

Digital Room  
Thermostats with Offset

INSTALLATION MANUAL

APPLICATION

DR is a serie of Digital Room Thermostats, provides a single stage, temperature control. Table 1 shows all the available models. All models can be provided with 24, 120, 220 Vac.

Model	Operation	Cooling / Heating	Compressor delay
01	cool + sweep	Compressor	yes
02	cool + sweep	Chilled water	no
03	cool - fan - dry	Compressor	yes
04	cool - fan - dry	Chilled water	no
05	cool - fan - dry - heat - auto	Compressor / Heat pump	yes
06	cool - fan - dry - heat - auto	Compressor / Electric heater	yes, only for cool
07	cool - fan - dry - heat - auto	Chilled water / Hot water	no
08	cool - fan - dry - heat - auto	Chilled water / Electric heater	no

Table 1. Serie of Digital Room Thermostats.

These thermostats are mercury free and require no battery. All set points are kept permanently by non-volatile memory.

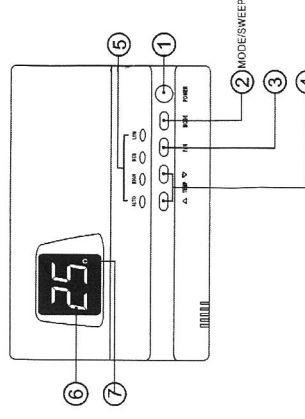
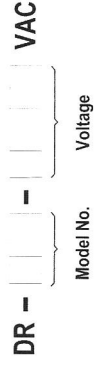


Fig. 1. Digital Room Thermostat.

Model No. Legend

When ordered, put all the information in the Model No. Legend.



Voltage supply : 24, 120, 220 Vac.

**SPECIFICATIONS**

<b>POWER SUPPLY</b>	
24 VAC system	18 – 30 VAC, 50/60 Hz
120 VAC system	96 – 144 VAC, 50/60 Hz
220 VAC system	198 – 250 VAC, 50/60 Hz
<b>TEMPERATURE :</b>	
Temperature accuracy	± 1 °C
Storage temperature	0 – 70 °C
Ambient temperature	10 – 50 °C
Setting temperature range	18 – 30 °C (64 – 88 °F)
<b>FAN RELAY, HEAT and COOL RELAY : (PI-PS)</b>	
Rating (inductive load)	
• <i>Maximum switching capacity</i>	2 A 250 VAC

**INSTALLATION**

Read these instructions thoroughly before installing product. Failure to follow these instructions could damage the product or cause a hazardous condition. Check the voltage and current ratings on the product to ensure that it is suitable for your application. Installer must be a trained, experienced service technician. Check product for proper operation after installation.



**CAUTION**

**Damage to heating and cooling system may occur. Disconnect power from the equipment at the main breaker/fuse block while installing the thermostat.**

**Mounting Location**

Mount the thermostat approximately 5 ft. (1.5m) above the floor in a location that is free from direct sunlight, heat from appliances, hot or cold air from ducts, concealed pipes and chimneys, and drafts or dead spots behind doors or in corners. Do not mount on exterior wall, if possible. Failure to locate thermostat mounting as indicated will result in poor temperature control.

**Note :** Level thermostat mounting is for appearance only and is not required for proper thermostat operation.

- Cool Mode : LED at ⑥ will show **CO** in blinking for 5 seconds
- Dry Mode : LED at ⑥ will show **dy** in blinking for 5 seconds
- Fan Mode : LED at ⑥ will show **FO** in blinking for 5 seconds
- Heat Mode : LED at ⑥ will show

- **HP** in blinking for 5 seconds if the Heat Pump version is ordered.
- **HE** in blinking for 5 seconds if the Electric Heater version is ordered.
- **HO** in blinking for 5 seconds if the Hot water pipe version is ordered.
- Auto Mode : LED at ⑥ will show **AL** in blinking for 5 seconds. The system will automatically switch from Cool to Heat mode or vice versa.

**Fan**

Press FAN button to select the fan speed in the following sequence.



