



User Guide

Clear Comfort™ Pro 7-day Programmable Thermostat



Model 83521

Thank you for purchasing the **Clear Comfort™ Pro** thermostat from Orbit™. We are excited to provide you a long-lasting thermostat that blends style with function.

Features

- Easily program 7 individual days or copy one programmed day to another
- Pre-programmed and ready to go with Energy Star® settings
- Large backlit display is easy to read
- Early start ensures the desired temperature is reached at the scheduled time
- Precision control keeps the temperature within 1°F of set level
- Override the schedule temporarily or permanently

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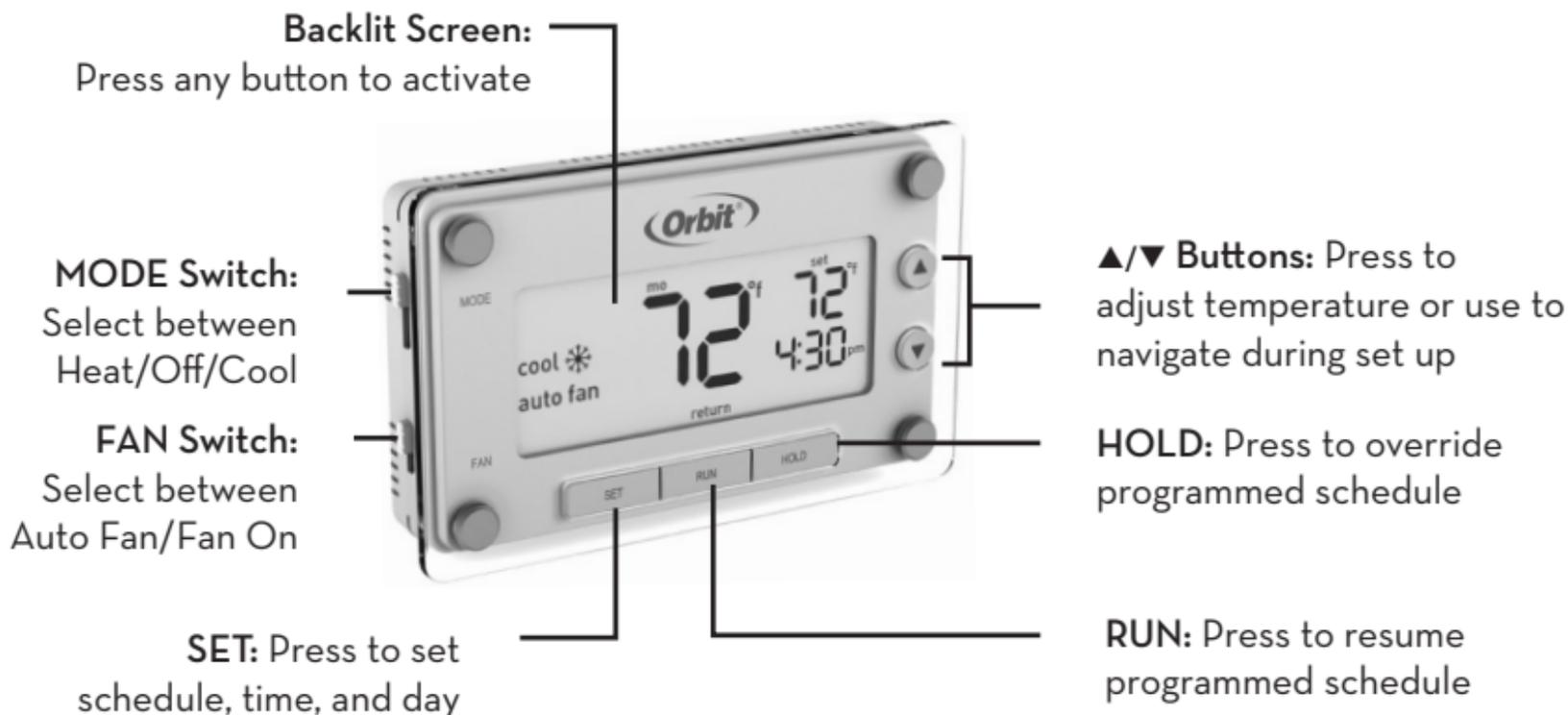
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EASY 1-2-3 OPERATION

