, the resulting occupancy state is:

- From a previous network unoccupied command: Local occupancy mode = Stand-by
- From a previous network occupied command: Local occupancy mode = Occupied.

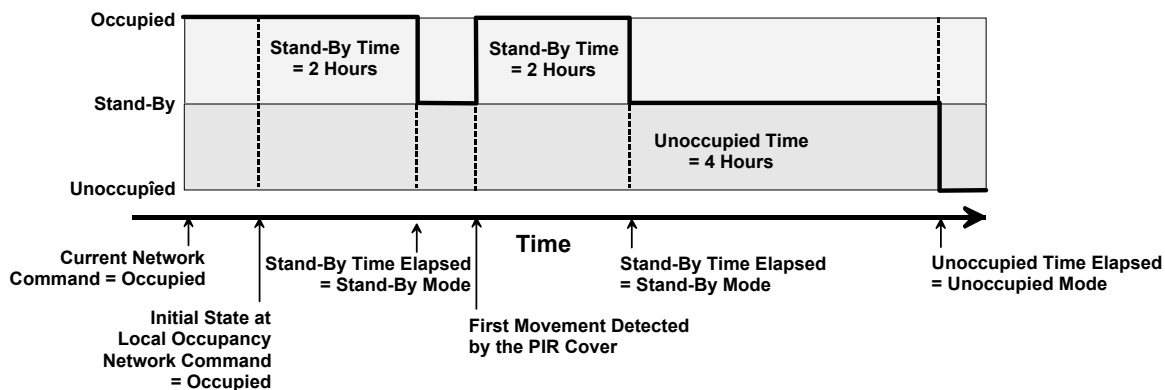
### Initial Power-Up, Stand-Alone or Networked



### After Receiving the Local Occupancy / PIR Network Command From a Previous Unoccupied State



### After Receiving the Local Occupancy / PIR Network Command From a Previous Occupied State



### Commercial Applications

Application Number	PIR Levels of Occupancy	PIR Cover Used	Remote PIR used	Network interface
1	3	Yes	No	None, stand-alone
2	2	Yes	No	None, stand-alone
3	3	No	Yes	None, stand-alone
4	2	No	Yes	None, stand-alone
5	3	Yes	Yes	None, stand-alone
6	2	Yes	Yes	None, stand-alone
7	3	Yes	No	Yes, LON or BACnet
8	2	Yes	No	Yes, LON or BACnet
9	3	No	Yes	Yes, LON or BACnet
10	2	No	Yes	Yes, LON or BACnet
11	3	Yes	Yes	Yes, LON or BACnet
12	2	Yes	Yes	Yes, LON or BACnet

### Lodging Applications

Application Number	PIR Levels of Occupancy	PIR Cover Used	Remote PIR used	Network interface
13	3	Yes	No	None, stand-alone
14	2	Yes	No	None, stand-alone
15	3	No	Yes	None, stand-alone
16	2	No	Yes	None, stand-alone
17	3	Yes	Yes	None, stand-alone
18	2	Yes	Yes	None, stand-alone
19	3	Yes	No	Yes, LON or BACnet
20	2	Yes	No	Yes, LON or BACnet
21	3	No	Yes	Yes, LON or BACnet
22	2	No	Yes	Yes, LON or BACnet
23	3	Yes	Yes	Yes, LON or BACnet
24	2	Yes	Yes	Yes, LON or BACnet

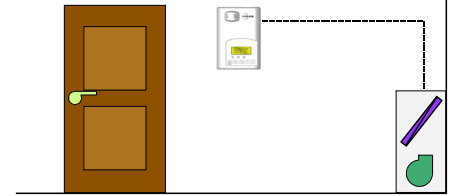
Advanced network interface can be obtained when thermostats are fully integrated to the reservation system

In these cases, the occupancy network commands state enumerations text presented by a front end system can be expanded to better represent the nature of the application.

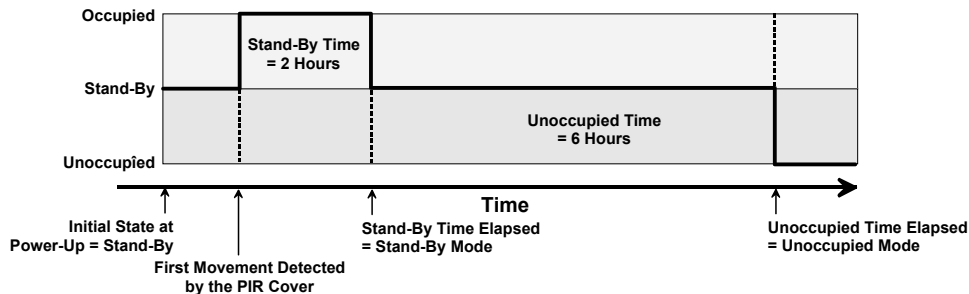
Occupancy network commands state	Front end system state text examples
Local Occupancy ( PIR active )	Room rented PIR economy enabled
Occupied	Room rented high comfort assured
Unoccupied	Room not rented

- 1) VT7300 Stand-alone fan coil application using 3 levels of occupancy with a VI-PIR accessory cover

Set-up and Configuration	
Thermostat used	VT73x0X5021 ( commercial models )
PIR used	COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	6.0 hours
Network interface used	None, stand-alone



#### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

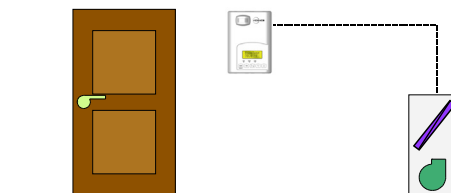
Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

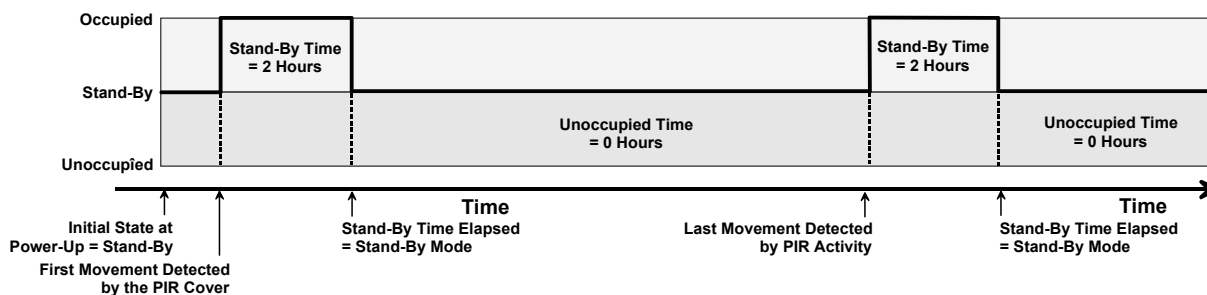
At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

- 2) VT7300 Stand-alone fan coil application using 2 levels of occupancy with a VI-PIR accessory cover

Set-up and Configuration	
Thermostat used	VT73x0X5021 ( commercial models )
PIR used	COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	0.0 hours
Network interface used	None, stand-alone



#### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

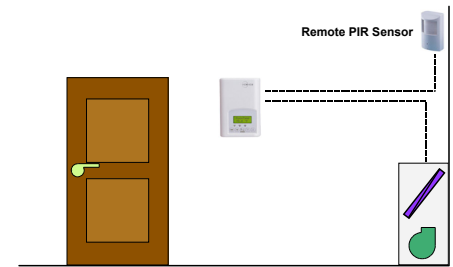
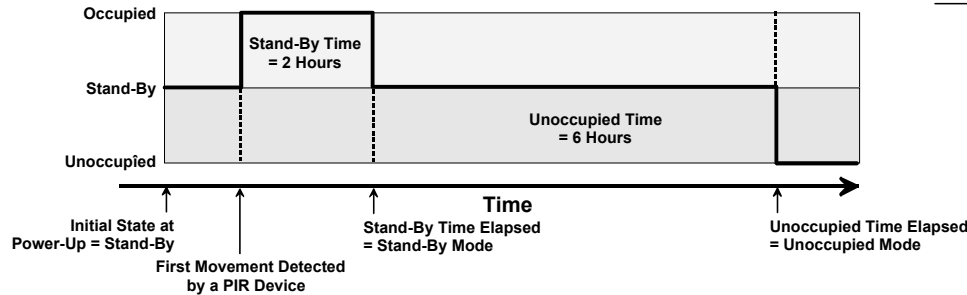
The local zone never goes into unoccupied mode and the unoccupied setpoints are never used.