LED at ⑤ will show the status of the fan.

**Auto mode**

The speed will be adjusted according to the difference between the room and the setting temperature.

- If the difference is 3°C or more, the fan will run at high speed.
- If the difference is 2°C, the fan will run at medium speed.
- If the difference is 1°C, or lower, the fan will run at low speed.

Note : For Heater model, Fan will stop 30 seconds after power off to dissipate heat in heater.

**Temperature setting**

Press TEMP Δ or TEMP V button for setting the temperature in a range of 18 - 30°C or 64 - 88 °F.

LED at ⑥ will show the new setting for 5 seconds.

**Compressor delay**

In a model with compressor delay feature, there will be 3 minute time delay before the compressor can restart.

**Compressor status**

LED at ⑦ shows the status of the compressor/valve/heater.

**Sensor Error Alarm**

If the room sensor is open/short circuit, the controller will stop the compressor or any heating equipment and dot on 7-segment will blink.

**Auto Restart**

All the setting parameters are kept in the non volatile memory. When there is a power failure and back to normal, the system will resume its operation with the same setting parameters.

**Mount and Wire the Thermostat**

Tighten two appropriately sized screws on the wall or on the 2x4 in. junction box. Keeping 1.50 mm distance from the wall. See Fig. 2.

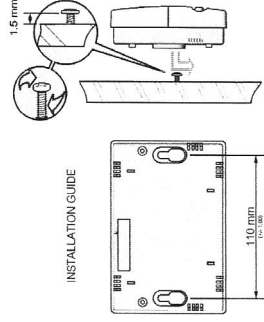


Fig. 2. Tighten screws on the wall.

Use cable size 0.5-1 sq. mm connect the wires from heating /cooling equipment to the terminals on the thermostat. See wiring diagram (Fig. 8 & 9) for location of thermostat terminals.

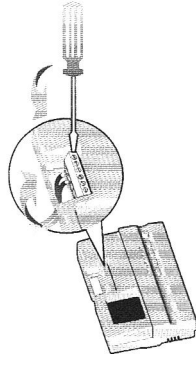
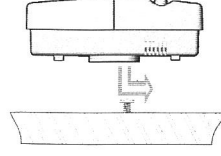


Fig. 5. Connect system wires to thermostat terminals (strip 5/6 inch).

Mount the thermostat on the wall by having it on the screws. See Fig. 3.



Put the cover back. See Fig. 6.

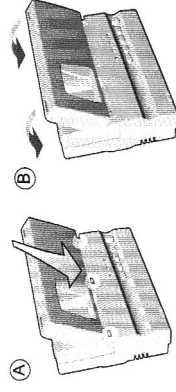
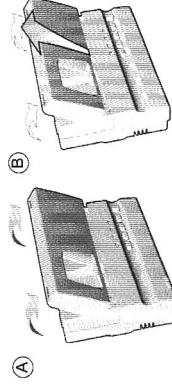


Fig. 3. Mount the thermostat.

Fig. 6. Put the cover back.

Lift and open the cover, pull it up to remove. See Fig. 4.



Tighten screw to secure the cover. See Fig. 7.

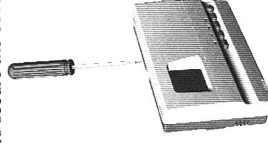


Fig. 4. Remove the cover.

Fig. 7. Tighten the screw.