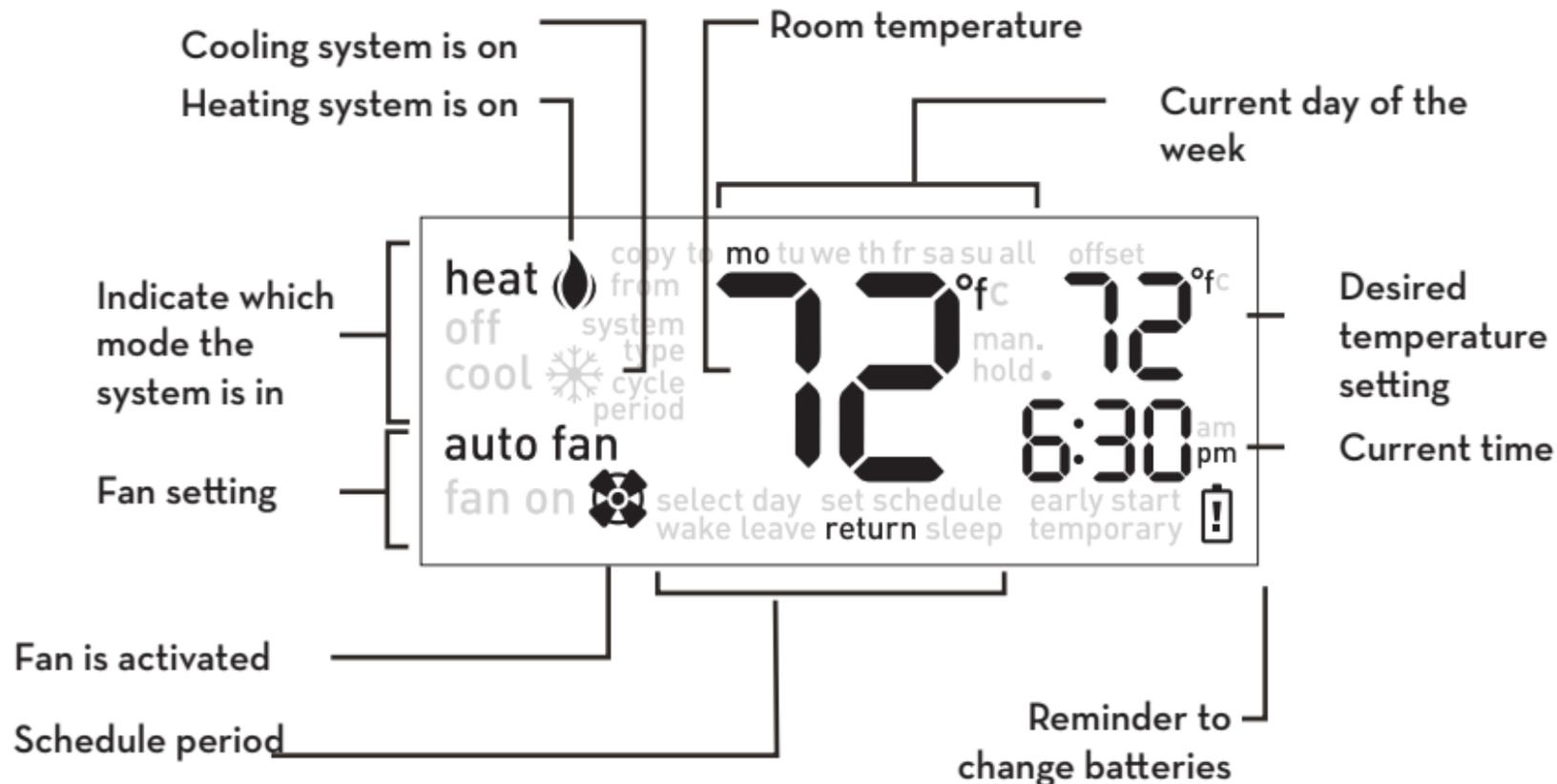
1. Set the time and day See page 20
2. Select whether to heat or cool See page 21
3. Select fan setting See page 21

Your thermostat is now ready to use, simply press **RUN**. If you do not wish to use the preprogrammed Energy Star® thermostat settings you can:

- Modify the programmed schedule See page 24
- Temporarily override the programmed schedule See page 26
- Permanently override the programmed schedule See page 27



DISPLAY SCREEN



This thermostat is compatible with the following systems:

- Gas, oil or electric furnace
- Central air conditioner
- 2 wire hot water system with or without pump
- Millivolt system
- Central heating and cooling system
- Heat pump without auxiliary/backup heat

This thermostat is not compatible with base board heaters (or other line voltage heating), multi-stage heating or cooling systems, or 3-wire hydronic systems.

Tools Required For Installation

- Phillips screwdriver
- Wire cutters/strippers
- Drill with 3/16" (4.8 mm) drill bit
- Level

TIPS FOR INSTALLATION

When replacing an existing thermostat, position your new **Clear Comfort™ Pro** thermostat in the same location as your old one, unless the conditions that follow suggest otherwise. For a new installation, follow these guidelines for placement:

- Place the thermostat in a room or hallway that is used often; position on an inside wall about 5' (1.52 m) from the floor.
- Avoid installing the thermostat in overly warm areas (e.g., near a television, lamp, radiator, or fireplace), in direct sunlight, or on a wall that has hot water pipes or that is opposite a stove.
- Avoid installing the thermostat in overly chilled areas, such as in a drafty area (e.g., stairwell, door, or window), on a wall separating an unheated room, or where air circulation is poor (e.g., in a corner or behind a door).
- Avoid installing the thermostat in damp areas, as this can lead to corrosion.
- Do not install the thermostat until construction work is complete, the area is dust free, and painting is completed.
- If the thermostat housing is cold, wait for it to reach room temperature before installing.

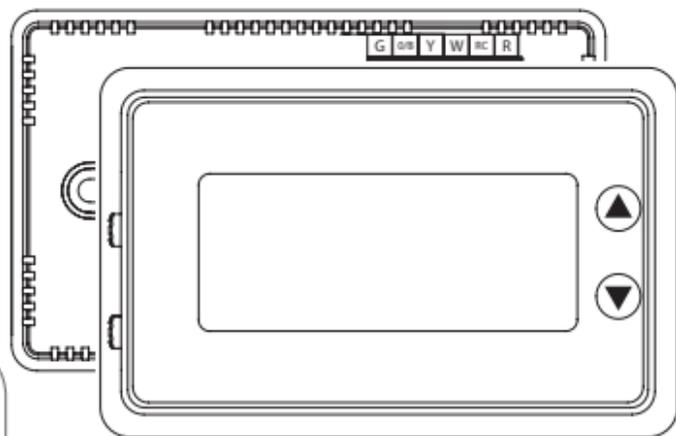
1 Switch Off Power

Turn off the power to the heating and cooling equipment.