- 3) VT7300 Stand-alone fan coil application using 3 levels of occupancy with a remote PIR sensor

Set-up and Configuration	
Thermostat used	VT73x0X5021 ( commercial models )
PIR used	BI1 configured for remote PIR sensor
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	6.0 hours
Network interface used	None, stand-alone

#### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

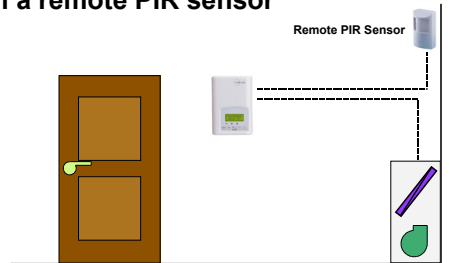
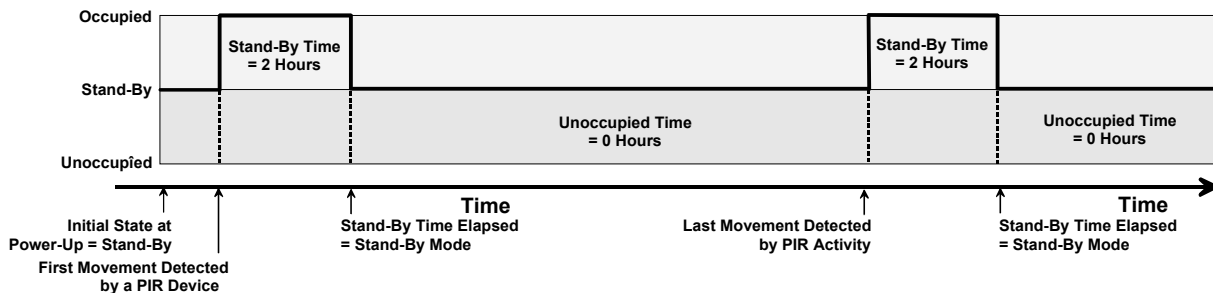
While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

- 4) VT7300 Stand-alone fan coil application using 2 levels of occupancy with a remote PIR sensor

Set-up and Configuration	
Thermostat used	VT73x0X5021 ( commercial models )
PIR used	BI1 configured for remote PIR sensor
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	0.0 hours
Network interface used	None, stand-alone

#### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

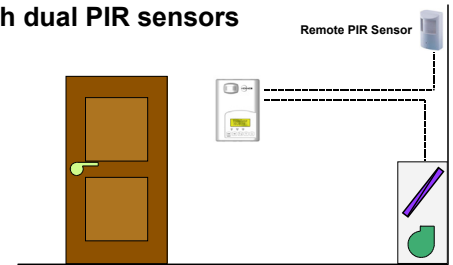
Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

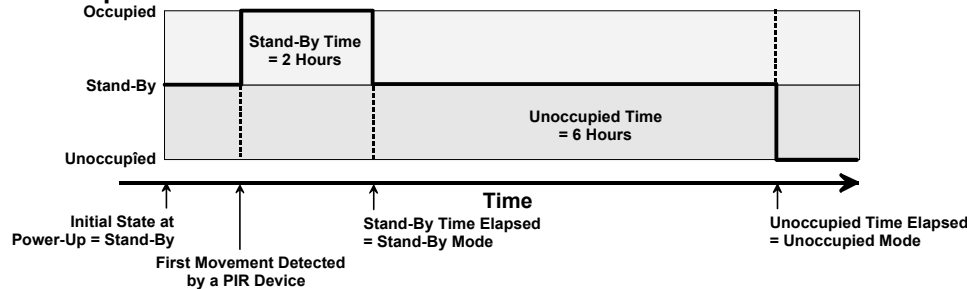
The local zone never goes into unoccupied mode and the unoccupied setpoints are never used.

• **5) VT7300 Stand-alone fan coil application using 3 levels of occupancy with dual PIR sensors**

Set-up and Configuration	
Thermostat used	VT73x0X5021 ( commercial models )
PIR used	BI1 configured for remote PIR sensor and COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	6.0 hours
Network interface used	None, stand-alone



**Sequence of operation:**



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR devices do not detect any movements.

As soon as any of the PIR device detect a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

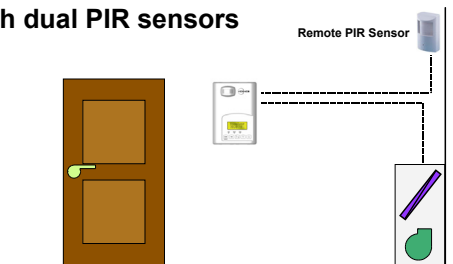
Anytime local motion is detected by one of the PIR devices, the elapsed stand-by timer value will be reset. If either PIR devices in the zone detect no motion for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

While in stand-by mode, if no motion is detected in the zone by either PIR devices for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

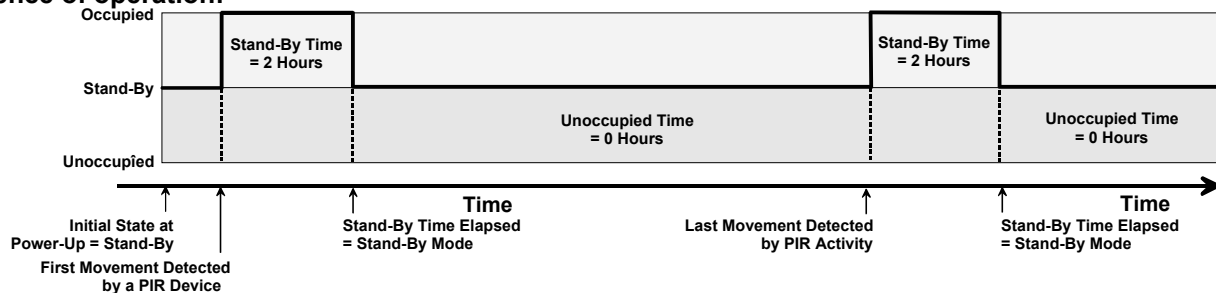
At anytime, if one of the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

• **6) VT7300 Stand-alone fan coil application using 2 levels of occupancy with dual PIR sensors**

Set-up and Configuration	
Thermostat used	VT73x0X5021 ( commercial models )
PIR used	BI1 configured for remote PIR sensor and COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	0.0 hours
Network interface used	None, stand-alone



**Sequence of operation:**



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR devices do not detect any movements.

As soon as any of the PIR devices detect a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

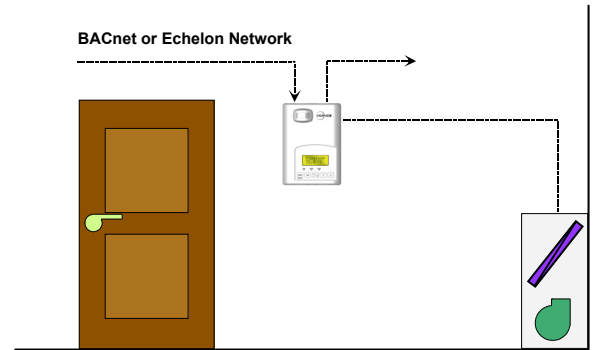
Anytime local motion is detected by one of the PIR devices, the elapsed stand-by timer value will be reset. If either PIR devices in the zone detect no motion for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

At anytime, if one of the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

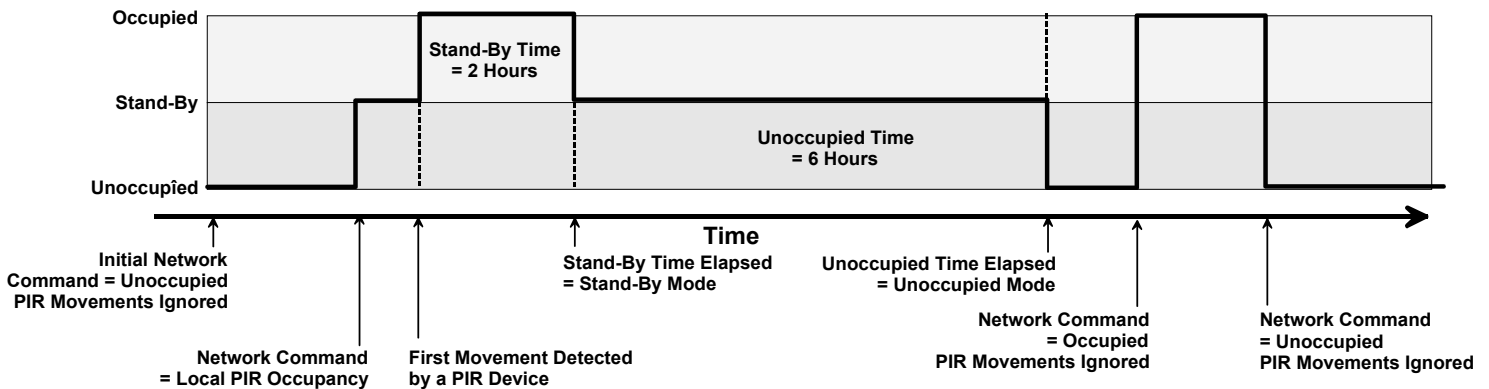
The local zone never goes into unoccupied mode and the unoccupied setpoints are never used.

- 7) VT7300 Networked fan coil application using 3 levels of occupancy with a VI-PIR accessory cover

Set-up and Configuration	
Thermostat used	VT73x0X5021(BorE) ( commercial models )
PIR used	COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	6.0 hours
Network interface used	Echelon or BACnet MS-TP



### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion while in the local occupancy state network command, the occupancy status switches to occupied and the occupied setpoints are used.