WIRING DIAGRAM

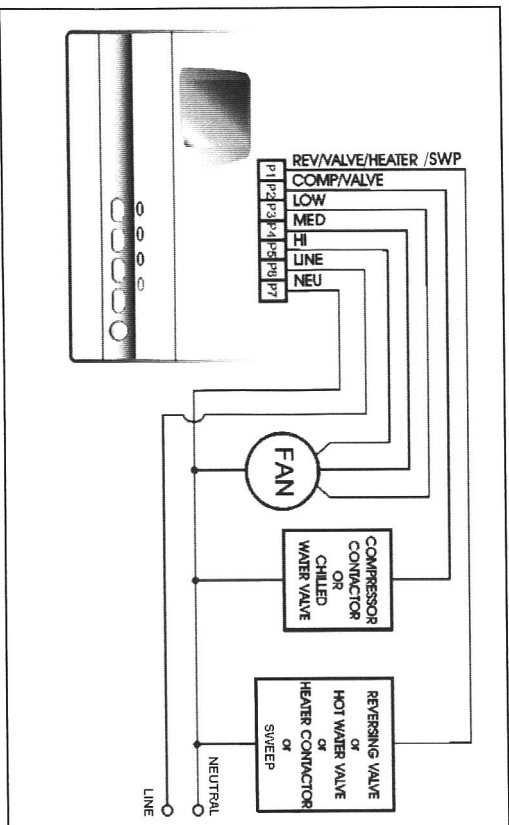


Fig. 8. For 120 or 220 Vac system.

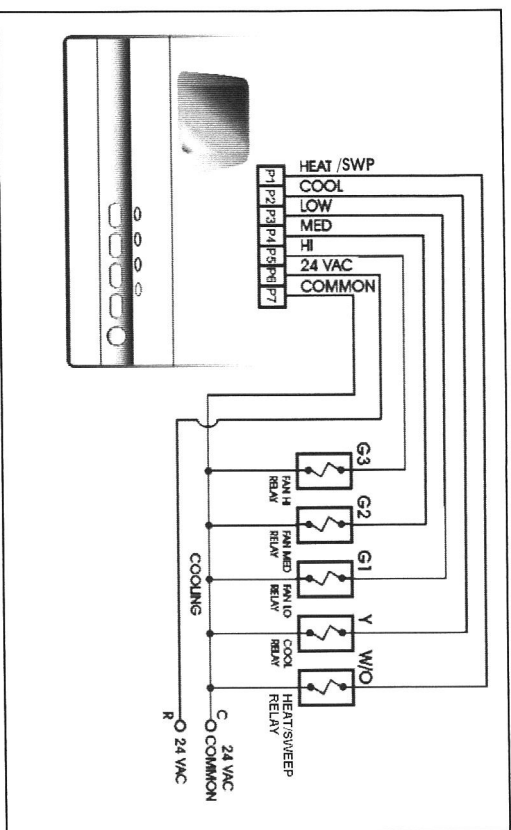


Fig. 9. For 24 Vac system.

**SET UP**  
All thermostats are factory set up according to the Model No. Legend listed on the back side of the plastic casing. However it can be alternated by the programming.



**WARNING**  
Failure to set up according to the application may damage the heating and cooling system.

**Set up mode**

Press and hold TEMP Δ and TEMP V and FAN buttons at the same time for 3 seconds, the display will show the existing set up as per Table 2.

Display	Not blinking	Blinking
P1	Heat /Cool	Cool
P2	Electric heater	No electric heater
P3	°F	°C
P4	No compressor delay	Compressor delay
P5	Sweep	No sweep
P6	No offset	Room temp offset -2°C (default)

Table 2. Set up table.

**Example 1 :** the display shows P1 without blinking means the set up is now for Heat / Cool version.

**Change the set up**

- While in set up mode, press TEMP Δ or TEMP V button to the required set up program.
- To change the set up to the other version as listed in Table 2, press FAN button.
- Repeat (a) & (b) for the next set up.
- Press MODE or SWEEP button to exit from the set up mode.

**Note :** If POWER button is pressed before exiting from the set up mode (Section d above), the system will exit from the existing mode without changing the setup program.

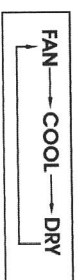
**OPERATION**

**Power**

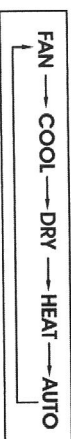
Press POWER to turn on/off the air conditioner. When turn on, it will operate according to the last program setting.

**Mode/Sweep**

For Cool + Sweep version, button ② is a SWEEP button used to turn on/off the sweep motor. For other versions, this is a MODE button used to select the operation mode.



Cool only model.



Heat/Cool mode.