2 Remove Cover

Remove the front cover from the old thermostat.

Mercury Notice: *If your old thermostat contains mercury contact your local waste management authority for information on how to safely dispose of it.*



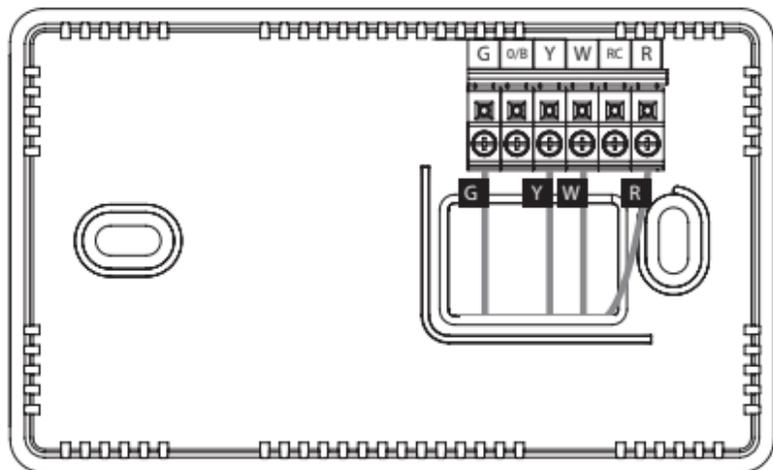
 Take a picture or make note of the current wiring for reference.

INSTALLING YOUR THERMOSTAT

3 Label Wires

Use the supplied wire labels to identify the wire by its terminal letter and not the color. Once the wires are labeled, disconnect the wires and remove the base.

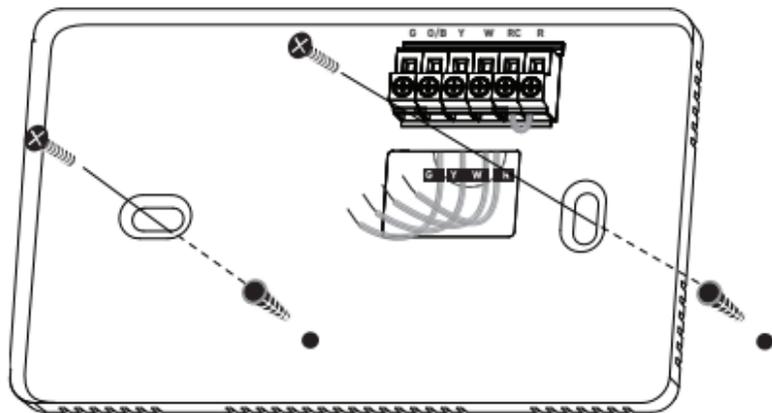
B	B	Y2	Y2	C	C	E	E	F	F	AUX
										AUX
G	G	H	H	L	L	O	O	P	P	
R	R	RC	RC	RH	RH	T	T	U	U	
V/VR	V/VR	W	W	W1	W1	W2	W2	W3	W3	
X	X	X1	X1	X2	X2	Y	Y	Y1	Y1	



While labeling and removing the individual wires DO NOT let the wire fall back inside the wall.

4 Mount New Base

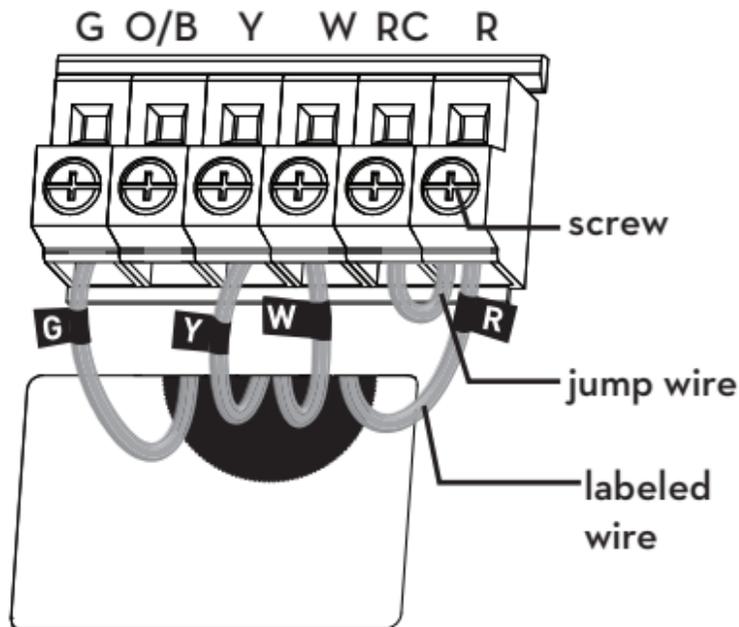
- Remove the thermostat body from the base by gently pulling them apart.
- Place the base flat against the wall by feeding the wires through the opening below the wiring terminal.
- Level the base and mark the holes for the mounting screws with a pencil.
- Remove the base and drill holes at marked positions. Insert the provided wall anchors.
- Feed wires back through the opening and attach the base to the wall with the screws provided.