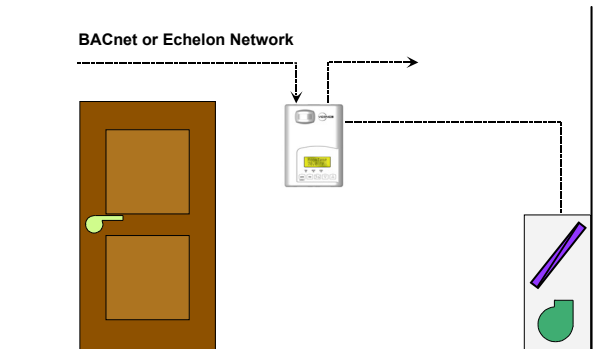
Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

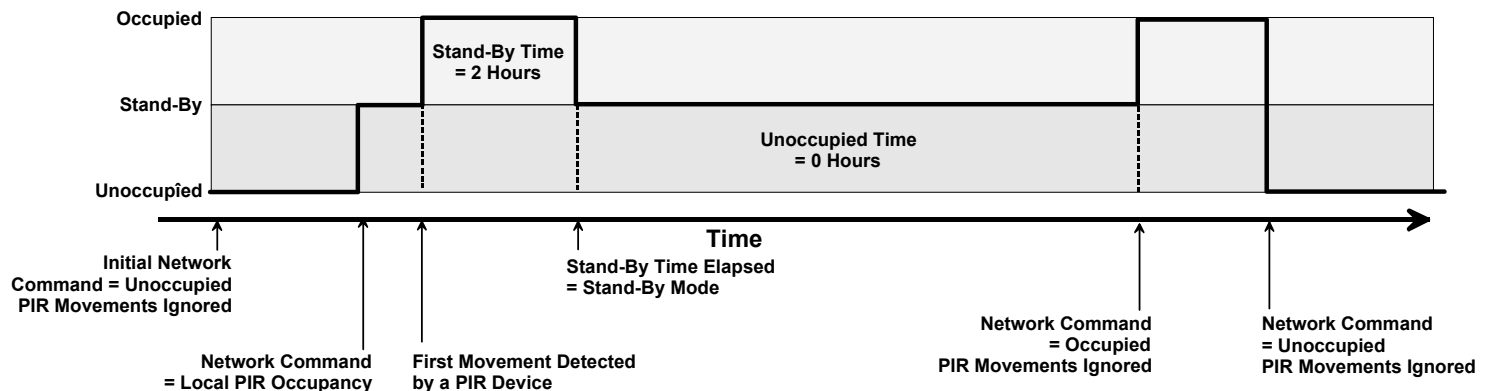
At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

- 8) VT7300 Networked fan coil application using 2 levels of occupancy with a VI-PIR accessory cover

Set-up and Configuration	
Thermostat used	VT73x0X5021(BorE) ( commercial models )
PIR used	COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	0.0 hours
Network interface used	Echelon or BACnet MS-TP



### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when then the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion while in the local occupancy state network command, the occupancy status switches to occupied and the occupied setpoints are used.

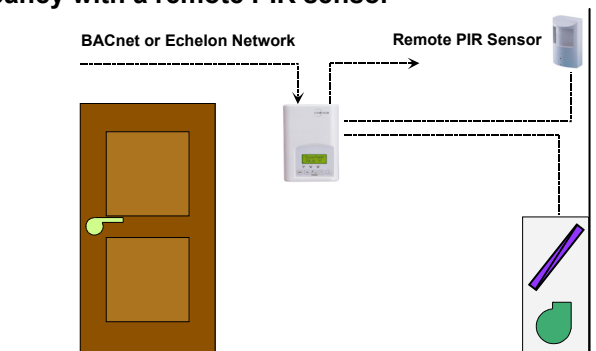
Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

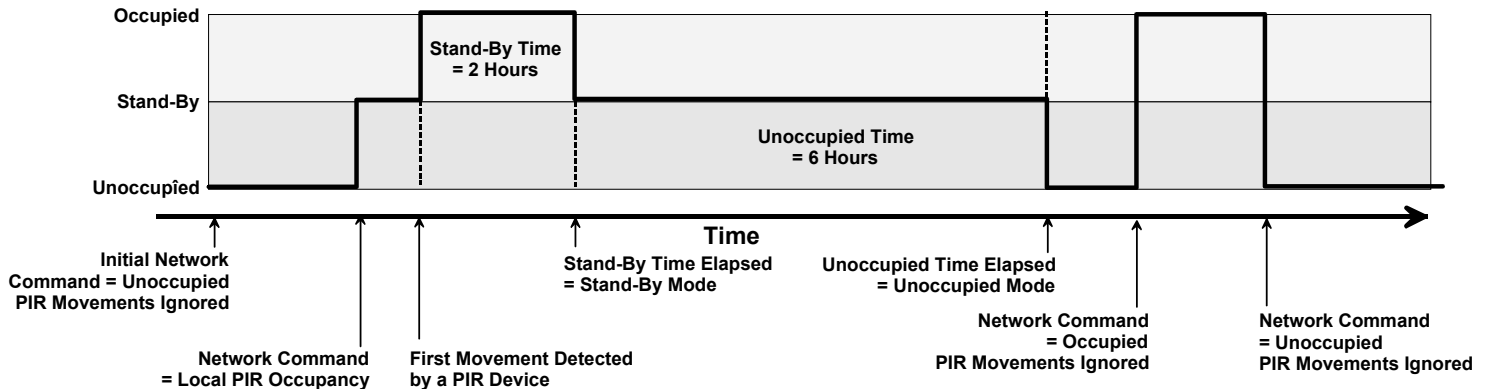
While in the local occupancy state network command, the local zone never goes into unoccupied mode and the unoccupied setpoints are never used

- 9) VT7300 Networked fan coil application using 3 levels of occupancy with a remote PIR sensor

Set-up and Configuration	
Thermostat used	VT73x0X5021(BorE) ( commercial models )
PIR used	BI1 configured for remote PIR sensor
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	6.0 hours
Network interface used	Echelon or BACnet MS-TP



#### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

#### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

#### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

#### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion while in the local occupancy state network command, the occupancy status switches to occupied and the occupied setpoints are used.

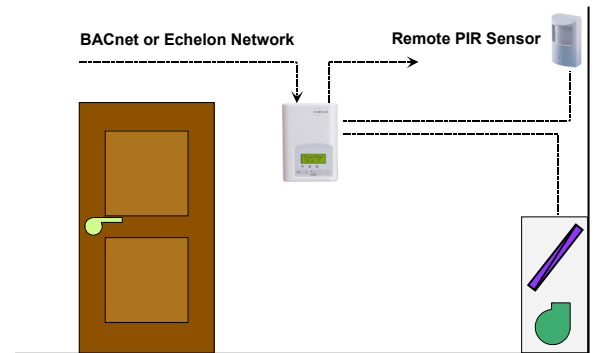
Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

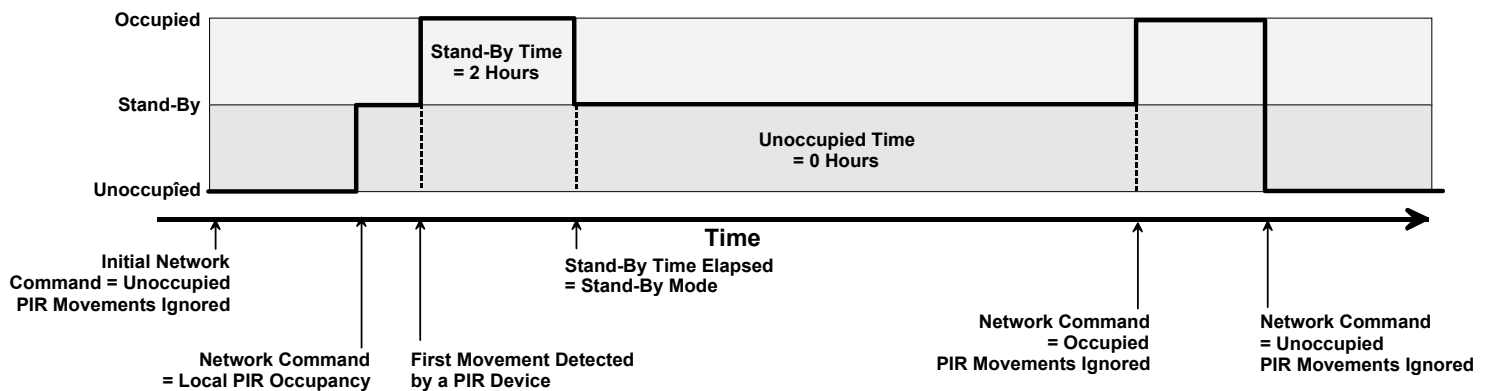
At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

- 10) VT7300 Networked fan coil application using 2 levels of occupancy with a remote PIR sensor

Set-up and Configuration	
Thermostat used	VT73x0X5021(BorE) ( commercial models )
PIR used	BI1 configured for remote PIR sensor
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	0.0 hours
Network interface used	Echelon or BACnet MS-TP



### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion while in the local occupancy state network command, the occupancy status switches to occupied and the occupied setpoints are used.

