

# Robertshaw®

INTEGRATED COMFORT SOLUTIONS™

# 9520

DIGITAL  
NON-PROGRAMMABLE  
THERMOSTAT



HEAT PUMP

2 Heat / 2 Cool

**User's Manual**  
**Quick Start**  
**Installation**



110-733C



## 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

## Features

- Multi Stage heat and cooling control
- Zone system compatible as a master thermostat
- Multi-Colored LED indicators for system status
- Low battery indicator.
- Fahrenheit/Celsius display option.
- Adjustable from 45°F (4°C) to 90°F (32°C).
- Accuracy within  $\pm 1$  degree.
- Adjustable temperature differential: 1-3 degrees F.
- Automatic heating shutdown if temperature exceeds 90°F (32°C).

## Replacing Existing Thermostat

1. Turn off power to heating and cooling system.
2. Remove cover of old thermostat to expose wires.  
Do not disconnect wires. (Fig. 1)
3. Label wires per Table 1.

Table 1

Old Label	New Label	Description
R, V-VR or VR-R	R	24 VAC, Return
Y, Y1 or M	Y	Stage 1 Cooling/Heating Circuit
O or R	O	Reversing Valve, (Cooling Mode)
B	B	Reversing Valve (Heating Mode)
F or G	G	Fan control relay
Y2	Y2	2nd Stage Cooling Circuit
W1 or W2 or W-U	W2	2nd Stage Heating Control
L or X	L	System Monitor LED
E	E	Emergency Heating Circuit
C, X or B	C	24 VAC, Transformer Common Side

**\*NOTE:** THIS THERMOSTAT REQUIRES A 24V COMMON WIRE FOR PROPER OPERATION.

4. After labeling wires, remove wires from terminals.
5. Remove existing thermostat base from wall.
6. Refer to the following section for instructions on how to install thermostat.

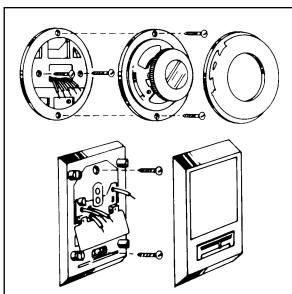
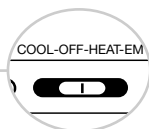
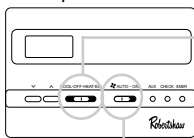



Figure 1

## Installing Model 9520 Thermostat

**NOTE:** FOR NEW INSTALLATIONS, MOUNT THERMOSTAT ON INSIDE WALL, 4-5 FEET ABOVE THE FLOOR. DO NOT INSTALL BEHIND A DOOR, IN A CORNER, NEAR AIR VENTS, IN DIRECT SUNLIGHT, OR NEAR ANY HEAT OR STEAM GENERATING FIXTURES. INSTALLATION AT THESE PLACES WILL AFFECT THERMOSTAT OPERATION.

1. Turn power off to the heating and cooling systems.
2. Place COOL-OFF-HEAT-EM In OFF position.



3. Place  AUTO-ON switch Into AUTO position.
4. Remove the cover using a coin or screwdriver.

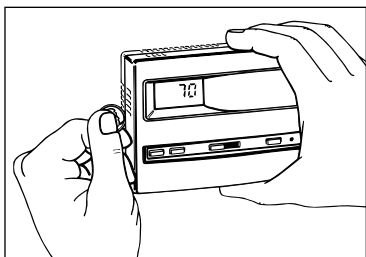
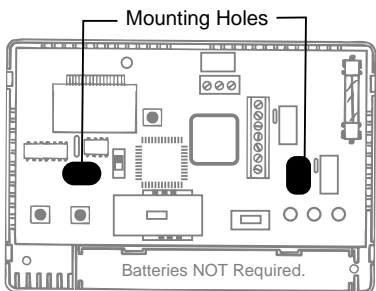


Figure 2

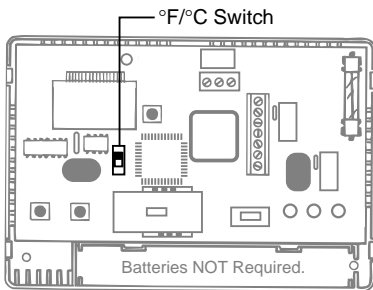
5. Place thermostat against the wall at desired location. Make sure wires will feed through opening on base of thermostat.
6. Mark placement of mounting holes. See Fig. 3.  
Set base aside.



