

User's Guide

SMARTWAY SOLUTIONS, INC.

The Talking Thermostat™

US Patent 6,608,560 & 7,142,253

5/2 DAY PROGRAMMABLE

VT1007 - SINGLE STAGE GAS & ELECTRIC

VT2007 - TWO STAGE HEAT/SINGLE COOL

VT2207 - TWO STAGE HEAT/TWO STAGE COOL



The Talking Thermostat is a battery powered heating & cooling digital thermostat control that plays audio information for easy & precise temperature management.

VT1007 Features (VT2007 see pg. 6, VT2207 see pg. 7)

- Operates on single gas, oil or electric heating & cooling systems and heat pump systems without secondary heat.
- "5/2" (weekdays / weekend) programming functionality
- 4 separate time & temperature settings for weekday / weekend
- Stores both heat & cool temperature program settings
- Audio instructions for setting up day/time and temperature programs
- Audio "Help" message available if heating or cooling problem occurs
- Battery powered (4 "AA" alkaline)
- Audio & display screen alert messages for Filter, System Service & Low Batteries
- F or C temperature operation (range 50° F / 10° C to 90° F / 32° C)
- 7 terminals for single or two-transformer systems
- O/B terminals for heat pump systems (without back-up heat only)
- Freeze protection: automatic heat when temperature less than 40° F / 4° C

Optional Capabilities

- Manual or Programmable Operation: Change operation from manual to programmable by pressing the ON/OFF button. "Program is Off" indicates conventional operation and temperature setting adjusts by pressing the UP and DOWN keys. "Program is ON" indicates programmable operation & temperature settings automatically adjusts four times a day.
- Silent or Audio Instructions: Voice instructions for setting Day & Time and Programmable Operation can be turned on or off.
- Off Wall Programming: Front plate of the thermostat can be detached for program setup away from the wall mounted base.

⚠ Cautions!

- To prevent electrical shock and/or equipment damage, turn off power at the main service panel by removing the fuse or switching circuit breaker to OFF position until removal of existing and installation of new thermostat is completed.
- This thermostat must be installed in conformance with all local and national building and electrical codes.
- If two-transformer wiring is used, it must be in phase. Failure to do so may result in personal injury and/or property damage.

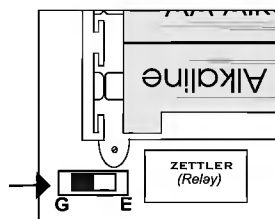
Installation Instructions

Removing Existing Thermostat

- Shut off power to heating & cooling system.
- Remove the front cover of the existing thermostat. Note & label the wiring connections.
- Remove the wires from the terminal.

Installing The Talking Thermostat Base

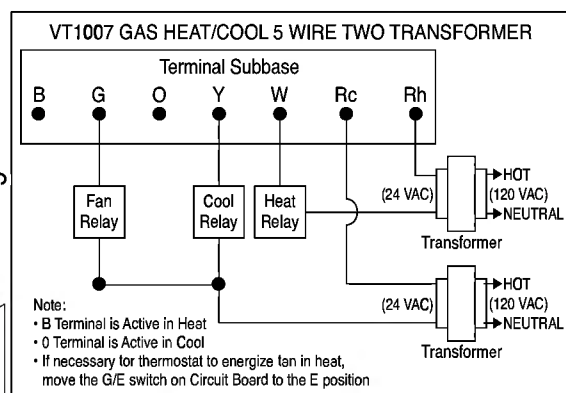
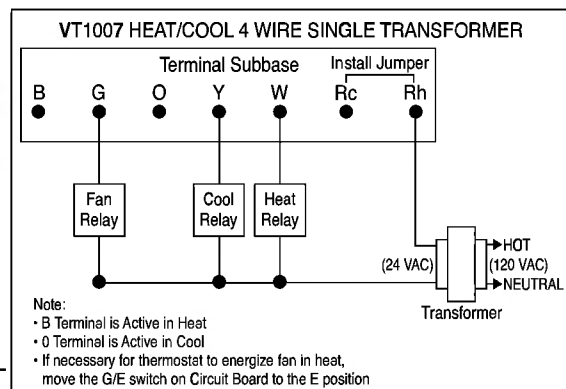
- Remove the thermostat front body by pressing down on the lower edge plastic clip and carefully tilt the front body upward until detached.
- Move the slide switch located on the back of the circuit board to the "E" (Electric) position if the thermostat is required to energize the fan when calling for heat.
- Level the base against the wall where it will be mounted. Make sure the wires will feed through the opening. Mark the mounting hole locations.