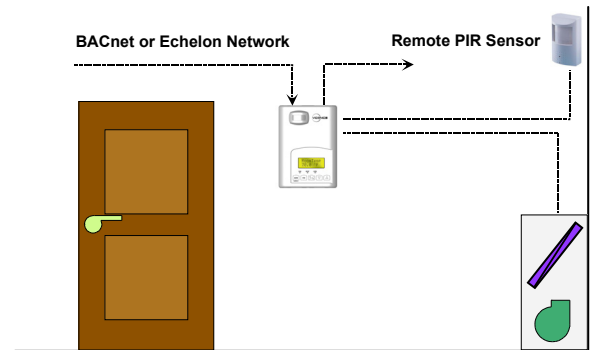
Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

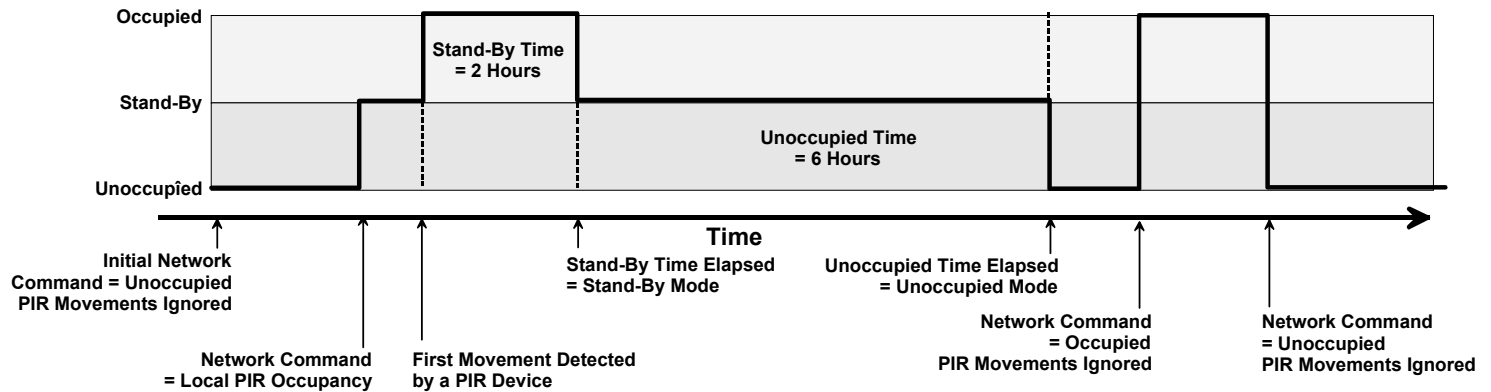
While in the local occupancy state network command, the local zone never goes into unoccupied mode and the unoccupied setpoints are never used

- 11) VT7300 Networked fan coil application using 3 levels of occupancy with dual PIR sensors

Set-up and Configuration	
Thermostat used	VT73x0X5021(BorE) ( commercial models )
PIR used	BI1 configured for remote PIR sensor and COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	6.0 hours
Network interface used	Echelon or BACnet MS-TP



### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion while in the local occupancy state network command, the occupancy status switches to occupied and the occupied setpoints are used.

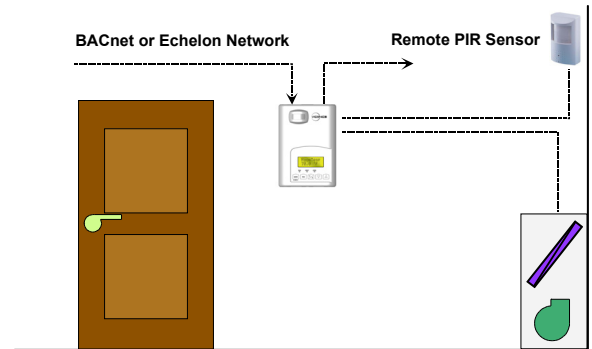
Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

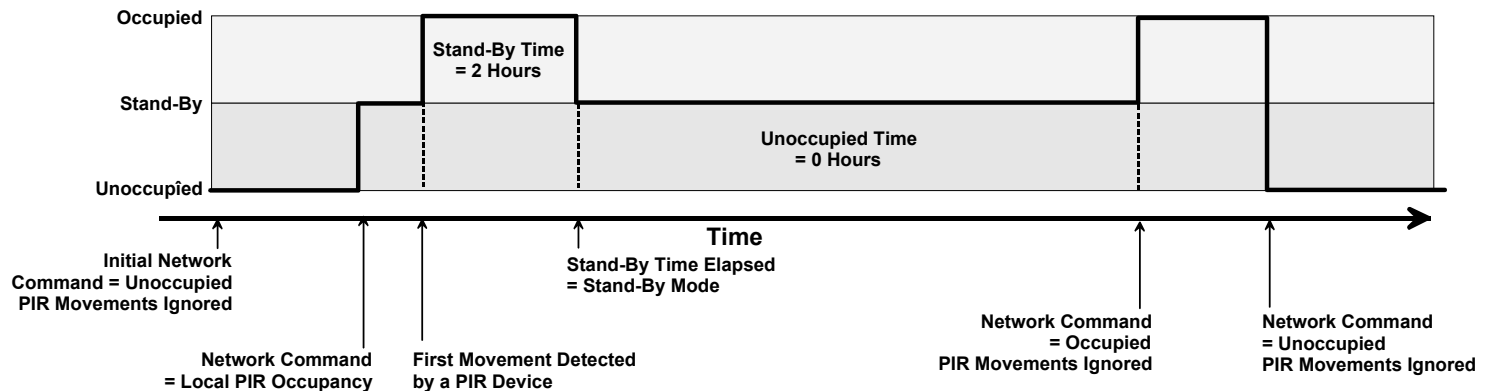
At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

- 12) VT7300 Networked fan coil application using 2 levels of occupancy with dual PIR sensors

Set-up and Configuration	
Thermostat used	VT73x0X5021(BorE) ( commercial models )
PIR used	BI1 configured for remote PIR sensor and COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	None, no function
Stand-by timer value	2.0 hours
Unoccupied timer value	0.0 hours
Network interface used	Echelon or BACnet MS-TP



### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion while in the local occupancy state network command, the occupancy status switches to occupied and the occupied setpoints are used.

Anytime the PIR device detects local motion, the elapsed stand-by timer value will be reset. If no motion is detected in the zone for the entire stand-by timer duration, then the room switches to stand-by mode and the stand-by setpoints are used.

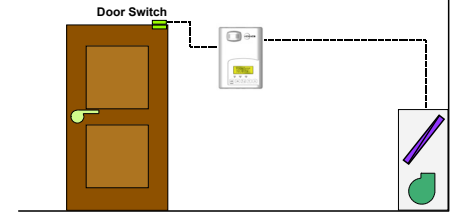
At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

While in the local occupancy state network command, the local zone never goes into unoccupied mode and the unoccupied setpoints are never used.

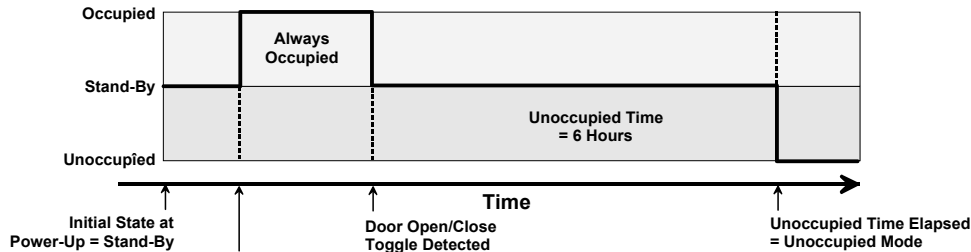


• **13) VT7300 Stand-alone fan coil application using 3 levels of occupancy with a VI-PIR accessory cover**

Set-up and Configuration	
Thermostat used	VT73x5X5021 ( lodging models )
PIR used	COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	6.0 hours
Network interface used	None, stand-alone



**Sequence of operation:**



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

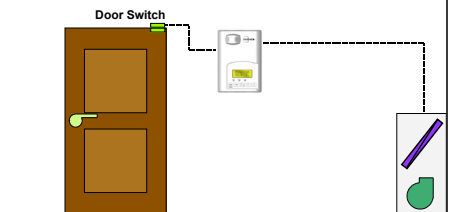
If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

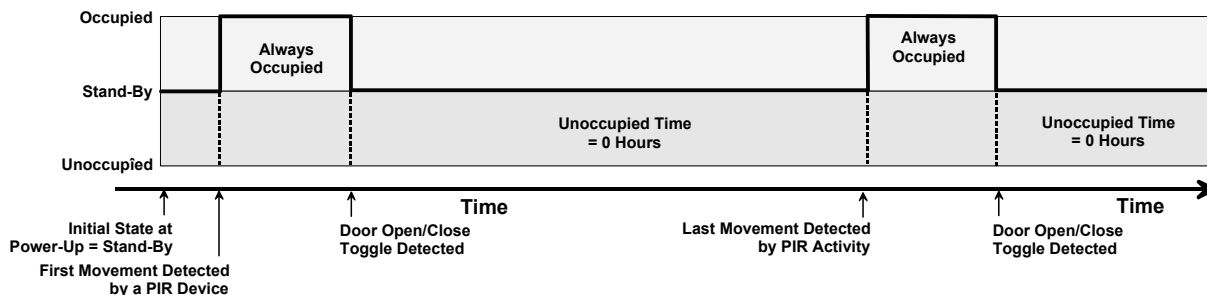
At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

• **14) VT7300 Stand-alone fan coil application using 2 levels of occupancy with a VI-PIR accessory cover**

Set-up and Configuration	
Thermostat used	VT73x5X5021 ( lodging models )
PIR used	COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	0.0 hours
Network interface used	None, stand-alone



**Sequence of operation:**



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

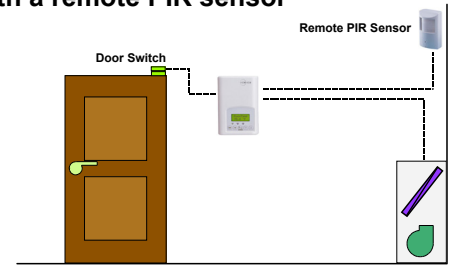
If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

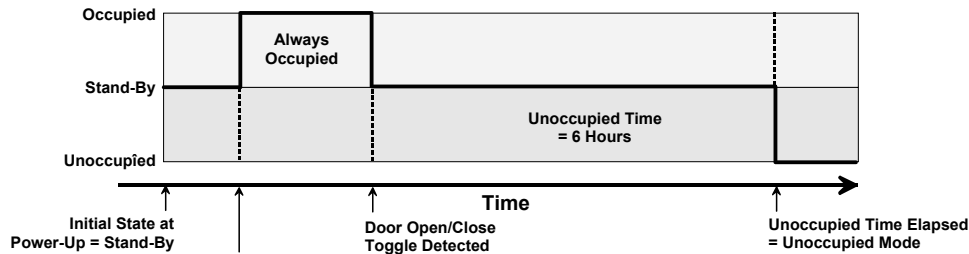
The local zone never goes into unoccupied mode and the unoccupied setpoints are never used.