**figure 3**

7. Drill the marked holes using a 3/16" drill bit. **NOTE: Enclosed plastic anchors do not require a drilled hole for drywall.**
8. Tap plastic anchors into the wall.
9. Align base with plastic anchors and feed wires through opening.
10. Secure base to wall with supplied screws.

11. Connect wires to terminal strip. Refer to wiring diagrams on other side of this sheet. Make sure wire connections are secure.
12. Put the °F/°C switch to either °F for Fahrenheit display or °C for Celsius display readout.



**figure 4**

13. Replace cover onto thermostat by snapping into place.
14. Turn on power to system . Test thermostat as described in the following section.

## To Test Thermostat

**WARNING:** DO NOT SHORT (JUMPER) ACROSS TERMINALS OF GAS VALVE OR SYSTEM CONTROL TO TEST OPERATION. THIS WILL DAMAGE THE THERMOSTAT AND VOID YOUR WARRANTY.

**CAUTION:** DO NOT SWITCH SYSTEM TO COOL IF THE TEMPERATURE IS BELOW 50(F (10(C)). THIS CAN DAMAGE THE AIR CONDITIONING SYSTEM AND CAUSE PERSONAL INJURY.

1. Place the COOL-OFF-HEAT-EM switch into the COOL position
2. Press the **▼** button until the temperature setting is at east 3 degrees below the room temperature. The air conditioning system should turn on within a few seconds.

COOL-OFF-HEAT-EM



**NOTE:** When in the COOL mode (or HEAT for single stage heat pumps), once the thermostat turns off, a built in 5-minute delay prevents the system from turning on again. This protects the compressor. No additional time delay relay is required. To override the 5-minute delay for installation, press the reset button.

3. Put the COOL-OFF-HEAT-EM switch into the OFF position. The air conditioning system should turn off.
4. Put the COOL-OFF-HEAT-EM switch into the HEAT position.
5. Press the **▲** button until the temperature setting is at least 3 degrees above room temperature. The heating system should turn on. The fan may not turn on immediately, depending upon the fan delay built into the furnace.

COOL-OFF-HEAT-EM



6. Put the COOL-OFF-HEAT-EM switch into the OFF position. The heating system should turn off. The fan may continue to run for a short period of time .

COOL-OFF-HEAT-EM



7. Put the **☼** AUTO-ON switch to the ON position. The blower fan should turn on.
8. Put the **☼** AUTO-ON switch to the AUTO position. The blower fan should turn off.

COOL-OFF-HEAT-EM



**☼** AUTO - ON



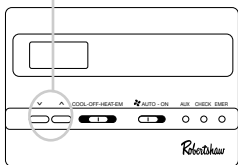
**☼** AUTO - ON



# Operation

## Setting or Changing the Setpoint Temperature

1. Press either the **▼** or **▲** button.  
The display will show the current temperature setpoint.



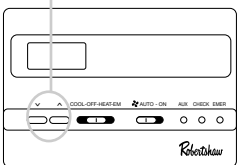
2. Press either the **▼** or **▲** button to adjust the temperature setting either up or down.

The display will return to the room temperature display five seconds after the last input and the new setpoint will be saved.

## Changing Temperature Differential

**IMPORTANT:** The temperature differential is factory set at 1 (1°). This means that whenever the room temperature changes by one half of a degree from the temperature setting, the system will turn on. If the system turns on too often, increase the temperature differential.

1. Press both **▼** and **▲** buttons at the same time and hold for one second. The display will show:



2. Press either the **▼** or **▲** button to adjust the temperature differential up or down.

The display will return to the room temperature five seconds after the last input.