INSTALLING YOUR THERMOSTAT

5 Wire Installation for Conventional Systems

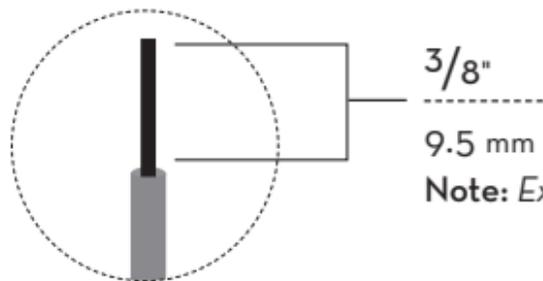
- Loosen the screws on each terminal.
Note: Remove jumper wire if you have both *R* and *RC* wires.
- Insert each labeled wire into the matching terminal and tighten the screws.
- Wrap exposed areas of any unused wire with electrical tape.
- Continue to page 12.



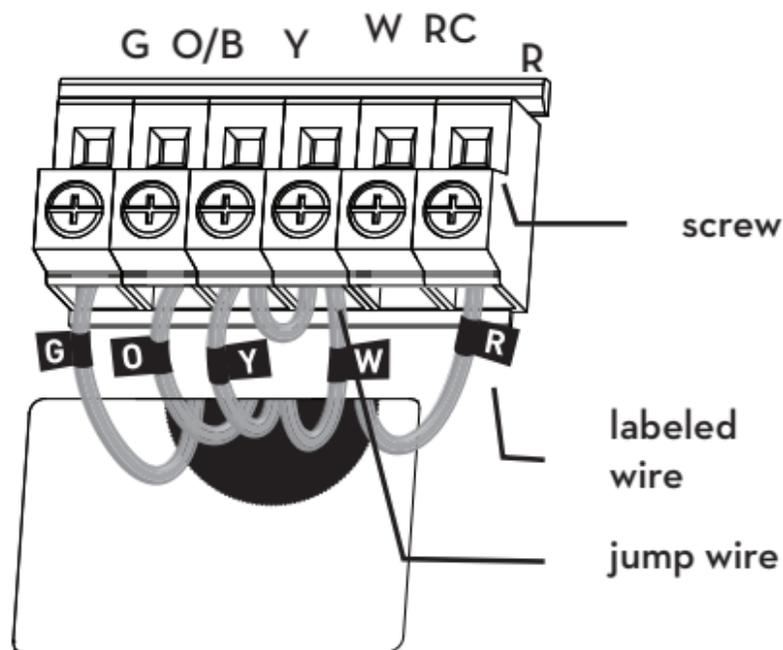
CAUTION: Stripping too much insulation from the end of a wire creates the potential for shorting between wires and could prevent proper function of the thermostat.

Wire Installation for Heat Pump Systems

- Loosen the screws on each terminal.
- Insert jumper wire into the Y and W terminals.
- Insert each labeled wire into the matching terminal and tighten the screws.
- Wrap exposed areas of any unused wire with electrical tape.



Note: Expose 3/8" of each wire for proper installation.

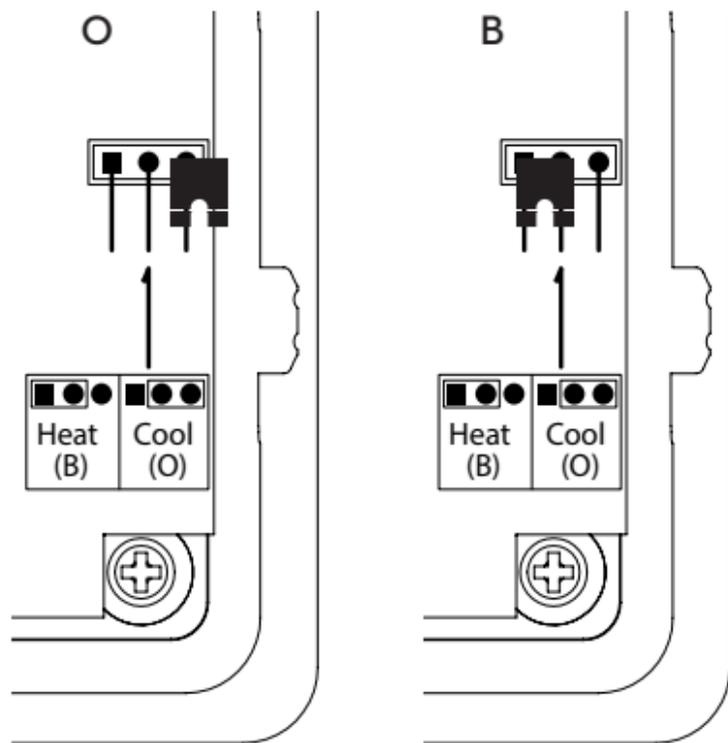


INSTALLING YOUR THERMOSTAT

6 Set Heat Pump Jumper

The following instructions are necessary to check the J3 jumper placement if you have a heat pump system.

- O** Leave the jumper in the Cool (O) factory-set position if you connected an O wire to the O/B terminal.
- B** Move the jumper to the Heat (B) position if you connected a B wire to the O/B terminal.

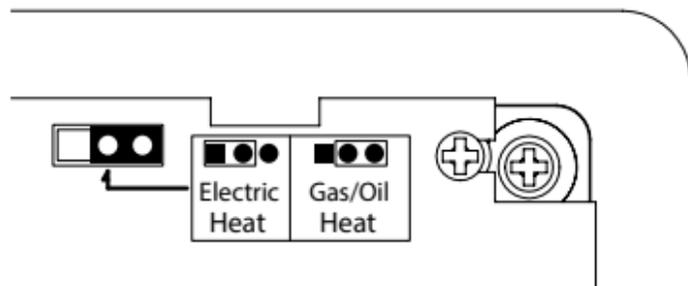


7 Set Fan Control Jumper

Correct placement of this J2 jumper optimizes energy use and comfort levels for the connected system type.