• **15) VT7300 Stand-alone fan coil application using 3 levels of occupancy with a remote PIR sensor**

Set-up and Configuration	
Thermostat used	VT73x5X5021 ( lodging models )
PIR used	BI1 configured for remote PIR sensor
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	6.0 hours
Network interface used	None, stand-alone



**Sequence of operation:**



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

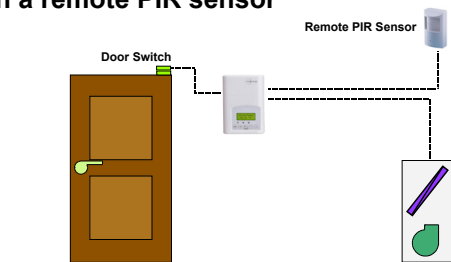
If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

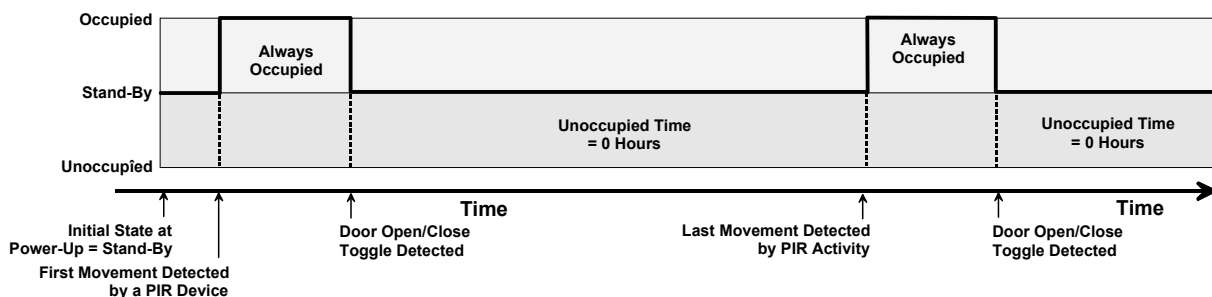
At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

• **16) VT7300 Stand-alone fan coil application using 2 levels of occupancy with a remote PIR sensor**

Set-up and Configuration	
Thermostat used	VT73x5X5021 ( lodging models )
PIR used	BI1 configured for remote PIR sensor
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	0.0 hours
Network interface used	None, stand-alone



**Sequence of operation:**



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

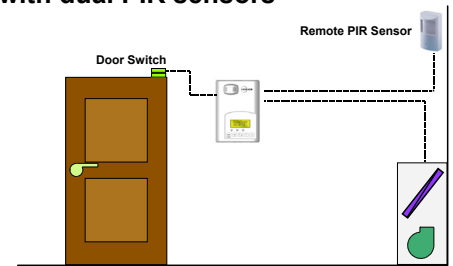
If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

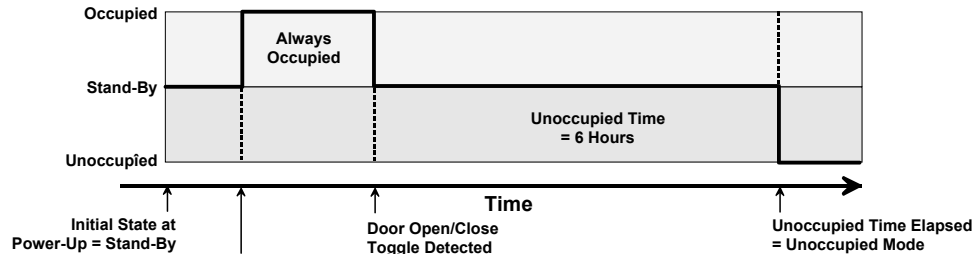
The local zone never goes into unoccupied mode and the unoccupied setpoints are never used.

- 17) VT7300 Stand-alone fan coil application using 3 levels of occupancy with dual PIR sensors

Set-up and Configuration	
Thermostat used	VT73x5X5021 ( lodging models )
PIR used	BI1 configured for remote PIR sensor and COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	Door dry contact
Stand-by timer value	2.0 hours
Unoccupied timer value	6.0 hours
Network interface used	None, stand-alone



#### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

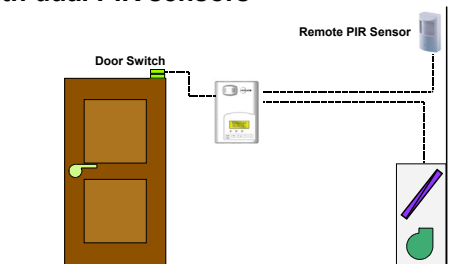
If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

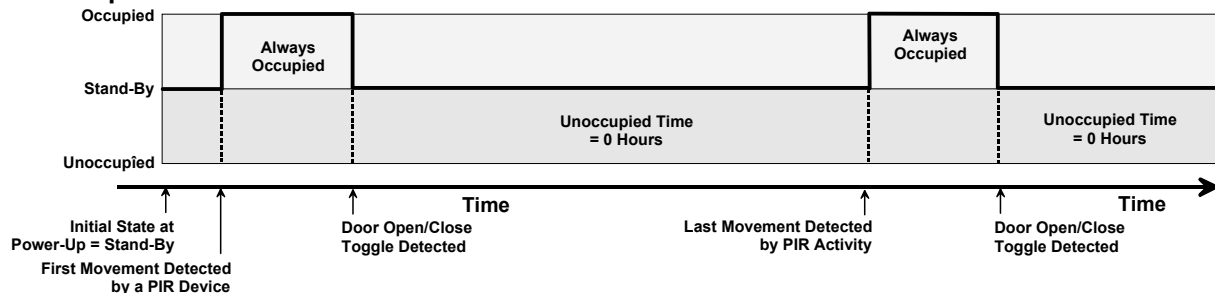
At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

- 18) VT7300 Stand-alone fan coil application using 2 levels of occupancy with dual PIR sensors

Set-up and Configuration	
Thermostat used	VT73x5X5021 ( lodging models )
PIR used	BI1 configured for remote PIR sensor and COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	0.0 hours
Network interface used	None, stand-alone



#### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; the initial occupancy of the zone will be stand-by mode if the PIR device do not detect any movements.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

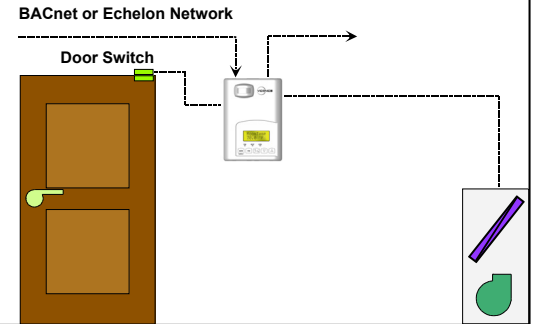
The local zone never goes into unoccupied mode and the unoccupied setpoints are never used.

- 19) VT7300 Networked fan coil application using 3 levels of occupancy with a VI-PIR accessory cover

Set-up and Configuration	
Thermostat used	VT73x5X5021(BorE)...( lodging models )
PIR used	COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	6.0 hours
Network interface used	Echelon or BACnet MS-TP

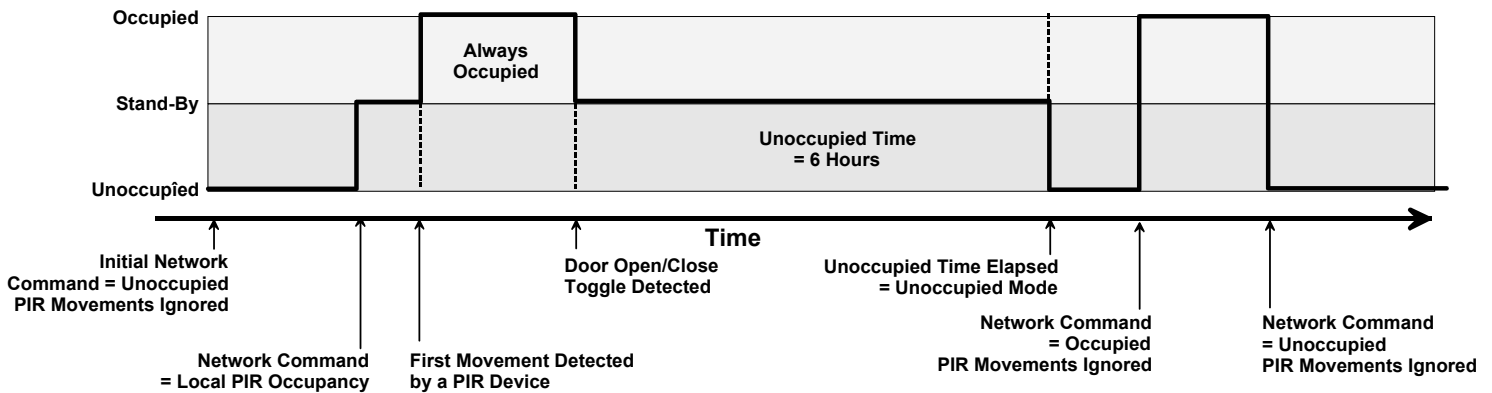
Advanced network interface can be obtained when thermostats are fully integrated to the reservation system

In these cases, the occupancy network commands state enumerations text presented by a front end system can be expanded to better represent the nature of the application.



