



# **DP-1220**

## **Instruction Manual**

## Thermostat Applications Guide

| Description                               |     |
|---|-----|
| Gas or Oil Heat                           | Yes |
| Electric Furnace                          | Yes |
| Heat Pump (No Aux. or Emergency Heat)     | Yes |
| Heat Pump (With Aux. or Emergency Heat)   | No  |
| Multi-Stage Systems                       | Yes |
| Heat Only Systems                         | Yes |
| Heat Only Systems - Floor or Wall Furnace | Yes |
| Cool Only Systems                         | Yes |
| Millivolt Conventional Systems            | Yes |
| Two Transformer Systems                   | Yes |

## Table of Contents

## Page

|                            |       |
|----------------------------|-------|
| Thermostat Quick Reference | 2-4   |
| Installation Tips          | 5-11  |
| Wiring Diagrams            | 12-14 |
| Technician Setup           | 15-17 |
| Specifications             | 18    |

## Power Type

Battery Power

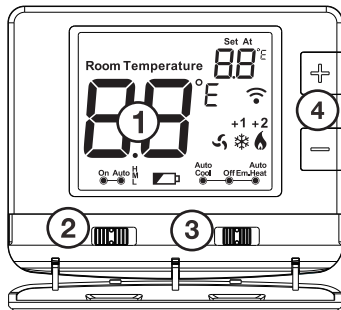
Hardwire (Common Wire)

### IMPORTANT SAFETY INFORMATION WARNING:

- Always turn off power at the main power source by unscrewing fuse or switching circuit breaker to the off position before installing, removing, cleaning, or servicing thermostat.
- Read all of the information in this manual before installing or programming this thermostat.
- This is a 24V AC low voltage thermostat. Do not install on voltages higher than 30V AC.
- All wiring must conform to local and national building and electrical codes and ordinances.
- Do not short (jumper) across terminals on the gas valve or at the system control to test installation. This will damage the thermostat and void the warranty.

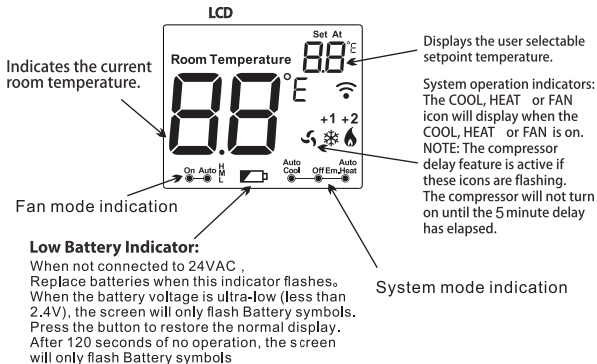


## Getting to know your thermostat



- ① LCD Display
- ② Fan Switch
- ③ System Switch
- ④ Temperature Setpoint Buttons

⑤ Switch face door (Use the finger bevel on the lower portion of the thermostat to open the easy access)

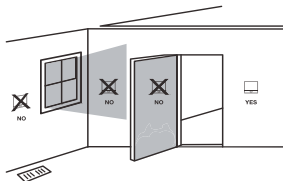


## Caution:

When the battery icon  appears replace your 2x AAA batteries immediately. Failure to do so may result in your heating & cooling system becoming inoperable. Freezing or overheating can occur.

## Wall Locations

The thermostat should be installed approximately 4 to 5 feet above the floor. Select an area with average temperature and good air circulation.



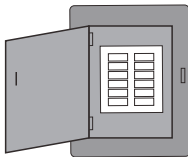
### Installation Tip

Pick an installation location that is easy for the user to access. The temperature of the location should be representative of the building.

### Do not install thermostat in locations:

- Close to hot or cold air ducts
- That are in direct sunlight
- With an outside wall behind the thermostat
- In areas that do not require conditioning
- Where there are dead spots or drafts (in corners or behind doors)
- Where there might be concealed chimneys or pipes

## 1 Turn Off the Power of Your Heating/Cooling System



Circuit breaker  
box

or



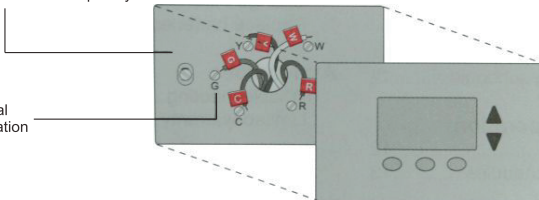
Heating/cooling system  
power switch

## 2 Remove Old Thermostat -(If Any)

Remove the old thermostat , but leave the wallplate with wires attached.