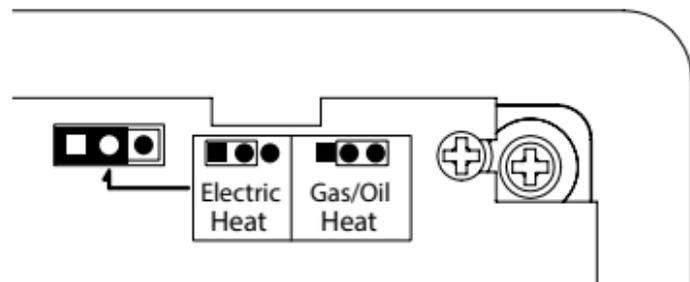
Gas/Oil Heat

For gas or oil systems leave the jumper in the Gas/Oil Heat factory-set position.



Electric Heat

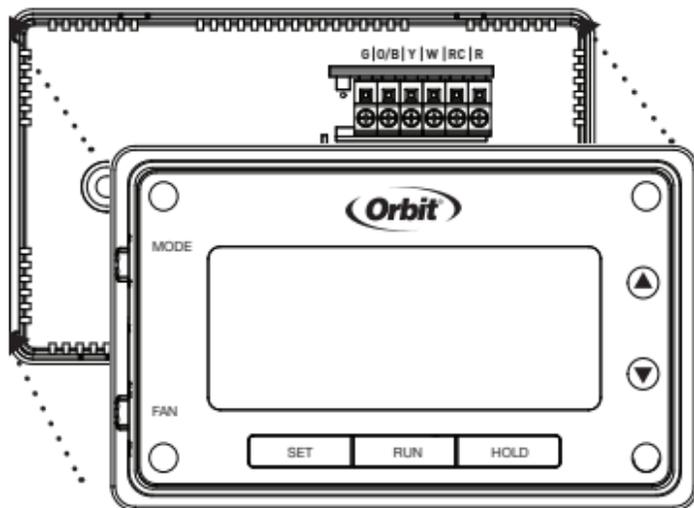
For electric and heat pump systems move the jumper to the Electric Heat position.



INSTALLING YOUR THERMOSTAT

8 Completing an installation

- Insert three Energizer® or Duracell® AAA alkaline batteries.
- Install the thermostat body by gently pushing it onto the base until it “clicks” into place. Verify that there are no gaps in the side housing.
- Turn the power back on to the heating and cooling equipment.



Switching Between Fahrenheit (°F) and Celsius (°C)

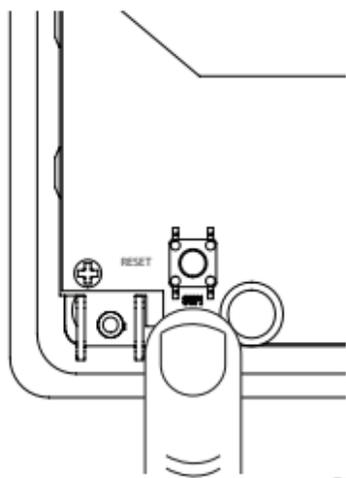
1. Slide the **MODE** switch to the off position.
2. While holding ▲ press **SET**.
3. Release both buttons.
4. Repeat steps 2 and 3 to toggle between °F and °C.



To access the **RESET** button, remove the thermostat body from its base by gently pulling them apart.

- Press and hold for five seconds to reset all system settings and temperature gauges back to factory defaults.

Note: *Be careful not to touch the black surface on which the reset button is mounted, and do not clean it if dusty.*



ADVANCED SYSTEM SETUP

The following four features are done in a flow-through setup. The system will walk you through each feature. To access only one feature, follow these steps then press SET until you come to the feature you would like to adjust.

1. Slide the **MODE** switch to the off position.
2. While holding the **RESET** button press **SET**, “offset” will appear on the display.

Note: Do not hold the reset button for more than five seconds.

3. Release both buttons.

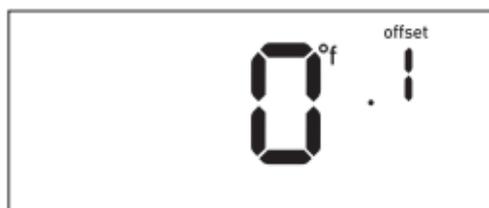
Note: The system will automatically exit if no button is pressed within 12 seconds.

TEMPERATURE OFFSET

Offset the temperature display to read +/- 9° F (+/- 4.5° C). This thermostat has a highly accurate temperature sensor; if you desire to match the display with other devices this offset feature can be used.

Note: Using this feature does not change the actual temperature.

1. Press ▲ or ▼ to change the offset amount.
2. Press **SET** to advance to the next step. To exit, press **SET** four times.



Your thermostat comes preprogrammed with early start functionality turned off. This function allows the heating or cooling system to turn on before the programmed start time so that the room temperature matches the set temperature at the start time.

1. Press ▲ or ▼ to toggle between OFF and ON.
2. Press **SET** to advance to the next step. To exit, press **SET** three times.



OFF
early start

Your thermostat is set at the factory to operate a standard fossil fuel furnace heating system.

1. Press ▲ or ▼ to toggle between the heat systems being used.
 - If using a Heat Pump select HP.
 - If using a Furnace select F.
2. Press **SET** to advance to the next step. To exit, press **SET** two times.



system
type HP

MINIMUM CYCLE PERIOD

The cycle period is the minimum time in minutes between each heating or cooling cycle.