- Remove the base and using a 3/16" bit, drill the mounting holes. Fasten the base to the wall using the included anchors and screws, making sure base is level.
- Attach the wires to the terminals according to the appropriate wiring diagrams: (VT 2007 see pg. 6, VT 2207 see pg. 7)

Note: Electric Heat and/or Hot Water Furnaces should be wired for Single Transformer Systems Only. Always refer to the equipment manufacturer's wiring instructions.

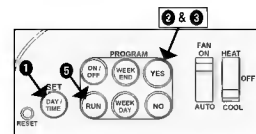
Caution! Do not connect Common, will damage thermostat! Cap Common wire with wire nut.



- Install four "AA" alkaline batteries into the battery compartment in direction as shown on circuit board diagram (i.e. "flat" negative battery end faces towards the spring).
- Line up the base pins with the front cover slots and push the top into place.

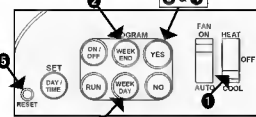
Setting Day and Time

- Pull down the curved panel door and press the DAY/TIME button.
- Press the YES button when asked if you wish to change the day or time settings.
- Press the YES button when asked if you wish voice instructions.
- Press the UP or DOWN Keys (next to display screen) to make changes to minutes, hours and day settings.
- Press the RUN button to accept changes until "Program Completed" is heard.



Setting Program Operation Times & Temperatures

- Pull down the curved panel door and move slide switch to the HEAT or COOL position (the audio will remind you if the switch is in the middle "OFF" position).
- Press the WEEKDAY button to program M-F. Press the WEEKEND button to program Sat & Sun.
- Press the YES button when asked if you wish to change the program.
- Press the YES button when asked if you want voice instructions. Follow the voice instructions to set the time and temperature for WAKE, DAY, EVE and SLEEP time periods.
- Note: To Review or Skip Program Settings - Press the NO button at the beginning of each time period to quickly advance to the next time period.



- Programming setup can be discontinued at anytime by briefly pressing the RESET button. This voids any changes made and your previous settings will remain as before.
- Note: Remember to program both HEAT (winter) and COOL (summer) settings. The Talking Thermostat is now programmed and when you hear "Program is ON" (when the ON button pressed) the thermostat will automatically change the temperature setting four times each weekday (M-F) and each weekend (Sat-Sun). The following table shows the default settings recommended by ENERGYSTAR® for maximum energy savings and space to note your custom settings:

WEEKDAY	TIME	DEFAULT SETTINGS		CUSTOM SETTINGS		
		HEAT F/C	COOL F/C	TIME	HEAT F/C	COOL F/C
WAKE	6 AM	70/21	78/26			
DAY	8 AM	62/17	85/29			
EVE	6 PM	70/21	78/26			
SLEEP	10 PM	62/17	85/29			
WEEKEND	TIME	HEAT F/C	COOL F/C	TIME	HEAT F/C	COOL F/C
WAKE	6 AM	70/21	78/26			
DAY	8 AM	62/17	85/29			
EVE	6 PM	70/21	78/26			
SLEEP	10 PM	62/17	85/29			

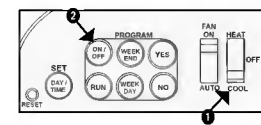
Changing to Fahrenheit (F) or Celsius (C)

Pull down the curved panel door and press the YES and NO buttons together until temperature display changes from F to C (or C to F).



Running Programmed Operation

- Pull down the curved panel door and slide the switch into COOL or HEAT position. "COOL" or "HEAT" will display on the screen when operating.
- Press the ON/OFF button. When you hear "Program Is On" & "PROG/ON" appears on the screen, the thermostat runs programmed settings.



Locking Out Programmed Operation

Programmed Operation is locked out by pressing and holding the NO and ON/OFF buttons for 6 seconds. To unlock, again press and hold the NO and ON/OFF buttons for 6 seconds.