Do not remove wallplate yet

Terminal  
designation



## 3 Label Wires with Tags

Label the wires using the supplied wire labels as you disconnect them.

### Wiring Labels

Apply these wiring labels to each wire with the appropriate terminal designation as you remove it from the existing thermostat.

|      |      |    |    |    |    |    |    |    |    |
|------|------|----|----|----|----|----|----|----|----|
| B    | B    | Y2 | Y2 | C  | C  | E  | E  | F  | F  |
| G    | G    | H  | H  | L  | L  | O  | O  | P  | P  |
| R    | R    | RC | RC | RH | RH | T  | T  | U  | U  |
| V/VR | V/VR | W  | W  | W1 | W1 | W2 | W2 | W3 | W3 |
| X    | X    | X1 | X1 | X2 | X2 | Y  | Y  | Y1 | Y1 |
| AUX  | AUX  |    |    |    |    |    |    |    |    |

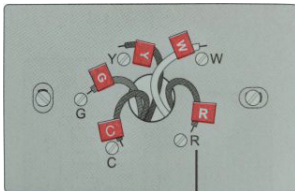
### Étiquettes de fils

Lorsque vous retirez les fils des bornes du thermostat existant, collez ces étiquettes sur chaque fil correspondant à la lettre de la borne.

### Rótulos para los cables

Coloque estos rótulos, con la designación de las terminales, en cada cable al remover los cables del termostato actual.

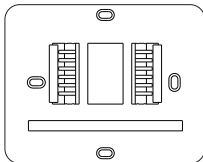
Wire Labels



Terminal designation

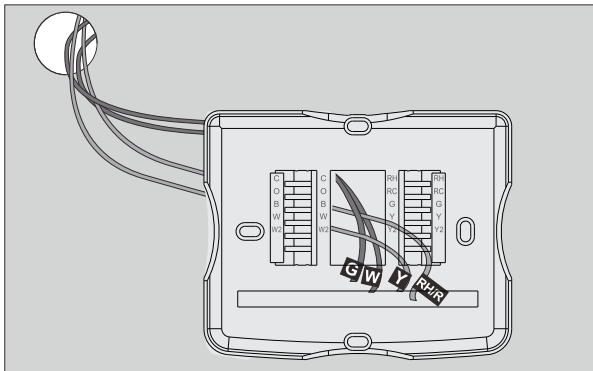
## 4 Remove the old wall panels

Remove the old wall panels so that the new ones can be installed.



## 5 Mount New Wallplate

Mount the new wallplate using the included screws and anchors.



Drill 3/16-in. holes for drywall  
Drill 3/16-in. holes for plaster

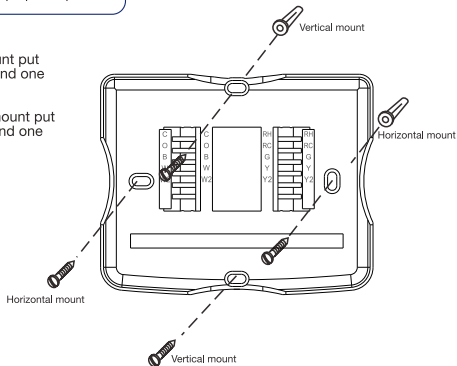


## Mercury Notice:

All of our products are mercury free. However, if the product you are replacing contains mercury, dispose of it properly. Your local waste management authority can give you instructions on recycling and proper disposal.