Occupancy network commands state	Front end system state text examples
Local Occupancy ( PIR active )	Room rented PIR economy enabled
Occupied	Room rented high comfort assured
Unoccupied	Room not rented

### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

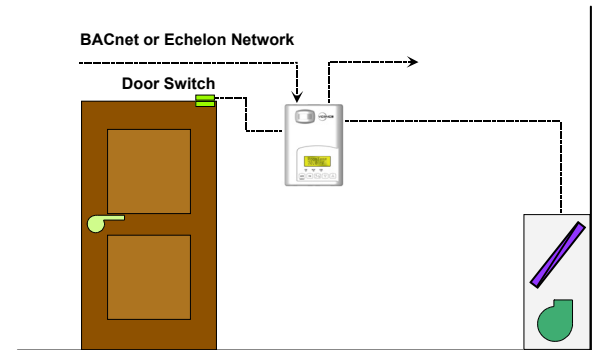
- 20) VT7300 Networked fan coil application using 2 levels of occupancy with a VI-PIR accessory cover

Set-up and Configuration	
Thermostat used	VT73x5X5021(BorE)...( lodging models )
PIR used	COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	0.0 hours
Network interface used	Echelon or BACnet MS-TP

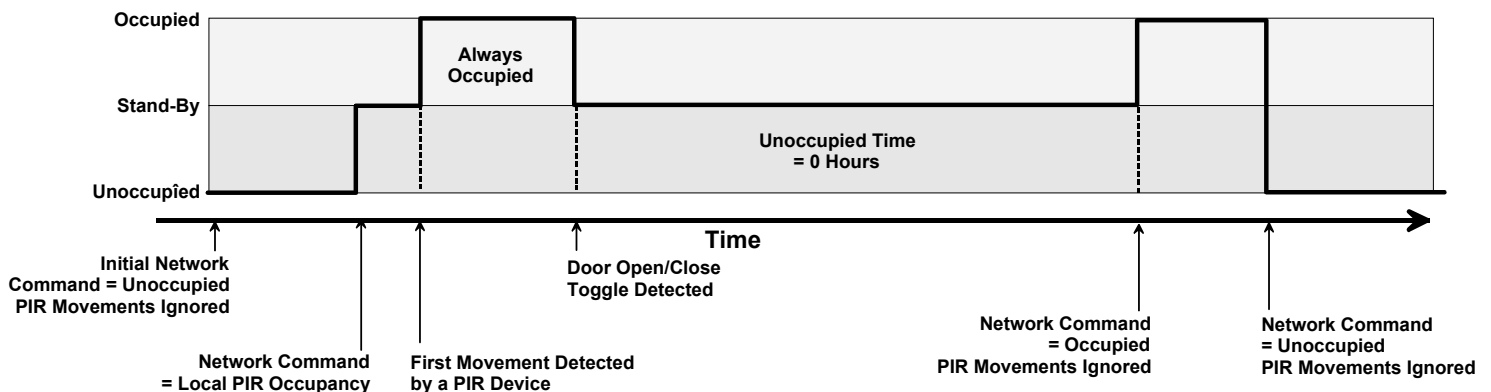
Advanced network interface can be obtained when thermostats are fully integrated to the reservation system

In these cases, the occupancy network commands state enumerations text presented by a front end system can be expanded to better represent the nature of the application.

Occupancy network commands state	Front end system state text examples
Local Occupancy ( PIR active )	Room rented PIR economy enabled
Occupied	Room rented high comfort assured
Unoccupied	Room not rented



### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

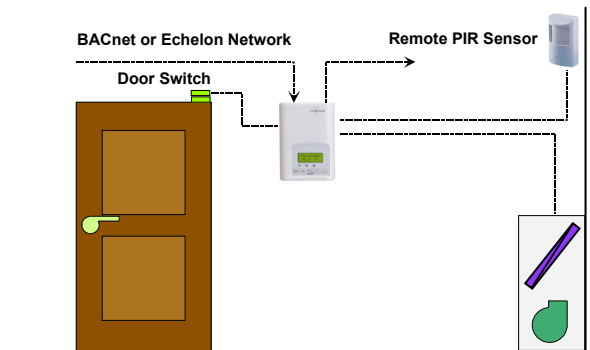
The local zone never goes into unoccupied mode and the unoccupied setpoints are never used.

- 21) VT7300 Networked fan coil application using 3 levels of occupancy with a remote PIR sensor

Set-up and Configuration	
Thermostat used	VT73x5X5021(BorE)...( lodging models )
PIR used	BI1 configured for remote PIR sensor
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	6.0 hours
Network interface used	Echelon or BACnet MS-TP

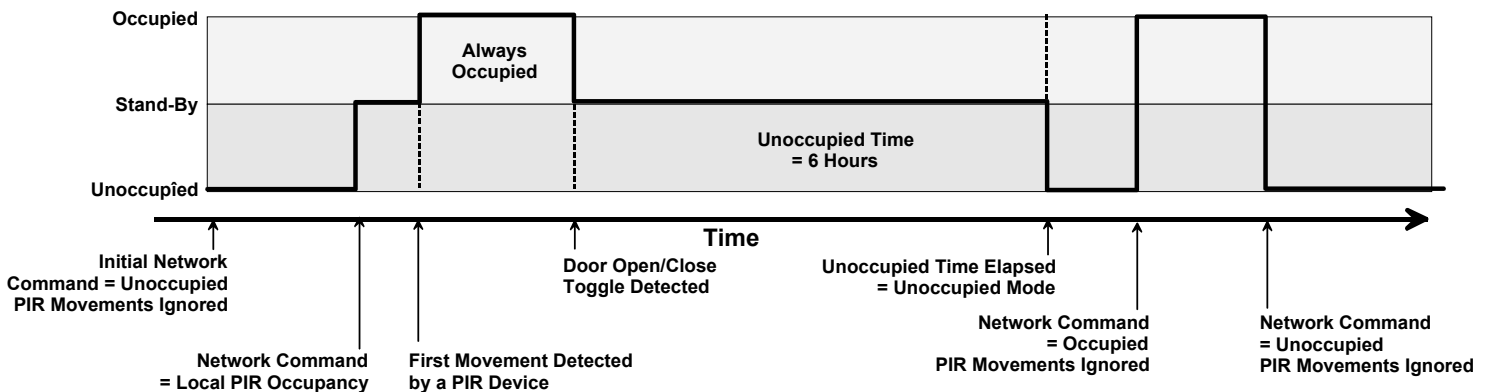
Advanced network interface can be obtained when thermostats are fully integrated to the reservation system

In these cases, the occupancy network commands state enumerations text presented by a front end system can be expanded to better represent the nature of the application.



Occupancy network commands state	Front end system state text examples
Local Occupancy ( PIR active )	Room rented PIR economy enabled
Occupied	Room rented high comfort assured
Unoccupied	Room not rented

### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

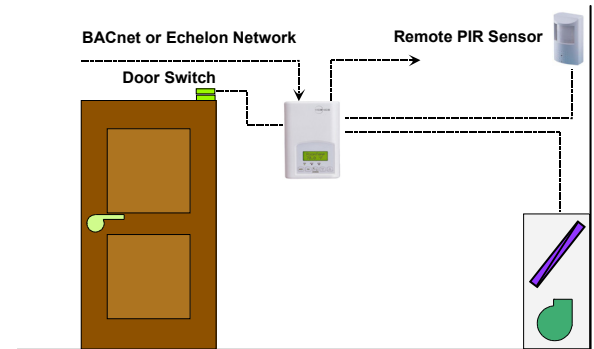
At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

- 22) VT7300 Networked fan coil application using 2 levels of occupancy with a remote PIR sensor

Set-up and Configuration	
Thermostat used	VT73x5X5021(BorE)...( lodging models )
PIR used	BI1 configured for remote PIR sensor
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	0.0 hours
Network interface used	Echelon or BACnet MS-TP