Locking Out All Operations

To lock out all operations (except REPORT and HELP buttons) press and hold YES and HELP buttons until you hear "OFF". To unlock, press and hold YES and HELP buttons until you hear "O".

Temporary Program Override

To temporarily override the programmed temperature press the UP or DOWN key and OVERRIDE is displayed. To cancel press RUN. When the next time period occurs it will revert to programmed settings.



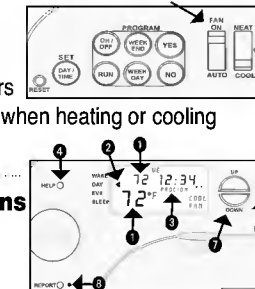
Manual Operation

- Pull down the curved panel door and slide the switch into COOL or HEAT position. "COOL" or "HEAT" will display on the screen when operating.
- Press the ON/OFF button. Operation is manual when "Program is Off" is heard & "PROG/OFF" displayed.
- Press the UP and DOWN keys to adjust temperature settings (see previous diagram).



Fan Operation

Set the FAN switch to ON or AUTO. In the ON position the fan continually runs and "FAN" appears on the screen. In AUTO position the fan only runs when heating or cooling is operating.



Display Screen Features & Case Buttons

- The large number on the display screen is the indoor temperature. The upper small number is the temperature setting (also called "set point").
- The arrow indicates program time period.
- PROG ON indicates programmable operation. Press ON/OFF button toggles to PROG OFF that indicates manual operation.
- HELP button plays audio message on how to get service assistance.
- REPORT button plays audio of current indoor temperature and temperature setting (set point).
- LIGHT button turns on back light.
- UP & DOWN keys adjust temperature setting.
- Alert flashes when CHK FLT, LO BAT or CFS is displayed.

CHK FILT (Check Filter) on Display Screen

Appears when it's time to clean or replace the air filter. REPORT button plays audio reminder & removes CHK FLT from screen. To manually reset to 1, press and hold YES for 6 seconds. Also resets the CFS alert for Air Purification / UV Light.



CFS (Call For Service) on Display Screen

Display screen alternates between CFS and Set Point temperature when it's time for 1) System Service or 2) Air Purification System / UV Light Service. To hear which alert it is, press the REPORT button. To clear the System Service alert, press the NO button for 6 seconds. To clear the Air Purification System alert, press YES button for 6 seconds.



Filter (CHK FILT), System Service (CFS) and Air Purification/UV Light (CFS) - Setting Options

- CHK FILT and CFS can be set to appear by either:
- MONTHS: from 0 to 24
 - HOURS (of Operation): from 0 to 3000
- Factory default settings:
- FILTER CHECK: MONTH 1 (HOURS 400)
 - SERVICE CHECK: MONTHS 6 (HOURS 1500)
 - AIR PURIFICATION / UV LIGHT: MONTHS 0 (HOURS 0)

Adjusting Filter and CFS Settings - MONTH Settings

- To change the number MONTHS for CHK FILT and CFS:
- Press and Hold NO and WEEKDAY buttons until the Temperature Setting displays FP (Filter Period) 01
 - Press the UP key to increase FP MONTHS
 - Press the RUN button. Display changes to SP (Service Period) 06
 - Press the UP or DOWN key to change SP MONTHS
 - Press the RUN button. Display changes to ULP (UV Light Period) 0 (zero). Note: If left at zero, UV Light feature not active
 - Press the UP key to increase ULP MONTHS
 - Press the RUN button to finish

Adjusting Filter and CFS Settings - (Optional) HOURS Settings

- For HOURS of operation (instead of MONTHS) enter "0" (zero) as number MONTHS (see above section) and then press RUN.
- Display changes to FH (Filter Hour) 04 00 (400 HOURS)
- Press UP or DOWN key to change Filter HOURS. Note: If set to HOURS 0 (zero), CHK FILT is not active (useful for boiler systems without air filters).
- Press the RUN button and display changes to SH (Service HOURS) 15 00 (1500 HOURS)
- Press the UP or DOWN key to change
- Press the RUN button and display changes to ULH (UV Light HOURS) 0 (zero HOURS). Note: if set HOURS 0 (zero) ULH is not active.
- Press the RUN button to finish

Reviewing Filter & CFS Run Time – MONTHS / HOURS

- Press and hold NO first then WEEKEND and hold down together until set point temperature displays FP (Filter Period) or FH (Filter Hours). The total number of operating months or hours is displayed.
- Program will automatically advance to SP (Service Period) or SH (Service Hours). The total number of operating months or hours is displayed.
- Program will automatically advance to ULP (UV Light Period) or ULH (UV Light Hours). The total accumulated months or running hours is displayed. TIP! To quickly review all settings press and hold NO first then WEEKEND (per #1 above). When FP or FH appears, press YES to view all current settings.