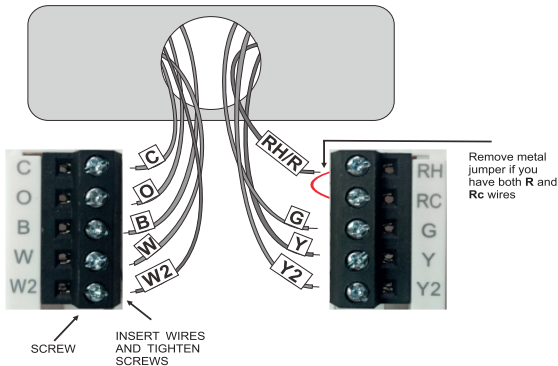
For vertical mount put one screw top and one screw bottom.

For horizontal mount put one screw left and one screw right.



## 6 Connect Wires

Simply match wire labels to the letters on the thermostat.



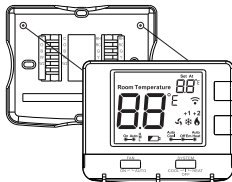
### Installation Tip

Do not overtighten terminal block screws, as this can damage the terminal block. A damaged terminal block can keep the thermostat from fitting on the subbase correctly or cause system operation issues. Max Torque = 6in-lbs.

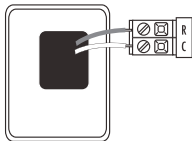


## Mount Thermostat

Align the 2 tabs on the subbase with corresponding slots on the back of the thermostat, then push gently until the thermostat snaps in place.



## Battery Installation

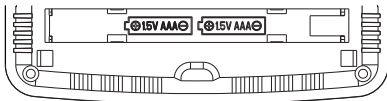


Battery installation is optional if used with AC power (the C terminal is connected). During power outages, the batteries will save settings and power the display.

### Important:

High quality alkaline batteries are recommended. Rechargeable batteries or low quality batteries are not recommended.

Insert 2 AAA Alkaline batteries. High quality alkaline batteries are recommended.



| Terminal | 2 Heat 2Cool Conventional System  |                   |
|----------|-----------------------------------|-------------------|
| RC       | COOL=RC to Y Y2 O                 | FAN=RC TO G       |
| RH       | 24VAC(system power supply)        | HEAT=RH TO W W2 B |
| C        | COMMON24VAC (system power supply) |                   |
| B        | REVVALVE HEAT                     |                   |
| O        | REVVALVE COOL                     |                   |
| G        | FAN RELAY                         |                   |
| W        | 1 ST HEAT RELAY                   |                   |
| W2       | 2 ND HEAT RELAY                   |                   |
| Y        | 1 ST COOL RELAY                   |                   |
| Y2       | 2 ND COOL RELAY                   |                   |

## Wiring Tips

### Common wire

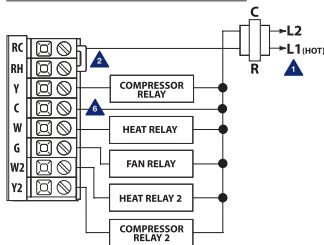
The C (common wire) is optional when the thermostat is powered by batteries.

### Wire Specifications

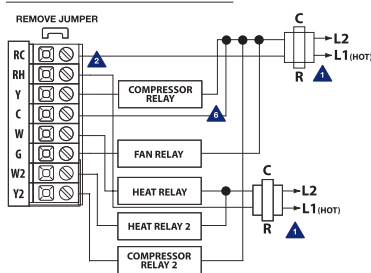
Use 18- to 22-gauge thermostat wire. Shielded wire is not required.

- 1 Power supply
- 2 Factory-installed jumper. Remove only when installing on 2-transformer systems.
- 3 Use either O or B terminals for changeover valve
- 4 Use a small piece of wire (not supplied) to connect W and Y terminals
- 5 Set fan operation switch to electric
- 6 Optional 24 VAC common connection when thermostat is used in battery power mode

**Typical 2H/2C System: 1 Transformer**



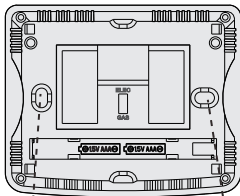
**Typical 2H/2C System: 2 Transformer**



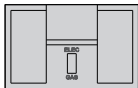
**Typical Cool Only System**

The diagram illustrates the wiring for a typical cool only system. It features a terminal block with terminals labeled RC, RH, Y, C, W, and G. The C terminal is connected to a compressor relay, which is then connected to a fan relay. The fan relay is connected to a three-phase motor with terminals L2, L1(HOT), and R. A blue triangle with the number 2 is placed near the C terminal, and a blue triangle with the number 1 is placed near the R terminal.