As a default, your thermostat's minimum cycle period is set to optimize energy use and comfort levels. The default can be changed if you want it to turn on more or less frequently.

1. Press ▲ or ▼ to select the desired cycle period.
2. Press **SET** to accept the cycle period and exit.



- If Heat Pump (HP) has been selected, it will toggle between 60, 30, 20, 15, and 12.
- If Furnace (F) has been selected, it will toggle between 60, 30, 20, 15, 12, 10, 8, and 6.

Recommended Cycle Periods
System Type

Cycle Period
(Minutes)

F	1-Stage gas furnace heat with electric fan	12
	1-Stage gas furnace heat with gas fan	12
	1-Stage oil furnace	12
	Steam and gravity	60
	Hot water system	20
	High efficiency furnace	20
	Electric furnace	6
HP	1-Stage heat pump	20
	Compressor	20

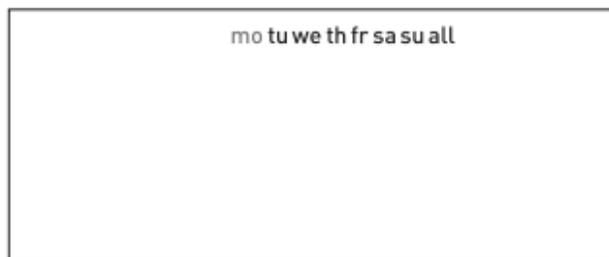
SET TIME AND DAY

Set the time and day

1. With the thermostat in off mode, press **SET**.
2. Press ▲ or ▼ to adjust the time.
3. Press **SET** to accept the time and continue.



Note: Press and hold ▲ or ▼ to advance the time faster.



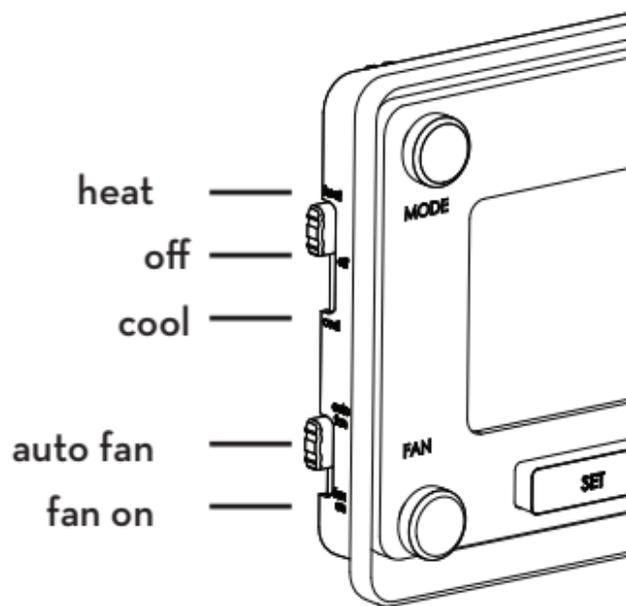
4. Press ▲ or ▼ to select the day of the week.
5. Press **SET** to accept the day of the week and exit.

Slide the mode switch to whether you want to heat or cool to achieve the set temperature.

- **heat**—System will activate heating to reach the set temperature.
- **off**—Systems are off.
- **cool**—System will activate cooling to reach the set temperature.

Slide the fan switch to the appropriate setting to operate fan.

- **auto fan**—Fan will run automatically when heating or cooling is activated.
- **fan on**—Fan will run continuously.



Note: *Auto fan is the most commonly used setting.*

PROGRAMMED SCHEDULES

The thermostat schedule is divided into four periods for you to program for maximum energy savings.

- wake** Set it to the time you wake up and the temperature you want it to be at that time.
- leave** Set it to the time you leave the house and the temperature you want while you are out.
- return** Set it to the time you return home and the temperature you want it to be when you arrive.
- sleep** Set it to the time you go to sleep and the temperature you want it while you are sleeping.

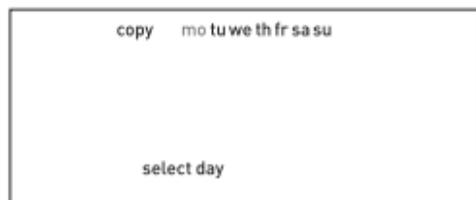
ENERGY STAR® PROGRAMMED SCHEDULE

For optimal energy savings your thermostat is preprogrammed with the following schedule for each day of the week. Simply switch your thermostat to the heat or cold mode and press **RUN**.

Period	Start Time	Heat	Cool
wake	6:00 am	70°F	78°F
leave	8:00 am	62°F	85°F
return	6:00 pm	70°F	78°F
sleep	10:00 pm	62°F	82°F

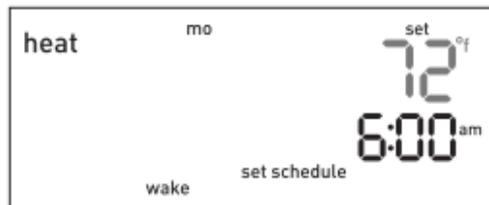
MODIFYING THE PROGRAMMED SCHEDULE

1. Switch the thermostat to the **MODE** you want to program (heat or cool) and press **SET**.
2. Press ▲ or ▼ to scroll between days and press **SET** when the day you would like to schedule is flashing.