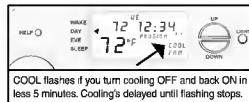
LO BAT (Low Battery) on Display Screen

Appears when battery power is running low. Alert light flashes and REPORT button plays audio reminder to replace batteries. Remove front plate and replace with four new AA alkaline batteries.



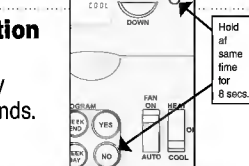
COOL & DELAY (Flashing) on Display Screen

COOL & DELAY “flashes” when cooling is turned off and back on in less than 5 minutes. Cooling is delayed until COOL & DELAY stops flashing to prevent compressor damage.



Disable Compressor Short Cycle Protection

⚠ Caution! Disabling Compressor Short Cycle Protection can damage compressor. Simultaneously press the Light button and the NO button for 8 seconds. Compressor lock out is disabled for 10 minutes.



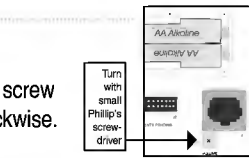
Voice On/Off

- Press and hold the UP key for 8 seconds to turn on the voice on when changing setpoint temperature.
- Press and hold the DOWN key for 8 seconds to turn off the voice off when changing setpoint temperature.



Volume Control

Audio volume can be decreased by turning the small screw (located in lower right corner of the circuit board) clockwise. Turn counter-clockwise to increase volume.



Version Number Audio Playback

Press the LIGHT button for 7 seconds for audio playback of the software version.



Calibrate Indoor Temperature

Press the UP and DOWN keys together and hold until Indoor Temperature starts to flash. Release. Press the UP or DOWN key to raise or lower Indoor Temperature to the desired setting. When finished press RUN.



NOTE: Maximum calibration is + / - 4° F or + / - 2° C.

Setting Cycle Rate

Cycle Rate is the temperature range around the set point that HEAT or COOL will turn ON and OFF. Press the UP and DOWN keys together and hold until Indoor Temperature starts to flash. Release. Press BOTH again until CR1 appears in setpoint location. Press UP or DOWN key to move to the desired setting. Press RUN. CR1 will appear here.



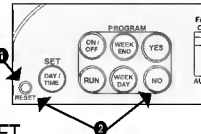
NOTE: CR1 = 1 Degree (Factory Default & Suggested Setting)

- CR2 = 2 Degrees
- CR3 = 3 Degrees

Reset Key

The RESET key has two functions.

- To Escape Program Mode: If during programming you get lost or wish to quit, press RESET. You will exit the programming mode without any program changes.
- “FFr”. (To Escape Faulty Operation or Lockup): Static discharge can occasionally cause faulty thermostat operation or lock up. To correct press the NO and RESET buttons together until FFr appears & then the display disappears. When it reappears press the RUN button to accept the FLASHING INDOOR TEMPERATURE.



VT2007 Talking Thermostat Single Stage Cooling, Two Stage Gas, or Electric Heat Heat Pump w/ Auxiliary Heat - No Outdoor Thermostat 24Volt Single Transformer Systems Only

The first stage of heating and cooling has the same features and operation as the single stage VT1007.

In 1st stage the display screen HEAT icon will shine steady. In 2nd stage the display screen HI icon appears with the HEAT icon.

The VT2007 operates at first stage heat for 8 minutes before advancing to the 2nd stage (if demand requires - HI and DELAY icons flash). The thermostat can then cycle between stages (as demand requires) without any time delay.

Note: To change delay time from 8-minutes to 1-minute slide the HEAT-COOL switch to OFF and then press the YES and RUN buttons together for 10 seconds. To restore the 8-minute delay perform a “FFr” Reset (see Reset Key section on page 6 - above).

Changing 2nd Stage Differential on the VT2007

See “2nd Stage Differential Setting Table” on page 7 (bottom of page).