Differential Setting	Degrees
1	1°F/.5°C
2	2°F/1.0°C
3	3°F/1.5°C

## Changing Fahrenheit (F) to Celsius (C)

The thermostat is preset to display the temperature in degrees Fahrenheit. You may change the display readout to Celsius if desired.

1. Move the manual switch marked "F" (Fahrenheit) and "C" (Celsius) located at the top center of the circuit board to the desired setting. (see page 5)
2. Press RESET button located just below the LCD display to register the change.

The display will change to show the temperature in your desired temperature scale. To return the thermostat to its original setting, repeat steps 1 and 2 above.

## LED Indicators

The LED indicators are used to indicate system activity. The AUX indicator illuminates during a call for second stage heating. The auxiliary stages are used to maintain comfort during extremes in weather conditions. If the AUX LED is illuminated too frequently during periods of moderate temperature, check the differential settings (page 6).

The CHECK indicator is used to monitor system status. If the CHECK indicator is illuminated, call your local HVAC service provider.

The EMER indicator is illuminated only when the system switch is moved to the EM, emergency heat position. The EM position is used only when the primary stage of heat is not functioning or requires service.

## Troubleshooting

Symptom	Remedy
Thermostat does not turn on system	Check Wiring (See "INSTALLATION") Check fuse. Replace with 2 amp fuse if fuse has opened.
Thermostat turns on and off too frequently.	Increase Temperature Differential (See "DIFFERENTIAL").
Display is blank, flashing or constant "LO BAT".	Replace batteries.
System fan does not operate properly.	Move fan option switch to either gas or electric, to match system. (See Installation).
Thermostat does not display proper room temperature.	Check "F" Fahrenheit/"C" Celsius switch located at top center of circuit board for proper position. If a new selection is made, press "RESET" button located directly below LCD display.



**If problems with thermostat cannot be solved, call:**

Technical Support: (800) 445-8299

Monday-Friday 7:30-5:30 CST

For warranty returns, send thermostat, shipping prepaid to:

**Uni-Line North America**

Warranty Claims Department

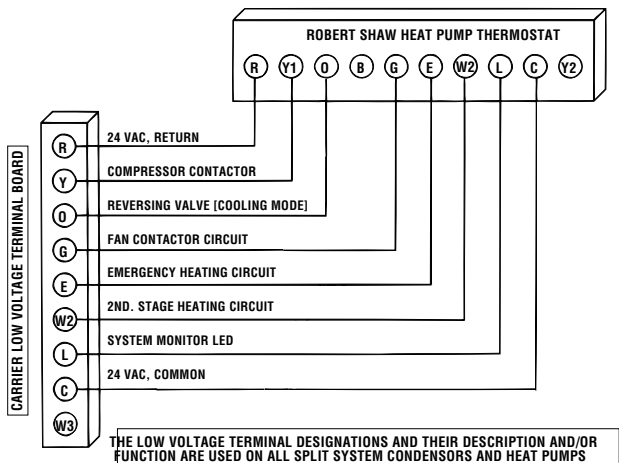
515 S. Promenade

Corona, CA 91719

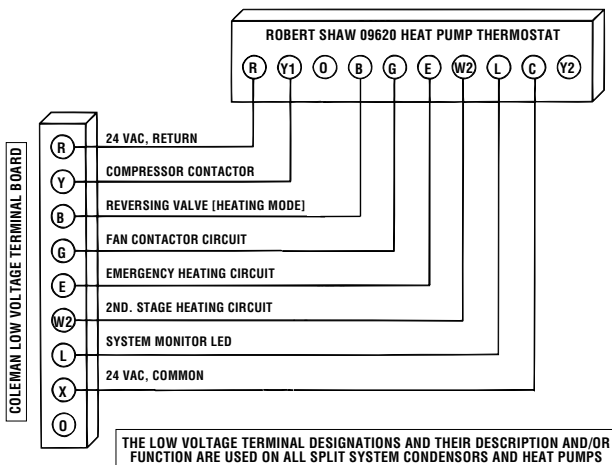
# Wiring Diagrams

The following is just a sample of the most common types of HVAC systems. Refer to your systems installation manual for wiring information.