[illegible]



Select ELEC or GAS  
with this switch



## Gas or Electric Setup

**Gas:** For systems that control the fan during a call for heat, put the fan operation switch to the **GAS** position.

**Electric:** The thermostat operation switch should be put in the **ELEC** position. This setting allows the thermostat to operate the fan when the fan relay is connected to the **G** terminal.

### ●**Restore factory Settings:**

Press and hold the “-” button, turn on the power, and release the factory Settings after the display is normal.

### ●**HEAT SWING**

Select HEAT with the system switch, hold down the + and - buttons together for 3 seconds to access the HEAT SWING setting. Use the + or - key to adjust the swing from  $\pm 0.2^{\circ}\text{F}$  to  $\pm 2^{\circ}\text{F}$ . Wait approximately 15 seconds or slide the system switch to return to normal operation .





### ●**COOL SWING**

Select COOL with the system switch, hold down the + and - buttons together for 3 seconds to access the COOL SWING setting. Use the + or - key to adjust the swing from  $\pm 0.2^{\circ}\text{F}$  to  $\pm 2^{\circ}\text{F}$ . Wait approximately 15 seconds or slide the system switch to return to normal operation.

Select OFF with the system switch, hold down the + and - buttons together for 3 seconds to access the CALIBRATION setting.

Use the + or - to adjust the, Press + or - at the same time to go to the next item,

Wait approximately 30 seconds or slide the system switch to return to normal operation

|                                    |   |            |  |      |
|------------------------------------|---|------------|--|------|
| Room Temperature Calibration       | This feature allows the installer to change the calibration of the room temperature display. For example, if the thermostat reads 70° degrees and you would like it to read 72° then select +2. | CA<br>0°F  | You can adjust the room temperature display to read 4° above or below the factory calibrated reading.  | 0    |
| F° or C°                           | Select F for Fahrenheit read out or select C for Celsius read out.  | OF<br>83°F | °F for Fahrenheit<br>°C for Celsius  | °F   |
| Compressor Short Cycle Delay       | The compressor short cycle delay protects the compressor from short cycling. This feature will not allow the compressor to be turned on for 5 minutes after it was last turned off.             | Cd<br>00   | Selecting "ON" will not allow the compressor to be turned on for 5 minutes after the last time the compressor was switched off. Select "OFF" to remove this delay.   | ON   |
| Heating Temperature Setpoint Limit | This feature allows you to set a maximum heat setpoint value. The setpoint temperature cannot be raised above this value.   | H<br>90°F  | Use the  or  key to select the maximum heat setpoint.<br>Range 44°F - 90°F | 90°F |
| Cooling Temperature Setpoint Limit | This feature allows you to set a minimum cool setpoint value. The setpoint temperature cannot be lowered below this value.  | L<br>44°F  | Use the  or  key to select the maximum heat setpoint.<br>Range 44°F - 90°F | 44°F |

## Specifications

---

|                                    |  |
|------------------------------------|--|
| The display range of temperature   | 32°F to 99°F (0°C to 40 °C)  |
| The control range of temperature   | 44°F to 90°F (7°C to 32°C)   |
| Load rating                        | 1 amp per terminal, 1.5 amp maximum all terminals combined   |
| Display accuracy                   | ± 1°F  |
| Swing (cycle rate or differential) | Heating is adjustable from 0.2°F to 2.0°F<br>Cooling is adjustable from 0.2°F to 2.0°F                                   |
| Power source                       | 18 to 30 VAC, NEC Class II, 50/60 Hz for hardwire (common wire)<br>Battery power from 2 AAA Alkaline Energizer batteries |
| Operating ambient                  | 32°F to +105°F (0°C to +41°C)  |
| Operating humidity                 | 90% non-condensing maximum   |
| Dimensions of thermostat           | 4.72"W x 3.86"H x 1.02"D   |





# Instruction Manual