For 2 stages of heat, wire 2nd stage of heat from W2 on the furnace or blower coil units to W2 on the thermostat subbase.

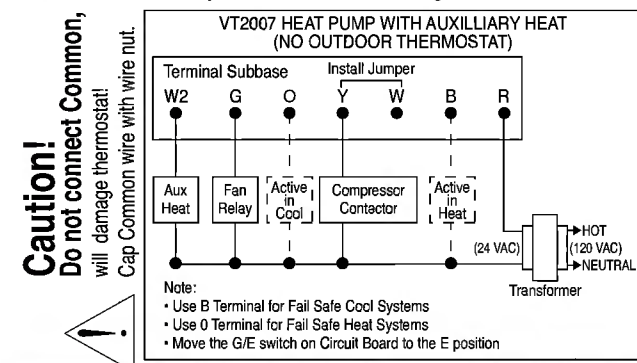
For heat pump or electric heating systems, move the Gas/Electric slide switch on circuit board to the “E” (Electric) position (See diagram page 1).

Heat Pump Operation (Heat Pump Wiring Diagram)

To use with a heat pump system, install a jumper wire between the “Y” and “W1” terminals on the thermostat sub base.

For “Fail Safe Heat” systems, wire the reversing valve to the “O” terminal.

For “Fail Safe Cool” systems, wire the reversing valve to the “B” terminal.



Activating Emergency Heat Only On Heat Pump Systems

Should something go wrong with your heat pump (1st Stage), such as a broken fan blade, you can shut down the heat pump and operate on auxiliary heat only until service is available.

To turn on Emergency Heat press and hold YES and RUN buttons until HEAT icon flashes and Eon & Set Point temperature alternatively flash. To turn off emergency heat, press and hold YES and RUN buttons again until Eof briefly flashes and then only Set Point displays.

Note!! The Emergency Heat feature (Eon) will not operate with systems that use an outdoor thermostat.

VT2207 Talking Thermostat Two Stage Gas, or Electric Heat With Two Stages of Cooling 24Volt Single Transformer Systems Only

The first stage of heating and cooling has the same features and operation as the single stage VT1007.

In 1st stage the display screen HEAT or COOL icons will shine steady. In 2nd stage the display screen HI (high) icon will appear with the HEAT or COOL icons.

HEAT 2-Stage Operation - See VT2007 Two Stage Gas or Electric Heat instructions on (previous) page 6.

COOL 2-Stage Operation

The VT2207 operates at first stage for 5 minutes before advancing to the 2nd stage (if demand requires - HI and DELAY icons flash). 2nd stage is activated if the difference between indoor temperature and temperature setting is greater than the differential setting.

2nd stage turns off (opens) .5 (1/2)° F above the temperature that 1st stage is set to deactivate. This is true regardless of the 1st stage Cycle Rate (Cr1, Cr2 or Cr3) selected (see page 5, Setting Cycle Rate section).

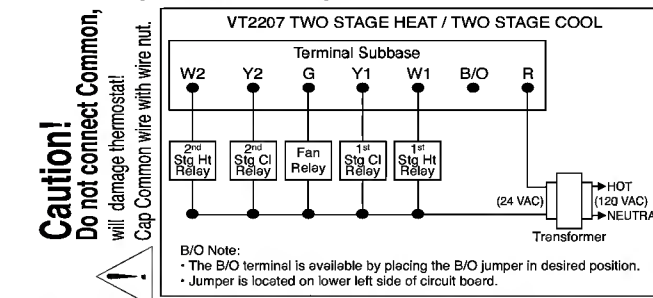
After initial start up 2nd stage can cycle ON and OFF without a 5-minute delay as long as 1st stage has not cycled OFF (there is a short delay of 4-12 seconds before 2nd stage cycles back ON).

Note: Each time 1st stage starts a new cycle 2nd stage is delayed for 5 minutes.

2nd stage comes ON based on the 1st stage ON temperature.

Changing 2nd Stage Differential on the VT2207

See “2nd Stage Differential Setting Table” below



Note: The VT2207 is not designed for use on Heat Pump Systems

2nd Stage Differential Setting Table (Applies Only to VT2007 and VT2207)

Press and hold the UP and DOWN keys together until the indoor temperature display starts to flash. Release, press and hold again until “Cr1” appears at the Set Point location on the display. Release, press and hold again until “2n2” appears. Press the UP or DOWN keys to change the 2nd Stage differential setting. Press the RUN button to accept change.