3. Press ▲ or ▼ to set your wake start time and press **SET** to accept the time.

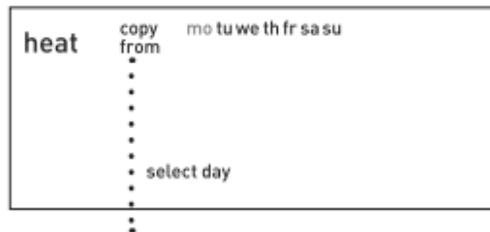
4. Press ▲ or ▼ to set the wake temperature and press **SET** to accept the temperature and proceed.



5. Follow steps 3 and 4 to set the time and temperature for the remaining periods.
6. Continue to set up each day individually or use the copy feature to copy one day to another (see page 25) or press **RUN** to save and exit.

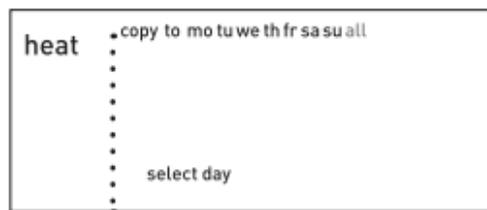
From the days of the week menu you can copy a schedule from a single day to one or more days. To access that menu, if you are not already there, switch the thermostat to the **MODE** you want to program (heat or cool) and press **SET**.

1. Press ▲ or ▼ to scroll to copy and press **SET** when the word “copy” is flashing.



“Copy from” will appear on the display.

2. Press ▲ or ▼ to select the day you would like to copy and press **SET** when that day is flashing.
3. Press ▲ or ▼ to select the day you



“Copy to” will appear on the display.

would like to copy to. You can select an individual day or select all to have your schedule copied to every day of the week.

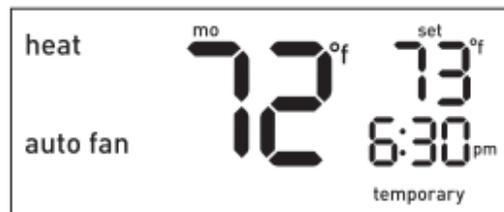
4. Press **SET** to advance to the next step or **RUN** to save and exit.

OVERRIDING SCHEDULES TEMPORARILY

Press ▲ or ▼ to raise or lower the temperature. This temporary adjustment will remain until the start time of the next period. The word “temporary” will be displayed letting you know the temperature has been adjusted.

Note: Pressing the ▲ or ▼ button once will turn on the backlight. To change the setpoint temperature press either button more than once.

You can remove the temporary setting at any time by pressing **RUN**, the system will return to your previous programmed schedule.



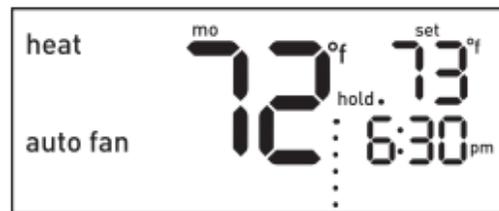
“Temporary” will appear on the display.

OVERRIDING SCHEDULES PERMANENTLY

Press **HOLD** to override the programmed schedule. All programmed temperature changes for all periods will be ignored.

While the system is in hold you can manually change the temperature at any given time by pressing ▲ or ▼. The thermostat will maintain this temperature change until you manually change it again or remove the hold.

You can remove the hold at any time by pressing **RUN**, the system will return to your previous programmed schedule.



“Hold.” will appear on the display.

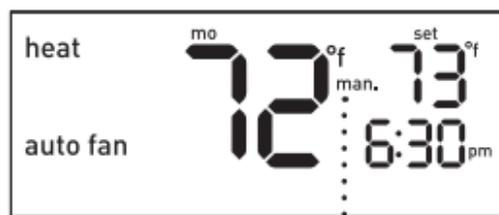
TURNING OFF SCHEDULES

Press **HOLD** for five seconds until the manual indicator “**man.**” appears on the screen.

Your thermostat now functions as a non-programmable device with no scheduled program. **SET**, **RUN**, and **HOLD** will not work while in this setting. If it is too hot or too cold, you will have to manually change the temperature. Press ▲ or ▼ to raise or lower

the temperature.

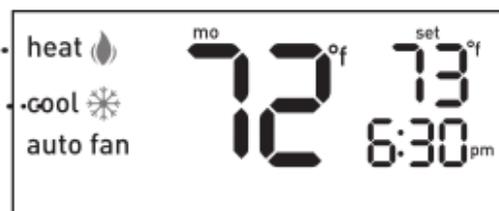
You can exit the manual setting at any time by pressing **RUN** for five seconds, the system will return to your previous programmed schedule.



“Man.” will appear on the display.

BUILT IN COMPRESSOR PROTECTION

This function helps protect against damage to the compressor in your air conditioning or heat pump system. The compressor is forced to wait five minutes after turning off before it can turn on again. The appropriate **MODE** indicator icon will flash on the display whenever this feature is running.



 flashes while minimum off time is being enforced.

This function allows the heating or cooling system to turn on before the programmed start time so that the room temperature matches the set temperature at the start time.

Example: *Your Wake time is set for 6:30 am with a temperature of 72°. Your system will turn on before 6:30 am, so the temperature is 72° when you wake up.*

Note: *To turn on this function see page 17.*

To prevent damage to the clear lens over the thermostat face, use a soft cotton cloth and clean with mild soap and water only.

DO NOT use paper towels or other abrasive cloths. **DO NOT** spray any liquid directly onto the thermostat.

It is recommended that the batteries in the thermostat be replaced once a year or before leaving the home for a prolonged period of time.

1. Switch the system **MODE** to off before changing the batteries.
2. Remove the thermostat body from its base by gently pulling them apart.
3. Turn the thermostat over and remove old batteries.
4. Replace them with fresh Energizer® or Duracell® alkaline AAA batteries, carefully observing the required polarities.