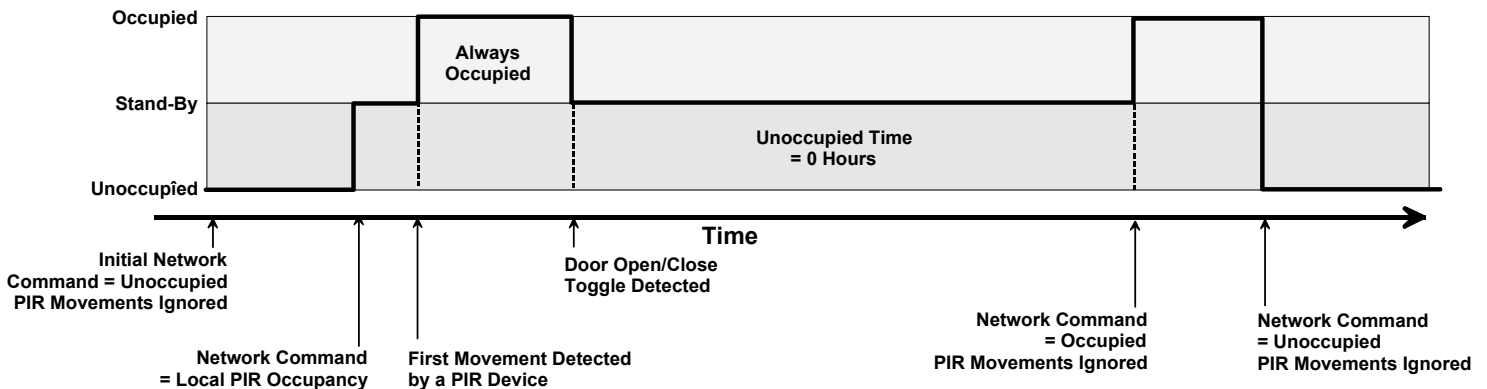
Advanced network interface can be obtained when thermostats are fully integrated to the reservation system

In these cases, the occupancy network commands state enumerations text presented by a front end system can be expanded to better represent the nature of the application.



Occupancy network commands state	Front end system state text examples
Local Occupancy ( PIR active )	Room rented PIR economy enabled
Occupied	Room rented high comfort assured
Unoccupied	Room not rented

### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

The local zone never goes into unoccupied mode and the unoccupied setpoints are never used.



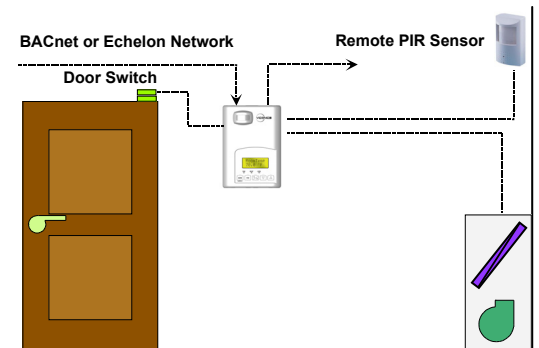
- 23) VT7300 Networked fan coil application using 3 levels of occupancy with dual PIR sensors

Set-up and Configuration	
Thermostat used	VT73x5X5021(BorE)...( lodging models )
PIR used	BI1 configured for remote PIR sensor and COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	6.0 hours
Network interface used	Echelon or BACnet MS-TP

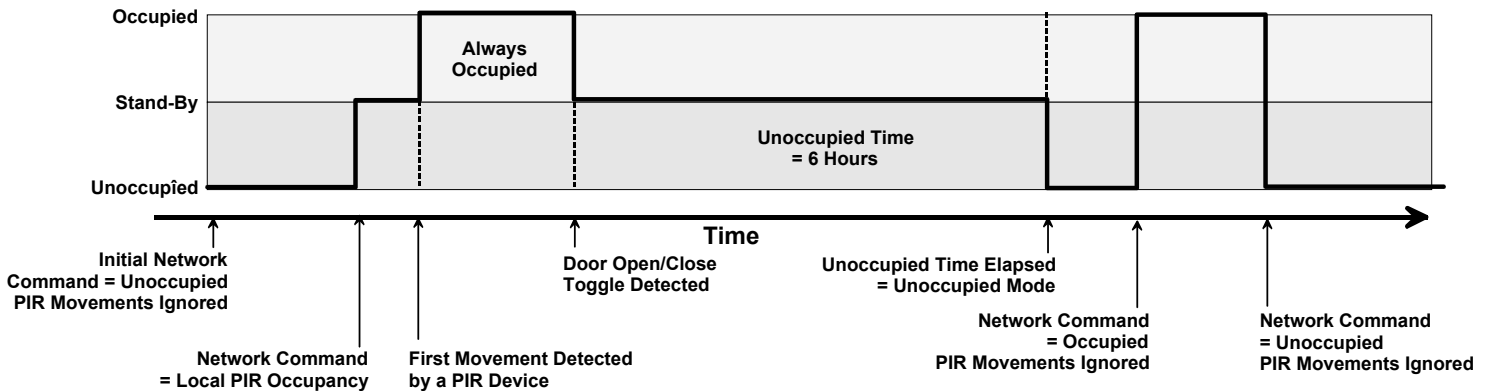
Advanced network interface can be obtained when thermostats are fully integrated to the reservation system

In these cases, the occupancy network commands state enumerations text presented by a front end system can be expanded to better represent the nature of the application.

Occupancy network commands state	Front end system state text examples
Local Occupancy ( PIR active )	Room rented PIR economy enabled
Occupied	Room rented high comfort assured
Unoccupied	Room not rented



### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

While in stand-by mode, if no motion is detected in the zone for the entire unoccupied timer duration, then the room switches to unoccupied mode and the unoccupied setpoints are used.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

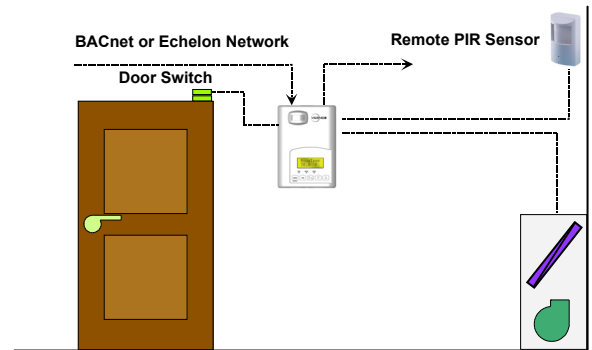


- 24) VT7300 Networked fan coil application using 2 levels of occupancy with dual PIR sensors

Set-up and Configuration	
Thermostat used	VT73x5X5021(BorE)...( lodging models )
PIR used	BI1 configured for remote PIR sensor and COV-PIR-FCU-C-5021 accessory cover
BI2 Configuration	Door dry contact
Stand-by timer value	Not used
Unoccupied timer value	0.0 hours
Network interface used	Echelon or BACnet MS-TP

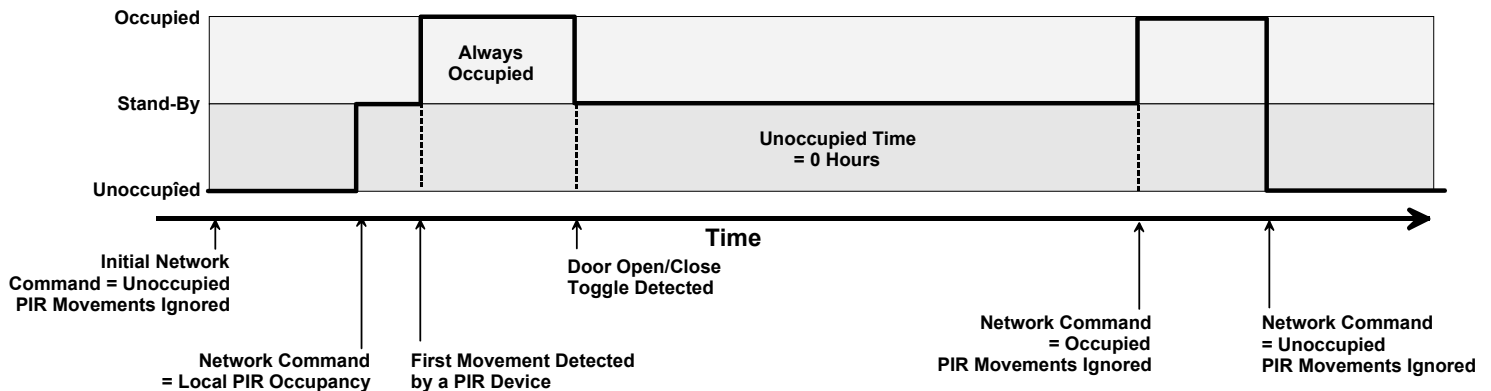
Advanced network interface can be obtained when thermostats are fully integrated to the reservation system

In these cases, the occupancy network commands state enumerations text presented by a front end system can be expanded to better represent the nature of the application.



Occupancy network commands state	Front end system state text examples
Local Occupancy ( PIR active )	Room rented PIR economy enabled
Occupied	Room rented high comfort assured
Unoccupied	Room not rented

### Sequence of operation:



At initial power-up, when the thermostat 24 Vac power supply is applied; if there is no occupancy network command received by the thermostat and if the PIR device do not detect any movements, the initial occupancy of the zone will be stand-by mode.

### Occupied state network command

At any time, an occupied network command will always force the local zone to be in occupied mode and to use the occupied setpoints.

### Unoccupied state network command

At any time, an unoccupied network command will always force the local zone to be in unoccupied mode and to use the unoccupied setpoints. If the thermostat local override function is not locked out by configuration, the local user may initiate a temporary local override to occupied as dictated by the temporary occupancy time configuration parameter setting.

### Local occupancy state network command

If previously in unoccupied mode when the thermostat receives a local occupancy state network command, the local PIR occupancy loop will now be enabled. If the PIR devices do not then detect any movements, the occupancy of the zone will be stand-by mode.