NOTE: The 2nd Stage differential is the selected 2nX setting below the HEAT (above the COOL) 1st stage Cycle Rate setting. Available differential settings are:

Differential Setting	2 nd Stage ON °F (°C) Differential from 1 st Stage	2 nd Stage OFF °F (°C) Differential from 1 st Stage	Comment
2n0	Never On	Always Off	Use on Single Stage Systems
2n1	0.5° F (.025° C)	0.5° F (.025° C)	
2n2	1.0° F (.50° C)	0.5° F (.025° C)	Default Setting
2n3	1.5° F (.75° C)	0.5° F (.025° C)	
2n4	2.0° F (1.0° C)	0.5° F (.025° C)	
2n5 (for Elect Heat)	1.0° F (.50° C)	Same as 1 st Stage	2 nd Stage Runs until 1 st Stage Off
2n6 (for Elect Heat)	2.0° F (1.0° C)	Same as 1 st Stage	2 nd Stage Runs until 1 st Stage Off
2n7 (for Dual Fuel)	1.0° F (.50° C)	Same as 1 st Stage	VT2007 Only* (locks out 1 st Stg)
2n8 (for Dual Fuel)	2.0° F (1.0° C)	Same as 1 st Stage	VT2007 Only* (locks out 1 st Stg)

*Important Note: Only the VT2007 has the 2n7 and 2n8 settings for use on Dual Fuel Heat Pump (Hybrid) Systems. When 2nd Stage is active 1st Stage is locked out. 2nd Stage will run without 1st stage until the temperature setting is satisfied.

Troubleshooting Information

Problem	Possible Solutions
1. Display's blank, no audio	Check batteries. If bad replace. If good, rotate to improve contact to battery posts.
2. Display's blank, has audio	Press RESET button for 7 seconds. If screen is still blank contact seller for warranty return.
3. Display on, won't operate	Move FAN switch to ON position. If no blower, check for 24V power. If single transformer system, make sure jumper is between RH & RC terminals.
4. System won't turn on	Check wiring (see diagrams provided).
5. Incorrect indoor temperature reading	Allow 30 -40 minutes to stabilize room temperature. If still incorrect calibrate by pressing UP & DOWN keys together and hold until Indoor Temperature starts to flash. Release. Press the UP or DOWN key to raise or lower until correct temperature is displayed. To accept change, press the RUN button.
6. Incorrect programmed times & temperature settings	Press WEEKDAY button and review each time period's settings. Press NO to quickly advance to next time period. Press WEEKEND button & repeat.
7. Thermostat doesn't follow program settings	Check if program is off (display shows “PROG/OFF”) Check that HEAT and COOL have been programmed Check time setting is correct (especially AM & PM).
8. Cooling won't come on	If COOL icon is flashing, cooling will come on in 5 min. Lower temperature setting below indoor temperature. COOL icon should appear and you'll hear relay “click” If still no cooling check wiring or system (3&4 above). If still no cooling press HELP for service.
9. Heating won't come on	Raise temperature setting above indoor temperature. HEAT icon should appear and you'll hear relay “click” If still no heat check wiring or system (3&4 above). If still no heat press HELP for service.
10. Warranty & Service Info	Press the HELP button for audio information.

One Year Limited Warranty

SmartWay Solutions Inc. warrants the original buyer each new SmartWay Solutions thermostat to be free from defects in material and workmanship under normal use for a period of one year from date of purchase. This warranty and our liability does not apply to batteries or damage caused by incorrect use or installation that is not in accord with SmartWay Solutions instructions.

SmartWay Solutions, Inc. agrees to repair or replace at its option any thermostat covered by this warranty provided it is returned within one year of purchase with copy of purchase receipt. SmartWay Solutions, Inc. is not responsible for the removal and reinstallation of the thermostat.

Repair or replacement is the sole remedy of the buyer, SmartWay Solutions, Inc. is not liable for any incidental or consequential damages for breach of any express or implied warranty on this thermostat, or under any other theory of liability, merchantability or fitness for a particular purpose 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.

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