5. Reinstall the thermostat body onto its base by gently pushing it until it “clicks” into place.

Note: *If the batteries are not changed within 7 days after the Low Battery Indicator appears on the display, the set temperature will increase by 10°F in cool mode, or decrease by 10°F in heat mode as a further reminder. After 90 days, or less, depending on the condition of the batteries, the system will turn off and the Low Battery Indicator will flash on the display.*

WARNING: *Failure to change batteries in a timely fashion can lead to uncontrolled heating and cooling.*

TROUBLESHOOTING

Problem:

No heating/cooling system activation

Solution:

1. Verify **MODE** switch is in proper heat or cool mode.
2. Check batteries. Replace if necessary. (See “Replacing the Batteries,” page 31).
3. Check set temperature. Set temperature should read above room temperature in heat mode and below room temperature in cool mode.
4. Verify Heating/Cooling power switch isn't off.
5. Verify that the circuit breaker isn't tripped.
6. Verify that the furnace door is closed securely.
7. Check for loose or crossed wiring in the thermostat wiring terminal.
8. Verify that copper wires are not exposed and touching other wires.
9. Verify that the O/B jumper is installed appropriately. (See “Set Heat Pump Jumper” page 12).
10. Verify that the FAN jumper is installed appropriately. (See “Set Fan Control Jumper” page 13).

Problem:

No fan/fan runs continuously

Solution:

1. If the fan runs continuously, verify that the thermostat is in the **AUTO** position not the **ON** position.
2. Let the thermostat sit (do not touch) for 30 minutes to allow the temperature to stabilize.
3. Verify that the G wire in the thermostat wiring terminal is connected properly.
4. Verify Heating/Cooling power switch isn't off.
5. Verify that the circuit breaker isn't tripped.
6. Verify that the furnace door is closed securely.
7. Check for loose or crossed wiring in the thermostat wiring terminal.
8. Verify that copper wires are not exposed and touching other wires.
9. Verify that the fan jumper is installed appropriately. (See "set fan control jumper" page 13).

TROUBLESHOOTING

Problem:

Incorrect room temperature

Solution:

1. Let the thermostat sit (do not touch) for 30 minutes to allow the temperature to stabilize.
2. Check placement of thermostat; make sure it's not in an unusually drafty or heated area.
3. Verify that the wall hole for wires is insulated properly.
4. Check Temperature Offset (see "Temperature Offset," page 16).

Problem: Buttons below display do not function

Solution: Verify that the thermostat is not in MANUAL mode (see "Turning Off Schedules," page 28).

Problem: Not reaching set temperature

Solution:

1. Verify that the **MODE** switch is in proper heat or cool mode.
2. Verify that Heating/Cooling systems are working properly.
(See “No heating/cooling system activation,” page 32.)
3. Check for loose or crossed wiring in the thermostat wiring terminal.
4. Check Temperature Offset (see “Temperature Offset,” page 16).
5. Check placement of thermostat; make sure it’s not in an unusually drafty or heated area.
6. Verify that the wall hole for wires is insulated properly.
7. Verify that the O/B jumper is installed appropriately. (See “Set Heat Pump Jumper” page 12).

Problem: Wrong temperature scale displayed

Solution: See “Temperature Format,” page 15.

TROUBLESHOOTING

Problem: Temperature does not change at programmed start time for a given period

Solution:

1. Verify that the HOLD feature is not active (see “Overriding the Schedules Permanently,” page 27).
2. Check the programmed schedule (see “Modifying the Programmed Schedule,” page 24).
3. Verify that the thermostat is not in MANUAL mode (see “Turning Off Schedules,” page 28).

Problem: Heat/cool system doesn't respond immediately

Solution:

1. To protect your compressor, the thermostat default is to wait five minutes before responding. (see “Minimum Cycle Period Adjustment,” page 18).
2. If the problem persists after waiting five minutes, check batteries. Replace if necessary (see “Replacing the Batteries,” page 31).

Problem:

Set temperature is 10°F above (in cool mode) or 10°F below (in heat mode) desired temperature

Solution: Check batteries. Replace if necessary (see “Replacing the Batteries,” page 31).

Problem: System turns on too frequently

Solution:

The Orbit **Clear Comfort™ Pro** thermostat uses smart logic to turn on once every cycle period to maximize comfort and temperature stability. To adjust the cycle period, see “Minimum Cycle Period Adjustment,” page 18.

Problem: Display is blank/Low Battery Indicator on

Solution:

1. Replace batteries (see “Replacing the Batteries,” page 31).
2. Check for loose or crossed wiring in thermostat wiring terminal.

CUSTOMER ASSISTANCE

For technical assistance, please call:

1-800-488-6156 or 1-801-299-5555.

Before returning this thermostat to the store, please call:

1-800-488-6156 or 1-801-299-5555.

Orbit, Inc.

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Made in China

Orbit, Inc. warrants to its customers that its products will be free from defects in materials and workmanship for a period of three years from the date of purchase. We will replace, free of charge, the defective part or parts found to be defective under normal use and service for a period of up to three years after purchase (proof of purchase required). We reserve the right to inspect the defective part prior to replacement.

Orbit, Inc. will not be responsible for consequential or incidental cost or damage caused by the product failure. Orbit, Inc. liability under this warranty is limited solely to the replacement or repair of defective parts.

To exercise your warranty, return the unit to the dealer with a copy of your sales receipt. All trade names are registered trademarks of the respective manufacturers listed.