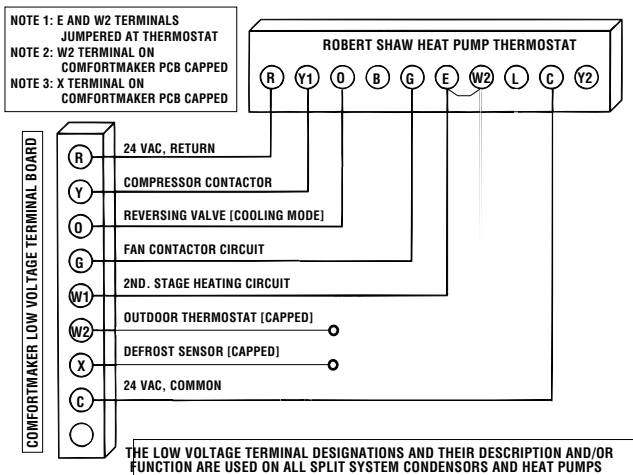
## ROBERT SHAW HEAT PUMP THERMOSTAT CONVERSION TO CARRIER SPLIT SYSTEM CONDENSORS AND HEAT PUMP SYSTEMS



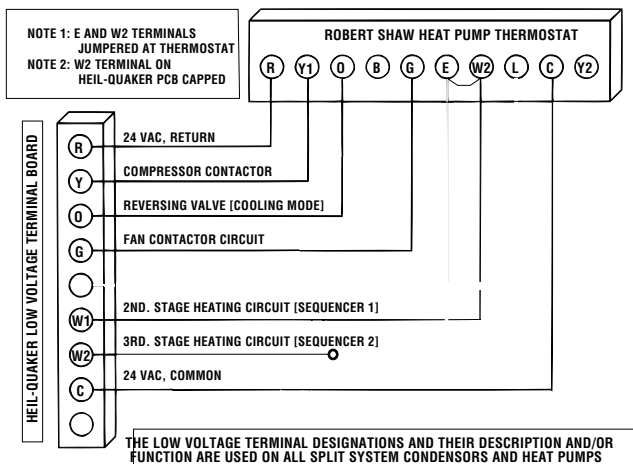
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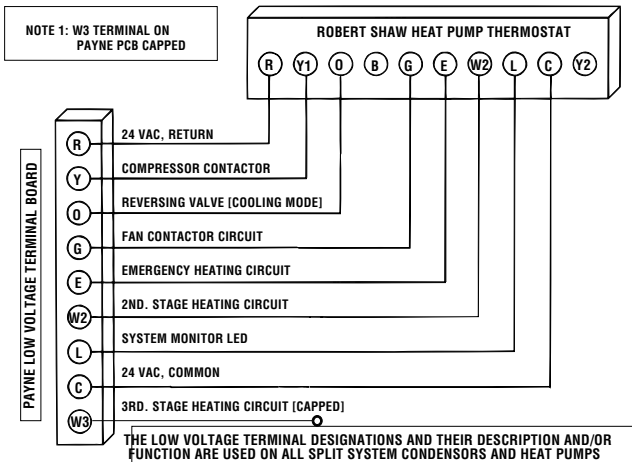
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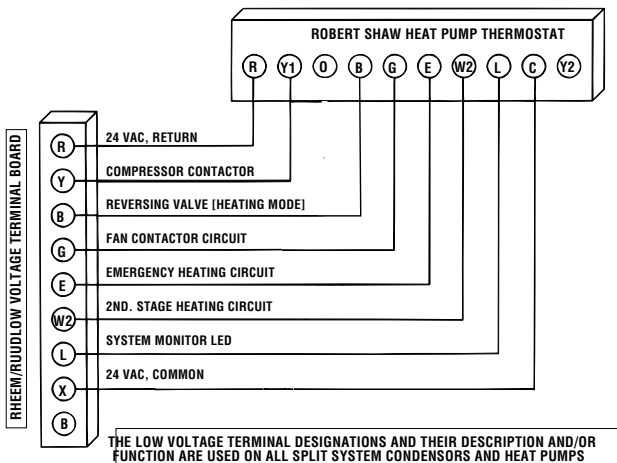
**ROBERT SHAW HEAT PUMP THERMOSTAT CONVERSION TO HEIL-QUAKER  
867.814 SERIES AND PH50 SERIES HEAT PUMP SYSTEMS**



