

**246116 Thermostat / Heat Pump**

**A. Installation, Mounting**

**CAUTION:**

1. Turn off 246116 thermostat, all electronic source and electrical devices (e.g. heater) which will be connected before installation and maintenance.
2. The installer must be a trained service technician.

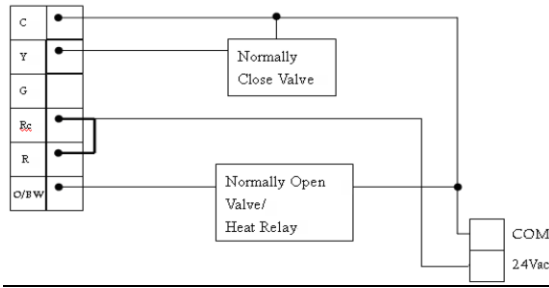
**1. Installation Location**

The thermostat should be mounted on an inner wall 5 feet above the floor in a position where it is readily affected by changes of general room temperature with freely circulating air. Prevent direct exposure to sunlight; dripping or splashing area. Do not place this unit at a location where air circulation is low, or where there are great temperature changes (e.g. near door). Do not place the thermostat near any heat generating sources (radiators, hot air vents, TV or lights).

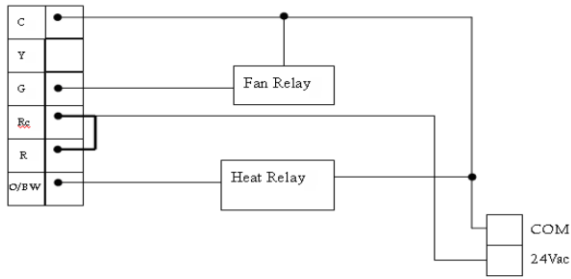
**2. Wiring**

For 246116 thermostat, there are 6 wiring terminals at the back of the thermostat which are labeled as "C", "Y" and "G", "Rc", "R" and "O/B W". Different wirings are for different Mode types.

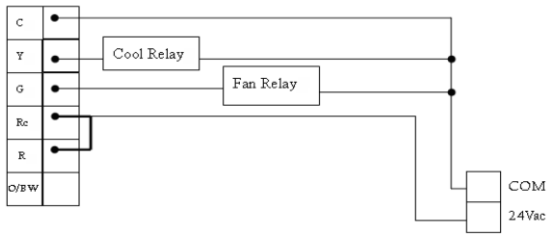
Mode type 1: Heat only with normal open or normal close valves