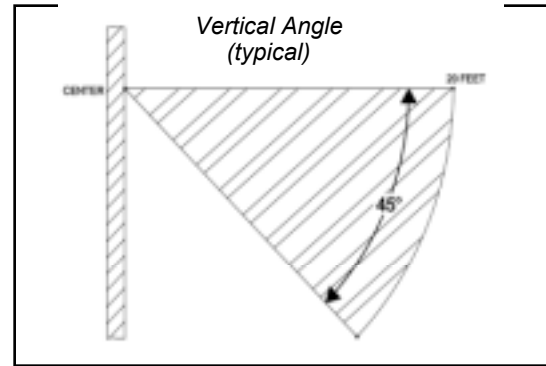
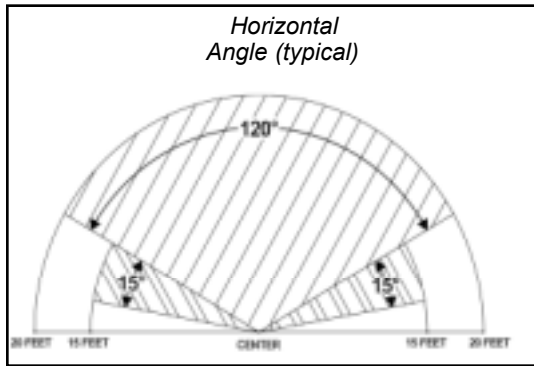
As soon as the PIR device detects a movement or motion, the occupancy status switches to occupied and the occupied setpoints are used. The room will then be in occupied mode until a door toggle is detected.

If a door toggle is detected, then the room switches to stand-by mode and the stand-by setpoints are used. If any occupants are left in the room, local movements must be seen to resume the occupied mode.

At anytime, if the PIR device detects a local movement or motion, the occupancy status switches to occupied and the occupied setpoints are used.

The local zone never goes into unoccupied mode and the unoccupied setpoints are never used.

## Typical Detection Pattern for VI-PIR Lens



## Installation Tips

Tip Type	Area Of Interest	Explanation
General Installation	PIR Connector	Polarized connector is located at bottom left hand corner of VT7000 series thermostat
	Security Screw	A security screw has been provided in the thermostat box. This screw should be carefully installed in the intended mounting position located bottom center of thermostat cover.
Tip Type	Area Of Interest	Explanation
Initial Power Up & Commissioning	PIR Warm up period	PIR Sensor may take up-to 60 seconds after initial warm up period to detect movement consistent with typical detection pattern.
	Visual indication (Status of PIR)	Visual indication of PIR activity for commissioning has been provided via a blinking LEDs located on the thermostat cover under the PIR lens. LEDs will be active while occupant is in field of detection pattern for a period of 30 minutes after initial power up.

## VI-PIR Cover Installation

- Remove security screw on the bottom of the current thermostat cover.
- Open up by pulling on the bottom side of thermostat. (Fig. 3)

### A) Identify current thermostat model type:

- Use appropriate cover accessory part number as identified on the first page by referring to the thermostat model number
- The male polarized PIR connector is located at bottom left corner of thermostat (Fig. 4)

### B) Installation:

- Hinge new PIR thermostat cover into position (fig. 3).
- Insert polarized connector into PIR female connector located on thermostat base (Fig 4)
- Snap PIR thermostat cover into place and re-install the security screw
- Make appropriate parameter settings related to your application within the configuration menu as identified in the thermostat installation

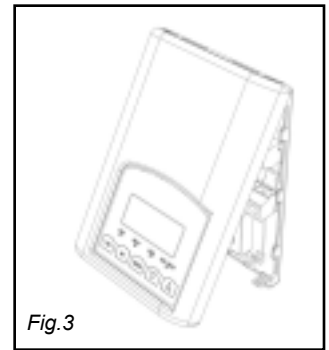


Fig.3

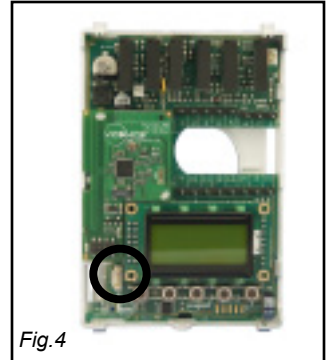


Fig.4



Fig.5

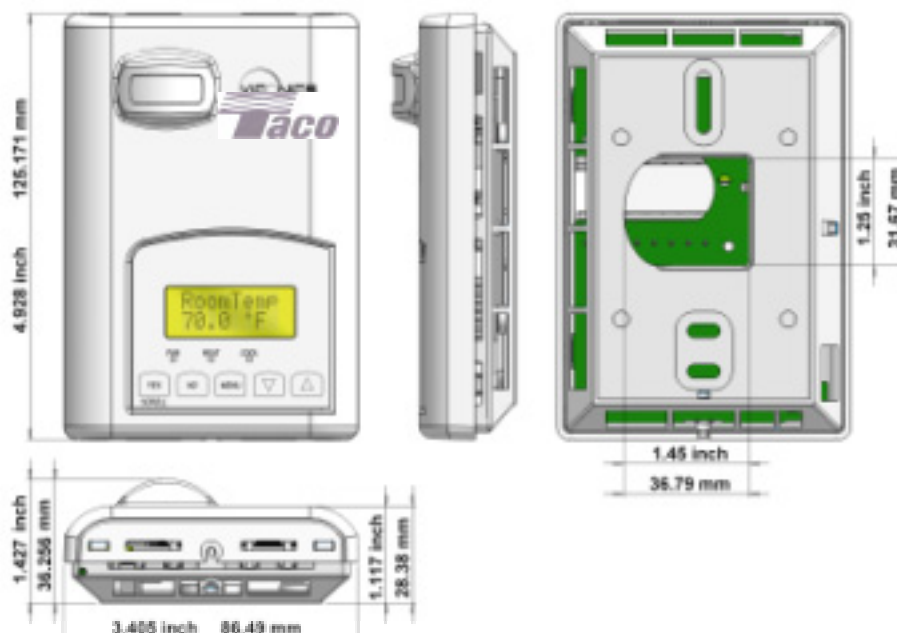


- Electronic controls are static sensitive devices. Discharge yourself properly before manipulation and installing the thermostat and its accessories.
- Short circuit or wrong wiring may permanently damage the thermostat or the equipment.
- All VT7000 series thermostats are to be used only as operating controls. Whenever a control failure could lead to personal injury and/or loss of property, it becomes the responsibility of the user to add safety devices and/or alarm system to protect against such catastrophic failures.

## Specifications

PIR cover power requirements:	5 Vdc Max current draw of 7mA
Operating conditions:	0 °C to 50 °C ( 32 °F to 122 °F ) 0% to 95% R.H. non-condensing
Storage conditions:	-30 °C to 50 °C ( -22 °F to 122 °F ) 0% to 95% R.H. non-condensing
Sensor:	Local Passive Infra Red Sensor
Dimensions with Thermostat:	4.94" x 3.38" x 1.13"
Approximate shipping weight with Thermostat:	0.75 lb ( 0.34 kg )
Agency Approvals:	UL UL 873 (US) and CSA C22.2 No. 24 (Canada), File E27734 with CCN XAPX (US) and XAPX7 (Canada)
FCC	Compliant to CFR 47, Part 15, Subpart B, Class A (US)
Industry Canada	ICES-003 (Canada)
CE	EMC Directive 89/336/EEC (Europe Union)
C-Tick	AS/NZS CISPR 22 Compliant (Australia / New Zealand)
	Supplier Code Number N10696

## Drawing & Dimensions



# LIMITED WARRANTY STATEMENT

Taco, Inc. will repair or replace without charge (at the company's option) any product or part which is proven defective under normal use within three (3) years from the date of start-up or three (3) years and six (6) months from date of shipment (whichever occurs first).

In order to obtain service under this warranty, it is the responsibility of the purchaser to promptly notify the local Taco stocking distributor or Taco in writing and promptly deliver the subject product or part, delivery prepaid, to the stocking distributor. For assistance on warranty returns, the purchaser may either contact the local Taco stocking distributor or Taco. If the subject product or part contains no defect as covered in this warranty, the purchaser will be billed for parts and labor charges in effect at time of factory examination and repair.

Any Taco product or part not installed or operated in conformity with Taco instructions or which has been subject to misuse, misapplication, the addition of petroleum-based fluids or certain chemical additives to the systems, or other abuse, will not be covered by this warranty.

If in doubt as to whether a particular substance is suitable for use with a Taco product or part, or for any application restrictions, consult the applicable Taco instruction sheets or contact Taco at [401-942-8000].

Taco reserves the right to provide replacement products and parts which are substantially similar in design and functionally equivalent to the defective product or part. Taco reserves the right to make changes in details of design, construction, or arrangement of materials of its products without notification.

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TACO WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF ITS PRODUCTS OR ANY INCIDENTAL COSTS OF REMOVING OR REPLACING DEFECTIVE PRODUCTS.

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**Taco, Inc.**, 1160 Cranston Street, Cranston, RI 02920 | Tel: (401) 942-8000 | FAX: (401) 942-2360

**Taco (Canada), Ltd.**, 8450 Lawson Road, Suite #3, Milton, Ontario L9T 0J8 | Tel: (905) 564-9422 | FAX: (905) 564-9436

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