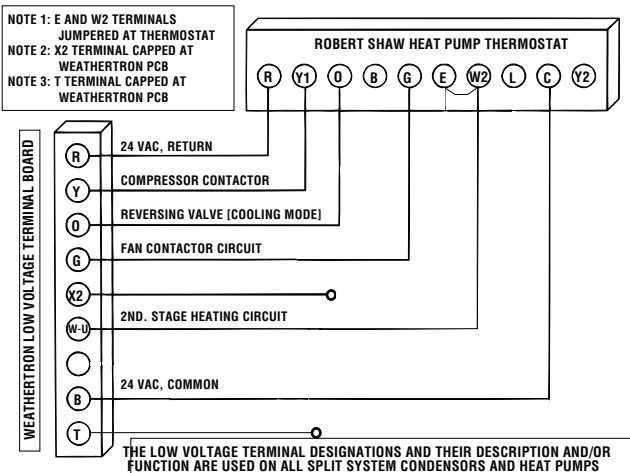
**ROBERT SHAW HEAT PUMP THERMOSTAT CONVERSION TO PAYNE  
RELIANT AND ENDURA MODEL HEAT PUMP SYSTEMS**



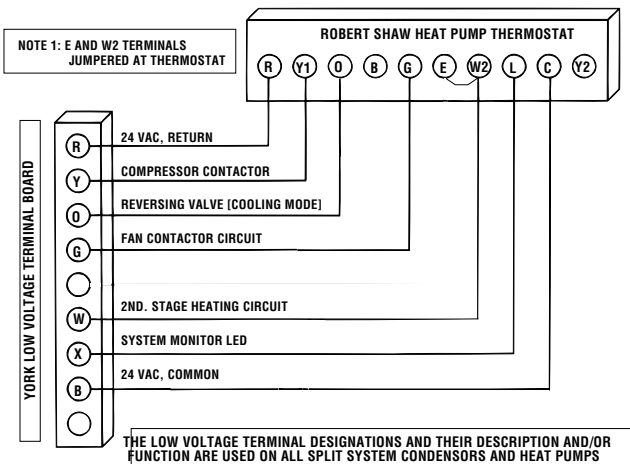
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HEAT PUMP SYSTEMS**



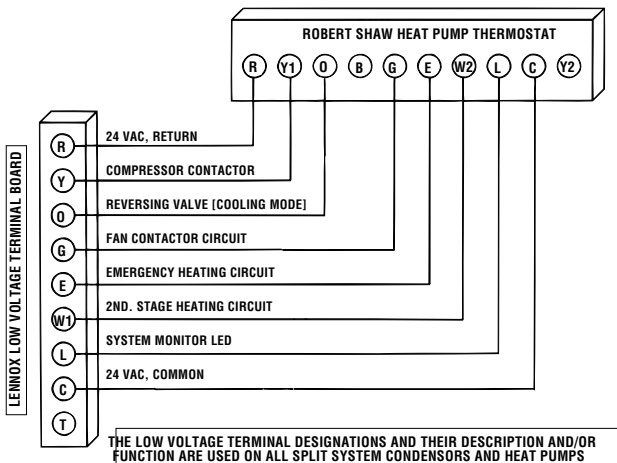
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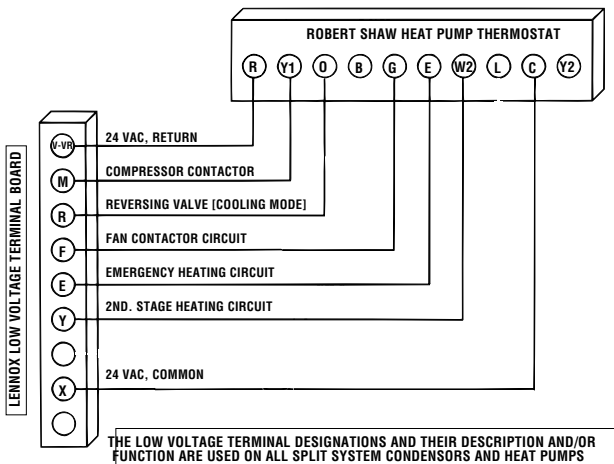
## ROBERT SHAW HEAT PUMP THERMOSTAT CONVERSION TO YORK -E1CS, -E1FB, -E1FH HEAT PUMP SYSTEMS