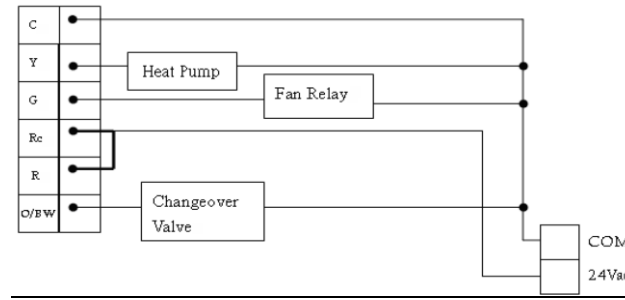
Mode type 2: Heat with fan



Mode type 3: Cool only

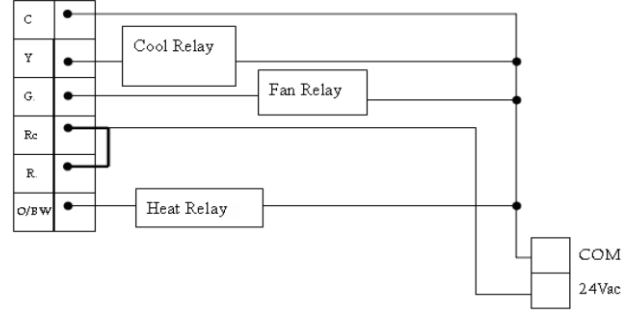


Mode type 4: Heat pump

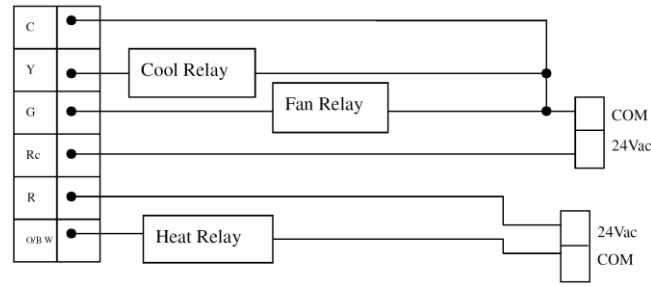


Mode type 5: Electric/ oil/ gas heat with cool

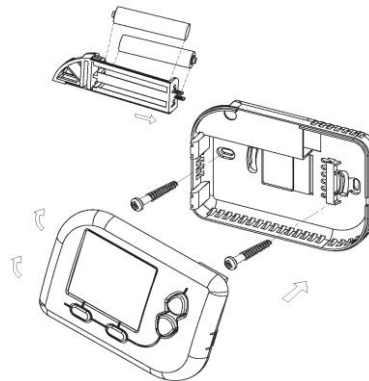
**Use one transformer:**



**Use two transformers:**

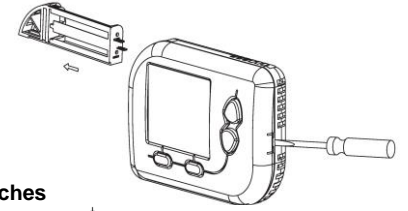


**3. Mounting**

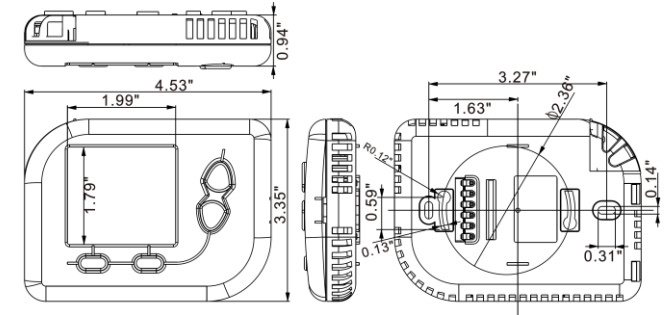


**Opening**

Pull out the battery drawer and lightly press on the spots shown below in order to detach the front shell from its base.



**Dimension in inches**



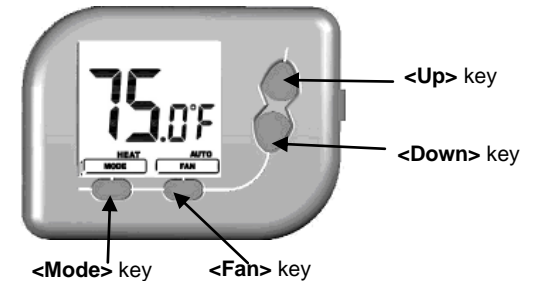
1. Ensure that the surface is level.
2. Place the cables at the hole near the terminal block.
3. Insert 2 pcs of wall anchors into the holes of the wall.
4. Fasten the thermostat with 2 pcs of long screws through the 2 mounting holes.

**B. Start/Reset**

1. When the system is reset, all the LCD segments is ON and the measured temperature will be displayed after a while.
2. Low Battery Check will be done at startup. **Low Batt.** will be shown when battery is low.
3. Output will be turned off at startup.

**C. Normal Display Mode**

1. Temperature detection starts and LCD displays the room temperature.
2. In Heat or Auto Mode, defrost function is activated with **Defrost** displayed when temperature is below 5°C/ 40°F. Heater is on regardless of the setting temperatures.
3. Below 0°C/ 32°F, 246116 thermostat will display **LO**.
4. Above 40°C/ 99°F, 246116 thermostat will display **HI**.