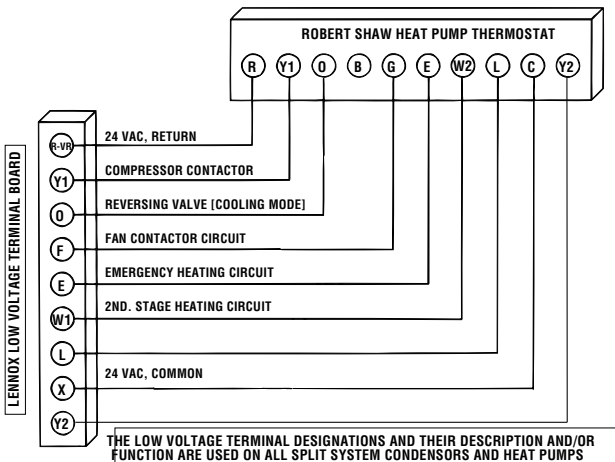
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CB19 HEAT PUMP SYSTEMS**



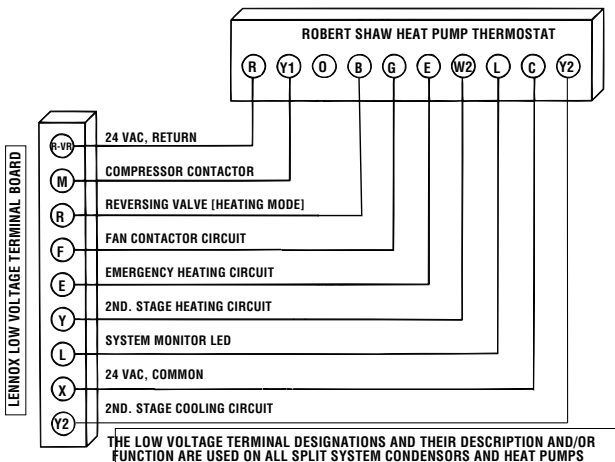
**ROBERT SHAW HEAT PUMP THERMOSTAT CONVERSION TO LENNOX  
HP19 AND HP20 HEAT PUMP SYSTEMS**



**ROBERT SHAW HEAT PUMP THERMOSTAT CONVERSION TO LENNOX  
HP21 WITH CB21 PCB HEAT PUMP SYSTEMS**



**ROBERT SHAW HEAT PUMP THERMOSTAT CONVERSION TO LENNOX  
HP22 WITH CB19 PCB HEAT PUMP SYSTEMS**



## Five Year Limited Warranty

**Maple Chase Company** warrants to the original contractor installer or to the original consumer user, each new Maple Chase thermostat to be free from defects in materials and workmanship under normal use and service for a period of five (5) years from date of purchase. This warranty and our liability does not apply to batteries or the merchandise that has been damaged, caused by misuse, neglect, mishandling, alterations, improper installation, or use in a way other than in accordance with Maple Chase Company recommendations and instructions.

**Maple Chase Company** agrees to repair or replace at its option any thermostat under warranty provided it is returned within the warranty period, postage prepaid, with proof of the date of purchase. Cost of thermostat removal or reinstallation is not the responsibility of Maple Chase Company.

Repair or replacement as provided under this warranty is the exclusive remedy of the consumer. **Maple Chase Company** shall not be liable for any incidental or consequential damages for breach of any express or implied warranty on this product, or under any other theory of liability. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose on this product is limited to the duration of this warranty.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

### **Maple Chase Company**

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