5. Press **<Up>**/ **<Down>** to adjust Heat/ Cool setting temperature.
6. Press **<Mode>** to select Heat/ Cool/ Auto/ Off Mode.
7. Press **<Fan>** to select Fan On/ Auto.

## D. Temperature Setting Display Mode

To adjust Heat/ Cool setting:

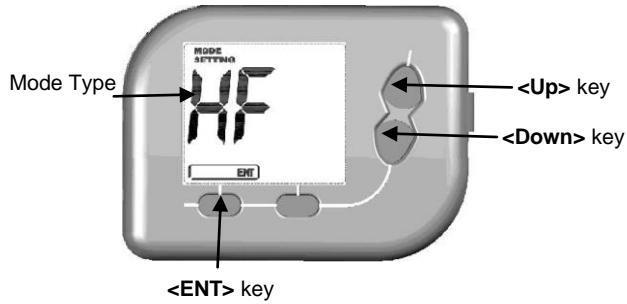
1. Press **<Up>** or **<Down>** keys to adjust Heat/ Cool setting temperature in Normal Display Mode.
2. Heat/ Cool setting temperature flashes.
3. In Heat Mode, only Heat setting temperature can be adjusted.
4. In Cool Mode, only Cool setting temperature can be adjusted.
5. In Auto Mode, Heat and Cool setting temperature can be adjusted.
6. In Off Mode, no setting temperature can be adjusted.
7. Press **<Mode>** key to exchange the Heat and Cool setting temperature in Auto Mode.
8. The operation will resume to Normal display Mode if no key is pressed for 10 sec.

## E. Internal Mode Setting Display

To adjust the internal setting of 246116 thermostat:

### Mode Type Selection

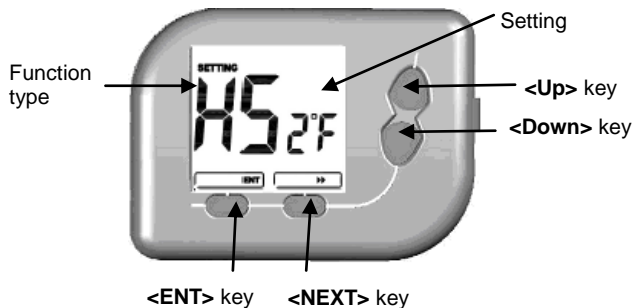
1. Press and hold **<Mode>** and **<Up>** keys for 2 sec.
2. LCD changes to the display of Mode type selection.



3. The letters represent Mode type.
4. Press **<Up>/ <Down>** to adjust Mode type.
5. Press **<ENT>** to select Mode type and return to Normal Display Mode.

### Function Setting Selection

1. Press and hold **<Fan>** and **<Down>** keys for 2 sec.
2. LCD changes to the display of Function setting selection.



3. The left letters represent Function type; the right letters represent Setting.
4. Press **<Up>/ <Down>** to adjust Function type/ Setting.
5. Press **<NEXT>** to select Function type/ Setting.
6. Press **<ENT>** to return to Normal Display Mode.

Table of the Internal Setting:

Mode type	Function type	Setting	
HO Heat only (normal-open or normal-close valves)	HS Span of Heater	1 °C/ 2°F 2 °C/ 4°F	
	dU Temperature Display Unit	°C °F	
HF Heat with fan	HS Span of Heater	1 °C/ 2°F 2 °C/ 4°F	
	dU Temperature Display Unit	°C °F	
	FC Fan Control Method	O Gas or oil furnace – equipment controls fan E Electric furnace – thermostat controls fan	
CL Cool	dU Temperature Display Unit	°C °F	
	CS Span of Cool	1°C/ 2°F 2°C/ 4°F	
	Cd Compressor Minimum-Off Delay	1	1 minute compressor off delay
		2	2 minute compressor off delay
		3	3 minute compressor off delay
4		4 minute compressor off delay	
5		5 minute compressor off delay	
HP Heat pump	HS Span of Heater	1°C/ 2°F 2°C/ 4°F	
	CO Changeover Valve	C	O/B terminal energized in cooling (default)
		H	O/B terminal energized in heating
	dU Temperature Display Unit	°C °F	
	CS Span of Cool	1°C/ 2°F 2°C/ 4°F	
	Cd Compressor/ Heater Minimum-Off Delay	1	1 minute compressor off delay
		2	2 minute compressor off delay
		3	3 minute compressor off delay
		4	4 minute compressor off delay
		5	5 minute compressor off delay
SL Mode Adjustment	1	Heat, Cool, Off selectable	
	2	Auto, Off selectable	
	3	Heat, Cool, Off, Auto selectable	
HC Electric/oil/gas heat with cool (Default setting)	HS Span of Heater	1°C/ 2°F (Default setting) 2 °C/ 4°F	
	dU Temperature Display Unit	°C (Default setting) °F	
	CS Span of Cool	1°C/ 2°F (Default setting) 2°C/ 4°F	
	Cd Compressor Minimum-Off Delay	1	1 minute compressor off delay
		2	2 minute compressor off delay
		3	3 minute compressor off delay
		4	4 minute compressor off delay (Default setting)
		5	5 minute compressor off delay
	SL Mode Adjustment	1	Heat, Cool, Off selectable
		2	Auto, Off selectable
3		Heat, Cool, Off, Auto selectable (Default setting)	
FC Fan Control Method	O	Gas or oil furnace – equipment controls fan	
	E	Electric furnace – thermostat controls fan (Default setting)	

Description of the Mode types:

1. **Heat only (normal-open or normal -close valves)**  
Only Heat Mode can be used for normal-open or normal -close valves.  
Fan cannot be selected.
2. **Heat with fan**  
Only Heat Mode can be used. Fan can be selected.
3. **Cool**  
Only Cool Mode can be used. Fan can be selected.
4. **Heat pump**  
Heat/ Cool/ Auto Mode can be selected with changeover valve.  
(\*While in Auto Mode, there is a Heat/Cool switching delay of 4 minutes for switching a heating system to cooling system or vice versa. During the period, neither Heater/ Cooler nor Fan will be turned on.)
5. **Electric/oil/gas heat with cool**  
Heat/ Cool/ Auto Mode can be selected. This is the default setting and commonly used in factories.

## F. Replaceable Batteries Instruction

Batteries shall be installed with proper polarity and correct battery type.

Do not use old and new batteries simultaneously.

Batteries shall be removed if consumed or if product is to be left unused for a long time. Use 1.5V/ cell alkaline batteries 2 pieces.

## G. Maintenance

**Caution: Switch off the electric source before maintenance of the thermostat. We recommend that the maintenance should be performed by a trained personnel.**

1. No heating/ cooling control

- Check the thermistor sensor performance by measuring the corresponding variable resistance under different temperatures, if it is in good condition, the LCD value will change accordingly, if not, trace the control circuit or the LCD connection, replace the thermistor sensor if necessary.  
- If there is a problem with the control circuit, replace the PCB if necessary.

## H. Specification

1. Temperature Measurement: 0°C~40°C/ 32°F~99°F
2. Accuracy: ±0.5°C/ 1°F
3. Temperature Controllable Range:  
Heat/ Cool Mode:  
Heat/ Cool Setting: 5°C~35°C/ 40°F~95°F  
Auto Mode:  
Heat Setting: 5°C~30°C/ 40°F~85°F  
Cool Setting: 10°C~35°C/ 50°F~95°F
4. Resolution: 0.5°C/ 1°F
5. Power Supply: 24V~ +/-10% or 2 x AAA alkaline batteries
6. Rating: 24V~50/ 60Hz 1A max
7. Terminals: 2mm<sup>2</sup> cable
8. Operating Temperature: 32~122°F
9. Storage Temperature: 23~122°F
10. Sensing Element: NTC thermistor